

# **The Data Collection Survey for Strengthening Framework of Operation and Implementation of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative (MIDI)**

## **Final Report**

**JULY 2022**

**Japan International Cooperation Agency (JICA)**

**International Development Center of Japan Inc.**

**Padeco Corporation**

**Pacific Consultants International**

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**People's Republic of Bangladesh**

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### Abbreviation

ADB	Asian Development Bank
ADP	Annual Development Programme
BIG-B	Bay of Bengal Industrial Growth Belt
CFS	Container Freight Station
CTT	Coal Transfer Terminal
DC	Deputy Commissioner
DPP	Development Project Proposal
ECA	Energy Conversion Agreement
EEC	Eastern Economic Corridor
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESG	Environment, Social, Governance
ESB	Eastern Seaboard
FSRU	Floating Storage and Regasification Unit
FTP	Fast Track Project
FYP	Five Year Plan
GCB	General Cargo Berth
GSMP	Gas Sector Master Plan
ICD	Inland Container Depot
IDP	Integrated Development Plan
IEPMP	Integrated Energy and Power Master Plan
LNG	Liquefied Natural Gas
MIDI	Moheshkhali Matarbari Integrated Infrastructure Development Initiative
MIDI MP	MIDI Master Plan
NEP	National Energy Policy
NESDB	National Economic and Social Development Board
PSMP	Power System Master Plan
SCRDP	Southern Chattogram Regional Development Project
SEA	Strategic Environmental Assessment
SDGs	Sustainable Development Goals
SDP	Sector Development Plan
USC	Ultra Super Critical (Steam Condition)
WAP	Ward Action Plan

### Organizations

BEZA	Bangladesh Economic Zone Authority
BIDA	Bangladesh Investment Development Authority
BBA	Bangladesh Bridge Authority
BMRC	Budget Management Resource Committee
BPC	Bangladesh Petroleum Corporation
BPDB	Bangladesh Power Development Board
BR	Bangladesh Railways

CDA	Chittagong Development Authority
CoxDA	Cox's Bazar Development Authority
CPA	Chittagong Port Authority
CPGCBL	Coal Power Generation Company Bangladesh Ltd
ECNEC	Executive Committee of the National Economic Council
EMRD	Energy and Mineral Resources Division, Ministry of Power, Energy & Mineral Resources
ERD	External Resource Division
FD	Finance Division, Ministry of Finance
GTCL	Gas Transmission Company Limited (Under Petrobangla)
IMED	Implementation and Monitoring and Evaluation Division, Planning Commission
IRD	Internal Resource Division, Ministry of Finance
JETRO	Japan External Trade Organization
LGD	Local Government Division, Ministry of Local Government, Rural Development and Cooperatives
LGED	Local Government Engineering Department, Local Government Division, Ministry of Local Government, Rural Development and Cooperatives
MIDI-Cell	Moheshkhali Matarbari Integrated Infrastructure Development Initiative-Cell
MIDI CC	MIDI Coordination Committee
MINCOM	Ministry of Commerce
MINLAND	Ministry of Land
MoDMR	Ministry of Disaster Management and Relief
MoEFCC DoE	Department of Environment, Ministry of Environment, Forests, and Climate Change
MoEFCC DoF	Department of Forest, Ministry of Environment, Forests, and Climate Change
MoIND	Ministry of Industries
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
MoPTIT	Ministry of Post, Telecommunications and Information Technology
MoR	Ministry of Railway
MoS	Ministry of Shipping
MoWR	Ministry of Water Resources
MPEMR	Ministry of Power, Energy & Mineral Resources
PD (MPEMR)	Power Division, Ministry of Power, Energy & Mineral Resources
PD (Planning Commission)	Programming Division, Planning Commission
PGCB	Power Grid Company Bangladesh
PMO	Prime Minister Office
PPPA	Public Private Partnership Authority
RAJUK	Rajdhani Unnayan Kartripakha (Capital City Development Authority)
RTHD	Road Transport and Highways Division, Ministry of Road Transport and Bridges
RPGCL	Rupantarita Prakritik Gas Company Limited (Under Petrobangla)

## Summary

### Chapter 1 Introduction

#### 1.1 Background of the Survey

The BIG-B Initiative is regional development concept accelerating industrial agglomeration along the Dhaka-Chattogram-Cox's Bazar belt area and beyond to lead socio-economic growth of Bangladesh. The Bangladesh Government intends to attract large-scale foreign direct investments for further economic development and industrial locations at BIG-B and decides to implement “Moheshkhali-Matarbari Integrated Infrastructure Development Initiative (MIDI)” as a core development of BIG-B at Matarbari and Moheshkhali Islands and surrounding areas at Moheshkhali Sub-district and Chakaria Sub-district of Cox’s Bazar District. Currency, many projects including power plants, energy base, economic zones (EZs), roads, railway and urban development are planned by implementing ministries/divisions and some of them have already been implemented and some are completed its construction.

The Bangladesh government has established MIDI Coordination Committee (MIDI CC) and MIDI-Cell. MIDI CC to expedite decision-making and coordination among the implementing ministries/divisions. It is currently required to strengthen the functions of both organizations to accelerate MIDI especially by formulating a cross-sectoral MIDI master plan (MIDI MP) and improving a mechanism to supervise the implementation of MIDI MP, coordinate between sectors, and coordinate development proposals for various development including private investments.

#### 1.2 Objectives of the Survey

Under the background mentioned above, this survey aims to examine and propose the development of systems and mechanisms for promoting MIDI, and to examine and propose the way to develop MIDI MP and sector plans in line with MIDI MP.

### Chapter 2 Reviewing MIDI Operation and Implementation Framework

#### 2.1 Current Situation

MIDI is an integrated infrastructure development initiative for the BIG-B agreed at the Japan-Bangladesh Summit in September 2014. Its implementation framework consists of the MIDI Coordinating Committee (MIDI CC) established June 2018, the MIDI-Cell established October 2018 and the implementing ministries/divisions.

##### 2.1.1 MIDI Coordination Committee (MIDI CC)

According to the minutes of the first meeting of the MIDI CC, the Chair, the Chief Coordinator for SDGs in the Prime Minister's Office, outlined the importance of the MIDI CC as follows:

- MIDI is an important undertaking for the overall development of Bangladesh.

- MIDI is included in the Fast Track project under the supervision of the FTP Monitoring Committee chaired by the Prime Minister. Therefore, MIDI's activities are directly supervised by the Prime Minister.
- All activities related to projects in the MIDI region are included in MIDI.

The MIDI CC has met 13 times to date and serves as a forum for information sharing, issue recognition, consultation, interest alignment, and decision making among implementing ministries/divisions through progress reporting on MIDI projects.

#### 2.1.2 Member Organizations of the MIDI CC

Standing members of the MIDI CC are the Principal Coordinator for SDGs in the Prime Minister's Office (Chair), the PMO, Bangladesh Economic Zone Authority, Power Division, Energy Division, Ministry of Water Resources, Road Transportation & Highway Division, Ministry of Shipping, Ministry of Industry, Ministry of Commerce, Local Government Division, Chittagong Division, Cox's Bazar District, Director General/SRCC, PMO, and Ministry of Land. In addition, JICA participates in almost every meeting of the MIDI CC.

#### 2.1.3 Operation of MIDI CC

The following issues have been mainly discussed at the meetings

- Issues related to discrepancies between project plans (e.g., overlapping of sites)
- Resolving factors impeding project progress
- Possibility of TOR and gazette of the MIDI CC
- Organization and sharing of information on the progress of MIDI projects
- Common format for monitoring
- Focal point meetings among implementing ministries/division

The Chair's decision on these issues is the common understanding of the MIDI CC based on the Chair's rulings, and it is recognized by the participants that these rulings serve as guidance to the ministries/divisions. However, it does not mean that it has binding force under law or other regulations.

#### 2.1.4 MIDI-Cell

The scope of work is specified in the PMO Circular (9/Feb./2021). So far, the main tasks have been:

- Setting up MIDI CC meetings, compiling and preparing meeting documents, and preparing and sharing minutes.
- Project monitoring
- Consolidation of Sector Development Plans (SDPs) and preparation of MIDI MP
- Coordination of overlapping issues related to project sites

There are three members of MIDI-Cell staff, including the Director-General. However, it will absolutely be necessary to further expand the staff, in light of the expected increase in the MIDI-Cell's work,

#### 2.1.5 Necessity of a MIDI MP

The MIDI MP is essential for the smooth implementation of MIDI in the future. The following four points are of particular significance:

- Ensuring a common understanding among the implementing ministries/divisions of the overall picture of MIDI
- Coordination among implementing ministries/divisions on the interrelationships and priorities of MIDI projects
- Basis for securing budgets for MIDI projects
- Promotion of understanding of MIDI among potential investors, local people, and donors

## 2.2 Types of Implementation Framework for Integrated Infrastructure Development

### 2.2.1 Three Types of Implementation Framework

There are many examples of integrated infrastructure development in various countries, starting with the Tennessee River Basin Development Project in the United States in 1933. It has been implemented for the following purposes: (1) to promote development in economically backward areas under direct national control, and (2) to concentrate development in specific areas as a national strategy. The implementation framework varies depending on the timing, regional characteristics, national financial situation, and relationship with local administration. They can be broadly classified into the following three types.

	Features	Example
Centralized type	The national government forms area-specific organization for development aside from local administrative system. Such organization is responsible for planning, budgeting, and project implementation in its area of jurisdiction.	Tennessee Valley Authority, USA Hokkaido Development Agency, Japan RAJUK Chattogram Development Authority Cox's Bazar Development Authority
Hybrid type	The national government prepares integrated plans and coordinates with related agencies, while individual projects are carried out by ministries and local governments.	Okinawa Development Agency, Japan New Industrial City Development, Japan Eastern Economic Corridor, Thailand
Decentralized type	The national government prepares broad guidelines, and individual projects are planned and implemented by ministries and local governments in accordance with the guidelines.	Kajima Seaboard Development MIDI at present

### 2.2.2 Summary of Examples and Their Implications to MIDI

The table below shows summary of performance and challenges in different types (centralized, hybrid and decentralized) of implementation frameworks for multi-sector infrastructure development.

Table 1 Performance and Challenges in Different Types of Implementation Systems for Multi-sector Infrastructure Development

Function	Centralized type Typical example: Bangladesh RAJUK		Intermediate type Typical example: Thailand EEC		Decentralized type Typical example: Japan's NICD	
	Performance	Challenge	Performance	Challenge	Performance	Challenge
Organizational operation	Consistently manage planning, implementation, and monitoring for specific fields (city	Difficult to coordinate with organizations and businesses outside of a	Within the designated area, the authority for planning and monitoring is concentrated in the committee	Flexibility is unknown after the transition to legal-based management.	Stable operation through a system of lead ministries and EPA Make full use	They are more rigid to social-economic changes because they are enacted on the basis of a

	development). Flexibly operates as an independent administrative organization. There is no division-specific system.	specific field.	directly under the prime minister. Implementation is shared by each ministry.		of the local administrative and financial systems.	wide range of development-related laws, regulations, and budgetary systems rather than on the basis of political initiative.
Plan	Integrity and planning within RAJUK are sufficient.	City planning in an opaque overall Dhaka’s strategy for economic and infrastructure development	Policy research and planning that embody national strategies and anticipate policy needs	There is little replicability because it is the development of national determination. It is in the transition from the government-led development to the private-led development.	Government guidelines and planning targets respecting the vitality of the private sector and local autonomy. Capacity building at the local level for planning and implementation through the planning and implementation process	Unified plan based on national financial measures (especially the subsidy system)
Financial resource measures	MoHPW Utilities secures budgets and allocates them flexibly within the boundaries.	Future challenges are whether the current budget system, which depends on the budget of MoHPW, can deal with the rapid urbanization of Dhaka.	Budget by the Budget Bureau for each ministry. However, for the upstream portion of policies and projects, the Budget Bureau will directly allocate them to the EEC Policy Committee Office to ensure the overall direction.	There is no particular problem with sectionalism organizations.	In addition to the regular budget request from each ministry, the prefectural government requests the budget through the EPA	Planning of funding measures and allocation of subsidy dependencies.
Implementation	Consistently implement planning and implementation within RAJUK's responsibilities.		Supported by each ministry	Notably no problems	Implemented by each ministry and prefecture.	No problems, in particular.
Monitoring		Notably no problems	The EEC Policy Committee Office frequently monitors the implementation status of each	Notably no problems	The prefectural government and the EPA monitor the progress and report it to the National Land	Notably no problems



			ministry.		Council.	
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Source: JST

Throughout the analysis of the examples of other multi-sectoral infrastructure development project, it is realistic for MIDI to strengthen cross-sectoral linkages within the vertical divisional organizations at present, taking advantage of the current structure in Bangladesh. The basic direction to strengthen MIDI implementation framework which is based on the hybrid type could be considered as follow:

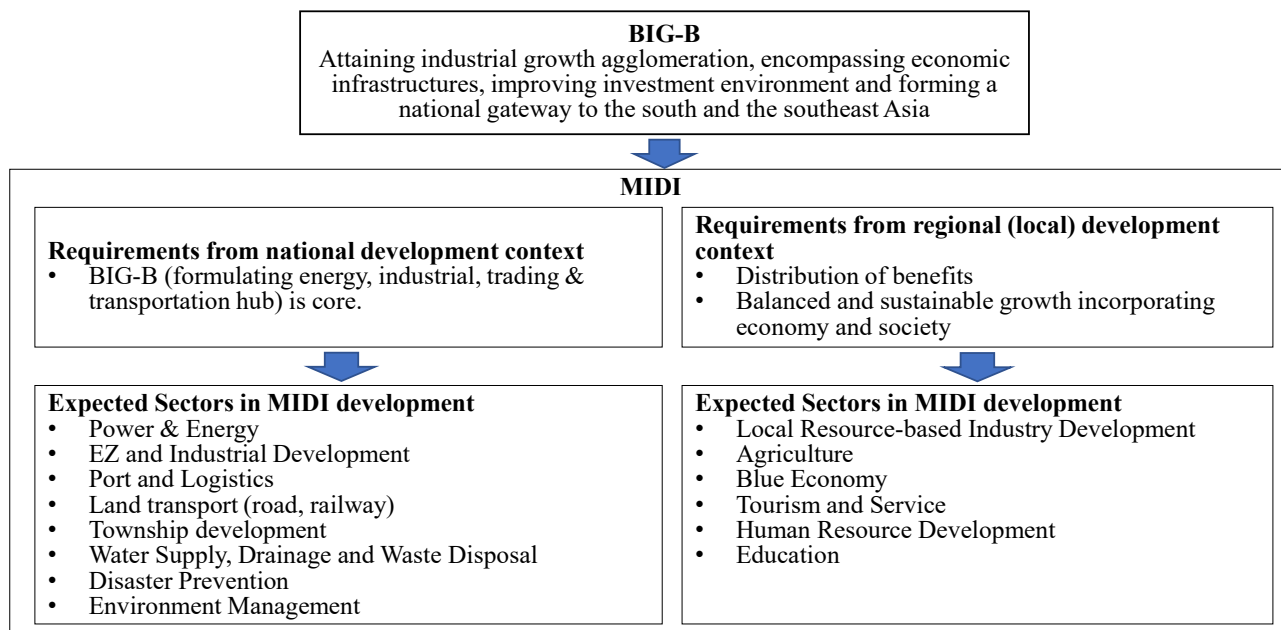
- The hybrid type is a combination of centralization and decentralization, but it is not intended to be completely centralized, but central control concentrates on planning and monitoring functions, and the experience and initiative of implementing ministries/divisions in budget and implementation should be respected. This is a key point.
- Master plans under the hybrid type are not either a compilation of sector plans or plans that are limited to target areas, but rather focus on priority projects from the perspective of the national development strategy.
- The budget for projects is left to the initiative of the implementing ministries/divisions, but the budget for project preparation such as feasibility and policy studies are subject to central control. Hybrid of this type could be a useful reference for operating an integrated infrastructure implementation framework in Bangladesh, where implementing ministries/divisions have been strong.
- In this sense, it is important to centralize the planning and monitoring functions if a hybrid implementation system is to be considered in Bangladesh. For this purpose, it is desirable to establish an organization dedicated to planning and monitoring of MIDI under the Prime Minister's Office.
- This dedicated organization should be able to fully exercise its planning and monitoring functions, and should have a centralized budget to support project preparation so that the dedicated organization can lead planning by implementing ministries/divisions from the perspective of MIDI.

The following table summarizes the achievements and challenges of similar examples according to the type (centralized, intermediate, decentralized) and function of the implementation framework.

## Chapter 3 Analysis and Proposal on MIDI Implementation Framework

### 3.1 MIDI Concepts

MIDI is a development that will promote integrated infrastructure development in MIDI area under the BIG-B, creating a broad industrial base suitable to drive the economic growth of Bangladesh economy. MIDI has importance to the overall development of the country as clearly stated by the Chair during the first meeting of the MIDI CC on 4 March 2018. At the same time, MIDI will play a role of a driving force for the development of the MIDI area to be a balanced urban-rural area, ensuring local benefits and sustainable development.



Source: JST

Figure 1 Concepts of MIDI

### 3.2 MIDI Implementation Framework

#### 3.2.1 Need for Strengthening MIDI Implementation Framework

Projects related to MIDI in its early stages have been developed and planned individually by the implementing ministries/divisions. The relationship between projects under the jurisdiction of each implementing ministry/division has been coordinated at the working level among the relevant implementing offices, with no formal coordination forum. In March 2018, the MIDI CC was established to accelerate MIDI, and the MIDI-Cell was established to provide administrative and technical support to the MIDI CC.

Currently, MIDI is in the process of planning, budgeting and implementation for major projects and local infrastructures, while the construction is underway for projects such as the coal-fired power plant, Matarbari port (Phase 1), Matarbari access road, and special economic zone. Some other projects are now at the stage of planning, budgeting, and implementation. In the future, various projects will be initiated by various implementing ministries/divisions, and many projects will be implemented simultaneously.

Under such circumstances, risks are anticipated to affect MIDI. These risks are not limited to individual project but may affect other projects that are closely or functionally related. These risks including those as below can also cause delays in overall planning and unexpected supply-demand gaps.

- Location coordination between projects
- Project delays due to budget delays
- Project delays due to delays in land acquisition
- Project bottlenecks due to miscalculations that were planned to be handled in the design/construction phase but not in the planning phase, e.g., technical issues such as clearance for intersections, space for material storage, etc.

- Environmental Impact
- Conflicts with communities caused by the progress of development

In order to address the above-mentioned potential risks and ensure the smooth realization of MIDI, it is necessary to establish an implementation framework that enables risk management for MIDI as a whole and for each project.

### 3.2.2 Achievements and Challenges of the Current MIDI Implementation Framework

From these perspectives above, the following points of view are important for further strengthening the current MIDI implementation framework.

- The MIDI CC and the MIDI-Cell will address issues while making use of the achievements they have made to date, e.g., information sharing among implementing ministries/divisions, development of project monitoring systems, etc.
- The process of information sharing, consultation, and coordination among ministries/divisions will be increased, under the current implementation system, in which projects are planned and implemented by individual ministries/divisions, Such processes are especially important in the planning and monitoring phases.
- The target year of the MIDI is 2041. Since a variety of projects will be implemented over a long period of time, the assumptions of the original plan will change over time, and the planning entities will also change and diversify. Therefore, the implementation system will be considered as a process of "planning and implementing projects, and changing plans while implementing projects," and project risk management will be incorporated into this process.

### 3.2.3 Types of Implementation Framework for Integrated Infrastructure Project: A Comparison

Based on the above perspective and the analysis of similar cases of implementation framework in Chapter 2, the following types of implementation framework for integrated infrastructure development were assumed.

- The main functions of the implementation framework are monitoring, planning, budgeting, and project implementation.
- The organization of the implementation framework consists of cross-sectoral organization and sector-specific organization.

From the perspective of the above functions and organizations, the implementation framework is classified into three types: centralized, hybrid and decentralized, as shown in the table below.

		Function			
		Monitoring	Planning	Budgeting	Implementation
Type of implementation framework	Centralized	Cross-sectoral organization			
	Hybrid	Cross-sectoral organization		Sector-specific organization	
	Decentralized	Cross-sectoral organization	Sector-specific organization		

Comparing the three types in terms of both needs and feasibility, each has its own characteristics.

A centralized implementation framework is desirable in terms of efficiency and certainty for MIDI because it concentrates authority over several related areas in a single organization and allows for consistent activities from planning, budgeting, implementation and monitoring. However, setting up a new organization takes time, and there is a risk of duplication with the existing administration.

The decentralized type, on the other hand, is more feasible because it allows the current implementation framework to be progressively advanced, but it would also continue the current approach and current shortcomings, in which plans are prepared first by the implementing ministries/divisions and then adjusted after the fact through consultation.

The hybrid implementation system can make use of the current Bangladesh project implementation model, in which the implementing ministries/divisions plan, budget, and implement projects on a sector-by-sector basis, as seen in the successful EEC development project in Thailand. On the other hand, it is essential to enhance the MIDI CC/MIDI-Cell to maximize integration effectiveness.

Considering the characteristics of these three types of projects, it would be effective to shift from the current implementation system, which is decentralized, to an intermediate type of implementation system. It is also desirable to establish a new organization that will play a central role in this process.

### 3.3 Proposal on MIDI Implementation Framework

The table below summarizes the issues of the implementation framework, reference cases, and suggestions derived from the reference cases. The following six items have been assumed as common and indispensable functions of the implementation framework. (1) organization, (2) preparation and utilization of a MIDI MP, (3) budget, (4) securing land, (5) monitoring and (6) public consultation. These six functions were established based on the analysis in "Table 2.10 Comparison of Implementation Structures for Multi-sectoral Infrastructure Development" in Chapter 2 of this report.

Note that the MIDI Implementation Framework analyzed below is designed to strengthen the functions that will be required to implement MIDI in the future. It is hoped that it will serve as a reference when considering the strengthening of the MIDI-Cell, the law establishing the MIDI Development Authority (MDA) that is currently under consideration, and the management of the MDA.

Table 2 Issues, Reference Cases and Suggestions Derived from the Reference Cases

Functions	Issues	Reference Cases	Suggestions Derived from Reference Cases
Organization	Responsibility and authority of the MIDI CC/The MIDI-Cell are not clearly stated  Insufficient size of the MIDI-Cell personnel and organization	ESB/EEC: The basis for the ESB/EEC is a cabinet decree; the ESB has been transformed into the EEC and moved to a statutory plan implementation framework. The secretariat continues to be handled by the national planning organization.  RAJUK: An independent public corporation based on the Town Improvement (Amendment) Act. RAJUK has certain discretionary powers, e.g., hiring personnel.  New Industrial City	The MIDI CC/The MIDI-Cell will be transferred to the MDA, a new organization.

The Data Collection Survey for Strengthening Framework of Operation and Implementation of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative

		Development(NICD): The prefectures lead in planning and implementation under the EPA and the lead ministries with various subsidy systems.	
Preparation and Use of MP	Master plan has not been formulated. Without MP, inter-sectoral coordination has not been well-organized.	ESB/EEC: Master plan is available. Cabinet approves and changes it. A framework is specified in the National Five-Year Plan. RAJUK: Master plan is available. RAJUK is responsible for its preparation and changes. NICD: Master plans are available. The NICD law clearly states that the prefectural governor is responsible for its preparation and revision. Kajima Seaboard Development (KSD): Basic plan exists. It is clearly stated in the Law on Special Industrial Development Zones that the prefectural governor is responsible for preparing and revising the plan.	The role of the master plan and the procedures for its early preparation and subsequent update should be specified in the MIDI Implementation Framework; the master plan is important as a source of information and a basis for sharing development directions and project information, and for ensuring that implementing ministries/divisions are able to secure their budgets.
Funding	Securing budget is the responsibility of the implementing ministries/divisions. Therefore, there is a risk that the MIDI project will be postponed, which will delay other related projects and the overall development, depending on the policy of the project implementing ministries/divisions,	RAJUK: RAJUK has its own financial resources, including real estate income. EEC: The Bureau of Budget directly allocates a lump-sum budget to the Secretariat of Policy Committee(PC) for the studies on policy and planning. Through this mechanism, the Secretariat of PC guides projects/policies of the implementing ministries/divisions ahead of time. NIDC: MPs are the basis for each ministry's subsidy. In this sense, the basic plan is directly linked to the budget.	The budget for policy research and planning for updating master plan, conducting feasibility and other studies shall be allocated by the MDA to each ministry project at its discretion. A coordinated budget will be allocated to bridge the gap between ministries and divisions in terms of project location, timing of implementation, etc. This budget will be administered by the MDA. A program budget will be set aside to develop various local infrastructures in the MIDI area as a package.
Land Acquisition	It is implemented by implementing ministries/divisions and DCs in accordance with the Land Acquisition Act 2017. It is time consuming and possibly causes delays in project implementation.	Kajima Seaboard Development (KSD): The KSD Industrial Zone Development Association, established by the prefectural government, was in charge of acquiring land for the site and alternative relocation sites. In addition, the prefecture adopted its own "6-4 system" as a means of smoothly securing land. Under this system, 40 percent of the land to be acquired was purchased by the prefecture, and the remaining 60 percent was exchanged for alternative land.	Staff of Deputy Commissioner (DC) will be reinforced to accelerate land acquisition activities.
Monitoring	The status of project implementation in each ministry was shared at the MIDI CC and reported to the FTP Monitoring Committee.	ESB-EEC: The EEC Act stipulates that monitoring of each ministry's projects be undertaken once every three months by the Secretariat of the PC.	Standard framework should be discussed for project monitoring and risk control by the MDA and should be carried out accordingly by the MDA. For important projects, the MDA

			and the implementing ministries/divisions will jointly conduct monitoring, including site inspections, to share understanding of progress.
Public Consultation	It has not been conducted.	RAJUK: Urban Resilience Project (2015-2023, supported by the World Bank) continues to conduct Strategic Environmental Assessments (SEA). The SEA has proven to be an effective method of disseminating the plan and incorporating input from residents and local institutions.	Strategic Environmental Assessment could be used in the process of preparation and revision of MIDI MP with reference to RAJUK's experience in SEA

## Chapter 4 Preliminary Study of MIDI Development Authority

### 4.1 Background of Establishment of MDA

According to the records of JICA-PMO meeting on February 13, 2022, the Prime Minister of Bangladesh directed to establish a MIDI Development Authority (referred to as the MDA). Following the Prime Minister's order, this chapter focuses on MDA and examines how to realize MDA based on the analysis made in Chapters 2 and 3.

#### 4.1.1 Vision and Mission of MDA

The vision of MDA is to realize BIG-B by implementing MIDI. To achieve this vision, MDA will have the following actions as mission:

- To continuously develop, coordinate, monitor, and revise MIDI MP and other planning and programs for MIDI.
- To promote budgeting for MIDI.
- To coordinate between relevant implementation ministries/divisions for MIDI, between national and local governments, and between government and private sectors.
- To conduct surveys on such topics as policy issues, development plans, project feasibility, implementation methods, and monitoring methods.
- To monitor and control project risks (especially the cascading spillover of risks) in MIDI.
- To plan, implement, and operate a “specific project(s)” in MIDI (For example, 1) A project across jurisdiction of ministries/divisions, 2) A project to be an advanced model for project implementation in Bangladesh such as new approaches, technologies, and financing mechanisms, and 3) Experimental projects for local socio-economic development in the MIDI area)

#### 4.1.2 Role and Scope of MDA

In order to achieve this mission, MDA will not only need to work within the jurisdiction of other Authorities in Bangladesh, but also coordinate and cooperate with relevant implementing ministries/divisions. Specifically, MIDI MP will be formulated and monitored through coordination and cooperation with the implementing ministries/divisions. However, since Bangladesh does not have an authority with such a function, the office of EEC in the EEC Act in Thailand is studied as a reference. The EEC Act clearly shows the division and

relationship between the Policy Committee and the Office of EEC as an implementation system. It also emphasizes the capabilities and authority of the Office (especially the secretary general of the office).

The EEC Secretariat is an incorporated administrative agency and is under the direct control of the Prime Minister, giving authority to lead planning and project implementation. All of these points are considered to be useful for preparing the establishment bill as the authority and authority that MDA should have over other ministries and agencies. The Office of EEC is an incorporated administrative agency and is under the direct control of the Prime Minister, giving authority to lead planning and project implementation. All of these points are considered to be useful for preparing the establishment act of MDA as the authority and authority that MDA should have over the implementing ministries/ divisions regarding MIDI.

it is considered that the following issues must be considered for the establishment of the MDA in the future.

(1) MDA

The MDA is responsible for:

- Formulating a MIDI MP and indicate to the implementing ministries/divisions the direction of MIDI development. (MIDI MP defines a comprehensive development vision, policy and overall plans.)
- Implementing approval process of MIDI project(s) prepared by the implementation ministry/division before the implementation ministry/division submits DPP.
- Implementing approval process of land acquisition plan of the MIDI project(s) prepared by the implementation ministries/divisions before the implementation ministry/division submits DPP.
- Supporting the implementation ministries/divisions to realize MIDI projects.
- Implementing specific project(s) proposed in MIDI MP.
- Managing the progress of the entire MIDI through monitoring and risk management.
- Conducting PR activities related to MIDI.

(2) Implementation Organization of MDA (proposed)

General

MDA is established under PMO. MDA decisions are made by the MDA Board. An MDA Executive Committee is to be established under the MDA Board to manage and administer the day-to-day operations of the MDA. An Office of MDA is to be established under the Executive Board.

MDA Board

The Board is chaired by the prime minister and the prime minister, who chairs, appoints another director. The decision is made by the Chairperson after consultation with the Board of Directors.

MDA Executive Committee

MDA Executive Committee is composed of the representative executive officer and few numbers of executive officers (about 3 persons), The committee supervises the day-to-day operation of the Office of MDA. The Executive Committee exercises all of the powers and performs all functions that may be exercised and implemented by the Office of MDA.

The representative executive officer and the executive officers are appointed by the MDA Board. The

representative executive officer is responsible for all documents submitted to the MDA Board.

### Office of MDA

The Office of MDA provides technical and administrative support to the MDA Executive Committee and implements its decisions. The office is composed of staffs from the following departments. Their operations are supervised by the representative executive officer.

- General affairs (human resource, financing etc.)
- Coordination (monitoring, land acquisition plan etc.)
- Planning (MIDI MP etc.)
- Project implementation and operation (specific project done by MDA etc.)

## **Chapter 5 Review of SDP**

MIDI is a large-scale complex infrastructural development composed of several projects, such as power, energy, port, railways, economic zones, and urban development (townships). The relevant agencies have prepared Sector Development Plan (SDP) and submitted it to MIDI CC as a development plan for their responsible administration. The following seven areas of SDP are currently submitted.

### **5.1 Review of SDP and Improvement Points toward MIDI MP**

#### **5.1.1 Basic Policy**

Since the basic policy of the sector plan in MIDI MP aims at providing a rationale for the implementation of the sector and projects in MIDI, the following two points are considered to be required to be described:

- Sector-wide development philosophy and policy
- Roles of MIDI projects in the respective sector development

In light of these two points, at a minimum, the sector plan in MIDI MP should refer to the following upper-level plan as shown in Table 3 below.

**Table 3 Upper-level Plans referred in SDP and Proposal to be referred in MIDI MP**

SDP	Description	Upper-level Plans etc. to be referred
Common	Long-term development goals Development objectives of the five-year plan	Perspective Plan 2021-2041 8 <sup>th</sup> 5 Year Plan (8FYP) 2020-2025
Power	Development Policy of the Power Sector (Nationwide Demand, Concept and Policy of Supply) Basic Policy on Power Location and the Roles and Importance of MIDI	National Energy Policy PSMP (revised PSMP) IEPMP
Energy	Concept and policy of demand in the energy sector Energy Sector Development Policy (Energy Import and Supply Policy) Roles and Importance of MIDI in the Development Policy of the Energy Sector	National Energy Policy PSMP (revised PSMP) Gas Sector Master Plan IEPMP
Port	Nationwide demand for port cargo and supply concepts and policies Role and Importance of the Port of Matarbari	Strategic Master Plan for Chittagong Port (ADB) Preparatory Survey on Matarbari Port Development Project in the People's Republic of Bangladesh (JICA)



Road	Approach to the sharing of facilities in transport Concept of Future Road Network and Priority Projects Roles of Roads in MIDI's Transport sector	Road Master Plan National Land Transport Policy National Integrated Multi-modal Transport Policy
Railway	Approach to the sharing of facilities in transport Concept of future railway networks, priority projects Roles of Railway in MIDI's Transport Sector	Railway Master Plan National Land Transport Policy National Integrated Multi-modal Transport Policy
Industrial/EZ Development	Targets and Policies for Industrial Development in Bangladesh Meaning of creating industrial clusters in the MIDI region in this context Significance and role of EZ development in this context	There is no upper-level planning or comprehensive policy other than Perspective Plan 2021-2041 and 8FYP.
Urban Development	Significance of Urban Development in MIDI Region (Employment and Population Response by the above-mentioned Sector Development)	Not specifically required

Source: Prepared by JST based on SDP

### 5.1.2 Demand and Supply Analysis

The MIDI MP clarifies the position and role of MIDI in Bangladesh from a sector perspective, for example, by showing the supply of MIDI in the national demand for electricity and port cargo. It quantitatively shows the importance of MIDI by sector.

Table 4 Demand and Supply Analysis in SDPs and to be stated in MIDI MP

SDP	Description of demand and Supply in the SDP	Points in analyzing Demand and Supply for MIDI MP
Power	Nationwide power generation demand and supply. MIDI handles that gap.	Update Power Demand Based on IEPMP Review of the land area required for the power plant in conjunction with the revision of the fuel for the power plant.
Energy	As above	Update of Energy Demand Based on IEPMP
Port	Taking into account the expansion of demand for cargo volumes at the port of Chittagong and the capacity (supply) of facilities at the port of Chittagong (taking into account the port of Pillar as well), the size of the facility at the port of Matarbari is set out from that gap.	Examine of the necessity of reviewing the supply-demand analysis from the perspective of trends in the latest relevant socio-economic indicators. (If there is a major socio-economic change which may affect freight from after SDP and it is considered to require revision of demand-supply analysis, an update of demand-supply analysis shall be done.)
Road	No description.	Transport demand and modal share in MIDI Region Traffic demand forecasts for each road
Railway	No description.	Traffic demand forecast for railways
Industrial/EZ Development	No description.	Analysis of demand for industries and industrial lands nationwide Supplies in MIDI area (roles of MIDI in demand for industrial land nationwide)
Urban Development	Population and the current land use are described.	Update population forecasts, especially review the induced population from MIDI

Source: Prepared by JST based on SDP reviews

### 5.1.3 Master Plan

#### (1) Number of Projects

2019 JICA Land Use Plan proposes 47 projects in the power, energy, port, road, railway, and industrial and EZ development sectors, which are written in the 2019 JICA Land Use Plan.

On the Other hand, as shown in the following table, 65 projects in total have been proposed in SDPs. According to interviews with the implementation ministries/divisions (and relevant organizations), the project proposed by SDP has some reorganization due to implementation reasons. There is almost no change at present. Two projects have been canceled in the energy sector and one new project has been added to the road sector.

Table 5 Proposed Projects in SDPs

	2019JICA Land-Use Planning Survey	SDP	After SDP	Remarks
Power	19	22	22	Three projects increased due to the integration and splitting of projects under the SDP.
Energy	12	9	9	At the SDP, the project was reviewed, two projects were canceled, and two projects were reorganized into one project.
Port	3	8	8	At the SDP, the project was reviewed and reorganized into eight projects.
Road	3	9	10	Six projects were added to SDP, and one project was added to SDP later.
Railway	1	1	1	No change
Industrial/ EZ Development	7	8	8	EZ8 was added to the SDP.
Urban Development	0	8	8	
Other	2	NA	NA	Polder Project of 2019JICA land-use surveys and Logistics projects are other sectors from existing SDPs and are not included.
Total	47	65	66	

N.B.: N/A not applicable.

Source: JST compiled based on SDP reviews.

#### 5.1.4 Project Implementation Timeline

At the SDP stage, the implementation of MIDI projects was to be concentrated in the short term and the first half of the medium term. Since then, the number of short-term projects has declined due to delays in formulating projects, financing, land-acquisition, and the impact of COVID-19.

Table 6 Timing of Project Implementation Proposed in SDPs

	Short term (~2026)	First half of the medium term (2027~2031)	Second half of the medium term (2032~2036)	Long pull (2037~2041)	Undecided	Total
Power	3	2			17	22
Energy	8				1	9
Port	6				2	8
Road	3	1			5	9
Railway	1					1
Industrial/EZ Development	3	3	2			8
Urban Development	3	3		2		8
Total	28	9	2	2	25	65

Source: JST compiled based on SDP reviews.

Table 7 Timing of Current Project Implementation

	Short term (~2026)	First half of the medium term (2027~2031)	Second half of the medium term (2032~2036)	Long pull (2037~2041)	Undecided	Total
Power	3	2			17	22
Energy	8				1	9
Port	4	2	2		2	8
Road	3	2			5	10
Railway	1					1
Industrial/EZ Development	1				7	8
Urban Development	3	3		2		8
Total	23	9	2	2	30	66

Source: JST

### 5.1.5 Current Progress of Projects Proposed in SDP

Looking at the number of projects by implementation stage according to the above classification (Table 8), there are five projects at the completion and service stages, seven projects at the construction stage, seven projects at the project preparation stage, and nine projects at the planning stage. The remaining 38 projects have not yet made progress to date.

Table 8 Current Project Progress

	State 5: Completion and service Stage	State 4: Construction Stage	State 3: Project Preparation Stage	State 2: Planning Stage	State 1: Not Started	Total
Power	1	1	2	4	14	22
Energy	5	1	2		1	9
Port	1	3			4	8

Road		1	2	4	3	10
Railway				1		1
Industrial/EZ Development		1			7	8
Urban Development					8	8
Total	7	7	6	9	37	66

Source: JST

## 5.2 Land Use Plan

### 5.2.1 Basic Policy of Land Use Plan

The current land use plan of MIDI is currently commonly shared among MIDI CC, MIDI-Cell and the implementing ministries/divisions and others. The basic policy of the land use plan is to divide the areas into 2 areas: namely, the area to be developed and areas to be controlled development, in order to achieve efficient land use, effective investment on infrastructure development to avoid environmental deterioration to neighboring communities and agricultural land and disordered development. With this basic policy, there is a north-south traffic axis between the areas to be developed and areas to be controlled development. Among the areas to be developed with consideration given to mitigate the negative impact on the area to be controlled development. Projects are well allocated along this basic policy with considerations on characteristics of each projects such as water-intake, drainage, transportation, environment/ disaster prevention, potential extension of the project etc.

### 5.2.2 Land Use Plan (2041)

Along the basic policy above mentioned, land use plan is delineated. Figure 2 is the land use plan in 2041.

### 5.2.3 Further Considerations of Land Use Plan

As it is anticipated that such project reviews will be carried out as appropriate in the future, it is considered crucial to review the land-use plan in conjunction with the preparation of MIDI MP. At present, the following points are considered to have an impact on land use plans in the future.

- Impact of review of power and energy master plan (IEPMP)
- Review of land use associated with securing a pier for LNG (coordination with planned LNG and LPG bases)
- Scale of Matarbari Port Phase 2 project from a viewpoint of division of roles with other ports
- Impact of strengthening regional arterial roads on traffic pattern in MIDI area

# Surrounding Landuse Map 2041



Figure 2 Land Use Plan for 2041 (Including Pending Projects Implemented)51

## **Chapter 6 Power Sector**

### **6.1 Necessity of Development in MIDI Area**

The SDP's Demand Forecast and the Perspective Energy Plan of the Present Government both justify coal-fired power plants in MIDI to tackle the backdrop of rising domestic demand for electricity and declining domestic production of natural gas with the conditions of development of large ports to import coal and natural gas.

### **6.2 Demand Forecast**

As for the national electricity demand forecast in power sector SDP, it says that it is based on the PSMP 2016, but the actual figures are from the Revising PSMP 2016. According to Revising PSMP 2016, the total electricity demand in Bangladesh is expected to be 40-45 GW in 2031 and 72-82 GW in 2041. The current installed capacity of power generation in the whole country is about 20 GW, and it is necessary to develop power supply throughout the country.

In MIDI area, BPDB and CPGCBL are planning to develop about 14 GW and 5 GW of power generation capacity, respectively, by 2039, which will provide about 1/4 of the nation's electricity. Without considering PMO's direction to stop coal power development, 18% is from gas and the rest is from coal.

### **6.3 Ongoing Projects**

The project under construction regarding power generation is the Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 1<sup>st</sup> Phase (Units 1-2). The construction of the project has been completed, and the earthwork and mechanical/electrical works are in progress.

Projects under construction for power transmission include the Matarbari Ultra Super Critical-Fired Power Project (ii) (PGCB Part: "Matarbari-Madunaghat 400 kV Transmission Line ") and the Dhaka-Chattogram Main Power Grid Strengthening Project. The former is scheduled to be officially put into operation after commissioning by December 2021. The latter is scheduled for completion around July 2022.

### **6.4 Projects in Planning**

At BPDB, there is a group of power development projects called BPDH hubs, which consist of construction, shared equipment, coal-fired power plants, and LNG-fired power plants. There are no projects under construction. The SDP aims to start coal-fired power by 2039 and LNG-fired power by 2029.

CPGCBL has plans for Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 2nd Phase, coal-fired power, LNG-fired power, and solar power generation by other investors, in addition to Matarbari Ultra Super Critical Coal Fired Power Project 1<sup>st</sup> Phase.

At PGCB, various projects are planned to transmit the generated power to Chattogram and Dhaka in line with the development of large-scale power sources in the MIDI area.

## **6.5 Issues toward MIDI MP**

### **6.5.1 Review of Power Supply Sources**

The global movement toward decarbonization has activated and the pressure from various organizations on anti-coal has increased. It makes difficult for donors and banks to lend to coal-fired power plants. On June 21, 2021, the PMO announced that the development of coal-fired power plants planned nationwide will be cancelled except for Matarbari USC11/2, which is currently under construction. The other power plant projects have to consider the conversion from coal to others energy source like natural gas and renewable energy. The results is needed to sufficiently reflect to MIDI MP.

### **6.5.2 Use of Some Higher-level Plans for Reference and Demand and Supply Analysis**

The power SDP describes future power demand trends and the amount of power generation shared in the MIDI area, and Revising PSMP 2016 is used as the actual value. When creating the MIDI MP, the Integrated Energy and Power Master Plan (IEPMP) currently being prepared or an equivalent plan should be used for reference and basis of demand and supply analysis.

### **6.5.3 Coordination of Ground Height and Dredging Soil Disposal**

The overall issue of the MIDI area is that the ground height is low and it is vulnerable to natural disasters such as storm surges. Currently, measures such as raising the land are being taken in each project, but no measures have been taken from a comprehensive perspective. As a result, there is a high possibility that the ground height after completion will be different in each project.

In addition, although a excavated port is currently being constructed in line with the development of the Matarbari power project (USC1/2), it is currently not possible to take out the surplus soil generated by the project and the dredged soil. The surplus soil generated during construction will be used for the construction of the project, but the dredged soil will need to be dumped at the ash dump site in the power plant, which estimates that the volume of ash and dredged soil will be half and half. If this dredged soil can be used for a local ground raising for other projects, the project cost can be reduced.

## **Chapter 7 Energy Sector**

### **7.1 Position of Energy Development in MIDI**

The energy SDP explains that it is necessary to import oil and natural gas using Matarbari Port and construct related facilities due to the increase in domestic energy demand and the decrease in domestic natural gas production.

### **7.2 Demand Forecast**

According to BPC's supply and demand estimations, the current demand for petroleum products is 7 million tons, and the current refining capacity of Bangladesh is 1.3 million tons per year at the refinery in Chittagong. The current refinery capacity in Bangladesh is 1.3 million tons per year at the refinery in Chittagong. The total demand for petroleum products will be about 24.2 million tons in 2041. Also included in the above is the

current LPG import volume of 700,000 tons per year, which is expected to increase rapidly to 5.7 million tons in 2041.

Petrobangla's own gas supply and demand estimates, not included in the GSMP 2017, show that the total gas demand in 2018 is 3,200MMSCFD and 2041 will be 5,870MMSCFD, while supply in 2041 will be 5,900 MMSCFD. Now 1,000 MMSCFD is coming from the FSRU offshore Matarbari, and 2,500 MMSCFD from the onshore LNG terminal to be built in the MIDI area. Onshore LNG terminal to be built in the MIDI area will account for 2,500 MMSCFD.

### **7.3 Ongoing Projects**

BPC is engaged in the "Installation of Single Point Mooring with Double Pipeline" (SPM Project) and will have the capacity to receive 9 million ton per year with three crude oil tanks and three high sulfur fuel oil tanks. Currently, the following 5 projects are complete construction.

- Moheshkhali Floating Liquefied Natural Gas Project
- Moheshkhali FSRU Project
- Moheshkhali-Anowara Gas Transmission Pipeline
- Moheshkhali-Anowara Gas Transmission Parallel Pipeline
- Moheshkhali Zero Point Gas Transmission Pipeline & CTMS

### **7.4 Projects in Planning**

BPC plans the following projects :

- Import Based LPG Mother Terminal and Distribution Plant at Matarbari (50,000 ton tank, Offshore Jetty, plan to start operation in 2024)
- Petrochemical Complex and Refinery at Moheshkhali (15-20 mil. TPY capacity)

RPGCL plans "Land-based LNG Terminal at Matarbari", which can accommodate 500MMSCFD in 2026, and expand capacity to 500MMSCFD in 2030.

### **7.5 Issues toward MIDI MP**

If LNG-fired power plants are to replace with coal-fired power plants, this will require additional LNG to import that have not been planned so far. The cancelled coal project in the MIDI area has a capacity of about 13 GW, while about 1 million tons of LNG per year is needed to drive 1 GW of GTCC, which would add about 1,900 MMSCFD of LNG demand. It is not easy to build a large-scale port other than Matarbari Port, and the cancelled coal projects in other parts of Bangladesh may also add to this LNG demand (the cancelled capacity in other parts of Bangladesh in June was about 4 GW, which is equivalent to about 600 MMSCFD). It may have a great impact on the energy sector in MIDI especially for:

- Future expansion potential of LNG receiving facilities
- Capacity of LG/LPG terminals at Matarbari Port
- Consistency of onshore LNG Terminal Capacity
- Insufficient shoreline length for LNG and LPG terminals



## **Chapter 8 Port Sector**

### **8.1 Position of Port Development in MIDI**

In anticipation of the growing demand for port services emerging from growing income and international trade, a substantial port capacity to be created by a new seaport is needed. Furthermore, SDP also states that a so-called deep-sea port is indispensable to realize the call of large container vessels that can reduce the marine transport cost.

### **8.2 Demand Forecast**

As the traffic forecasts of containers estimated in the ADB Master Plan and JICA Preparatory Survey are similar to each other, it is considered reasonable to implement the container terminal development of the First Stage Development Phase 1 of the Matarbari Port based on the container traffic forecast either by JICA Preparatory Survey in 2018 or by ADB Master Plan in 2015.

Regarding the traffic forecast of breakbulk cargo, it is considered reasonable to implement the multi-purpose terminal development of the Matarbari Port to mitigate the congestion of General Cargo Berths (GCB) of the Chittagong Port by moving to the Matarbari Port a part of breakbulk cargo. The finalization of the Second Stage Development plan will be based on the updated demand forecast of volume and type of cargo as well as type and size of vessels to call Matarbari.

### **8.3 Matarbari Port Development**

#### **8.3.1 Utilization of Port Facilities of Ultra Super Critical Coal-fired Power Plant Project**

As the mooring facilities for commercial vessels and cargo handling facilities on land are built near the turning basin which is dredged for the power plant, it is possible to economically construct a deep-sea commercial port. For this reason, JICA has conducted several surveys.

#### **8.3.2 Matarbari Port Development**

##### **(1) First Stage Development Phase 1**

- Container Terminal (plan to complete in mid-2026) x 1、 Multi-purpose Terminal (mid-2026) x 1

##### **(2) First Stage Development Phase 2**

- Container Terminals x 3 (first one in 2030, the others to follow the demand)
- Dredging for expansion of the water area (2030), CTT (2030), LNG Terminal (2030), LPG Terminal (2030)

##### **(3) Second Stage Development (long-term):**

- Container Terminals x 3, Multi-purpose / Bulk Terminals x 4

### **8.4 Current Progress of Matarbari Port Project**

The major port facilities planned in the First Stage Development Phase 1 of Matarbari Port are shown in the

table below.

Table 9 First Stage Development Phase 1 of Matarbari Port

Facilities	Size	Max Vessel Size	Cargo & Capacity	Remarks
Container Terminal	L=460m, D=CDL-16m Area 20ha.	8,000TEU Type 250TEU (Feeder)	Container 700,000 TEU	Full size berth x 1 Feeder berth x 1
Multi-purpose Terminal	L=300m D=CDL-16m Area 12ha.	70,000DWT	General Cargo 1.5 m.t. Bulk Cargo 0.6 m.t.	General cargo ships Panamax Bulker
Breakwater	North L=2,150m (Incl. 397m by CPA) South L=670m			Phase 1 to be developed by power plant project
Navigation Channel Turning Basin	W=350m, L=11km Turning basin=75ha.	100,000DWT (8,000 – 8,200TEU)		Phase 1 to be developed by power plant project

Note: m.t. stands for million tons

Source: JICA Preparatory Survey

The above facilities will be procured in the 3 packages i.e., works (Package 1), quay cranes, etc. (Package 2a) and tugboats, VTMS system, etc. (Package 2b).

## 8.5 Issues toward MIDI MP

### 8.5.1 Use of Dredge Soil for Land raising Materials

In order to effectively use the land rising materials obtained from the dredging of Matarbari Port, priorities to use dredging soil among projects are to be considered chronologically.

### 8.5.2 Coordination of Land for LNG/LPG Terminals

Due to changes in government energy policy, LNG and LPG terminal sites may change, so MIDI MP will need to adjust some facility boundaries for Phase 1 Development Phase 2. In that case, as pointed out in the Matarbari Port Development Preparatory Survey, necessity of 260,000m<sup>3</sup> capacity class (Q-Max) LNG carrier should be considered, then in case it is necessary, whether or not to let Q-Max enter the port to the depths of the port water area and the alternatives if it is inappropriate, should be considered.

### 8.5.3 Railway Access

To the reduce transportation costs, it is necessary to utilize railway for container transportation between Matarbari Port and Dhaka, the center of Bangladesh's import and export industries. For this purpose, it is necessary to coordinate the timeline of railway construction between MoS and MoR. In addition, development of ICD, which is the traffic node between railways and roads should be considered.

## Chapter 9 Road and Highways Sector

### 9.1 Position of Road Development in MIDI

The role of the road development is explained as follow in SDP:

- to ensure smooth transportation of cargo to/from the sea port through the access road
- to ensure the linkage between sea port, EZs, urban area and existing municipalities/markets
- to materialize efficient multi-modal transport network and construct roads in timely manner taking into consideration the schedule of port development, and to consider future widening/expansion and secure the adequate Right of Way

### 9.2 Demand Forecast

The Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh (JICA 2018) carried out the demand forecast for Matarbari Port Access Road. The analysis result indicates that, daily traffic of the access road was calculated as 3,144 vehicle/day (or 6,582 PCU/day) in 2026 which will increase up to 5,655 vehicle/day (or 12,103 PCU/day) in 2035.

The traffic from the new access road will have an impact on National Highway N1. Estimated future traffic demand along N1 in 2026 is approximately 22,000-28,000 and in 2035 is 28,000-38,000 vehicles per day respectively (excluding the traffic to/from Matarbari Port). The combined daily traffic, if traffic to/from Matarbari Port is considered, was estimated to be 31,604 PCU on National Highway N1 by the year 2026. In comparison with the 2017 situation, it is almost 1.6 times.

Based on the demand projection, it is expected that this road section of N1 will have severe traffic congestion. The traffic volume on N1 between Chattogram and Cox’s Bazar has been reaching its traffic capacity especially at the section through towns along the highway. Therefore, improvement of N1 is indispensable for providing smooth road freight transport from Matarbari Port.

### 9.3 Ongoing Projects

Currently, there is no project completed construction, but the Matarbari Power Plant Access Road is under construction. The road is from Rajghat to Mohoriguna, connecting the Power Plant into the regional road network. It also covers the Kuhelia River Bridge that connects the port area with the Z1004 road. The road is owned by RHD and developed by CPGCBL. Completion of the road is expected in 2023.

### 9.4 Projects in Planning

- Matarbari Port Access Road ( to be completed construction in 2023)
- Upgrading of National Highway N1
- Improvement of Regional Highway R170
- Improvement of Regional Road (Z-1004)
- Trans Moheshkhali Highways (Matarbari - Boro Moheshkhali - Cox’s Bazar)
- Marin Drive from Mirsharai to Cox’s Bazar through Moheshkhali - Matarbari

## **9.5 Issues toward MIDI MP**

### **9.5.1 Improvement of Demand Forecast for MIDI MP**

There are many projects that induce new traffic such as ports and EZs in MIDI area. It is necessary to carry our traffic demand forecast for roads with properly reflecting those developments in MIDI MP.

### **9.5.2 Integration of Road Network in MIDI**

Access roads (collection and distribution roads, rural roads) are not discussed in the SDP, and connections with residential areas rely on LGED's access road development. The increase in traffic demand in the future will put an additional burden on the existing access road network. In MIDI MP, from the viewpoint of improving regional transportation, it is important to integrate the access road development project by LGED into MIDI and to network the main roads and access roads.

## **Chapter 10 Railway Sector**

### **10.1 Position of Railway Development in MIDI**

The SDP explains the importance of railway development in MIDI from the importance of freight transportation at Matarbari Port. Efficient and economical rail transport is indispensable for transporting containers, general cargo and bulk cargo between large cities like Dhaka/Chattogram and Matarbari Port.

### **10.2 Demand Forecast**

The SDP considers port containers as the target cargo for access railway and considers demand on the assumption that the all amount will be transported by railway. It will be 2.83 million TEU in 2036.

On the other hand, based on the National Container Demand Forecast for Major Ports made by Railway Master Plan, Matarbari Port would take a share of 36% of total container volume by 2041, surpassing Chittagong Port. The container demand will increase substantially for Matarbari Port. The huge demand not only challenges the capacity of the access railway itself, but also the capacity of associated infrastructures. According to the Feasibility Study Report of Component 6, Technical Assistance for Dhaka- Chattogram -Cox's Bazar Rail Project Preparatory Facility (ADB, 2020), the Port Access Railway reaches its capacity in 2040 if containers are single-stacked. Giving the projected demand increase, the Chattogram-Cox's Bazar line reaches capacity in 2035 if containers are single-stacked. The limited capacity of Chattogram -Cox's Bazar line might be a bottleneck of rail traffic of the national and international corridor.

### **10.3 Ongoing Project**

Dohazari to Cox's Bazar Railway Project is currently only one railway project in MIDI and is under construction. It is the Single Line Dual Gauge Railway Track from Dohazari to Cox's Bazar via Ramu (about 103.5 km). BR has completed the Detailed Design under the support from ADB. As of December 2021, 12km has been constructed. The construction period is planned as 2.5 years and BR expects to finish it by 2023 (at earliest). However, the completion may be postponed due to the delay of land acquisition.

## 10.4 Issues toward MIDI MP

Existing road and railway SDPs independently carry out traffic demand forecast, resulting in losing consistency. It is necessary to consider the demand for road and railway in an integrated manner from the perspectives of overall demand forecasting as a land transportation sector and modal share of road and railway. In addition, as pointed out in the above-mentioned demand forecast, rail transportation between MIDI and large cities may become a bottleneck. In MIDI MP, it is necessary to consider the rail transportation between MIDI and large cities, transshipment capacity between railways with different gauge and the capacity of related ICDs.

## Chapter 11 Urban Development Sector

### 11.1 Positioning of Urban Development in MIDI

PP2041, as the highest development policy document in Bangladesh, aims to achieve the following two overarching goals for the nation: 1) to achieve a Developed Nation status by 2041; and 2) to eliminate absolute poverty. Recognizing the correlation between economic growth and urbanization in developing societies, the PP2041 sets out to form an urban economy with 80% of national population living in cities. SDP-LGD states that MIDI is designed to promote urbanization and to expand urban employment to promote socioeconomic improvements and to eliminate poverty through development of advanced urban infrastructure and quality residential supply.

### 11.2 Demand Projection for Urban Development Sector

In SDP-LGD (Chapter 2), the future population of the target area, with the three cities and three counties (six municipalities) of Chakaria, Moheshkhali, and Cox's Bazar as the core, was based on the actual regional population in 2011 (1,254,765 people) as a baseline, and an estimated cumulative regional population increase through 2041 was approximately 940,000 people (approximately 75% from 2011). For the number of net migration, the projected increase induced by the MIDI projects is 75,000 people until 2041.

### 11.3 Projects in Planning

SDP-LGD (Chapter 3) separates the residential development projects into phases, with short term being up to 2026, medium term up to 2031, and long term up to 2041, and categorizes into the following three approaches for the project implementation.

- a. *Company housing* within the Matarbari Port area
- b. *Densification* by infill development projects of *Chakaria and Moheshkhali* paurashava
- c. *Township Development* projects near newly established SEZ's

Summarizing all of the aforementioned residential development plans, the in-city townships at Chakaria and Moheshkhali, company housing at Matarbari port area, and suburban townships near planned GEZ in total will absorb approximately 179,000 residents.

SDP-LGD (Chapter 4) categorizes the target region's infrastructure projects (including land preparation work

for townships) into those in Chakaria Upazila and Moheshkhali Upazila, which are further bundled into “Packages” as per geographic and functional proximities for ease of bidding and contractual management and project implementation.

Overview of the infrastructure development project packages in Chakaria indicates that development of five new townships within the municipal boundary are designated short term projects (up to 2026), while the one adjacent to General Economic Zone in the suburb is designated medium term (up to 2031) project. Bazar development projects are designated short to medium term, indicating the planning intent to strengthen urban services in parallel to the increase in population size.

Overview of the infrastructure development project packages in Moheshkhali indicates that development of a suburban township project is designated medium term (up to 2031), while five new townships within the municipal boundary are designated long term projects (up to 2041). This phasing order matches the overall regional development strategy to prioritize Chakaria as a gateway to/from the existing national roadways and railways, and to expand gradually toward Moheshkhali as the new access roads and railways reach across the Moheshkhali island.

#### **11.4 Ongoing Projects**

Interviews with the LGD confirmed land acquisition had not yet begun for the township development sites in Chakaria and Moheshkhali, and for the township development site adjacent to EZ8. Therefore, on-site development of projects in the urban development sector has not yet started at this moment.

#### **11.5 Issues toward MIDI MP**

The development challenges to be addressed and resolved in the MP can be identified as follows.

- The population increase of about 940,000 by 2041 includes a natural increase that is not directly related to MIDI. MIDI MP needs to be a comprehensively consider for all population in MIDI area.
- Secondly, planning on educational and healthcare facilities, parks and open spaces, sewage and waste disposal, and other urban infrastructure shall be incorporated into the MP in order to ensure formation of a highly livable urban region.
- Thirdly, integrated live-work communities and transit-oriented development shall be formed in steps with ongoing expansion of road and railway networks, with strategic distribution of urban functions to minimize traffic congestion.

## Chapter 12 Industrial and Economic Zone Development Sector

### 12.1 Position of Industrial and Economic Zone Development in MIDI

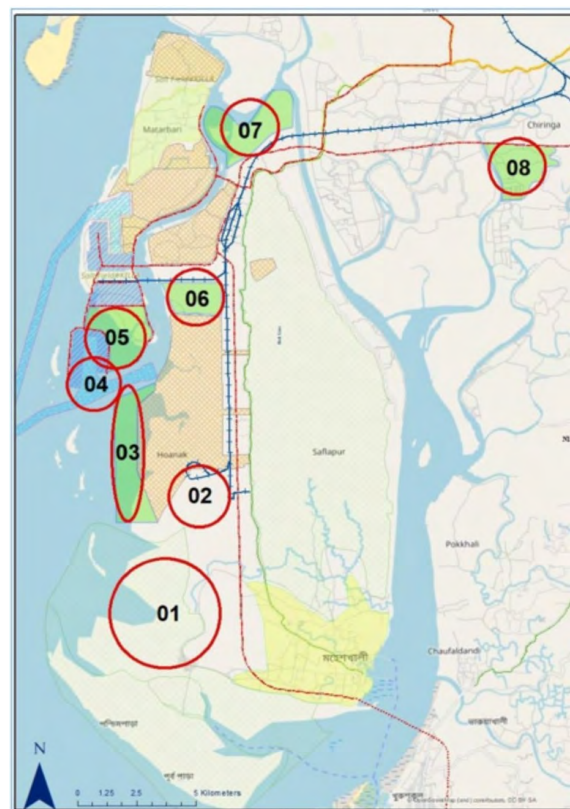
In SDP, first, the economic zone (EZ) development seeks the basis from the BEZA Act, then points out the importance of the MIDI area as a part of BIG-B, especially the potential of coastal industrial development around Matarbari Port, and then mentions the need to develop economic zones (EZ) correspondingly.

### 12.2 Demand Forecast

Although SDP has not conducted a demand analysis for EZ, it discusses candidate sites for EZ, land area, and potential industries (Table 11).

### 12.3 Projects in Planning

The location of each EZ candidate site is shown in Figure 3. EZ5, EZ7 and EZ8 are given priority for development in Phase 1 (2021-2025), followed by EZ4 and EZ6 in Phase 2 (2026-2030). EZ1 to 3 are in the Phase 3 (2031-2035). EZ3 to 5 are classified as coastal EZs, EZ2 and EZ6 to EZ8 as hinterland EZs, and EZ1 is planned for eco-friendly activities.



Source: Industrial and Economic Zone Sector Development Plan

Figure 3 EZ Candidate Location

Table 10 Area and Development Costs of Each EZ Candidate Site

Site Number	Area name	Types of EZ development	Area (acres)	Development costs (Millions of Taka)	Development Phase (Priority)
1	Upper Sonadia	Eco-Park	12,612	37,980	Phase 3
2	Amavosyakhali	Hinterland, general	1,406	8,454	Phase 3
3	North Amavosyakhali	Industries associated with ports	1,557	11,164	Phase 3
4	South Dhalghata	Logistics (West) Free Zone in Port Stage 2 (East)	1,723	12,905	Phase 2
5	Dhalghata	Coastal area	1,240	9,131	Phase 1
6	Kalamarchara	Hinterland, general	758	5,735	Phase 2
7	Uttar Nalbila	Hinterland, general	1,543	10,493	Phase 1
8	Chakaria	Hinterland	1,112	8,288	Phase 1
Total			21,951	104,150	

Note: Development costs do not include land acquisition costs and resettlement compensation-related costs.

Source: Industrial and Economic Zone Sector Development Plan

## **12.4 Ongoing EZ and its Progress**

Of the eight EZs presented in the SDP, BEZA has begun to obtain EZ1, EZ4 and EZ5 lands. Among them, only EZ5 is currently under construction. According to a hearing from BEZA, the total area of EZ5 is 1,240 acres, and 510 acres are allocated to Super Petrochemical Limited (SPPL) in 2018, and construction of petroleum refining, petrochemical, LPG plants, etc. is planned. The first stage is to operate a refinery plant with an annual capacity of 4.5 million tons in 2025 or 2026, and then the second stage is to operate petrochemical plant including ethylene plant with an annual capacity of 2.5 million to 3 million tons by around 2027. It will be the first ethylene plant in Bangladesh.

Except for EZ5, EZ1 and EZ4 have started land acquisition, but have not yet been developed. Other EZs that have not yet started land acquisition are currently expected to be invested by the private sector if the potential for MIDI EZ development is increased by the development of EZ1, 4 and 5 for which BEZA prepares the land. BEZA intends to promote development with investors and organizations who involves from land acquisition.

## **12.5 Issues toward MIDI MP**

It is recommended to revise and add the followings for industrial development sector plan especially related to EZ development when formulating MIDI MP.

- Details of the state of development of EZ5, specifically, the state of progress in constructing oil refining facilities in SPPL at this stage. The operation of petroleum refining facilities is the first step in industrial development in MIDI area, and if there are delays, it is essential to analyze the causes and respond to them and reflect them in MIDI MP.
- The impact on the Bangladesh economy of the construction of a petroleum refining plant in SPPL and the subsequent construction of a petrochemical plant. It is recommended that the ethylene plant construction following the petroleum refining facilities is a stepping board for MIDI and that it shows its progress and future prospects for investment in ethylene derivative products expected to be constructed in adjacent areas.
- Approach to BEZA of new investors in EZ5. It is necessary to describe the structure of BEZA to attract investment and assess whether it is enough to promote the development of the MIDI area. Reflect organizational operational problems and countermeasures in MIDI MP when the problems are identified in the implementation structure of BEZA.
- Perceived development time of EZ1 & EZ4 and development entity. If development starts more than 10 years ahead, it is recommended to present a development vision rather than a concrete plan.
- For the five EZs that are not owned by BEZA, if they remain candidates, it is important to present development visions of each EZ, in addition to MIDI MP and industrial development sector plan in order to attract investors.



## Chapter 13 Industrial Development Sector

### 13.1 Direction of Industrial development Policy for MIDI

#### 13.1.1 Industrial Development Policy in Bangladesh

According to Perspective Plan 2021-2041, Bangladesh aims to grow to a high middle-income country by 2031 and become a high-income country by the 2040s. In this process, Bangladesh intends to implement its industrial policy by: (1) Ready-made-garment (RMG) will continue to grow without losing its competitiveness; (2) diversify its exporting companies; (3) upgrading its industries, including exporting companies; (4) promoting the domestic production of domestically consumed materials and durable consumption materials; and (5) promoting the domestic production of heavy and chemical products which currently rely heavily on imports.

#### 13.1.2 Position of Industrial Development in MIDI

The roles of MIDI in industrial development are to become bases for new industries that contribute to the diversification and sophistication of export industries without hindering the continued development of existing industrial bases and the growth of competitive existing industries represented by RMG. At the same time, they will become bases for the development of downstream industries in the petrochemical and heavy and chemical industries which have already begun to be developed. EZs offers an important site for investment in MIDI areas.

### 13.2 Assumption on Industrial Development Scenario

In the SDP, the scenario in which the heavy and chemical industry in the coastal area and the export and domestic demand industries in the hinterland advance simultaneously and thereby MIDI area is developed is drawn up. If the government does not take a strategic and proactive policy approach to strengthen its industrial competitiveness, EZs is expected to be developed by private investors in the MIDI area. In this case, it is important to strategically realize the scenario assumed in the figure below according to the actual situation of MIDI.

- Assuming the opening of Matarbari Port in 2025-26, EZs's SPPL petroleum refining facility will begin operations at approximately the same time.
- Construction of the ethylene plant will begin prior to the operation of the oil refining facility, and operations of the ethylene plant begin in 2027-28. To match this, the production of derivatives of various petrochemicals using ethylene materials begins near ethylene plants.

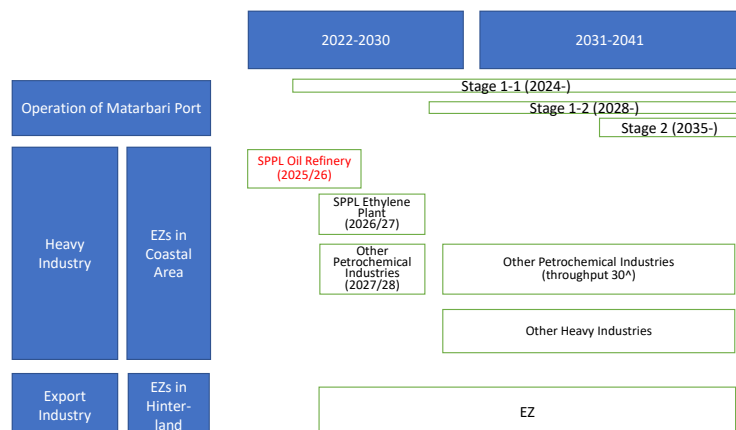


Figure 4 Scenario of MIDI Industrial Development

- When a petrochemical plant complex is launched, EZ development targeting export industries will be launched in the suburbs of Chakaria, e.g. in EZ8.
- The development of the second hinterland EZ, targeting the export industries, will begin when the investment attraction of the EZ on the hinterland is almost in sight.
- In the second half of the 2030s, the development of Matarbari Port Phase 2 will begin, and in line with the timing of the opening of the port in 2041, the development of the heavy and chemical industries will be extended.

In the above, there is a fairly certain scenario until SPPL constructs an ethylene plant. However, the accuracy of the scenario after the development of the hinterland is closely related to the land acquisition, the development body, and the infrastructure development in the MIDI area.

### **13.3 Issues toward MIDI MP**

Challenges for industrial development of the MIDI area include a need for clarification of the positioning of heavy and chemical industries in MIDI, and policymaking and implementation systems for industrial policies. MIDI development will require MIDI-Cell or a new implementation structure (MDA) to take leadership in coordinating with relevant implementing ministries/divisions and to discuss following items in MIDI MP.

- Long-term demand forecast for heavy chemical products, including petroleum products and petrochemical products,
- Phasing development Scenario targeting heavy and chemical industry, and export industry
- Coordination of development timeline with infrastructure and utility projects
- Assessment of labor-supply capacity in MIDI area.

## **Chapter 14 Preparation for MIDI MP**

### **14.1 Consideration of the Roles and Positioning of MIDI MPs and SDP**

MIDI MP does not a plan accumulating a sector plan. It is a plan to develop a comprehensive program focusing on economic infrastructure development in MIDI area, with the roles and functions justified in relation to the formation of the core region of BIG-B and upper-level national policies and plans like PP2041. The sector plan is set as part of the MIDI MP, aiming to discuss sector development policy, projects, and implementation plans that align with the development scenario and phasing development plan of overall development plan of MIDI in the sector.

### **14.2 Considerations on MIDI MP**

#### **14.2.1 MIDI MP ~ Strategic Approach**

MIDI MP should not comprehensively cover the major sectors of the MIDI area, but strategically focuses on the development of power energy, logistics, and industry, and develops the infrastructure to support those developments and improve stability and sustainability of the economy and society of the MIDI area such as the environmental and disaster prevention sectors. In the medium to long term, when the MIDI MP is revised/updated, the viewpoint of "local interest and sustainable development" will be taken into consideration

based on the progress of MIDI and the economic and social situation of the MIDI area. The local industry in the MIDI and surrounding areas, the creation of new employment and social development will be incorporated.

#### 14.2.2 Structure of MIDI MP

The regional development master plan is, in general, divided into 2 parts: “overall development plan” and “sector plan.” The overall development plan discusses development goals, development vision of the whole region, development scenario, phasing development plan etc. On the other hand, the sector plan describes sector-specific development targets, scenarios, and project implementation plan etc. With reference to similar regional development master plans, PP2041 and the 8th 5 Year Plan, the following structure can be proposed for MIDI MP.

Table 11 Proposed Structure of MIDI MP

	Item	Major Contents (proposed)
Overall Development Plan	Current status of MIDI	<ul style="list-style-type: none"> <li>• Current status of MIDI area</li> <li>• Current status of project implementation implemented as a MIDI</li> </ul>
	MIDI Development Philosophy	<ul style="list-style-type: none"> <li>• It is consistent with the policies of Bangladesh and the direction of the upper-level plans like Perspective Plan 2021-2041, 8th FYP and BIG-B and other vital policies like poverty, SDGs, environmental (global warming and climate change), resilience, and zero emissions. It clarifies the roles and missions expected to be taken in developing MIDI from them.</li> <li>• In line with the above, MIDI's holistic development vision is considered.</li> </ul>
	MIDI Development Framework	<ul style="list-style-type: none"> <li>• For power and energy, ports, and industrial development, the roles of MIDI in the nationwide balance of supply and demand are clarified quantitatively.</li> <li>• Development indicators such as the population, number of workers, and land area are formulated to be the basis of supporting infrastructure plans in the MIDI area.</li> </ul>
	Development Scenario/ Phasing Development Plan	<ul style="list-style-type: none"> <li>• MIDI development scenario (how to develop MIDI) is considered.</li> <li>• Based on it, a plan to function all projects in the MIDI area by phase well is considered.</li> </ul>
	Spatial Development Plan (regional structure and land use)	<ul style="list-style-type: none"> <li>• The regional spatial structure of MIDI is considered. It also creates a phased spatial development scenario corresponding to the phase plan.</li> <li>• The land use plan is reviewed (and revised if necessary) along with the spatial structure plan and projects. Land use plans by stage will also be prepared.</li> </ul>
Sector Plan	Sector Development Policy	<ul style="list-style-type: none"> <li>• SDP clarifies how to develop the sector as a part of MIDI, following the roles and missions of overall MIDI</li> <li>• Sector plan also clarifies the roles of MIDI in the context of nationwide sector development</li> <li>• Based on the above, a sector development vision is considered.</li> </ul>
	Sector Development Goals (Development Indicators)	<ul style="list-style-type: none"> <li>• Sector development goals (development indicators) are formulated per the framework of MIDI. For example, target amounts of power generation, energy storage, and port cargo by target year, EZ developed area by target year, etc.</li> <li>• Targets for water supply, sewerage, waste disposal, and inter-city logistics are considered based on population, the number of employment, port cargo volume, etc.</li> </ul>

	Sector Development Scenario and Phasing Development Plan	<ul style="list-style-type: none"> <li>Development scenario (how to proceed with sector development) to achieve sector development policy is considered.</li> <li>Based on it, a phasing development plan is considered.</li> </ul>
	Project Implementation Plan	<ul style="list-style-type: none"> <li>Projects along the sector development policy is identified.</li> <li>Risk analysis of project implementation is considered.</li> <li>The project implementation body is considered.</li> <li>Project construction, operation, and financing scheme are considered.</li> <li>The project implementation schedule is considered along the development scenario and phasing plan.</li> </ul>

Source: JICA survey team

### 14.2.3 Sector Plan in MIDI MP

Sector plan in MIDI MP is not prepared for each implementing ministry/division like the current SDP. Plan beyond the jurisdiction between implementing ministries/divisions is necessary. The sector in the MIDI MP is defined as follows.

#### "Sectors" of MIDI MP

A group (cluster) should be discussed in specific areas such as infrastructure and industry, rather than under the jurisdiction of ministries/divisions.

In line with the above definition, the appropriate sector should be selected in the MIDI MP. In the short term, MIDI MP focuses on the sectors to be the driving force of MIDI, the infrastructure/related industry sectors that support the driving force, and the support sectors to ensure their sustainability that may include environmental, disaster prevention and social considerations etc. In the medium-to-long term, during the revision/update of the MIDI MP, the plan will incorporate the viewpoints of "local interests and sustainable development" in light of the progress of MIDI and the economic and social conditions of the MIDI area. Based on the above, Table 13 shows the sectors to be considered in the MIDI MP.

Table 12 Proposed sectors to be covered in MIDI MP

Field	Sector	Short term	Medium-to long-term	Necessity of Sector
Driving Force Sectors	Power and Energy	Yes	Yes	Implementation of BIG-B Importance as a power and energy hub in Bangladesh
	Port and Logistics	Yes	Yes	Implementation of BIG-B Importance as the only deep-sea port in Bangladesh Importance of logistics as key business to formulate logistics hub with Matarbari port and to promote more use of Matarbari port
	Industrial Development	Yes	Yes	Implementation of BIG-B Importance to establish EZs which is a core of industrial hub
Infrastructure and related sectors supporting the activities of the driving force	Land Transport (modal share of transport, road, railway, regional transport in MIDI)	Yes	Yes	Importance as an efficient transport system between MIDI and Dhaka/Chattogram for port and industrial development in MIDI Importance of efficient passenger and freight transport in the MIDI area
	Urban and Housing (Township)	Yes	Yes	Importance for provision of residence to MIDI employees Provision of urban services and amenities to secure high-quality employment

	Water Resource Development	Yes	Yes	Importance of Secure water supply to industries and residents
	Water and Sewage, Solid Waste	Yes	Yes	Importance for adequate water supply within MIIDI area and environmentally conscious sewage and drainage and waste treatment
	Tourism		Yes	Importance to activate the local economy by promoting eco-tourism using tourism resources (especially beaches and mangrove forests)
	Agricultural and Fishery Industries		Yes	Importance of expanding direct benefits to agricultural and fishery workers by linking to MIDI and tourism
	Human Resource Development		Yes	Importance to revitalize regional economics by increasing local jobs as MIDI progresses, such as industrial development and provision of urban services.
	Airport		Yes	Importance to promote industries by improving the convenience of the MIDI area
Sectors to ensure Sustainability of MIDI	Environment	Yes		Importance to improve sustainability through environmental conservation and measures against global warming
	Disaster Prevention	Yes	Yes	Importance of enhancing regional resilience from disasters (cyclones and flooding) by constructing polder and land reclamation
	Social Development		Yes	Importance to respond to international agendas such as poverty, income disparities, gender disparities, etc.

Source: JST

### 14.3 Development Indicators for MIDI MP

The development indicators for the MIDI MP may have the following three roles:

- Share Bangladesh's socio-economic perspectives, which are the basis for sector demand forecasts. This ensures consistency between the MIDI MP and the upper-level policies/plans of Bangladesh and unifies the assumptions for demand analysis among sectors in the MIDI MP.
- Unify the preconditions for demand forecasts for supporting infrastructures by sharing economic forecasts and future populations in the MIDI area. It will also ensure sector-wide consistency in the schedule of project implementation among the sectors
- Share the land required for the projects in each sector, based on the demand analysis of each sector. It also contributes to the review of land use plans by phase.

Proposed development indicators are shown below (Table 14).

Table 13 Proposed Development Indicators for MIDI MP

Purpose	Bangladesh Nationwide	MIDI Area	Current Potential Data Sources	Items that need to be reviewed at the time of MIDI MP
Socio-economics (nationwide)	Economic Growth		Perspective Plan 2021-2041	
	Population	Population	Population Projection of Bangladesh	
		Number of employees (or social increase/decrease of the population)	Population Projection of Bangladesh 2019 JICA Land-use Survey	

	Nationwide Power Demand	Supply volume of MIDI	Revised PSMP2016	Reflection of the update of the national power supply-demand analyses by IEPMP.
	Nationwide energy demand	Import and storage volume of MIDI	Revised PSMP2016	Reflection of the update of the national energy supply-demand analyses by IEPMP.
	Cargo volume at ports nationwide (containers)	Cargo Volume (Containers) at Matarbari Port	CPA internal materials	
	Private investment value (FDI)	Private investment value (FDI) in MIDI	Bangladesh Bank	
		Investment vale into EZs (FDI) in MIDI	No existing data	Estimation based on the relation between area and investment value of other EZs in Balgadesh
		Number of companies in MIDI	No existing data	Estimation based on the relation between area and number of companies of other EZs in Balgadesh
Demand for support infrastructure in MIDI		Generation and Concentration of Cargo in MIDI	No existing data	Estimation of cargo generation at Matarbari Port and MIDI
		Water Demand Volume	Unit amont (water demand per person) in Urban Development SDP	Reflection of confirmation of water supply-demand at power plants, ports, and EZs (currently plans to use groundwater)
		Sewerage Volume	Unit amont (sewerage per person) in Urban Development SDP	
		Solid Waste Volume	Unit amont (waste per person) in Urban Development SDP	Reflection of confirmation of waste disposal at power plants, ports, and EZs (currently plans to dispose of by themselves)
Area of land required in each sector in MIDI		Power and Energy Port EZ Urban areas and Township		Reflecting on the review of the development timeline during the MIDI MP

Source: JST

#### 14.4 Risk Analysis

In the MIDI MP, it is essential to reflect the experience of MIDI project implementation so far to the project implementation organization, structure, and schedule. In addition, to ensure smooth operations during the completion of the project. To ensure smooth operation after the project is completed, it is also essential for the MIDI MP to consider a scheme to identify anticipate risk in advance from other projects that can be bottlenecks from the project planning stage and to monitor the progress of those projects in relation to the project.

Table 14 Project Challenges and Risks by Sector

	Risk during Planning and Construction	Risk during Operations
Power	Review of power plants in MIDI by reviewing the power demand, overall policy on power supply in IEPMP, Review of business due to change of fuels at coal-fired power plants Securing landfill materials for raising the ground level	Delay in operation of power plants caused from delay in construction of LNG terminal (impact on securing fuel) Delay in operation of power plants caused from delay in dredging work of berth (most recently, Stage 1 Phase 2) (impact on securing fuel)
Energy	Review of power plants in MIDI by reviewing the energy demand, overall policy on energy storage and	Influence on time of starting energy import caused from delay in in dredging work of berth (most recently, Stage

	supply in IEPMP, Securing sufficient quay length for the LNG and LPG terminals Securing landfill materials for raising the ground level (coastal area)	1 Phase 2)
Port	Impact of the change in the necessary quay length of the LNG terminal on the size of the inland water area (slip) in Phase 2. Securing landfill materials for raising the ground level	Securing water resources for water supply (from Phase 2) Impact on port freight transportation by the timing of development of transport networks (roads, railroads, ICDs, etc.), and strongly on port competitiveness.
Industrial and Economic Zone Development	Securing developers (investors) Securing embankment materials for raising the ground level Securing landfill materials for increasing the ground level	Delay in the operation of port, roads, and railway Delay in obtaining power supply and water supply to EZ Delay in Urban Development Delay in attracting companies in EZs Securing workers and qualified human resources
Road	Securing landfill materials for raising the ground level	No significant risk
Railway	Securing landfill materials for raising the ground level	No significant risk
Urban Development	Impacts of change of water flow during flooding caused by the construction of dikes and landfill Securing landfill materials for raising the ground level	Delay in developing road/railway and feeder road networks Delay in securing water weight and supplying water
Water Resources	Impacts of location and size of reservoir(s) to the nearby project area and surrounding environment and land use	No significant risk
Disaster Prevention	Coordination in height and coverage between dike and landfill	No significant risk
Environment	Delay in the EIA process	No significant risk

Note : The common issues such as delays in securing financial arrangements, securing investors, resettlement, and land acquisition are excluded in the table.

Source: JST

## 14.5 Public Consultation

Public consultation promotes interaction such as mutual understanding, exchange of opinions, and discussions among MIDI implementing ministries/divisions, private organizations/organizations interested in MIDI, and the public through appropriate information disclosure and related education/enlightenment activities. It will be implemented to reflect public opinion and feedback to MIDI projects and to achieve comprehensive consensus building through them. So, the identification and involvement process of relevant ministries/divisions/organizations/groups must be flexible.

This public consultation process shall be initiated early in the master plan development process. Based on the results of the stakeholder analysis, an implementation framework (e.g., schedule, total number of consultations, relevant agenda, and others) for the public consultation is to be developed. Using this framework, relevant feedback on the master plan of concern shall be collected, analyzed, and then incorporated into the MIDI MP, if necessary. Besides, it is essential to revise the contents of the master plan considering the monitoring results and changes in the surrounding environment.

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## Chapter 15 Considerations on Other Sectors in MIDI Area

### 15.1 Water Resources Development and Water Supply

Matarbari-Moheshkhali Island (MIDI area included) has no water supply facilities nor adequate water sources. Local community people obtain the drinking water and carry out agricultural work, using either groundwater or rainfall during the rainy season. In the Matarbari-Moheshkhali area, a water resource development plan utilizing rainwater storage has been drafted by water resource conservation, but it is only intended for the existing Moheshkhali city area and does not consider various projects planned in MIDI.

MoWR is the key central governmental body in developing water resources within Bangladesh and is preparing for a 5-year plan based on the Delta Plan 2100 while reflecting requests from local agencies. Currently, the JICA-financed “Data Collection Survey on the Formulation of Water Resources for the Southern Chattogram Region” (hereinafter referred to as JICA Water Resource Development Survey) is being implemented for the MP development of future water supply-demand across the southern Chattogram Region. Based on those preliminary evaluation results, relevant regional water development studies are conducted within JICA Water Resources Development Study.

### 15.2 Wastes

There is no complete public waste collection and disposal system within Matarbari-Moheshkhali Island (MIDI area included), and waste is collected by the private companies in some areas therein.

Several EZs and industrial parks, constructed recently tend to have their treatment facilities for the industrial waste, general waste, wastewater, and sewage-related disposal facilities within their properties.

There is no industrial waste disposal system around the Moheshkhali/Matarbari area. The Environment Conservation Rules (1997: ECR97) requires all factory owners to treat industrial waste generated during their operation phases properly.

Since 2003, LGED has implemented the Urban Management Infrastructure Improvement Project (Urban Governance and Infrastructure Improvement Project: UGIIP) with mainly ADB-supported assistance. Currently, a final disposal site for the general waste is constructed by UGIIP-3 in Cox Bazar City

### 15.3 Wastewater and Sewage Treatment

There is no public wastewater and sewage treatment system on Matarbari Moheshkhali Island (MIDI area included). Several residents set up septic tanks for their sewage treatments. Several EZs and industrial parks, constructed recently, tend to have their own treatment facilities of the industrial waste, general waste, wastewater, and sewage-related disposal facilities within their properties.

There are many ecosystem reserves and national parks around the MIDI area, such as Sonadia ECA. Large-scale mangrove forest vegetations are found in the surrounding coastal areas. It is important to formulate a medium to long term sewage treatment plan from the viewpoint of achieving both development and conservation of local natural resources.



## 15.4 Disaster Prevention

MIDI area is a cyclone-prone region. Dykes in western Matarbari were destroyed by the Cyclone Yaas along the coastal area of the Bay of Bengal, and the inundation with about 1-m depth occurred. The inundation due to the high tide occurred in 1991 and 1997 in Moheshkhali City in southern Moheshkhali Island, but there has been no specific high tide damage since then. In the city of Chakaria, urban flooding frequently occurs once every several years during every rainy season, especially in the vicinity of the hilly area located in the northern part of the city, where the effluent such as flood rush occurs.

MoWR plans the Polder Embankment Project and Super Dike Impolder 17 in Moheshkhali (hereafter referred to as “super-dyke”) for the coastal area of the Matarbari-Moheshkhali area. Bangladesh Water Development Board (BWDB), MoWR, is the agency responsible for this super dyke project (dyke height = 6.5 m, dyke’s top elevation = 10.0 El.m, and dyke top width = 9.8 m). No super dyke is to be constructed where the height-raising is to be carried out. It is found that mangrove vegetation in coastal areas plays a vital role as a breaking wave, as confirmed in the JICA National Disaster Prevention Survey.

In the MIDI MP, a hazard map of the MIDI area should be formulated. Based on it, a comprehensive disaster prevention plan such as seawalls and land raise, and evacuation routes and passage at disaster, according to the development phase of each sector. It is also important to formulate an evacuation plan and reconstruction plan for the MIDI area and local community in an emergency, considering it is cyclone-prone area.

## 15.5 Environmental Management

There are following two (2) important ECAs (Ecologically Critical Area) such as Sonadia Island ECA and Cox's Bazar-Teknaf Peninsula ECA around the study site. Besides, there are several National Parks (NPs), Wildlife Sanctuaries (WS), Game Reserves (GRs) and small-scale Reserved Forests (RFs). Those NPs, WS and GRs are supervised by Department of Environment (DoE), the Ministry of Environment and Forest (MoEF) as well as RFs are by Department of Forest (DoF) of MoEF.

Within RFs areas, the traditional use of forest products is permitted for nearby local communities therein (note that regional office of DoF has the latest information of those RFs). It was informed that World Bank-funded mangrove plantation project was implemented at the channel between Matarbari and Moheshkhali Islands (to be completed by June 2015).

Considering environmental management in MIDI area, environmental zoning such as Core Zone, Buffer Zone, and Transition Zone, and Conservation Zone is set forth according to environmental characteristics to clearly show the priority, goal of ecosystem protection policy and actions for each zone.

## 15.6 Tourism

The Sector Development Plan (SDP) of the MIDI Area on tourism sector has not been formulated. However, the Industrial and Economic Zones Sector Development Plan has a Sonadia Eco-Tourism Park (SE-TP) project, which develops 909.4-acre of tourism park within the EZ Site 01.

For MIDI MP should be aligned with the upper-level plans such as the Tourism Master Plan and Cox's Bazar Development Master Plan, which are currently being drafted, and consists of the policies on tourism

development as a tourism destination centering Cox's Bazar which will be the gateway to the MIDI area, environmental consideration, and promotion of private investment.

## **15.7 Human Resource Development**

### **Technical and Vocational Education and Training**

Technical and Vocational Education and Training (TVET) is provided by engineering colleges, polytechnics, and other training institutions. The government of Bangladesh has intention to expand and provide technical education across the country and maintain globally competitive and skilled workforce through TVET.

In MIDI area (Cox's Bazar), there are two polytechnics and one technical school; however, 95% of the graduates of those schools tends to low out from the area as workforces. While, training institutes and centers provide short courses which enable local people to learn a trade and their graduates mainly remains within Cox's Bazar; so they contributes to local human resource development for some extent.

### **Tertiary Education**

The enrolment ratio to tertiary education around the country is in increasing trend and reached over 20% in 2020, though there is a gender gap.

In Chattogram, there are five universities, including University of Chittagong and Chittagong University of Engineering & Technology.

Since TVET graduates and university graduates will be the labor force in the MIDI area, it is necessary to consider the causes and countermeasures for the outflow and shortage of human resources when formulating MIDI MP.

## Chapter 1 Introduction

### 1.1 Survey Background

#### 1.1.1 Moheshkhali-Matarbari Integrated Development Initiative (MIDI) in National Socio-economic Development Context

Bangladesh is expected to grow in the future as a country of the "Next Eleven " along with the BRICs countries. In the long-term plan, "Perspective Plan of Bangladesh 2021-2041 (PP2041)", the Bangladesh government also seeks to reach Upper middle-income country status by 2031 and high-income country status by 2041 as the national goal with economic growth of 8.2-9.9 % annually. To achieve this, "transition- indeed transformation-can be realized through a process of rapid, inclusive growth leading to the elimination of poverty while increasing the productive capacity, building an innovating knowledge economy, and protecting the environment. The 8<sup>th</sup> 5-Yer Plan 2020-2025 (8FYP) is the start of PP2041 in a way that rings Bangladesh closer to the goals of attaining upper middle-income country status, achieving major SGDs targets, and eliminating extreme poverty by FY2031.

Meanwhile, the Bay of Bengal Industrial Growth Belt (BIG-B) is a development initiative to accelerate the economic growth of Bangladesh by utilizing the potential of Dhaka, Chattogram, and Cox's Bazar. Matarbari and Moheshkhali (MIDI) are positioned as its core area. Currently, many projects are ongoing in the MIDI area, such as the Matarbari Ultra Super Critical Coal-Fired Power Plant Project (scheduled to be completed in 2024) and Matarbari Port Development Project (expected to be completed in 2026) and other relevant infrastructure development projects.

#### 1.1.2 MIDI

To attract large-scale direct investment and promote industrial location in the MIDI area, the Bangladeshi government has decided to carry out a comprehensive development as a large-scale complex infrastructure development, namely "Moheshkhali Matarbari Integrated Infrastructure Development Initiative (MIDI)." The area is roughly Matabari Island, Moheshkhali Island, and its inland areas of Chakoria sub-district in Cox's Bazar District. In the MIDI area, in addition to port and power projects mentioned above, various large infrastructure projects such as energy bases, special economic zones (SEZ), roads, railways, and urban development are planned by the implementation ministries/divisions in charge. Some of them have been started/completed construction works.

For implementing the MIDI, the Bangladesh government has established MIDI-Coordination Committee (MIDI CC) and MIDI-Cell. MIDI CC to coordinate among the implementation ministries/divisions.

MIDI CC and MIDI-Cell, are expected to expedite MIDI by formulating a MIDI master plan, implementing monitoring and coordination of MIDI projects among the implementation ministries/divisions, and promoting and managing investment proposals from foreign and domestic companies to MIDI.

## 1.2 Objectives

### 1.2.1 Objectives

This survey contributes to a smooth implementation of MIDI by proposing a MIDI development system/mechanism and conducting preparatory work for formulating the MIDI master plan. In particular, this survey aims to propose 1) a structure and system to functionally implement MIDI and 2) a way of formulation of MIDI master plan and SDPs.

### 1.2.2 Expected Outputs

The expected outputs of this survey can be roughly divided into "Proposal on Institutional Development of MIDI " and "Strategic Planning Framework of MIDI," as shown below:

	Output	Contents
Proposal on Institutional Development of MIDI	MIDI Implementation Framework	<ul style="list-style-type: none"> <li>• MIDI management philosophy and overall procedure and organization</li> </ul>
	MIDI Implementation Operation Policy and Procedure	<ul style="list-style-type: none"> <li>• Details on the allocation of roles of organizations concerned and procedure regarding implementation of projects of MIDI under MIDI Implementation Framework</li> </ul>
Strategic Planning Framework of MIDI	The way for the formulation of the MIDI master plan Way to the formulation of SDPs in MIDI aster plan	<ul style="list-style-type: none"> <li>• Recommendations on the way to prepare a MIDI master plan</li> <li>• Recommendations on the way to coordinate SDP (coordination overall MIDI development policy and strategy with SDP's policy, overall coordination MIDI phasing development plan with project implementation timeline of SDPs, coordination among SDPs)</li> </ul>

Source: JST

## 1.3 Methodology

The JICA Survey Team carries out the following work tasks and summarizes the results into this progress report to achieve the above-expected outputs

- Collection and review of related documents and data
- Interview survey on current situations of sector and SDPs through online
- Analysis of data and information to identify "recommendations on institutional development" (MIDI implementation framework and MIDI operation policy and procedure)
- Review and analysis of SDPs for their improvement

## 1.4 Timeframe

This survey started in July 2021, and the final report will be submitted in July 2022 as scheduled.

## 1.5 MIDI and MIDI Project

In this report, the word "MIDI" means a large-scale complex infrastructure implemented in Cox's Bazar District, mainly in Matabari Island, Moheshkhali Island, and its inland area (in the administrative division, it is primarily in Chakoria Sub-district). The word "MIDI" is a general term for overall development. On the other hand, the word "MIDI project" refers to individual projects that constitute MIDI.

## Chapter 2 Reviewing MIDI Operation and Implementation Framework

### 2.1 Analysis of MIDI Implementation Framework

#### 2.1.1 Current Status and Issues

##### (1) MIDI: A Fast-Track Project

The implementing structure of MIDI consists of MIDI Coordination Committee (MIDI CC), MIDI-Cell, the secretariat to the MIDI CC, and project implementing organizations. MIDI CC was established in June 2018 and MIDI-Cell in October 2020. MIDI is one of 10 projects<sup>1</sup> which are the Fast Track Projects (FTP), key national projects designated by the government of Bangladesh. Therefore, the MIDI is monitored by the FTP Monitoring Committee. The Chairperson of the FTP Monitoring Committee is the Prime Minister, and the FTP Task Force is responsible for its operation. The FTP Task Force Secretariat is organized by the Economic Relations Division of the Ministry of Finance (MoF), which holds monthly meetings. MIDI-Cell reports on the progress of its MIDI projects at this regular meeting.

The impetus for creating MIDI was the BIG-B Initiative Agreement between the leaders of Bangladesh and Japan in September 2014. The main developments since then are as follows:

	Background	The decision by MIDI CC	MIDI Implementation Framework
Sept. 2014	BIG-B Initiative was agreed upon between the prime minister of Bangladesh and Japan.		
Feb. 2018	MIDI is included in the Fast Track Project.		MIDI is organized by the Prime Minister's Office and 14 organizations
Feb. 2018.		MIDI Coordination Committee is launched	MOL is included as a member.
Oct. 2018		MIDI CC invites the Ministry of Land (MOL) to be a member.	
Feb. 2019	Legislative & Parliament Affairs Division proposed establishing a MIDI policy committee chaired by the prime minister and creating MIDI Industrial Zone Authority(MIZA), but failed to realize on 5 March 2019.	MIDI CC decides to create a sub-committee on legal procedures and mandates  It was determined to establish MIDI-Cell at BEZA and appoint a few staff members to prepare the coordination right of plans and projects in Moheshkhali-Matarbari has already been granted to BEZA.	A sub-committee is established to examine legal matters for MIDI
Mar. 2020		MIDI CC decided to transfer MIDI-Cell from BEZA to the PMO on 20 August 2020..	MIDI-Cell was established in the PMO in October 2020.
Sept. 2021			Scope of work of MIDI-Cell is made clear by PMO Circular
Nov. 2021	MIDI Development Authority will possibly be established.		
After time	More development works under different organizations are anticipated., So that strengthening of the MIDI implementation framework is required.		

<sup>1</sup> The FTPs are the Padma Bridge, the Padma Bridge Railway, MRT6 Line, the Chittagon-Cox Bazaar Railway, Rampall Nuclear Power Generation, MIDI (port of Matarbari), Lampal Thermal Power Generation, and Pyra Deep Water Port.

(2) MIDI CC

Functions and roles of MIDI CC

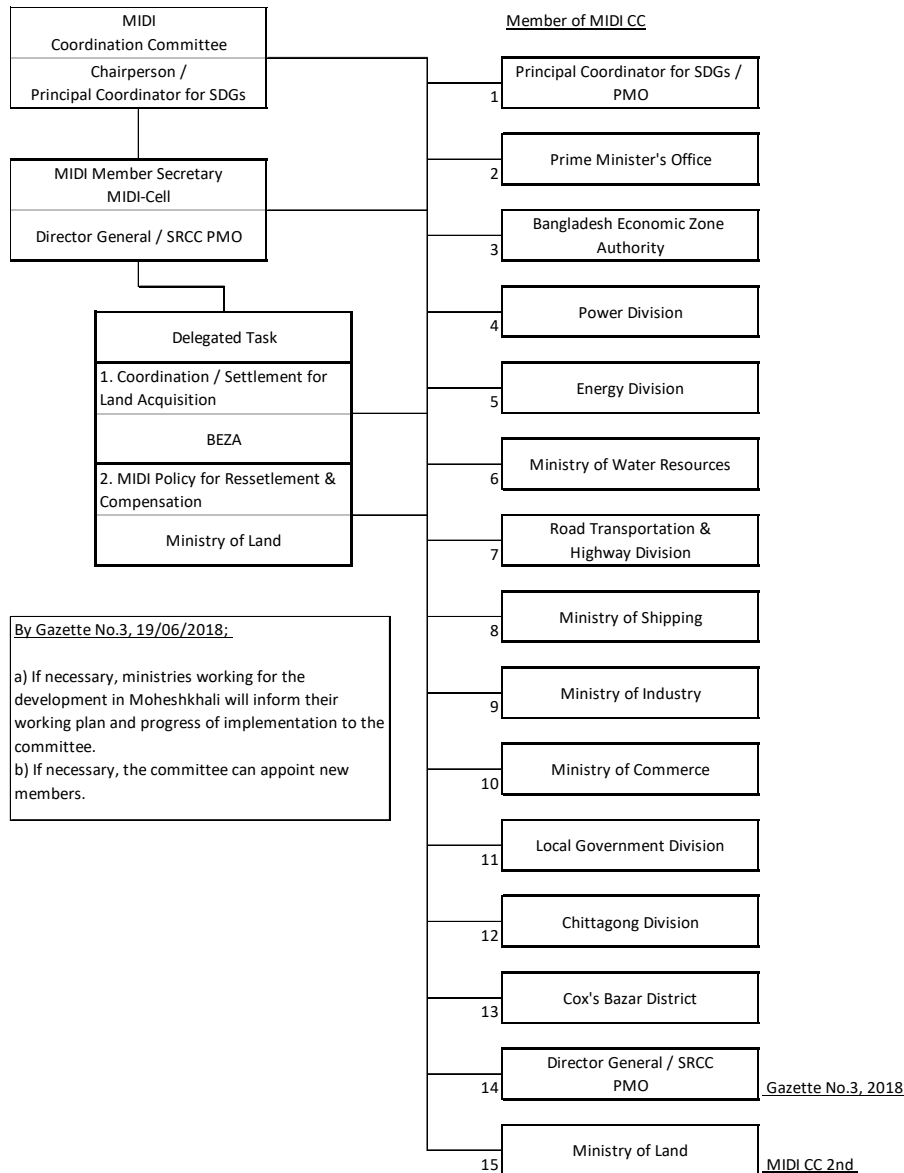
According to the minutes of the first meeting of the MIDI CC, the Chairperson, Principal Coordinator for SDGs of PMO, stated the following as the importance of MIDI CC.

- MIDI is an important project for Bangladesh. It is one of the Fast Track Projects as approved by the prime minister. It is included in one of the ten FTPs monitored by the FTP Monitoring Committee and is therefore directly monitored by the prime minister.
- MIDI is a key initiative for entire Bangladesh.
- All current and planned activities in the Moheshkhali-Matarbari islands are included in MIDI.

Also, MIDI CC has held 13 previous meetings (once every 2-3 months), enabling MIDI CC to share information, identify and consult issues, coordinate different interests and make collective decisions among the ministries and implementing agencies that are directly involved in the implementation of MIDI.

Participants in MIDI CC

The number of standing members in the meeting is fixed, and many infrastructure-related ministries and implementation organizations are included.



Source: MIDI-Cell

Figure 2.1 MIDI CC Organogram

Some standing members, such as the Ministry of Land (MoL), have become standing in the course because of the need. Standing members have not always joined the meeting every time. On the other hand, some organizations are not standing members but have joined meetings as they maintain information sharing, such as the Planning Division of the Ministry of Planning (MoP), Economic Relations Division of MoF, and MoL. Participants from each ministry are the Secretary or their delegates, as well as the members of the implementation agencies requested to be present. Divisional Commissioner of Chattogram and Deputy Commissioner of Cox's Bazar District have also been standing members. JICA participates almost every time. On the other hand, the MoP and the MoF, which have an interface with many ministries/divisions, including standing members of MIDI CC, have participated in some MIDI CC meetings while not being the standing members. The Implementation and M&E Division (IMED) of MoP is indirectly involved in MIDI by submitting written comments at the request of MIDI CC.

Although the FTP Task Force is an independent organization, MIDI CC reports MIDI projects at the FTP Task Force every month.

### Operation of MIDI CC

The main activities of MIDI CC are exchanging ideas and information at meetings, and the operating styles of MIDI CC meetings are relatively flexible. MIDI-Cell serves as the Secretariat and the Principal Coordinator for SDGs, and PMO serves as the Chairperson. In general, the meetings will proceed as follows.

- Confirmation of agenda and agreements at the last meeting
- Progress and issues reported by the infrastructure-related ministries and implementing agencies
- Comments and advice from other ministries
- Summary by the Chairperson to facilitate the identification and consultation of issues, the coordination of different interests and collective decisions, creating and sharing minutes of meeting

The agenda can be divided into 1) project-related issues and 2) operations of MIDI CC. The former progress one by one through the accumulation of the Chairperson's summary to facilitate the identification and consultation of issues, the coordination of different interests, and collective issues.

Project-related issues are:

- Site overlapping problem
- Issues related to conflicts between project plans
- Support for resolving factors that hinder the progress of projects, e.g., surveys, plans and design, selection and contract of contractors, compensations for land acquisition and environmental effects

While, issues related to the operation of MIDI CC are:

- A possibility of preparation and publication of MIDI CC's TOR
- To organize MIDI project information and share the information on project progress
- Review of common forms for monitoring and project progress reports
- Launch of focal point meeting. It has been organized to follow up and provide technical support to the discussions and decisions by MIDI CC. The meeting is attended by officials familiar with managerial and technical matters of their respective ministries/divisions.

It is a general understanding that The Chairperson's summary to resolve issues at MIDI CC between ministries, agencies, and implementing agencies is a guidance/coordination/recommendation but does not have mandatory power over the ministries, agencies, and implementing agencies. However, this summary plays a significant role. The authority of the Chairperson is supported by the chairperson being the Principal Coordinator for SDGs/PMO.

### Challenges for the future of MIDI CC

In this way, MIDI CC plays a key role in sharing information and creating immediate consensus on project-level concerns. This role should be maintained and strengthened. To this end, MIDI CC should support monitoring functions and accelerate the preparation and use of the MIDI master plan.

#### (3) MIDI-Cell

The activities of MIDI-Cell are specified in the President's Order PMO Circular (9/Feb./2021) as follows:

- Setting up a MIDI CC meeting
- Compilation and preparation of meeting materials
- Preparation and sharing of MIDI CC meeting minutes



- Project monitoring on the Web
- Periodic reports to MIDI CC Chairperson and various ministries and implementing organizations
- Aggregation of SDPs and preparation of IDP and MP
- Resolving duplicate problems in projects sites by ministries and implementing agencies
- Promoting recruitment

The staff members of MIDI-Cell have been thriving hard, as specified by the PMO Circular above. However, MIDI-Cell will call for further reinforcement of its staff to cope with increasing tasks such as MP preparation, continuous project monitoring, and further communications with implementing ministries/divisions, DC, and local governments. Currently, MIDI-Cell has three officials, including the Director General.

The objectives of these tasks are as follows: 1) understanding the current status of MIDI, 2) coordination among projects, and 3) presenting ideas for resolving issues.

#### (4) Discussions at MIDI CC Meetings

Table 2.1 summarizes the main discussions at the last 13 MIDI CC meetings. The following discussions were made as per the MIDI CC.

- To provide information about the progress of the projects
- Problems that arise according to the progress of the projects (e.g., project contractor selection and contract, coordination of design between projects) and disruptive factors in the progress of the project
- Coordination of the project's site
- Land acquisition-related (Acquisition, Compensation)
- Reinforcing the functions of DC offices to accelerate land acquisition.
- MoL's development of a policy on land acquisition
- An environmental survey by the Ministry of Environment, Forests and Climate Change (MoEFCC)
- Project Monitoring, SDPs, and MP prepared by MIDI-Cell

In summary, MIDI CC meetings have often discussed inter-project coordination. The current incremental approach brings many of these discussions without an overall plan. MP should be developed for the smooth implementation of future MIDI. A comprehensive plan is essential, particularly in the following points:

- Ensure a common understanding of the overall picture of MIDI among the relevant implementing agencies
- Coordination among the relevant implementing agencies on the interrelationships and priorities of MIDI projects.
- The basis for securing budgets for MIDI projects, and
- Promote understanding of MIDI among related investors, residents, and donors

Table 2.1 MIDI CC Agenda

Discussion Agenda					
No	Date	Information on Progress of Projects	Land Acquisition	Coordination among Projects / Organizations	Related to SDP/IDP/MP, MIDI Operation
1	4-Mar-2018	<p><b>[Report]</b> Approval as FTP which will be directly supervised by PM. Relevant ongoing projects in the MIDI area will be included in MIDI.</p> <p><b>[Report]</b> On-going plans and projects by several ministries and JICA.</p>	<p><b>[Comment]</b> Importance of land acquisition (for township development)</p> <p><b>[Comment]</b> Necessity of strengthening of DC Office of Cox's Bazar District (for smooth implementation of land acquisition and compensation for PAPs)</p>	<p><b>[Direction]</b> Alignment of SPM with double pipe line and Matarbari Port Access Channel</p> <p><b>[Comment]</b> Improvement of access from Cox's Bazar to Moheshkhali / Sonadia Island</p> <p><b>[Comment]</b> Involvement of security and coastal Guard/ MoHA in the project implementation phase</p> <p><b>[Comment]</b> Involvement of Bridge Div.</p>	<p><b>[Comment]</b> Necessity of MP</p> <p><b>[Comment]</b> Incorporation of 1) climate change and embankment plan, 2) industrial development master plan, and 3) BEZA's projects</p> <p><b>[Comment]</b> Need for special incentives for investors</p>
2	10-Jun-2018	<p><b>[Report]</b> Progress of power project projects (studies and construction)</p> <p><b>[Report]</b> Installation of SPM project, parks and Economic Zones</p> <p><b>[Report]</b> Road construction for coal-based power plant</p> <p><b>[Report]</b> Starting railway project</p> <p><b>[Direction]</b> Submission of a list of ongoing projects</p>	<p><b>[Report]</b> Progress of land acquisition of power plant projects</p> <p><b>[Report]</b> Hand over of land (from BWDB to power plant project/BEZA/RHD, from MOL to RHD)</p> <p><b>[Report]</b> Land acquisition for port construction</p> <p><b>[Direction]</b> Request to MoL of monthly-basis coordinated report regarding land acquisition</p>	<p><b>[Direction]</b> Coordination among BEZA, CPGCBL, CPA, and SK Gas for jetty construction</p> <p><b>[Direction]</b> Involvement of MoL</p> <p><b>[Direction]</b> Coordination among CPGCBL, NBR, BEZA, and BIDA regarding the 2x600 coal-fired plant construction project</p> <p><b>[Direction]</b> Coordination on SPM with the double pipeline (BPC, Navy)</p>	<p><b>[Report]</b> Preparation of project list and master plan survey by JICA</p>
3	7-Oct-2018	<p><b>[Direction]</b> Request information on ongoing projects by relevant ministries to MIDI CC every month</p>	<p><b>[Report]</b> Land acquisition for port construction</p> <p><b>[Direction]</b> Request to MoL of monthly-basis coordinated report regarding land acquisition</p>	<p><b>[Report]</b> Discussion result and solution among BEZA, CPGCBL, CPA, and SK Gas for jetty construction</p> <p><b>[Direction]</b> Communication between DC Cox's Bazar and MoL</p> <p><b>[Direction]</b> Coordination between MoS and BEZA on land acquisition for Port Project</p> <p><b>[Direction]</b> Cooperation of NBR on 2x600 coal power plant</p> <p><b>[Report]</b> Preparation of map regarding overlap/ duplication of projects by JICA</p> <p><b>[Comment]</b> Sharing the importance of</p>	<p><b>[Direction]</b> Formation of the committee for legal procedure and for determining the obligation</p> <p><b>[Direction]</b> Determination of focal persons in ministries/organizations for MP survey by JICA</p>

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				environmental consideration for industrial development	
4	29-Nov-2018		<p><b>[Report]</b> Progress of land acquisition for power plants</p> <p><b>[Direction]</b> Need for solution for complex compensation problem on land acquisition by MoL</p> <p><b>[Direction]</b> Digitalization work of mouza map of lands by BEZA</p> <p><b>[Direction]</b> Procedure of land allocation to government-private organizations -&gt; request to project implementing ministry/division to send the proposal to DC and BEZA</p> <p><b>[Report]</b> Presentation of the draft report of the Land Use Plan Survey by JICA -&gt; further coordination and discussion with MoWR, MoEFCC, MoR/RHD</p>	<p><b>[Direction]</b> Demarcation between MoS and CPA on port construction (ownership and implementation)</p> <p><b>[Direction]</b> Coordination of land allocation for SK Gas/LNG among EMRD, BEZA, and JICA</p> <p><b>[Comment]</b> Share the importance of environmental protection</p>	
5	14-Feb-2019	<p><b>[Direction]</b> Need for preparation of presentation, incl. recommendation/advice by JICA Survey Team and relevant project implementing ministries to present to the PM</p> <p><b>[Report]</b> Bidding procedure to establish LNG terminal</p>	<p><b>[Direction]</b> Determination of demand of land and mitigation of overlapping -&gt; meeting among BEZA and project implementing ministries</p> <p><b>[Report]</b> Land acquisition by CPA for LNG, LPG, and coal terminal</p> <p><b>[Direction]</b> Having a meeting for land acquisition and compensation with Chief Secretary (if necessary)</p> <p><b>[Direction]</b> Need of proper resettlement plan and rehabilitation measures (incl. training to PAPs)</p>	<p><b>[Report]</b> Proposal on setting up MIDI office</p> <p><b>[Direction]</b> Request of tourism projects by MoCAT to be shared</p> <p><b>[Direction]</b> Proposal of future MIDI project area expansion by LGD to be submitted</p> <p><b>[Comment]</b> Need for consideration on drinking water supply and determination of utility supply points</p> <p><b>[Comment]</b> Formulation of SDP after land-use plan completed</p>	

6	11-Apr-2019	<p><b>[Report]</b> Developer selection / procurement process for construction of LNG / LPG Terminal -&gt; request on excavation of Matarbari Port phase - 2</p> <p><b>[Comment]</b> Need for the preservation of the environment with proper legal measures</p> <p><b>[Direction]</b> Request of project list from MoC</p> <p><b>[Report]</b> Proposal for the establishment of a Digital Post Office by MoPTIT</p>	<p><b>[Direction]</b> Solving complexity relating to overlapping in land acquisition by BEZA</p> <p><b>[Direction]</b> Land acquisition of land for Channel, LNG, and LPG jetty (MoS) and rest of the land for LNG, LPG terminal(EMRD)</p> <p><b>[Direction]</b> Need for training and new employment for PAs: BEZA will coordinate and monitor</p>	<p><b>[Direction]</b> Coordination between RHD and EMRD to solve the overlapping issue of construction of a road of LNG terminal and road of RHD</p> <p><b>[Direction]</b> Coordination between BEZA, PD, and MoR/RHD to solve the overlapping issue in the projects</p>	<p><b>[Report]</b> Approval of final draft of Land Use Survey Plan by the PM</p> <p><b>[Comment]</b> Inclusion of project of MoR in the MAP</p> <p><b>[Report]</b> Proposal of MIDI-Cell and its TOR and Revision of BEZA Law 2010</p> <p><b>[Direction]</b> Submission of SDPs (in progress: PD &amp; EMRD, MoS)</p> <p><b>[Direction]</b> Request to BEZA/JICA on compiling SDPs into MP</p>
7	11-Jul-2019	<p><b>[Direction]</b> Consideration of Connecting Railway Line to Power Plant by PD/BPDB/CPGCBL -&gt; coordination with MoR and BR</p> <p><b>[Report]</b> LNG/LPG Terminal(discussion between EMRD and EOJ/JICA)</p>	<p><b>[Direction]</b> Preparation of Land Acquisition Report by BEZA</p> <p><b>[Direction]</b> Submission of Land acquisition proposal for LNG/LPG Terminal from BEZA to DC Cox's Bazar</p> <p><b>[Direction]</b> Preparation of resettlement action plan (RAP) for Port Area by MoS and CPA</p> <p><b>[Direction]</b> Preparation of Integrated Resettlement Policy for MIDI by MoL (BEZA will monitor)</p>	<p><b>[Direction]</b> Collection of coordinate information of all projects proposed in the MIDI area by BEZA</p> <p><b>[Direction]</b> Coordination to solve the overlapping issue between SPM Pipeline and Railway: BEZA, ERL, and BR</p>	<p><b>[Report]</b> Establishment of MIDI-Cell and preparation of Gazette for MIDI by PMO</p> <p><b>[Direction]</b> Request of SDP (in JICA format) for main sectors by Oct 2019 (port: MoS, road: RTHD, railway: MoR, power: PD, energy: EMRD., industry/EZ: MoI/MoC/BEZA)</p> <p><b>[Direction]</b> Request of SDP (in JICA format) for local facility by Mar 2020 (township:LGD, water:LGD/ MoWR)</p> <p><b>[Direction]</b> Drafting of IDP by MIDI-Cell/BEZA</p>
8	15-Oct-2019	<p><b>[Report]</b> Progress of procurement of developer of LNG, LPG Terminal (EMRD) -&gt; report submission to PMO</p> <p><b>[Direction]</b> Expediting execution of channel of Matarbari Port phase 2 (MoS)</p> <p><b>[Report]</b> Presentation of railway connectivity (BR/MoR)</p> <p><b>[Report]</b> Establishment of One-Stop Service office in BEZA acquired land (MoC)</p> <p><b>[Report]</b> Presentation of JICA survey (water resource)</p>	<p><b>[Report]</b> Land acquisition proposal coordinated by BEZA -&gt; pending requests to be submitted from BOC, PRGCL, and BR</p> <p><b>[Report]</b> Comprehensive Resettlement Policy by MoL -&gt; workshop to be held</p> <p><b>[Report]</b> Current status of land acquisition for port development (MoS)</p> <p><b>[Report]</b> Submission of the final land use plan by JICA -&gt; feedback to be provided in next meeting</p>	<p><b>[Report]</b> MoEFCC's field visit (found no complaint)</p> <p><b>[Direction]</b> Request from BEZA to MoPTIT for submission of proposal on establishment of Digital Post Office</p> <p><b>[Direction]</b> Request to PD and EMRD for preparation of concept note on establishment of the training center</p>	<p><b>[Report]</b> Need of correction of gazette of MIDI Committee and review of MIDI-Cell structure (PMO and BEZA)</p> <p><b>[Direction]</b> Progress of SDPs and request of submission of the rest SDPs promptly</p> <p><b>[Comment]</b> Request on the inclusion of SPM with double pipeline into MP</p>

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9	<p><b>[Direction]</b> Expediting selection of developers of LNG, LPG terminal (EMRD)</p> <p><b>[Direction]</b> Expediting excavation of channel for Matarbari Port Phase 2 (CPA)</p> <p><b>[Report]</b> Process of JICA survey(water) (MoWR monitors)</p> <p><b>[Report]</b> Railway FS -&gt; BR will hold a workshop</p>	<p><b>[Direction]</b> Expediting land acquisition process by BEZA's coordination on overlapping issues</p> <p><b>[Direction]</b> PD will acquire land for solar power from BEZA</p> <p><b>[Direction]</b> Request to CPA to follow up with MoL and cooperate with DC Cox's Bazar to complete the land acquisition process</p> <p><b>[Direction]</b> Request to relevant stakeholders to submission of pending proposal for land acquisition</p> <p><b>[Report]</b> Finalization of comprehensive resettlement policy (MoL)</p> <p><b>[Direction]</b> Settlement of lease payment from GTCL to BEZA</p>	<p><b>[Report]</b> Visit of MOEFCC staff to the site</p> <p><b>[Report]</b> Progress of concept note preparation on training center establishment (CPGCBL, PD, and EMRD)</p>	<p><b>[Report]</b> Progress of correction of gazette of MIDI committee and structure of MIDI-Cell</p> <p><b>[Direction]</b> Current progress of SDPs (pending: LGED, BEZA, and MoWR)</p> <p><b>[Direction]</b> to concerned stakeholders to follow the directive by FTP Monitoring Committee (Bridge on Kohelia, sweet water availability survey, local springs, rainwater preservation, biodiversity maintenance, forest preservation, afforestation, and rehabilitation and training programs for PAPs in MIDI area)</p>
10	<p><b>[Report]</b> Progress of selection of developers of LNG.LPG terminal (EMRD, BPC)</p> <p><b>[Report]</b> Excavation of channel for Matarbari Port Phase 2 (CPA, CPGCBL)</p> <p><b>[Report]</b> Process of JICA survey (water) (MoWR and LGD will conduct a survey)</p> <p><b>[Report]</b> Process of JICA survey (township dev.)</p> <p><b>[Report]</b> Railway FS &gt; MoR will hold a workshop</p> <p><b>[Report]</b> Actions are taken by BEZA and MoI following directions by FTP Monitoring Committee</p> <p><b>[Report]</b> Progress of MIDI projects: 17/37 are short-term projects by 2024, while only 5/17 are completed</p> <p><b>[Direction]</b> Request of progress report and updated project list to be submitted to MIDI-Cell, BEZA, ERD, and PMO</p>	<p><b>[Direction]</b> Update of land acquisition proposal submission -&gt; Expediting land acquisition (BEZA)</p> <p><b>[Direction]</b> Request from MoL to all stakeholders to verify checklist for land acquisition and ensure due diligence before submission</p> <p><b>[Report]</b> Slow disbursement of land acquisition compensation (DC Cox's Bazar, CPGCBL, PD)</p> <p><b>[Direction]</b> Report on finalization of comprehensive resettlement policy (MoL)</p> <p><b>[Report]</b> Land allocation from DC Cox's Bazar to CPGCL -&gt; establishment of training center (CPGCPL and PD)</p> <p><b>[Direction]</b> Settlement of lease payment from GTCL to BEZA</p> <p><b>[Direction]</b> Expediting compensation of land for power plant Phase 2 commencement</p>		<p><b>[Report]</b> Progress of correction of gazette of MIDI committee and structure of MIDI-Cell -&gt; to be placed at the Governing Body meeting on 20 Aug 2020</p> <p><b>[Direction]</b> Current progress of SDPs (pending: LGD and MoWR)</p>

11	16-Sep-2020	<p><b>[Direction]</b> Request of monthly progress report submission for all stakeholders</p> <p><b>[Report]</b> Selection of developer Company for LNG, LPG Terminal</p> <p><b>[Direction]</b> Expediting sending RDPP of excavation of channel for Matarbari Port Phase 2 to Planning Commission and its approval from ECNEC (PD)</p> <p><b>[Direction]</b> Expediting approval of RDPP of training center establishment (PD)</p> <p><b>[Report]</b> Progress of JICA survey (water resource): extension of the survey period (MoWR and LGD collaborate)</p> <p><b>[Report]</b> Employment of consultant for railway</p> <p><b>[Report]</b> Progress of MID projects (14 projects)</p>	<p><b>[Direction]</b> Expediting land acquisition for port/MoS (MoL)</p> <p><b>[Direction]</b> Expediting compensation payment for road project of RTHD (DC Cox's Bazar)</p> <p><b>[Report]</b> Progress of land acquisition for LPG and LNG terminal: on track</p> <p><b>[Direction]</b> Expediting handover of the land of WDB from MoWR to BPC</p> <p><b>[Direction]</b> Expediting DPHE to send opinion to DC Cox's Bazar</p> <p><b>[Direction]</b> Expediting land acquisition process for CPA (DC Cox's Bazar)</p> <p><b>[Direction]</b> Expediting Comprehensive Resettlement Policy of MoL</p>	<p><b>[Report]</b> Finalization of MIDI project monitoring format and formulation of its guideline</p> <p><b>[Report]</b> Submission of water resource SDP</p> <p><b>[Report]</b> Drafting progress of township SDP</p> <p><b>[Report]</b> Presentation of JICA proposal of MIDI Implementation Framework survey</p>
12	11-Mar-2021		<p><b>[Direction]</b> Formation of a committee regarding the Kohelia River issue -&gt; will conduct a site visit and submit a report within one month</p> <p><b>[Direction]</b> Solving overlapping roads construction projects between BEZA and LGD</p> <p><b>[Direction]</b> Holding a meeting among EMRD, BPC, CPGCBL, CPA, and contractor on pending SPM pipeline construction</p>	<p><b>[Report]</b> Submission of SDP of water resource SDP</p> <p><b>[Report]</b> Drafting progress of township SDP</p> <p><b>[Report]</b> Presentation of JICA proposal of MIDI Implementation Framework survey</p>
13	9-Sep-2021	<p><b>[Report]</b> Selection of developer Company for LNG Terminal</p> <p><b>[Report]</b> Progress of RDPP of excavation of channel of Matarbari Port</p> <p><b>[Report]</b> Studies regarding MoWR -&gt; DPP to be prepared and proposed project to be included in the MIDI project list</p> <p><b>[Report]</b> Progress of railway study</p> <p><b>[Direction]</b> Request to all stakeholders on submission of progress report to MIDI-Cell, and ERD</p> <p><b>[Direction]</b> Request to PD to provide updated information about coal projects and utilization plan of free land</p>	<p><b>[Direction]</b> Expediting land hand over to BPC (MoL, MoWR, BPC)</p> <p><b>[Direction]</b> Expediting land acquisition process for RPGCL (DC Cox's Bazar)</p> <p><b>[Direction]</b> Expediting compensation payment within the time frame (DC Cox's Bazar)</p> <p><b>[Direction]</b> Expediting land acquisition cases of CPA (DC Cox's Bazar)</p> <p><b>[Direction]</b> Request of posting additional manpower to DC Office Cox's Bazar</p> <p><b>[Direction]</b> Expediting land acquisition for LNG terminal development (DC Cox's Bazar, CPA)</p> <p><b>[Report]</b> Progress of Comprehensive Resettlement Policy: to be published shortly (MoL)</p>	<p><b>[Report]</b> Submission of SDP of LGD</p> <p><b>[Direction]</b> Arrangement of monthly monitoring meeting among MIDI-Cell and focal points</p> <p><b>[Report]</b> Presentation of JICA survey on MIDI implementation framework</p>

Source: Minuts of Meetings of MIDI CC

## 2.1.2 Current Issues from the Viewpoint of Promoting MIDI Projects

The following four points will review the current status of the implementation process in MIDI projects. These points have all been discussed in the MIDI CC repeatedly.

- Adjustment of land use
- Acquisition of land and compensations
- To secure the budget
- Promoting resolution of disruptive factors in project implementation through monitoring

### (1) Adjustment of Land Use and Site

So far, the implementation of MIDI projects has not been a style in which each implementing organization carries out projects based on the master plan. However, they have been developed in such a way that the development is carried out separately, like the implementation of plant construction, port construction, construction of special economic zones, and construction of associated access roads, and responding whenever problems arise. Consequently, many discussions have been made in MIDI CC on land use and site coordination. Coordination has been carried out by instructing stakeholders to discuss sites that need to be coordinated at MIDI CC meetings, coordinating by relevant parties, and reporting to MIDI CC. MIDI is expected to continue developing local infrastructures, such as roads, railroads, and townships. It is also likely to take care of relevant local operations, for example, coastal security, vocational training, clinics, schools, sewage treatment, waste repositories, etc. Since the history to date anticipates the coordination of land use plans associated with future local infrastructure development, there may be rules for coordination procedures.

### (2) Acquisition of Land and Compensation for Residents

Land acquisition for MIDI projects has been accomplished by the usual public land acquisition process in Bangladesh, i.e., requesting Deputy Commissioner to acquire land after the project implementing organization has determined the necessary site.

#### Land acquisition process

Governmental land acquisition for utilities in the Acquisition and Requisition of Immovable Property Ordinance (2017) (Ordinance II) in Bangladesh is performed in roughly nine steps:

Table 2.2 Process of Land Acquisition

1. Application for site acquisition plan
2. Conduct feasibility study on site acquisition plan
3. Set up meetings of the district land allocation committee and prepare minutes of the meetings
4. Prepare and maintain records related to the site acquisition
5. Prior notification of the site acquisition
6. Final approval of the site acquisition
7. Preparation of compensation
8. Payment of compensation to the landowners concerned and affected residents
9. Preservation of records and registration of the site acquisition

Source: JST

### Problems in the current land acquisition

The acquisition of public land in Bangladesh is carried out in accordance with The Acquisition and Requisition of Immovable Property Act, 2017. The acquisition of public land, not only in the MIDI project but in any project in Bangladesh, has been a time-consuming process of careful negotiation with the land owners. In many cases, the intervention of real estate agents and other parties in anticipation of rising land prices after development has resulted in prolonged arbitrage. Such lengthy land acquisition and increasing land prices can significantly risk implementing MIDI projects. Therefore, an issue to be considered may be the possibility of securing public land ahead of time.

### (3) To Secure the Budget

MIDI CC is not recognized as having any direct authority on budgeting. Consequently, there is little discussion on budgeting for the implementation of projects in the planning stage. However, the Chairperson's decision has been made to say that the relevant ministries and implementing organizations should submit their project plans to the MoP-ECNEC and obtain approval as soon as possible.

### Existing process: each ministry and implementing ministries/divisions → MoP and MoF

The fiscal year in Bangladesh is July 1 through June 30 of the following year. The leading players in budgeting are three agencies: each of the line ministries, MoP, and MoF. The overall budgeting process consists of the following two phases:

- Preparation of Annual Development Programme (ADPs)
- Preparation of Development Budgeting

#### ■ ADP preparation

First, the Programming Division (PD) of MoP requests each ministry to submit a project plan, and each ministry submits a project plan. Sector divisions of MoP review the project plan, and the results of the review are summarized in the PD. At this point, the Finance Division (FD) of the MoF notifies PD of the revenue outlook for the current fiscal year, and PD prepares the draft ADP. Discuss and coordinate project plans with various ministries and implementing organizations.

The MoP must submit the draft ADP to the Executive Committee of the National Economic Council (ECNEC) for approval. ECNEC membership is as follows:

- Chairperson: Prime Minister
- Acting Chairperson: Minister of Finance
- Ministerial-level: Local Governments, Rural Development and Cooperatives (MoLGRDC), Education, Food, Water Resources, Industry, Commerce, Posts, Telecommunications and Information Technology (MoPTIT), Agriculture, Science and Technology, and other related ministries
- Principal Secretary level: Principal Secretary of PMO, Deputy Secretary of ERD, MoF, Deputy Secretary of IMED, MoP, Governor of the Bank of Bangladesh, Representatives of the division concerned in MoP

The project described in ADP consists of the following two parts.

- White Page: Approved by ECNEC and approved for the current fiscal year budget.



- Green Page: Will be considered next year. Continuous discussions between the ministries and the MoP and MoF. In next year's budgetary applications, some ministries will replace Green Page projects with new White Page projects.

#### ■ Development budgeting

In preparing a development budget, ADP will first be delivered by the MoP to MoF by the end of March of the previous fiscal year before last year. The MoF and the ministries then discuss each project within ADP. In the latter half of the discussion period, three-party discussions between the MoF, the ministries in charge, and MoP are held multiple times. Based on the discussions, the budgeting work will be started by November 24 of the previous year.

Regarding revenue estimate, the Economic Relations Division (ERD) of MoF is responsible for public assistance, and the Internal Resource Division (IRD) of MoF is responsible for domestic money, such as tax revenues.

In preparing the budget plan, the development and recurrent budget for each ministry shall be determined temporarily by Budget Management Resource Committee (BMRC). The results shall be disclosed to the MoP and all ministries. This BMRC is a meeting of the relevant Cabinet members as follows.

- MoF, MoP, each Minister, and Deputy Secretary of MoF
- Ministers of the top ten ministries in budget size, including MoLGRDC, education and technology, health, power, energy and mineral resources (MPEMR), transportation, railway, civil aviation and tourism (MoCAT), road and bridges, water resources (MoWR), and housing and public works (MoHPW): this accounts for more than 70% of the total development budget.

Then, each ministry will hold a budget meeting to prepare a budget plan. The budget meetings of each ministry will be discussed by each ministry and the Finance Division, draft a budget plan, and then examined within each ministry. If the requirements of each ministry and the budget office are very different, the budget office will review the transition of the expenditure for about the past decade and create a draft plan. After that, if the ministers of each ministry request a new or increased budget from the Minister of Finance, the three-party consultation between the Finance Division, each ministry, and MoP shall be conducted.

The total spending is determined based on the results. In some cases, the deficit budget can be planned. In recent years it has been about 7% deficit.

The budget is usually submitted to the Parliament every April 20-26. In submission, the following steps will be taken.

- Informal reports from the Minister of Finance to the Prime Minister were simultaneously released to the Top10 ministries in terms of budget size.
- The Minister of Finance reports the budget formulation policy to the Parliament.
- The budget is reported to the Cabinet, approved by the President, and subsequently reported to the Parliament.

As described above, the budget for all development projects is secured through each ministry, and organizations other than each ministry do not enter the budgeting process. Exceptionally, however, the following is spent by the Finance Division without having to go through each ministry.

- Direct disbursements to local governments as part of emergency response to natural disasters.

- Additional expenditure on FTP from reserves.
- Additional expenditures in response to direct requests from Ministers to the Minister of Finance.
- Additional expenditure for projects lacking funding in the fourth quarter (requires consultation with the MoP).

New Process after the foundation of MIDI CC: each ministry/division → MIDI CC → FTP Monitoring Commission → ministries/divisions → MoP and MoF

MIDI project is designated as FTP and can receive additional expenditure on FTP as described above, in addition to the normal budgeting process. In addition, during budget preparation, interviews with the Finance Division indicate that the Finance Division always ascertains the funding situation of FTP projects.

#### (4) Project Monitoring

##### Current monitoring system

In Bangladesh, the project monitoring system has been established, and the monitoring of projects described in the Annual Development Programme (ADP) has been implemented accordingly. The evaluation and monitoring (hereinafter referred to as "M&E") of a project is done by Monitoring Cell established in each ministry, and the Implementation M&E Division (IMED) of MoP summarizes them. IMED will monitor the project itself, not the organization.

IMED and M&E services are based on Rules of Business rather than law. Rule of Business is an organizational rule on administrative organizations and the content of works. It is based on the Cabinet's decision, overseen by the Cabinet Division of PMO, and is revised continuously<sup>2</sup>. Note that this Rules of Business specifies all standing administrative agencies of the Bangladesh government, including those of various ministries. Coordinating committees such as MIDI CC, on the other hand, are not covered by these Rules of Business.

IMED organizes information on the progress of projects on a quarterly and yearly basis and reports it to the president, National Economic Council, ECNEC, and the ministries and implementing agencies. IMED may also perform site verification surveys to prepare for reporting. Use external experts such as consultants as necessary. Based on this report, advice and consultations shall be provided to each ministry and implementing agency as necessary. This advice and consultations are used to create the next level of policy and planning.

In addition to the regular monitoring described above, when the ADP project has been completed, the authorities will submit their Project Completion Report (PCRs) to IMED. IMED will evaluate this against the project plan. Use external experts such as consultants as necessary.

Almost all ministries and offices set up monitoring cells as described above to monitor the projects of ADPs that each ministry controls and report to the ministries and IMED. A joint monitoring framework shall be established for each ministry, and monitoring shall be implemented accordingly. Collaborative monitoring teams of IMED ministries will be organized at the request of each ministry. Monitoring cells have also been set up in the MoF. It is not monitoring an ADP-related project but the budget operations of independent administrative agencies (e.g., RAJUK) and quasi-independent administrative agencies.

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<sup>2</sup> [https://cabinet.portal.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/legislative\\_information/d8e711a8\\_0744\\_47d4\\_a1fd\\_fce1Dfb1a5d7/Rules%20OP%20Business-2-19960001.pdf](https://cabinet.portal.gov.bd/sites/default/files/files/cabinet.portal.gov.bd/legislative_information/d8e711a8_0744_47d4_a1fd_fce1Dfb1a5d7/Rules%20OP%20Business-2-19960001.pdf)

IMED is not directly involved in planning. However, IMED participates in each ministry's project narrowing process and project screening, which indirectly influences policy/planning.

#### Monitoring and MIDI projects

Current IMED monitoring is on individual projects, and monitoring by MIDI CC is partly keeping pace with IMED monitoring. IMED monitoring is not inferred to focus on inter-project relationships such as balancing project progress and impacting other projects (potential bottlenecks).

At the 11th MIDI CC meeting in September 2020, MIDI-Cell proposed a particular format for project monitoring, but it does not seem to be operating yet fully. One way of thinking is to reduce the workload by better using the monitoring results of individual projects by IMED and the Monitoring Cells of each ministry and by switching monitoring to online-based operations to perform overall monitoring as a MIDI.

### **2.1.3 MIDI CC and MIDI-Cell Implications and Challenges**

Considering the current situation and issues mentioned above, the roles and problems of MIDI CC and MIDI-Cell can be summarized as follows.

#### **(1) Roles**

- Since it was placed in the PMO, it is easy to take the initiative in shaping a common understanding among the ministries and implementing agencies concerned and making immediate decisions. According to MIDI-Cell, "it takes time to create laws and rules, but the decision can be made without waiting for the development of laws and rules, under the prime minister's authority."
- Flexible management and PMO leadership have led the pending process moving forward.
- The management system has been strengthened undeniably by the JICA's continuous support from JICA, both tangible and intangible support, including the dispatch of a senior technical advisor on a long-term basis.

#### **(2) Issues**

- MIDI CC and MIDI-Cell are not described in the Government's Rules of Business. Thus, the authorities of MIDI CC within the government are not clear. Consequently, the Chairperson's decision is not necessarily regarded as a decision that is forceable against other organizations, although it is guidance or coordination.
- Consequently, planning (SDP/IDP/MP) begins without sharing the planning framework. New issues will emerge after the completion of ongoing major infrastructures, including rapid increase in the number of workers due to the entry of the enterprises and the need to provide living facilities for them, and land speculation resulting from the completion of the infrastructure.
- The most critical role of MIDI now appears to be continuous information-sharing across relevant ministries, implementing agencies, and monitoring of MIDI as a whole. However, to date, information shared and exchanged at MIDI CC meetings are no more than those of individual projects. In September 2020, MIDI agreed on a shared monitoring format. Some implementing organizations respond regularly, but they have not yet been thoroughly implemented. Therefore, monitoring results are fed back to the relevant ministries and implementing organizations, but they

are less reflected in the development and modification of the government-wide MIDI strategy.

- Because FTP is of particular importance nationwide by definition, counter-part funding is secured. However, even if the living facilities are essential regionally, they are not subject to FTP because they are not important nationwide. It is thus likely that budget allocation will be delayed for local projects.
- MIDI-Cell personnel and organizational structure as a Secretariat is very limited, and all it can do is support MIDI CC's activities per its instructions. It does not yet exercise initiative in fully communicating with other relevant ministries and local agencies: roles, budgetary sizes, and technical capabilities of MIDI-related ministries and agencies, cities, and local governments.

The achievements and issues ahead of MIDI CC and MIDI-Cell can be summarized as follows:

	Achievements	Issues ahead
Organizational /Institutional	Organizations are set up to promote MIDI	The organizations have not been clearly stated in the government rule.
Planning	Sector planning is underway	Overall plan is yet to be prepared
Project budget	Secured by implementing ministries/divisions	Measures are expected to be taken by MIDI CC/MIDI-Cell to accelerate the preparation of priority projects
Monitoring	A common format has been developed and agreed upon in MIDI CC for monitoring.	Share monitoring results among members of MIDI CC for project risk management and subsequent project development
Staffing	Extremely limited	A sharp increase of the staff is essential

#### **2.1.4 Relevant Government Organizations, the Role of Local Government, Budget, and Technical Capacity**

##### **(1) Role of Government Organizations**

The roles of government organizations in Bangladesh are specified in the Rules of Business prepared by the Cabinet Division of PMO and decided by the President (updated every year).

Essentially, the roles of the main ministries and agencies, cities and local governments, etc. can be divided into two categories: organizations that implement projects (line organizations) and organizations that handle all ministries in cross-sectional areas such as planning, policies, finances, and laws (staff organizations).

Deputy Commissioner (DC) office is located in each district as an organization that links national and local levels. DC is a representative of the central government for the region directly belonging to the prime minister and is responsible for implementing land acquisition.

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	Line organization (project implementing ministries/divisions)	Staff organization (planning, finance, coordination, etc.)
National level	<ul style="list-style-type: none"> <li>Ministries, bureaus, and implementing agencies in charge of specific sectors</li> <li>Coordinate responsibility for planning, budgeting, implementing, and managing development policy and development projects in specific sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Planning and Finance Division of the Ministry of Finance</li> <li>Consolidate and coordinate development policy and development projects by each ministry. The Ministry of Planning (MoP) will compile the Ministries' plans into the Annual Development Programme (ADPs) and the Medium-and Long-Term Plans</li> <li>The Finance Division will formulate development budgets based on ADP, taking account of the revenue lines and consulting with the MoP and the various ministries.</li> <li>The MoP will manage the ADP based on the project management of each ministry.</li> </ul>
Local level	<ul style="list-style-type: none"> <li>The national implementing organizations play a large role in developing rural infrastructures. Ministry of Local Government, Rural Development and Cooperatives(MoLGRDC), particularly Local Government and Engineering Division(LGED) are responsible for roads, parks, water supply, sewage, cities, and homes. The Ministry of Water Resources (MoWR) is responsible for disaster prevention, such as water resource development and levees. The Ministry of Environment, Forests, and Climate Change (MoEFCC) is in charge of waste disposal sites, etc.</li> </ul>	<ul style="list-style-type: none"> <li>The categories of local public entities are City Corporation, Municipality, Upazila, and Parishad. The local Government Division approves a region as a city, but no cities has been supported in the MM region. The local public entities are Moheshkhali County and Matarbari Union. These administrative organizations are very small and have the very limited administrative and financial capacity to participate in development projects.</li> </ul>

Source: JST

## (2) Budget Size and Technical Capacity

The budget sizes and technical capabilities of these ministries and agencies, cities and local governments, etc. are rough as follows.

	Line organization (project implementation ministries and agencies)	Staff organization (Planning, Finance, Legal, etc.)
National level	<ul style="list-style-type: none"> <li>Table 2.1 shows the budget size of each ministry. Within each ministry, the top 10 budgetary ministries will participate in the first meeting of a series of budgeting meetings hosted by the Finance Division. They will be agreed upon on budget allocation for all ministries and agencies. The top 10 of the 2021-2022 Meeting are Local Governments, Fuel Energy, Road Traffic, Science and Technology, Health, Railway, Secondary, Higher Education, Bridge Roads, Primary Education, and water resources account for 80% of the total development budget.</li> <li>It has been pointed out that the number of executives who have experienced both policy and field practices in their respective areas of responsibility has increased. (Previously,</li> </ul>	<ul style="list-style-type: none"> <li>The budget size of the MoP and MoF are small. Both ministries have a coordinated grip on the total development budget, and their influence on the ministerial and political levels is great. Mandatory information for cross-ministerial coordination is also concentrated.</li> <li>MoP and MoF are said to concentrate on relatively good human resources.</li> </ul>

	<p>field experience relied on their implementing organizations.)</p> <ul style="list-style-type: none"> <li>Many projects are implemented with support from foreign donors. From experience, they can manage policy, planning, design, and construction processes through consultants.</li> </ul>	
Local level		<ul style="list-style-type: none"> <li>The main revenues falling to local governments are 1) tax revenues, 2) commissions, etc., 3) Block Grant from MoLGRDC, and 4) infrastructure development by ADPs. However, at present, the opportunity of the revenue in the local government in rural areas such as MM area is very limited.</li> <li>The layer of human resources is thin. Especially, it is considered that there are nearly no human resources who have experience of urbanization and industrialization.</li> </ul>

Source: JST

Table 2.3 Ministry of Planning Annual Development Plan in 2021-2022 (by ministries and divisions)

Unit: 10 million taka

Ministry/Division	Amount	Ministry/Division	Amount
Public Services		Social Security and Welfare	
National Parliament meeting	1	Ministry of Social Welfare	519
Prime Minister's Office	3,126	Ministry of Women and Children's Affair	814
Cabinet Division	55	Ministry of Food	679
Election Commission Secretariat	718	Ministry of Disaster Management and Relief for ADP	2,322
Ministry of Public Administration	782	Ministry of Disaster Management and Relief for Non-ADP FFW (Transfer from FFW)	2,310
Bangladesh Public Service Commission	36	Ministry of Liberation War Affairs	402
Finance Division for ADP	693	Housing	
Finance Division for Special Projects	3,669	Ministry of Housing and Public Works	4,543
Outside ADP			
Internal Resources Division	388	Recreation, Culture and Religious Affairs	
Financial Institutions Division for ADP	116	Ministry of Information and Broadcasting	199
Financial Institutions Division for Special Projects Outside ADP	2,321	Ministry of Cultural Affairs	220
Economic Relations Division	66	Ministry of Religious Affairs	1,938
Planning Division	1,041	Ministry of Youth and Sports	280
Implementation and M&E Division	206	Fuel and Energy	
Statistical Information Division	1,421	Department of Energy and Mineral Resources	2,018
Local Government and Rural Development		Power station	26,349
Local Governments Division	33,806	Farm	
Rural Development Division	1,139	Ministry of Agriculture	2,959
Ministry of Chattogram Hill Tracts Affairs	796	Ministry of Aquatic & Livestock Industry	1,788
Defense Service		Ministry of Environment, Forestry and Climate Change	542
Ministry of Defense	1,832	Ministry of Land	817

Public Order and Security		Ministry of Water Resources	6,871
Law and Justice Division	349	Industrial and Economic Services	
Public Security Division	1,597	Ministry of Commerce	396
Legislative and Parliament Affairs Division	1	Ministry of Labour and Employment	186
Anti-Corruption Commission	21	Ministry of Industry	1,228
Security Service Division	1,258	Ministry of Expatriates' Welfare and Overseas Employment	382
Education and Technology		Ministry of Textiles and Jute	485
Ministry of Primary and Mass Education	8,022	Transport and Communications	
Secondary & Higher Education Division	11,920	Road Transport and Highways Division	28,042
Ministry of Science and Technology	22,634	Ministry of Railways	13,558
Information and Communications Technology Division	1,362	Ministry of Shipping	4,107
Technical and Madrasa Education Division	2,310	Ministry of Civil Aviation and Tourism	3,979
Health		Post and Telecommunication Division	1,420
Health Services Division	13,000	Bridges Division	9,813
Medical Education and Family Affairs Division	2,558		

Source: Ministry of Planning

Table 2.4 Personnel Size of Organizations Related to MIDI

Unit: Persons

Organization	Technical and managerial staff members	All staff members and workers
Bangladesh Railway	36 of which, two members work in Chattogram-Cox Bazar railway project	26,135
Road and Highway Department	66 of which, two members work in MIDI projects	9,431
Chattogram Port Authority	13	
Bangladesh Economic Zone Authority	130 of which two members work in MIDI area as well.	
Capital Development Authority (RAJUK)	131	
Power sector organizations		
Energy sector organizations		
Environmental Department, including local offices	81	
Ministry of Disaster Management and Relief	27	
Department of Forest, including local offices	127	
Ministry of Water Resource	31	
Local Government Engineering Department	1,461	11,294

Note : The organizations in the table are all nationwide, except CPA and RAJUK. Therefore, the number of staff members represents a total national number of technical and managerial staff

Source : JST

### (3) Local Government Involvement in MIDI

Local governments in the MIDI area are currently rural counties and unions, and their administrative and financial sizes are limited. Chattogram City Corporation and Cox's Bazar Municipality budgets for 2019/20 were 20.18 billion BDT and 2.61 billion BDT, respectively.

In general, local governments are said to have some experience in rural development administration. However, the industrialization and urbanization that MIDI developments will bring in the future will be an entirely new

challenge. Especially essential issues in the future are the following.

- Responding to the demand for public facilities caused by the rapid growth of the population as a result of private investment expansion: medical care, primary and secondary education, water supply, waste disposal, drainage, streets, public safety and police, digests, etc.
- Land use restrictions and prior acquisition of land in preparation for land speculation and buyout
- Monitoring and regulation of environmental and industrial pollution
- Disaster prevention and coast guard (Direct involvement of the national and local governments are indispensable)

In responding to such future challenges, the positioning of rural districts as counties and villages may need to be reviewed according to the MIMD area's development level. The position of local public entities (City Corporation, Municipality, Upazila, Parishad) is under the control of the Local Government Division (LGD) of MoLGRDC. However, as the status of local public entities is revised, the amount of local grant can be drastically changed.

#### (4) MIDI-related Ministries and Divisions

MIDI CC comprises 7 ministries, 4 divisions, 10 authorities, and public enterprises. LGD and HRD have district offices with about 15 staff members. Table 2.5 shows their basic role, mission, budget and senior staff.



Table 2.5 Profile of Member Organizations of MIDI CC

Policy-maker and Regulator	Implementation	Missions	Budget (10 million BDT)	Senior Staff
Power Division	CPGCPL BPDP PGCB	(Vision): Universal access to quality electricity cost-effectively and affordably. (Mission): Ensuring reliable electricity for all by 2021 through integrated development of power generation, transmission and distribution systems.	26,349	126 156 (BPDB)
Energy and Mineral Resource Division	BPC Petro Bangla GTCL RPGCL	(Vision): To achieve energy security for the country through supplying sustainable energy services for all at affordable prices and exploiting mineral resources in an environmentally sustainable manner. (Mission): To ensure the energy security of the country, the steps that will be taken are as follows- <ul style="list-style-type: none"> <li>➤ Formulate a comprehensive and integrated energy plan over the short, medium, and long term.</li> <li>➤ Optimize the recovery from the existing gas fields through accelerated appraisal and development of wells.</li> <li>➤ Put all-out efforts to convert known probable and possible reserves into proven ones and also to convert delineated gas resources into reserves;</li> <li>➤ Strengthen exploration activities in both onshore and offshore area to find discoveries and to attract IOCs under Production Sharing Contract (PSC) to explore the offshore area;</li> <li>➤ Develop transmission and distribution network for evacuation of gas from gas fields;</li> <li>➤ Make the energy sector efficient through the introduction of improved management techniques;</li> <li>➤ Implement measures in a phased manner to increase energy efficiency;</li> <li>➤ Strengthening of Research and Development activities and operational capabilities of National Companies;</li> <li>➤ Strengthen the exploration activities for coal and other mineral resources keeping in view the socio-economic and environmental considerations;</li> <li>➤ Develop the discovered coal fields and optimum utilization of these resources;</li> <li>➤ Increase the use of LPG to reduce the dependency on natural gas and also to reduce deforestation;</li> <li>➤ Import of natural gas in the form of LNG to meet up increasing energy demand;</li> <li>➤ As part of the fuel diversification strategy, import of required quantity of liquid petroleum products and increase their storage capacity;</li> <li>➤ Harness new and renewable energy sources and strengthen Regional Energy Cooperation to meet growing energy demand.</li> </ul>	2,018	42 + 4 (Board of Directors)

Ministry of Shipping	CPA	(Mission): <ul style="list-style-type: none"> <li>➤ Manage, maintain, improve and develop the port.</li> <li>➤ Provide and maintain adequate and efficient port services and facilities in the Port or the approaches to the Port.</li> <li>➤ Regulate and control berthing and movement of vessels and navigation within the Port;</li> <li>➤ Do such acts and things as necessary or convenient to be done in connection with, or incidental or conducive to, the performance of its functions under this Ordinance.</li> </ul>	4,107	174
Ministry of Railway	Bangladesh Railway	(Vision): To provide safe, reliable, cost-effective and time-efficient rail transport service in the country through modernizing, expanding & maintaining the rail system in a manner that supports government strategies for economic, social & environmental development. (Mission): <ul style="list-style-type: none"> <li>➤ Develop &amp; maintain railway tracks &amp; station infrastructures throughout the country.</li> <li>➤ Maintain &amp; upgrade locomotives, coaches &amp; other rolling stocks.</li> <li>➤ Maintain &amp; modernize signaling &amp; inter-locking system &amp; Telecom system of Bangladesh Railway.</li> <li>➤ Ensure safe, speedy &amp; efficient train operation.</li> <li>➤ Implement Government transport policy in the rail sector.</li> <li>➤ Procure modern technology-related rolling stocks, Track materials &amp; signaling systems suitable for Bangladesh Railway.</li> <li>➤ Manage land assets of Bangladesh Railway.</li> <li>➤ Ensure optimum utilization of Development Budget &amp; Revenue Budget of Bangladesh Railway.</li> </ul>	13,558	50
RTHD, MoRTB	RTHD	(Mission): <ul style="list-style-type: none"> <li>➤ Develop a balanced, sustainable, and safe road network.</li> <li>➤ Maintain national, regional, and district road network</li> <li>➤ Bridge/culvert and ferry point maintenance</li> <li>➤ Develop and maintain a road network under the RHD</li> <li>➤ Repair roads and bridges got damaged due to the flood, cyclones, and other natural calamities within a short period.</li> <li>➤ Conduct research for the development of roads</li> </ul>	28,042	603

The Data Collection Survey for Strengthening Framework of Operation and Implementation of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative

LGD, MoLGRDC	LGED	<ul style="list-style-type: none"> <li>➤ Rent road construction and maintenance equipment to the people at a fixed rate.</li> <li>➤ Provide regular training to the engineers of RHD as well as to the individual or organization level on engineering management, finance, e-documents, e-gp, computers, etc. at the RHD training center</li> <li>➤ To give lease the land beside the roads and highways which is under the jurisdiction of the RHD, for fuel stations, residential, commercial, and accessibility to the industrial area, and for social forestry and fisheries</li> </ul> <p>(Mission): Improving the people's standard of living by strengthening local government systems and institutions and implementing activities for social, economic, and infrastructure development.</p> <p>(Major Functions):</p> <ul style="list-style-type: none"> <li>a) Manage all matters relating to local government and local government institutions</li> <li>b) Finance, control, and inspect local government institutions established for the running of local government and local administration</li> <li>c) Manage all matters relating to drinking water</li> <li>d) Develop water supply, sanitation, and sewerage facilities in rural and urban areas</li> <li>e) Construct, maintain and manage Upazila, union, and village roads, including the roads of towns and municipal areas and bridges/culverts</li> <li>f) Manage matters relating to village police</li> <li>g) Develop, maintain and manage growth centers and hats-bazaars connected via Upazila, union and village roads</li> <li>h) Develop, maintain and manage small-scale water resource infrastructures within the limit determined by the government</li> </ul>	33,806	136 (HQ) 17 (in Each Field Offices, Total Field Offices are 64)
BEZA (under PMO)	BEZA	<p>(Vision): BEZA aspires to become a sustainable development driving force and a world-class investment promoter and service provider to ensure the quality of life of the people.</p> <p>(Mission): BEZA's mission is to persistently create value for the investors by establishing attractive investment facilities in the economic zones through One-Stop service and competitive incentive packages.</p>		124 (including field offices)
MoWR	WDB	<p>(Vision): To develop a state of knowledge and capability that will enable the country to design future water resources management plans by itself with economic efficiency, gender equity, social justice, and environmental awareness to facilitate the achievement of water management objectives through broad public participation.</p> <p>(Mission):</p> <ul style="list-style-type: none"> <li>➤ Develop and manage water resources projects</li> <li>➤ Management and mitigation of riverbank erosion</li> <li>➤ Stakeholder participation in project planning, design, and implementation</li> <li>➤ Implement Environment friendly development</li> <li>➤ Promoting food production by surface water irrigation</li> </ul>	6,871	47
MoEFCC	DOE	<p>(Vision): To ensure sustainable environmental governance for achieving high quality of life for the benefit or present and future generations.</p>	542	1738 (including)

		(Mission): To help secure a clean and healthy environment for the benefit of present and future generations: <ul style="list-style-type: none"> <li>➤ Through the fair and consistent application of environmental rules and regulations</li> <li>➤ Through guiding, training, and promoting awareness of environmental issues; and</li> <li>➤ Sustainable action on critical environmental problems demonstrates practical solutions that galvanize public support and involvement.</li> </ul>		Field Office Staff
ICT Division, MoPTIT		(Vision): People-friendly information technology in building Sonar Bangla. (Mission): Establishment of a prosperous Sonar Bangla through reliable cyber access at the grassroots level, development of IT-based human resources, export-oriented development of the IT industry, and citizen-friendly IT technology.	1,420	110 (including Field Office Staff)
MOC		(Vision): Creating a significant competitive position in world trade. (Mission): Creating a business-friendly environment, facilitating trade flows, local export growth, diversifying export products and markets, increasing capacity in foreign trade, ensuring the supply of essential commodities, and stabilizing commodity prices.	396	79 (at ministry level)
MOI		(Vision): Industrially developed middle-income country. (Mission): Accelerating Industrialization through formulating appropriate Industrial policy, reformulating & renovating state-owned enterprises, developing SMEs, micro & cottage industries, protecting standards of products and intellectual property rights and enhancing productivity.	1,228	89 (at ministry level)
MOL		(Vision): Efficient, transparent, Accountable, and people-friendly land management system. (Mission): To ensure the best possible use of land and provide pro-people land services through efficient, modern, and sustainable land management	817	107 (at ministry level)

Source: Prepared by JSIT based on the website information of respective organizations.

## 2.2 Case Studies on Operation and Implementation Framework and Institutional Basis for Multi-sector Infrastructure Development

There are several cases of planning and implementing large-scale multi-sector infrastructure projects in Bangladesh and overseas. For MIDI, which attempts to develop large-scale and multi-sector projects, it is vital to strengthen operation further and implementation framework functions to coordinate a plan, secure budget, acquire lands and monitor projects. In this connection, a review has been done on the past and ongoing experience in large-scale and multi-sector infrastructure development with particular emphasis on coordinating plans, securing budget, acquiring lands, and monitoring projects. The review is expected to provide helpful information for MIDI.

### 2.2.1 Type of Large-scale and Multi-sector Infrastructure Development

One finds several cases of large-scale and multi-sector infrastructure development in many countries, including the Tennessee Valley Authority (TVA) Economic Development started in 1933. These cases aimed at developing lagging areas by the direct intervention of the national/federal government and making intensive investments in specific regions as a national/federal strategy. Different cases incorporate different implementation frameworks depending on timing, location, financial conditions and the relationship with local administration. These cases can be categorized into centralized, hybrid, and decentralized types.

	Features	Cases
Centralized type	<ul style="list-style-type: none"> <li>The national government set up an organization in charge of developing a specific area aside from a local administrative system. Such an organization makes a plan, prepares the budget, and implements projects.</li> </ul>	<ul style="list-style-type: none"> <li>Tennessee Valley Authority</li> <li>Hokkaido Development Agency</li> <li>RAJUK</li> <li>Chattogram Development Authority</li> <li>Cox's Bazar Development Authority</li> </ul>
Hybrid type	<ul style="list-style-type: none"> <li>A national government organization takes responsibility for planning and coordination, while sector-specific organizations and local governments take responsibility for implementation</li> </ul>	<ul style="list-style-type: none"> <li>Olonawa Development Agency</li> <li>New Industrial Cities</li> <li>Eastern Economic Corridor</li> </ul>
Decentralized type	<ul style="list-style-type: none"> <li>Relevant national government organizations jointly prepare basic/master plans, and sector-specific organizations and local governments implement projects.</li> </ul>	<ul style="list-style-type: none"> <li>Kajima Seaboard Development</li> <li>MIDI (at present)</li> </ul>

Source: JST

The criteria for classifying the three types were the degree of intervention by cross-sectoral agency planning agency in particular, in the sector administration, and the degree to which the administration is centralized, hybrid, and decentralized. The centralized type is relatively strong, and the intervention is relatively strong in the centralized type and relatively weak in the decentralized type. The following section reviews typical examples of multi-sector infrastructure projects with special reference to these three types. However, the characteristics of these types are conceptual, and in practice, there are no examples of thoroughly centralized administration without regard to sector or complete decentralization without central control. For example, the RAJUK, Chattogram, and Cox's Bazar development agencies are all under the Ministry of Housing and Public Works and operate in a centralized manner in the sectors under their jurisdiction. Still, in many other sectors, e.g., streets, energy, water, etc., the ministry with jurisdiction over each is responsible for planning, implementation, maintenance, and operation.

## 2.2.2 Case Study of Centralized Type of Infrastructure Development

### (1) Capital City Development Authority (RAJUK)

#### History of establishment and organizational structure

For the development, improvement, expansion, and management of Dhaka Metropolis through appropriate development planning and control, Dhaka Improvement Trust (DIT), the predecessor of the Capital City Development Authority (Rajdhani Unnayan Kartripakha: RAJUK), was established in 1956 under the Town Improvement Act 1953. The rapid urbanization of Dhaka and its adjoining districts (including Narayanganj) necessitated the revision of the administrative and legal framework of DIT to meet the development challenges. This resulted in the transformation of DIT into RAJUK in 1987 based on the Town Improvement (Amendment) Act 198.

DIT was a Trustee Board, which initially consisted of seven members and additionally invited two members upon the incorporation of Narayanganj into the jurisdiction of DIT. The government designated the Chairperson and the other members, and the members were selected from various ministries, organizations and professions involved and contributed to the Dhaka development process.

The successor RAJUK is an autonomous body under the Ministry of Housing and Public Works (MoHPW). The Board consists of the chairperson, who is in Additional Secretary rank, and five board members, who are in Joint Secretary rank. They all are designated by the government and dedicated to RAJUK full-time. The MoHPW and the other ministries second the members. Compared to government organizations (Ministry and Division), RAJUK is given greater flexibility in personnel administration discretion; therefore, they widely recruit from various ministries, implementing organizations, and even private organizations (consultants, etc.). The number of staff members of RAJUK is approved as 1,980 under RAJUK (Employee) Service Rule 2004 and its amendment 2013; however, the actual number of employees is currently 1,187. RAJUK holds a board meeting once a month for general direction and decision-making.

RAJUK consists of the following five departments: 1) Planning, 2) Development, 3) Development Control, 4) Estate and Land, and 5) Admin and Finance. Five board members serve as the director of each department.

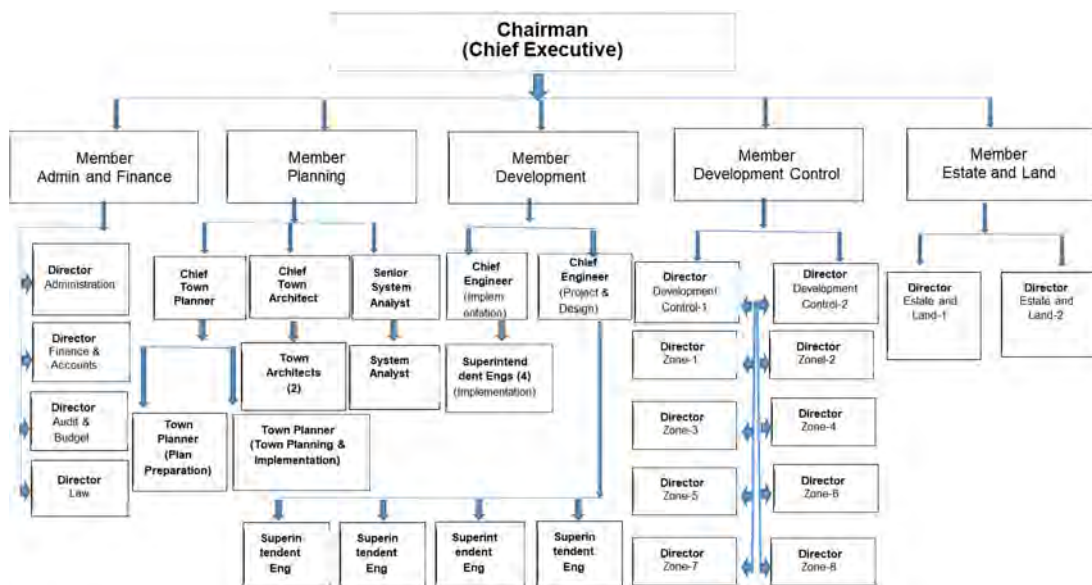


Figure 2.2 Organization Structure of RAJUK

## Planning

RAJUK deals with city planning which is the jurisdiction of MoHPW but not all of the urban development aspects of Dhaka (transportation, highway development, water and sewage, telecommunications, energy, etc.).

The following planning functions are under the responsibility of RAJUK:

- Preparation of Master Plan, Structure Plan, and Detailed Area Plan of RAJUK area
- Planning of the new city construction
- Preparation of Layout Plan and Detailed Design
- Land use zoning, permits, and controls
- Approval and development control of the construction of buildings and private projects (Private Housing Land Development Rules 2004 (Amended 2012, 2015))
- Preparation and revision of laws, codes (Bangladesh National Building Code 2015, etc.), policies, and regulations
- Conservation of green areas (parks, lakes, etc.)
- Digitization (Web-enabled Plot-based Land Record System (WPLRS), GIS database, e-document, etc.)

In 1959, DIT formulated the 1st Dhaka Master Plan for 220 square miles (later expanded to 320 square miles). Then, in 1995, RAJUK developed the 2nd Dhaka Master Plan targeting 590 square miles and Dhaka Metropolitan Development Plan 1995-2015 (DMDP).

DMDP consists of three parts: Structure Plan, Urban Area Plan, and Detailed Area Plan. Policies developed by DIT and RAJUK are integrated into Urban Area Plan. Based on DMDP, Intermediate Zone Urban Area Plan (1995-2005) and Detailed Area Plan 2010-2015 have been developed.

## Financial arrangement

RAJUK has higher financial flexibility than government organizations and can be budgeted independently. However, the finance is subject to the government's accounting audit.

RAJUK depends on its own revenue and capital income to manage and implement its projects. For the projects listed in the Government's Annual Development Plan (ADP), RAJUK receives grants from the Government.

Table 2.6 Budget of RAJUK

(In lac taka I. e.100000BDT)

Serial number	Description	Budget 2020-21	Revised budget 2019-20	Approved budget 2019-20	Real Budget 2018-19
1.	Total income	48627.00	39822.00	68183.80	5870.00
2.	Total cost	11859.00	11462.50	11476.00	8607.52
3.	Expenditure Surplus Income / (Deficit)	36768.00	28359.50	56707.08	50101.48

Source: RAJUK

Table 2.7 Revenue and Expenditure of RAJUK

(million Taka)

Financial year	Revenue Income*	Capital Income**	Total Income	Allocated Fund in RAJUK Budget	Operational Expenditure	Investment and Other Expenses	Total Expenditure***	Surplus Income (% of total income)
2014-15	2381.9	12670.5	15052.4	12108.8	391.9	7723.0	8114.9	6937.5 (46.1%)
2015-16	2311.8	40793.8	43105.6	17467.1	581.1	17899.3	18480.4	24625.2 (57.1%)
2016-17	2459.3	33909.4	36368.7	22484.8	734.6	13761.4	14496.0	21872.7 (60.1%)
2017-18	4933.8	14197.8	19131.6	16553.7	772.3	13512.4	14284.7	4846.9 (25.3%)

\* Revenue Income: Leasehold land income, lease per hectare, income from shop and market, service fee, rent, etc.

\*\* Capital Income: New capital premium from development work

\*\*\* In the table accounts of Government grant is not included

Source: RAJUK Budget (given information in the table is not consistent with RAJUK's annual report)

On the other hand, RAJUK seems to have limited ability to implement the budget plan appropriately. For example, although there was the allocation of funds in the revised budget to meet the demand for transport, furniture, and other equipment, they were not spent. In addition, there is no allocation of funds for allowances to the inspectors and surveyors, mal-provision of motor cycles, and fuel cost for inspection to inspectors.

#### Land Acquisition and project implementation

RAJUK prepares a land acquisition plan. It is also the responsibility of RAJUK, based on the Acquisition and Requisition of Immovable Property Act 2017, to acquire land with no objection, compensation and rehabilitation, land allocation for residential, commercial, and industrial purposes, and land clearance, and conclusion of lease deed.

In the context of Dhaka urban development, RAJUK and City Corporations (Dhaka North City Corporation and Dhaka South City Corporation) coexist. RAJUK covers the Dhaka area and some surrounding areas, while City Corporations' administrative areas are limited to some areas. City Corporations are in charge of essential services and urban amenities, such as transportation, highway development, water and sewage, telecommunications, and energy.

The sectors under the jurisdiction of RAJUK are flexibly implemented and managed, instead of vertical division, based on the project type and methods.

The development of roads, bridges and other means to reduce traffic congestion in the jurisdiction are directly implemented by RAJUK. For the procurement of builders and consultants, it should be conducted via Central Procurement Unit (CPTU) in accordance with the Public Procurement Act (PPA) 2006, Public Procurement Rules (PPR) 2008, and other related rules.

RAJUK is also responsible for approving private building projects in the jurisdiction and for registration of developers based on Real Estate Development and Management Act 2010 and Real Estate Development and Management Rules 2011.

#### Performance capability



RAJUK has conducted the projects, including those listed below:

- Township Development/ Housing Estate/ Site & Services Projects: Gulshan, Banani, Baridhara Residential Model Town, Uttara Residential Model Town (1st and 2nd phase), Nikunja-1& 2, Gandaria Rehabilitation Area, Karwan Bazar Rehabilitation Area, Shyampur Rehabilitation, Jurain Rehabilitation, Badda Rehabilitation, Dattapara Resettlement Area
- Industrial Estates: Tongi, Shyampur Rehabilitation Area, Pastagola
- Commercial Projects: Dilkusha, Karwan Bazar, Mohakhali, Banani, Gulshan Circle I and II, DIT/RAJUK Avenue, Nawab Siraj-ud-doulla Commercial Area (Narayangonj), Chashara, BoaTkhal and Khanpur Commercial Area (Narayangonj)
- Markets & Shopping Centers: Nawab Yousuf market, Nawabpur, Shakura Market near Hotel Sheraton, Karwan Bazar, Gulshan I & II Circle, Steamer Ghat market, Narayangonj, Laksmi Bazar Market, Shopping Centre cum Market, Sector-6, Uttara
- Road Construction Projects: DIT Avenue, Malibagh-Rampura Road, Moghbazar-Tejgaon Industrial Area Road, Dholai Khal Road, Mohakhali-Gulshan Road, Tejgaon-Gulshan Link Road, Pantha Path, Bijoy Sarani, Pragati Sarani, Gulshan (North-South)Avenue, Madani Avenue, Kamal Atatürk Avenue, Kabi Jashimuddin Avenue, Rabindra Swarani, Bangabandhu Road (Narayangonj), Nowab Salimullah Road (Narayangonj), Shahid Suhrawardi Road (Narayangonj), Nowab Siraj-ud-doulla Road (Narayangonj), Isha Khan Road (Narayangonj), Link Road from Gulshan(south) Round about to Progati Sarani
- Open Space/Park/Play Grounds: Bahadur Shah Park (Victoria Park), Paltan Moidan, English Road Park, Armanitola Park, Nowab Siraj-ud-doulla Park, Gulshan (South)park, Gulshan(North) Park, Baridhara Central Park at Park Road, Park/Open Space/Play Ground at Sector-1,3,4,6,7,11,12,13 & 14 of Uttara
- Fountains: At the Traingle of Minto-Bailey Road (Near Hotel Sheraton), Fountain at Sonargaon Crossing, Fountain in the north-west Corner of Bangabhaban
- Bridges & Culverts: Boat Khal Bridge at Narayangonj, Rampura Bridge, Bridge in-between sectors 10 & 11 of Uttara, Box culverts over Banani-Gulshan-Baridhara and Uttara Lakes
- Buildings/ Apartments/Quarters: Constructed 42 nos,4 storied Residential Quarters and allocated to the various organization, NAM Village & Villa Apartments (260 nos) at Gulshan & Banani
- Flyover: Kuril
- Car Parking: Multistoried Car Parking-cum-office Building at Gulshan-1

#### Relationship between ministries/divisions and local governments

On the other hand, it is pointed out that there are some issues due to a lack of coordination between planning and urban infrastructure under the control of RAJUK and urban services under the supervision of City Corporations (basically, projects under the control of respective ministries and agencies). At the same time, the coexistence and partial overlap of RAJUK and City Corporations resulted in a scattering of limited personnel specialized in the planning and development field. The chairperson of RAJUK is a government official in additional secretary or joint secretary rank, while the mayor of the City Corporation chosen in the election is equivalent to the rank of Minister. However, City Corporation is situated under MLGRDC.

### Monitoring

RAJUK is responsible for monitoring their direct projects such as housing development and construction of commercial and industrial facilities and for destroying and removing unauthorized structures. Chattogram and Cox's Bazar were also reviewed for comparison with RAJUK. However, the review was based on secondary data for these two cities.

#### (2) Chattogram Development Authority (CDA)

##### History of establishment and organizational structure

Chattogram Development Authority (CDA) is a statutory organization established in 1959 under CDA Ordinance 1959 for the planned urban development of the Chattogram Metropolitan Area (CMA). Later, a CDA Act 2018 was established, and CDA is operated under this act.

Like RAJUK, it is an autonomous body under the control of MoHPW. The board of CDA consists of the chairperson, four full-time members, and the personnel listed below, which are characterized by diversity and local color compared to RAJUK

- Chattogram Deputy Commissioner
- Representative of MoHPW
- Representative of Public Works Department nominated by MoHPW
- Representative of MoCAT
- Managing Director, Chattogram Water Supply and Sewerage Authority
- Chief Engineer, Chattogram Railway (East)
- Chief Engineer, Chattogram Port Authority
- Representative of the Department of Environment (Chattogram)
- Counselors of Chattogram City Corporation (2 persons)
- Representative of Chattogram Chamber of Commerce and Industries
- Prominent/distinguished citizens residing within the area of CDA: among them, one should be a planner or an architect, and one should be a woman (6 persons)
- Secretary of CDA

### Planning

CDA, compared to RAJUK, rather focuses on urban planning itself as follows:

- Preparation and revision of Master Plan
- Land use clearance
- Development Control (based on Bangladesh Building Construction Act 1952 with its subsequent modifications)
- Preparation and publishment of GIS maps

The master plan for CDA was formulated in 1961; then, it was reviewed in 1995 with financial and technical assistance from UNDP and UNCHS. In 1999, it was approved and enforced by the Government. The Master Plan 1995 includes the following plans:

- Structure Plan (1995-2015)

- Urban Development Plan (1995-2005)
- Detailed Area Plan (up to 2015)
- Long Term Development Strategy for Traffic and Transportation for Chattogram (1995-2015)
- Storm Water and Drainage Master Plan (1995-2015)

Structure Plan (1995-2015) targets the CDA jurisdiction of 1,152 square kilometers (445 square miles). It includes 76 strategies and guidelines for the sectors such as population, economy, spatial development, housing, community facility, transport, infrastructure services, and so on, and the guideline for managing regional growth.

Urban Development Plan (1995-2005) targets the urbanized CDA jurisdiction of 259 square kilometers (100 square miles) and includes land use zoning and guidelines for development control, promotion, and guided development.

#### Revenues and expenditures arrangement

CDA budget is as follows.

Table 2.8 Budget of CDA

(in lakh BDT)

Serial number	Description	Budget 2019-20	Revised budget 2018-19	Approved budget 2018-19	Actual 2016-17
1.	Total income	9466.50	11441.50	5114.50	6585.83
2.	Total cost	3838.92	3798.96	3856.41	2854.35
3.	Expenses quoted income/ (Deficit)	5627.58	7642.54	1658.09	3731.48

Source: CDA

#### Land acquisition and project implementation

CDA will conduct surveys and collect information on land-related issues. Land acquisition will have proceeded through the DC Office based on the Acquisition and Requisition of Immovable Property Act 2017. The purchase, lease, and exchange of land is conducted based on CDA Act 2018; at the same time, the removal of illegal installations and compensation and rehabilitation of land acquisition is also the functions of CDA.

CDA is responsible for master plan implementation by ensuring rational land use. Infrastructure development such as roads, highways, waterways, railways, electricity, water, and telecommunications will be implemented directly in coordination with local plans of local administrative organizations and relevant private organizations. Procurement of builders and consultants should be conducted via Central Procurement Unit (CPTU) in accordance with the Public Procurement Act (PPA) 2006, Public Procurement Rules (PPR) 2008, and other related rules.

CDA also facilitates dialogue with the private sector on PPP to work out specific issues and recommendations.

#### Maintenance

Newly developed infrastructure is usually handed over from CDA to Chattogram City Corporation for further maintenance services.

### (3) Cox's Bazar Development Authority (CoxDA)

#### History of establishment and organizational structure

Cox's Bazar Development Authority (CoxDA) is a statutory body established in 2015 under the Cox's Bazar Development Authority Bill 2015 (later enforced as a Cox's Bazar Development Authority Act 2018) to ensure the well-planned development of Cox's Bazar by establishing a modern and attractive tourist city.

Like RAJUK and CDA, it is an autonomous body under the control of MoHPW. It is operated by the Board, whose members are listed below. The members are diverse as well as CDA, and it is clear that CDA aims realization of tourism city through proper development and control by collaborating with public and private sectors at the local level.

- Chairperson (appointed by the government)
- Members (Four persons appointed by the government: Administration and Finance, Engineering, Planning, and Law and Implementation)
- Deputy Commissioner, Cox's Bazar
- Superintended of Police, Cox's Bazar
- Officers at least Deputy Secretary rank respectively nominated by MoHPW, MoL, MoEFCC, and MoCAT
- Mayor, Cox's Bazar Municipality
- Head of Department, Department of Urban Planning, Chattogram University of Engineering and Technology
- Executive Engineer, Public Works Department, Cox's Bazar
- Representative of local architecture department working in Cox's Bazar district, nominated by the Chief Architect of the Department of Architecture
- President of Cox's Bazar Industries and Merchants Association or representative of the association appointed by the president
- Prominent citizens (3 persons); at least one of them should be a woman

The vision and mission of CoxDA is as follows:

**Vision** Unplanned development control to build a planned and modern tourism city.

**Mission** To develop Cox's Bazar as a sustainable, developed and modern tourist city in the light of the growing demand in Cox's Bazar and for planned urbanization, through infrastructural development, approval and control of planned construction in the area under Cox's Bazar Development Authority.

The aim of the CoxDA establishment has been specifically focused on developing an international tourism city; the main tasks are development control and tourism promotion.

### Planning

The primary responsibilities of CoxDA are as follows:

- Preparation and revision of Master Plan
- Control of land use and construction
- Planning infrastructure development such as tourism-related facilities, streets, waterways, etc.
- Development control of seashore
- Preservation of the green environment and urban amenities

According to Rising Bd.com, in 2019, the prime minister issued an instruction on the formulation of the master plan, which includes the following items:

- The nature of the movement of traffic on ships, aircraft, railways, roads and highways, traffic management, and related matters;
- Water supply, conservation, sewerage and sewerage systems;
- Government offices, government or non-government organizations, educational institutions, service centers, child care centers, parks, open spaces, water bodies and recreational facilities, tourist information centers, health care centers, adult rehabilitation centers, playgrounds, hospitals, etc. Determining and conserving its location, including land conservation;
- To determine the location, conservation, and so on of residential, commercial, and industrial areas;
- To identify and locate such land as may be required in the future for the implementation of the master plan;
- Land conservation following land use, zoning, and natural landscape;
- Power generation, transmission, distribution, and related matters, including solar power;
- Urban planning, projects, sustainable development, regular reforms, and associated matters with long-term and modern civic amenities; and
- Other issues required for building a modern tourist city.

#### Revenues and expenditures arrangement

The budget for CoxDA is as follows. CoxDA is responsible for facilitating tourism development investment through public-private collaboration, investment and lending for development projects, and funding from the private sector (with government approval).

Table 2.9 Budget of CoxDA

(in lakh taka)

Serial number	Description	Budget 2019-20	Revised Budget 2018-19	Approved Budget 2018-19	Interim 2018-17
1.	Total income	6027.27	5548.31	-	733.76
2.	Total cost	3926.59	4524.30	-	606.54
3.	Expenditure Cited Income / (Deficit)	2100.68	1024.01	-	127.22

Source: CoxDA

#### Land acquisition and project implementation

The CoxDA will conduct land surveys and information collection. Land acquisition will have proceeded through the DC Office based on the Acquisition and Requisition of Immovable Property Act 2017. The removal of illegal installations and compensation and rehabilitation of land acquisition is also the functions of CDA.

CoxDA is expected to implement projects listed in a master plan upon approval from the Government. Procurement of builders and consultants should be conducted via Central Procurement Unit (CPTU) in accordance with the Public Procurement Act (PPA) 2006, Public Procurement Rules (PPR) 2008, and the other related rules.

In particular, CoxDA is expected to coordinate with ministries and organizations involved in the tourism industry's development and growth, hold seminars, symposiums, workshops, and other events related to

modern and attractive tourism cities and areas, and manage online advertising and promotion. It is also expected to develop infrastructure and recreation service facilities that attract tourists from both domestic and international tourists to various tourist spots, including the beach.

Upon designation, rights related to facilities and land owned by the municipality can be transferred to CoxDA.

#### (4) Hokkaido Development Agency

##### History of establishment and organizational structure

The Hokkaido Development Agency (HDA) was established in 1946 under the Hokkaido Development Agency Act as a national government agency to minimize the obstacles to a compartmentalized regional development structure in Hokkaido.

The Hokkaido Development Agency established the Hokkaido Development Bureau as a unit to carry out projects. The Hokkaido Development Bureau had seven divisions: General Affairs, Budget, Land, Port, Water, Agriculture, Forestry and Fisheries, and Economy.

##### Planning

The Hokkaido Development Bureau prepares development plans and coordinates and promotes the implementation of projects based on development plans.

The Hokkaido Development Bureau shall implement projects implemented by each ministry and projects under the jurisdiction of the Hokkaido Government, which is a local government, other than the portion directly under the jurisdiction of each ministry.

##### Financial arrangement

The Hokkaido Development Bureau will secure a lump-sum national budget for research and preparation of development plans, as well as for the implementation of projects for which it is responsible.

##### Land Acquisition and Project Implementation (4)

The land will be acquired the same way as regular public land is secured in Japan, and there is no particular case.

##### Changes in the Hokkaido Development Agency

Initially, the Hokkaido Development Agency was planned to be established as a national government agency capable of planning and implementing all development projects in Hokkaido. However, due to opposition from other central administrative bodies and the local government (Hokkaido), the agency started as the organization above and jurisdiction for overall planning (MP), coordination of relevant organizations and implementation of projects other than those of the national and local governments.

Later, in 2001, it was reorganized into the Hokkaido Bureau of the Ministry of Land, Infrastructure, Transport, and Tourism, eliminating the dual administration with the local government (Hokkaido) and reorganizing Japan's central government agencies.

### 2.2.3 Case Study of Hybrid Type of Infrastructure Development

#### (1) Eastern Economic Corridor (EEC) of Thailand

##### History of establishment and organizational structure

The EEC has a long history. It was launched in the 1980s as Eastern Seaboard (ESB); the government-led infrastructure and industrial development began under the initiative of then Prime Minister Prem and the National Economic and Social Development Board (NESDB). There were two development centers, one for the development of the Laem Chabang Port and the industrial area of the adjacent car industry, and the other for the development of the Map Ta Phut Port and the separation of offshore natural gases and their downstream departments (Natural gas and chemicals industry).

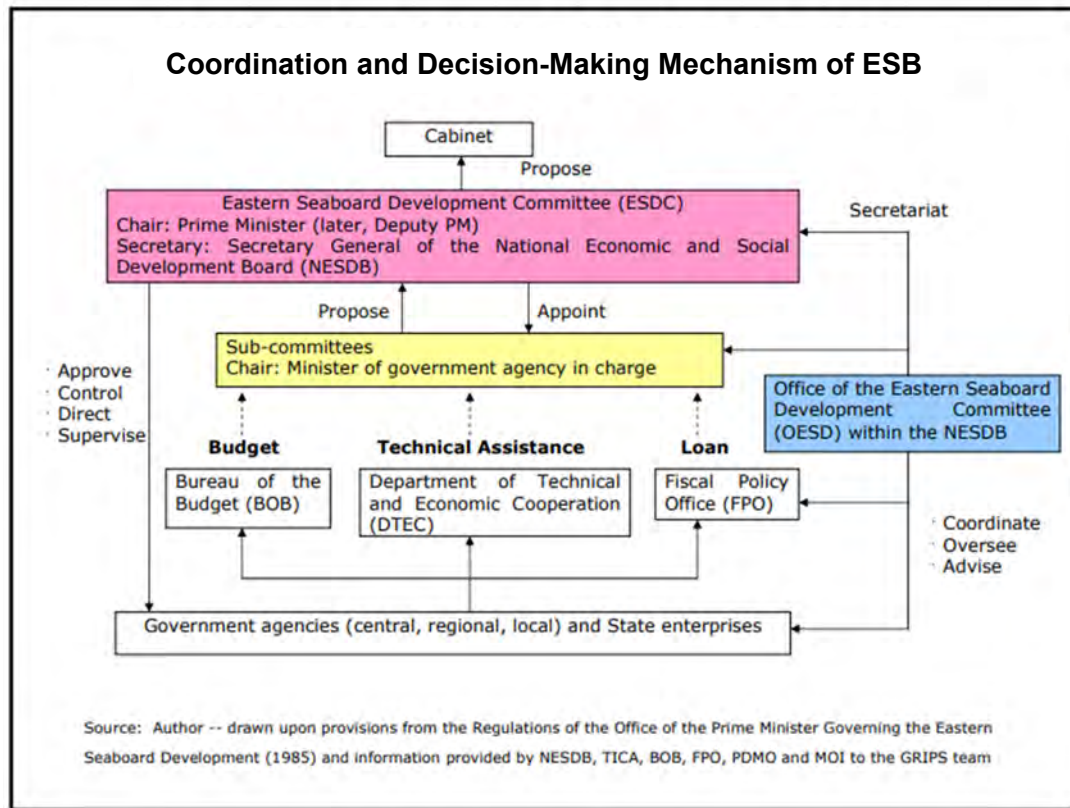
Thailand's development policies were traditionally prioritized in the private sector, and the government's role was to maintain macro-economic financial operations. In such a history, EEC was the first government-initiated attempt to promote development. Under the plan at its establishment, one-fourth of the total investment was in the government's infrastructure investment, of which 60% was in public loans, and 40% was in government investment. The remaining three-fourths were private-sector investments.

The Eastern Seaboard (ESB) was replaced by the Eastern Economic Corridor (EEC) after establishing the provisional constitution in 2014. Its target area expanded to the Eastern three provinces, focusing on infrastructure development, hub city development, deregulation, and tax reform to invite specific advanced industries (high-tech industries such as IT, next-generation automobile, medical care, aviation, and robotics). Regarding infrastructure development, the focus is changed from direct government investment to active utilization of private investment and legislative environment improvement to realize it. The type of infrastructure is shifted from traditional basic infrastructure to sophisticated infrastructures such as high-speed railways and IT infrastructure.

NESDB, which has been leading the Eastern Seaboard (ESB) is equivalent to the Planning Ministry of Bangladesh. However, NESDB is responsible for mid-and long-term plans and strategic development plans. At the same time, the Ministry of Planning of Bangladesh is responsible for both the mid-and long-term plans and the annual plans (the annual development budget). As for development-related plans and budget approaches, there is a slight difference between the two countries. In Bangladesh, the Ministry of Planning deals with the planning and annual development budget. In parallel, the Ministry of Finance collectively deals with the annual development budget, recurring budget, and revenue management. In Thailand, planning and budgeting are divided. NESDB is in charge of planning, and Budget Bureau is in charge of the development budget. Recurring budget and revenues management are under the control of the Ministry of Finance, and the

Budget Bureau is not in charge.

The feature of ESB development is that the decision-making system is clear and centralized. Specifically, the



structure is as follows.

- The ESB Committee, which is chaired by the prime minister and consists of ministers, the chiefs of the major implementing agencies, and the local governors, decides and monitors the policies and major projects of the ESB on behalf of the cabinet. In other words, the entire ESB were treated as Fast Track projects.
- The Secretary of NESDB serves as the secretariat of the ESB Committee. The Secretariat prepares all issues discussed and determined by the ESB Committee in advance and submits to the ESB Committee. Preliminary studies are conducted for new policies and non-critical or complex projects.
- Center for Integrated Plan of Operation (CIPO) was established within NESDB and the following activities are promoted for ESB.
  - Monitoring and coordinating the timing and location of each ministry's project
  - Have each ministry create an action plan and oversee its implementation
  - Implementation of studies necessary for projects (especially feasibility studies) and promotion of technical cooperation
  - Campaigns on EEC for externals and media
  - Promoting communication between government agencies involved in the EEC
  - Confirmation and maintenance of consistency with the five-year socio-economic plan.
- The following Sub-committees were organized under NESDB.
  - Eastern Seaboard Development Sub-committee



- Eastern Seaboard Deep Seaport Development Sub-committee
- Petrochemical Complex Sub-committee

To continue a wide variety of tasks described above for an extended period, excellent human resources were collected in NESDB. This is considered to be the main reason why the ESB succeeded.

### Planning

As a successor to ESBs, Eastern Special Development Zone Act was established in 2018 in Eastern Economic Corridor, (EEC), which is currently being implemented. This resulted in the systematic operation, which had been operated by the prime minister's leadership and the organizational power of NESDB. In particular, it legally clarified the measures to deal with various land-use problems. At the same time, the Office of the Policy Committee for EEC, a new state agency, plays a correspondent role in NESDB. The role of the EEC Office is shown below.

- Implementation of the policy committee's secretariat activities
- Recommendations to the Policy Board on Implementation under the Eastern Special Development Zones Act B.E. (Sections 11 and 12)
- Survey and Analysis of Policy Planning and Implementation Impacts
- Monitors the progress of development in the Eastern Special Development Zone. Report to the Policy Committee every three months.
- Prepare an annual report on the implementation of this Act for submission to the Council of Ministers for submission to the House of Representatives and the Senate for acknowledgment.
- Coordinate with relevant government and check whether the development of the EEC is following the policies, plans, and measures established by the Policy Board.
- Attraction and promotion of investment in EEC and joint investment.
- Establishes a limited or open limited company that operates a valuable business for the development of EEC
- Borrowing of organizational operating funds

### Funding

A key function of the EEC Office is that development budgets are distributed directly from Budget Bureau rather than through the ministries. Although project budgets are not allocated because they are not projected implementation organizations, budgets such as policy studies, master plan studies, and feasibility studies are allocated to implement policy preparations. This is significant because the rapid availability of upstream funding is directly linked to policy and business prioritization. The Secretary General's role is as important in the EEC Office as in NESDB.

### Implementation framework and changing development priority

Eastern Seaboard development can be largely implemented and divided into the following two phases.

- 1983-2015 Eastern Seaboard (ESBs) phase
- From 2016 to the present Eastern Economic Corridor (EECs) phase

The two phases have a common aspect and changed aspects.

What is common is leadership by the prime minister. That is to say, the prime minister directly led the

implementation work, and the technocrat group, centering on NESDB in the ESB era and the Eastern Special Development Zone Policy Office (ESDZPO) in the EEC era, directed and coordinated the planning and implementation of the ministries.

The major changes are as follows.

- In the era of ESBs, the most important was developing critical infrastructures such as ports, water resources, and industrial parks. Coordination organizations (CIPO of NESDB) mainly promoted and coordinated various infrastructural projects. However, although this role continues in the age of the EEC, it is becoming more important to investigate and propose the development of soft infrastructure, including policy direction, feasibility studies for infrastructure development in a new era, systems development for private-sector investment and innovation promotion, and funding. This transformation is closely related to the transition that the main actor of essential infrastructure development was shifted from the government in the 1990's to the private sector in 2000's which is resulted from the inflow of foreign capital, including Japanese.
- The EEC law was established in 2017. In the ESB era, the foundation of the implementation and coordination was not the law but the leadership of the Prime Minister and technocrat. However, since the EEC law was established, development has been carried out based on the law. On the other hand, because the entire country has moved to an interim constitutional system, the rapid implementation framework is considered to be maintained under the military administration. It is thought that NESDB's roles in the ESB-development era transferred to Eastern Special Development Zone Policy Office (ESDZPO), an independent administrative agency directly under the Prime Minister.

## (2) Okinawa Development Agency

### Background of establishment and organizational structure

Japan's Okinawa Development Agency (ODA) was established as a central administrative agency with jurisdiction over the Okinawa Promotion and Development Plan upon returning administrative rights over Okinawa Prefecture from the USA to Japan in May 1972. As such, its director was designated as a minister.

Its internal departments are the General Affairs Bureau and the Promotion Bureau. The General Affairs Bureau is in charge of administration, preparing the Okinawa Development Plan, and supervising the Okinawa Development Finance Corporation. The Promotion Bureau is in charge of coordination among related ministries and agencies that have jurisdiction over individual projects in the Okinawa Development Plan. Implementation of the projects will be carried out by the ministries and local governments in charge of the respective projects.

### Planning

The Okinawa Development Agency is responsible for studying and planning development plans and coordinating and promoting important matters related to implementing projects based on development plans.

### Funding

The budget for study, planning, and coordination among the ministries and agencies that implement

development plan projects shall be allocated as a single national budget. However, the budget for project implementation will be secured by each ministry individually.

#### Securing land

Land will be secured in the same way as normal public land is secured in Japan, and there is no particular case.

#### Changes in the Okinawa Development Agency

In 2001, the Okinawa Development Agency was integrated into the Cabinet Office along with the Economic Planning Agency and other ministries. The Okinawa Promotion Bureau was established as an internal department of the Cabinet Office, while the Okinawa General Secretariat became a local branch of the Cabinet Office.

### **2.2.4 Case Study of Decentralized Type of Infrastructure Development**

#### **(1) New Industrial City Development in Japan**

##### History of establishment and organizational structure

New industrial city development began based on the New Industrial City Development Law (Act No. 117 of 1962, NICD Law) established in 1962 and ended in 1991 after six basic construction projects. New industrial cities are "the core of the region's development by developing industrial location conditions and city facilities" (Article 1).

NICD Law was established to realize the "base development method" claimed in the National Comprehensive Development Planning for Industrial Development Special Regions (NCDP). In each region, a basic construction plan was established, and measures were taken, such as special measures for local tax, raising the interest replenishment and subsidy rates for local government bonds etc.

In January 1964, 15 regions were designated as new industrial cities from 44 candidate regions nationwide.

In the 1950s, Japan was on track to post-war recovery, setting the direction of the economy and society, including a fuel revolution from Coal to Oil, urbanization, and corporate grouping centered on the financial sector. The manufacturing industry developed, and new industrial clusters were created in some regions. These new industrial clusters were located in the Pacific coastal area, particularly around large cities, which is advantageous for securing sales markets, raw materials, workforce, and social infrastructure. Workers migrated from rural areas to these areas. The "Pacific Belt" was formed in the northern part of Kyushu, the coastal area of Seto Naikai, Kinki, Tokai, and Southern Kanto. However, industry development has been delayed in areas away from the Pacific Belt, and the expansion of economic disparity between regions has become problematic. Based on the National Income Doubling Program established by the government in 1960, the National Comprehensive Development Plan, which was decided by the cabinet in 1962, also called for "the alleviation of excessive population concentration" and "reduction of regional disparity" to encourage investment in non-Pacific belts. Therefore, the government planned to lead factories by making social capital investments in some areas ahead of schedule. To do this efficiently, it was considered desirable to concentrate investment on a limited number of development bases (the "growth pole approach"). For this purpose, various laws and systems were established, and the most notable are new industrial cities of NICCP Law.

At the beginning of the NICD Law, new industrial cities were to be set only in a minimal number of areas, but 15 areas were designated from among a large number of applications and strong appeals from each province. The implementation framework for new industrial cities consists of three levels: country, prefecture, and municipality. The country is responsible for the basic policy, but the prefecture is responsible for the master plan and individual plans. The prefectures and municipalities mainly secure sites and implement projects, and the country provides financial support to project entities. Details are shown below.

	National level	Prefectural and municipal levels
Organization	Planning Approval: Prime Minister Overall Coordination: Economic Planning Agency Planning Approval Discussion: Transport, Construction, Industry, Autonomy, Agroforestry, and Labor Ministry	Prefectural agencies and municipalities designated as new manufacturing cities
Plan	District designation: Each prefecture applies for designation based on national designation standards. Economic Planning Agency consolidates the meeting and the prime minister decides after discussions at the Local Industries Council. Basic Policy, Basic Targets (Population, Jobs, Industrial Shipments, Industrial Land, Critical Industry, and Estimated Public Investment Costs)	Preparing a prefecture plan according to the country's policy, objectives, and industry specifications. Review and update every 5-7 years.
Securing Sites		The prefecture and municipality implement it. In some cases, such as Kajima Development, a land union was established and implemented in a municipality to acquire land. There is an application example of "6.4 methods" Under this method, The province acquires 40% of the area of privately owned land, and 6% of the land acquired is exchanged arbitrarily with the land acquired by the province landowner can also receive development benefit.
Budget	Increase the subsidy rate for the specified regions (increase in the burden rate of the government ministries and agencies), supplement the interest rate for local governments, special measures for local tax, and expand the credit line of the Development Bank of Japan, etc.	Prefectural and Municipal Budget Expenditures
Implementation	Project implementation by implementing agencies Advice on inviting private-sector investment by MITI and enterprise managers to the province and municipalities	Implementation of Prefectural Projects Municipal Consultations with Residents (Especially Securing Sites and Environmental Pollution Control)

Note: The main designation requirements of the country were natural and social conditions, security of industrial and residential land, flights of transportation, small number of disaster occurrences, and urgency of employment security.

#### Implementation framework and development priority changes

The construction of new industrial cities was carried out under the six basic construction plans. During that time, the roles and authority of coordination organizations in the implementation framework were maintained throughout the framework stipulated in the original NICD Law. However, even under the same implementation framework, there were drastic changes in the plan's content for 30 years. The first is a change in the content of

public investment. Under the First NICD Plan, 57% of public investment was invested in productivity and 43% in the community. Under the Sixth NICD Plan was 31% and 69%, respectively. It results from the priority shift from the productive to the community base.

Meanwhile, the national government reduced the relative contribution of public investment, while local governments increased. It can be attributed to 3 factors. The first is to curb the increase in subsidies from each ministry gradually, the second is to shift the emphasis from core infrastructure to local living infrastructure, and the third is to increase the fiscal strength of local governments in line with tax revenues from attracted enterprises. In other words, there was a positive cycle of development. As development progressed, the relative magnitude of local governments (especially provinces) grew larger compared to the national government.

New industrial cities had a remarkable effect on public investment. This was because the subsidy rate was raised and the borrowing frame was drastically relaxed in the areas designated to be the new industrial city, so each province competed to make infrastructure development plans, secure land, and promote implementation. This was so successful that inviting companies centering on the heavy chemical industry progressed, and many new industrial cities achieved their industrial shipment value targets. However, many areas failed to meet the target of population and employment because many of the attracted companies were limited to the heavy chemical industry, which had limited labor absorption capacity, and the effects on local industries were also limited.

On the other hand, it has been pointed out that the growth of the organization's planning and coordination capacities at the country, prefecture, and municipal levels has an invisible but important, long-term effect. At the country level, outstanding bureaucrats from relevant ministries and agencies were transferred to the Economic Planning Agency, which coordinated the entire new industrial city plan, and teamwork was formed through its work. Thanks to this teamwork, interactive relationships were maintained among the seconded personnel even after the secondment and resulted in an essential human network basis for coordination between the ministries and agencies. In addition, in many cases designated as a new industrial city, the planning department was organized in addition to the finance department in the prefectural government and became the center of coordination between departments within the prefectural government. This movement was spread to new industrial cities designated prefectures and prefectures throughout the country. At the city level, until a new industrial city was established, most of the administrative tasks were general administration, benefits, maintenance of resident infrastructures, water supply, and so on, and there used to be limited opportunity for development. Strong involvement with development was also the impact of new industrial city development.

The organizational structure based on the NICD Law did not change fundamentally for 30 years. However, the development strategy, which forms the basis of the government-initiated growth pole approach, gradually ended in the long-term trend of growth of the entire national economies and expansion of the private sector, and eventually, the law was discontinued in 1991. Instead of the growth pole approach, the new nationwide integrated development plan (commonly called "New NIDP"), centered on developing the national transportation network, led to regional development in Japan. However, the New NIDP is not legally bound to the planning, budget, implementation, etc., like the construction of a new industrial city, but it is an administrative plan and emphasizes the indicative role. Since then, these indicative roles have become more important in Japanese development planning.

## (2) Kajima Seaboard Development

### History of Establishment and Organizational Structure

The Kajima Seaboard Development Project was planned by the local government (Ibaraki Prefecture) to attract factories to the prefecture's low-productivity dune areas and to increase the income of the prefecture's residents, in accordance with the government's policy goal of "getting rid of the backwardness of the prefecture" The plan called for the development of a 4,000-hectare industrial area on the seaboard, with the construction of the Kajima Industrial Port and an industrial water supply system using



Kasumigaura as its water source at its core, the improvement of transportation networks, and the development of several thousand hectares of residential land to create a comprehensive coastal industrial zone for steel, petroleum, chemicals, machinery, etc., and a functional modern city. The plan was to develop a complete coastal industrial zone for steel, oil, chemicals, machinery, etc., and to create a modern city.

In 1963, the project was designated as a particular industrial development area by the government and was recognized as a growth pole in the National Comprehensive Development Plan (Zenso), making it a huge national project.

For the Kajima Seaboard Development, the local government (Ibaraki Prefecture) established the Kajima Development Bureau, a full-time department in the prefecture, to handle planning and coordination.

### Planning

The local government (Ibaraki Prefecture) prepared the master plan for the Kajima Seaboard Development. In accordance with the initial development plan of Ibaraki Prefecture, the Port and Harbor Bureau of the Ministry of Transport presented a specific development plan for the deep seaport, which was the key to the development of the Kajima seaboard, and based on this plan, Ibaraki Prefecture completed the master plan in 1963. The initial master plan was for a total of about 10,000 ha (330 ha for the port, 3,340 ha for industrial land, 1,670 ha for semi-industrial land, 4,000 ha for residential land, and 330 ha for commercial land). It covers an area of about 200 km<sup>2</sup> in the three towns and villages of Kajima, Kamisu, and Namisaki. In 1970, a city with a population of 250,000 was to be completed, and a port capable of receiving 100,000-ton ships was to be constructed.

Since then, the master plan has been reviewed every five to seven years. As a result of these reviews, the Port of Kajima expanded its development plans to accommodate the increasing size of tankers.

### Financial measures

The local government implemented the overall plan (MP) (Ibaraki Prefecture), and each project was implemented by the ministries and local governments in charge with their budgets. The Kajima Seaboard Development was designated as a special zone for industrial development by the national government, which created an environment in which subsidies were added to the project implementation budget and loans were provided, thereby facilitating the implementation of the project.

In addition, to reduce the use of public funds in the development of the local infrastructure for the Kajima Seaboard Development Project, the government imposed a living environment development burden on companies moving into the area and set aside the responsibility as a living environment development fund to be used for the development of roads, parks, water supply and sewage systems, and educational and cultural facilities.

#### Land acquisition

The target for land acquisition in the development area of the Kajima Seaboard Industrial Zone was 4,000 square meters, and since many of the planned areas were privately owned, land acquisition was a major issue for development. Therefore, the local government (Ibaraki Prefecture) established the Kajima Seaboard Industrial Zone Development Association to acquire land for development and to acquire land for alternative relocation sites. The Kajima Seaboard Industrial Zone Development Association had about 600 employees, most of whom were dispatched from the prefectural government. In acquiring land, Ibaraki prefectural government developed its own land acquisition method, the "6-4 method. In this method, 40% of the land is acquired from local landowners and 60% of the acquired area is transferred to those who have acquired all or most of their land. It was devised and implemented as a mechanism to return the benefits to the landowners by providing alternative land.

### (3) Tanger-Med Port Development

#### History of establishment and organizational structure

Tanger, located in the northernmost part of Morocco, is a port city with a great geographical advantage in terms of access to European countries across the Strait of Gibraltar, the United States, West Africa, and Brazil. The Tanger Med Port was conceived by King Mohammed VI of Morocco as one of the largest economic development projects in the country, as a hub for trade logistics, industry, commerce, and tourism. It is envisioned to provide services for trans-shipment, import and export, and value-added logistics operations.

The history of the development of the Port of Tanger Med is as follows, with operations commencing in July 2007.

2002	Launch of Tanger Med Port works
2004	Construction works of Tanger Med Port 1
2007	Inauguration of Tanger Med Port 1
2008	Construction works of Tanger Med Passengers & Truck Port
2009	Launch of Great Tanger Med Industrial Platform
2010	Inauguration of Tanger Med Passengers & Truck Port
2011	Construction work of Tanger Med Port Center
2012	Inauguration of Renault (auto manufacturer) Tanger Med Complex
2015	Construction works of Tanger Med Port 2
2017	Inauguration of Export Access
2018	Inauguration of Tanger Med Port 2

Tanger Med Port 2 is located about three hours by highway and two hours by high-speed rail from Casablanca (population 3.14 million, 2014), the largest city in Morocco, to Tanger (population 680,000, 2014).

As of 2021, the 1000-hectare Tanger Mediterranean Port will consist of the following facilities It will consist of the following facilities

- Port 1 Tanger Mediterranean: two container terminals, a rail terminal, a hydrocarbons terminal, a terminal for other cargo, and a terminal for vehicles
- Port 2 Tanger Mediterranean: two container terminals (1 million TEU and 5 million TEU)
- Passenger and RORO Port: 8 berths for passengers and trucks, border checkpoints, cargo handling, and passenger facilities, customs clearance area, ferry terminal
- Logistic Free Zone (MEDHUB): warehouses, offices for rent
- Tanger-MED Port and Business Center (TMPC): 30,000m2 of commercial space (offices, banks, food courts, service complexes) (with access to rail, bus, and sea routes)

As of 2020, the Port of Tanger is developing into the largest container port in the Mediterranean region and the 24th largest in the world. It is connected to 183 international ports in 70 countries, with a capacity of 9 million containers, 7 million passengers, 700,000 transport trucks, and 1 million cars. In 2019, the actual cargo handling volume is 81 million tons and 5.77 million containers, car (new vehicle) transportation is 358,000 units, and passenger transportation is over 700,000 people. By comparison, the Port of Tokyo will handle 4.5 million containers of cargo in 2019, the Port of Yokohama 3.0 million, and the Port of Chattogram 3.1 million.

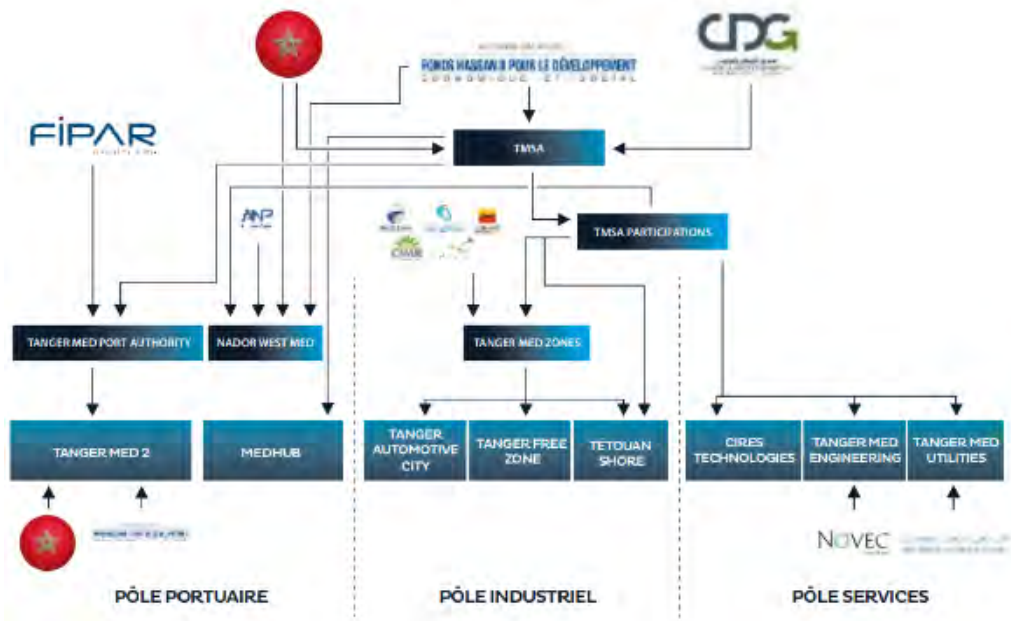
	Europe	Africa	Asia	Americas	Oceania
Container	59 ports, 17 countries	32 ports 19 countries	32 ports, 15 countries	30 ports 11 countries	-
Automobile	21 ports, 11 countries	4 ports 4 countries	8 ports, 6 countries	6 ports, 5 countries	5 ports, One port
Passenger	6 ports, 3 countries	-	-	-	-

In addition, the country has an industrial hinterland of 5000 hectares, of which 2000 hectares have been developed for the following SEZs.

- Tanger Free Zone (400 hectares)
- Tanger Automotive City (600 hectares), including Renault Tanger Med
- Tetouan Park (156 hectares)
- Tetouan Shore (20 hectares)
- Fnideq Economic Activity Zone (94 hectares) \*under construction
- Retail Area (outlets and leisure) (70 hectares) \*under construction



The organizational structure of the Tanger Mediterranean Port Group is shown in the figure below. It is broadly divided into port, industrial and service sectors.



■ Tanger Mediterranean Special Authority

The Tanger Mediterranean Special Agency (TMSA) was established by decree in February 2003 to develop, plan, and manage the Tanger Mediterranean Port and its industrial hinterland. It is a limited public company with 100% of its capital owned by the government. The Management Board and Supervisory Board are responsible to the government for management.

Under the umbrella of TMSA, three organizations are operating in the port, industry, and services sectors that are jointly owned with the private sector. According to TMSA's 2019 Annual Report, TMSA's total revenue was MAD 3,464 million, total operating income was MAD 2,053 million, and net income was MAD 918 million in 2019 (MAD is Moroccan Dirhams, 1 MAD is about 12.4 yen in November 2021 conversion rate). The company's profit margin of 27% is on par with European and U.S. companies; in FY2018, the profit margin was 15%. The company is maintaining steady profitability. In other words, by bringing in private capital under its umbrella, TMSA is managing its business in a way that makes it easy to understand its sustainable financial condition and management status from inside and outside the company.

< Port Sector >

■ Tanger Mediterranean Port Authority

In 2008, to improve the efficiency of port and hinterland development, TMSA established the Tanger Med Port Authority (TMPA) as a subsidiary for port-related operations, jointly with FIPAR Holdings, an investment company of the La Caisse de Depot et de Gestion (CDG) group.

In January 2010, by decree, the TMPA was granted official duties and privileges for developing and managing the Tanger Mediterranean ports, including the industrial hinterland.

The primary responsibilities of the TMPA are as follows

- The construction and maintenance of the port infrastructure (breakwaters, dredging, and berthing facilities);

- The development of the port's complex activities and capacities;
- The function of the conceding authority or the direct exploitation of port terminals and the activities of a public service nature
- The organization and the regulation of relations and exchanges between stakeholders of the port community;
- The promotion of the Tanger Med port as a whole.
- The promotion of the Tanger Med port as a whole; The port police function via the harbor master in charge of the safety and security of the complex.

The Board of Directors of the TMPA consists of the President and the following members

- TMSA
- Ministry of Economy, Finance, and Administration Reform
- CDG
- Hasan II Fund for Economic and Social Development
- FIPAR
- Secretary General of the Department of Equipment, Transport, and Logistics

In addition, the Supervisory Board consists of the President and the following members

- Minister of Interior
- Minister of Economy, Finance, and Administration Reform
- Minister of Equipment, Transport, Logistics and Water
- Minister of Industry, Trade, Investment and Digital Economy
- Chairperson of Hasan II Fund for Economic and Social Development
- Director General of CDG
- Director General of the Agency for Promotion and Development of the North

The implementation framework of the TMPA, headed by the General Manager, is as follows



At the time of the establishment of TMPA, it was agreed that TMSA would contribute about 68% of the 1.8 billion MAD (about US\$200 million) capital, and FIPAR would contribute the remaining 32%.

#### ■ Second Tanger Mediterranean Port Authority

Tanger Med 2 (TM2) was established to construct the second Tanger Med port and develop the third phase of the Port Complex. 2's Board of Directors consists of the President (General Manager of TMPA) and the following members The Board of Directors of TM2 consists of the President (General Manager of TMPA) and the following members

- TMSA (2 members)
- TMPA
- Ministry of Economy, Finance, and Administration Reform
- Ministry of Equipment, Transport, Logistics, and Water
- Hasan II Fund for Economic and Social Development
- FIPAR (2 members)

At the time of TM2's establishment, the Moroccan government contributed about 42% of the 5.1 billion MAD (about 560 million USD) capital, TMPA about 50%, and the Hassan II Fund about 8% of the remaining capital.

#### ■ MEDHUB, Inc.

MEDHUB, a wholly owned subsidiary of TMSA, was established in November 2008 to manage the Port Complex of the Mediterranean port of Tanger. Two hundred hectares of the area controlled by MEDHUB are adjacent to the customs area. MEDHUB overlooks an area of about 200 hectares adjacent to the customs area and has warehouses and offices for rent, enabling value-added logistics through warehousing, distribution processing, packing and packaging, and information management.

The Board of Directors of MEDHUB consists of the President (General Manager of TMPA) and the following members.

- TMSA (2 members)
- Management Board in charge of the Services Division
- Hasan II Fund for Economic and Social Development

### <Industrial Sector>

#### ■ Tanger Med Zones

Tanger Med Zones is a one-stop store that provides support from licensing, construction, and commencement of operations to promote investment in the industrial hinterland (5,000 hectares), including six SEZs (2,000 hectares in total). The company is responsible for buying and selling greenfield land for areas other than the six developed sites. For facility rentals, the company will also provide facility maintenance upon customer request. The Board of Directors of Tanger Med Zones consists of the President and the following members

- TMSA (2 members)
- Ministry of Economy, Finance, and Administration Reform
- Ministry of Industry, Trade, Investment, and Digital Economy
- Hasan II Fund for Economic and Social Development

- Bank and investment company officials (several)

Tanger Med Zones has received a 54.9% stake from TMSA and 700 million MAD (approximately 77 million USD) in private investment, with an additional 200 million MAD (about 22 million USD) expected. With this, Tanger Med Zones will directly operate the Tetouan Park SEZ and implement the Tanger Free Zones project.

The Tetouan Shore Park project, operated by Tetouan Shore, is 65% owned by Tanger Med Zones and 35% by TMSA out of a total investment of MAD140 million (about US\$15 million).

The Tanger Automotive City SEZ is operated by Tanger Automotive City, with Tanger Med Zones holding a 100% stake of 400 million MAD (approximately 44 million USD).

The Tanger Free Zone SEZ is operated by Tanger Free Zone, with 11 million MAD (approximately 1.2 million USD) 100% contributed by Tanger Med Zones.

### <Service Sector>

The following three companies have been organized as specialized service units of the Tanger Mediterranean Port.

#### ■ CIRES Technologies

CIRES Technologies is a wholly owned subsidiary of TMSA Participations, which provides specialized IT services such as safety and security for ports, airports, and railroads, as well as network and cloud services to public and private operators. The Board of Directors of CIRES Technologies consists of the President and the following members

- TMSA
- TMPA
- Tanger Med Foundation
- Management Board in charge of the Services division
- Tanger Med Engineering

#### ■ Tanger Med Engineering

Tanger Med Engineering specializes in large-scale infrastructure projects, including engineering studies and design (F/S, etc.), port, coastal, and logistics projects, and asset management. 51% of the company is owned by TMSA Participations and 49% by NOVEC. The Board of Directors of Tanger Med Engineering consists of the President and the following members

- TMSA
- NOVEC (3 members)
- Management Board (2 members)
- Tanger Med Utilities

#### ■ Tanger Med Utilities

Tanger Med Utilities provides water, energy, and waste management support to tenants of the Tanger Mediterranean Port, considering sustainable development and environmental considerations. The Board of Directors of Tanger Med Utilities consists of the President and the following members

- TMSA (2 members)

- TMPA
- ONEE (4 members)
- Management Board in charge of the Services division

#### Trade and Investment Policy

In parallel with the mentioned Tanger Mediterranean Port project, the Moroccan government has adopted an aggressive trade and investment policy. These policies have had a substantial impact on the Tanger Mediterranean Port, and as of 2019, approximately 900 foreign companies have established operations in the port, mainly in the automotive, aircraft parts, food processing, logistics, and textile industries.

#### ■ Creating Free Trade Agreements (FTAs)

Morocco has already concluded investment agreements with over 72 countries and economic agreements with 62 countries. Morocco has already signed investment agreements with over 72 countries and economic agreements with 62 countries, the most important of which are the FTA with the United States (2004), the FTA with the European Union (2011), and the FTA with the African Continent (2021, 27 countries including Morocco).

#### ■ Diverse measures to encourage and promote investment

Investment Charter:	Consolidation of industry-specific investment laws
Investment tax exemption:	Value added tax, corporate tax, personal income tax, city tax, customs tax, domestic consumption tax, land registration tax, import duty, investment allowance deduction, etc.
Subsidies to businesses:	Hasan II Fund, Investment Promotion Fund (subsidies for land acquisition, infrastructure development, and human resource development)

#### ■ Investment promotion by governmental organizations

Moroccan Investment and Development Agency, Moroccan Investment Authority, Investment Commission, Export Free Zones (5 nationwide including Tanger Med Port)

### **2.3 Summary of Similar Cases and Suggestions to MIDI**

Table 2.10 compares the above similar cases and the MIDI implementation framework.

Each similar case can be divided into the following three categories based on the authority and role characteristics of the implementation framework of the large infrastructure project.

- Centralized type
- Hybrid type
- Decentralized type

The characteristics of these types, in particular their advantages and disadvantages, are examined and compared with the advantages and disadvantages of the present MIDI implementation framework (Table 2.10)

The following three points are commonly observed among these types.

- The implementation framework is country-specific and reflects the primary administrative and fiscal mechanisms and governance systems.

- The organization's functions, planning, funding, implementation, and monitoring are interrelated.
- Each implementation framework consists of a combination of line organizations and cross-sectional organizations, not just one of them.

Here are some suggestions for MIDI:

- It is desirable to introduce a more robust cross-sectoral structure within the current predominantly sectoral system while utilizing the present mechanism of Bangladesh.
- The hybrid type combines centralization and decentralization, but it is not intended to be completely centralized. But central control concentrates on the planning and monitoring functions, and the experience and initiative of implementation organizations are respected in terms of budget and implementation. This is a crucial point.
- Master plans under the hybrid type are not a mere collection of sector plans or self-contained plans limited to the target area but are based on priority projects from the perspective of the national development strategy.
- The project budget is left to the initiative of the implementation organizations, but feasibility studies on such projects are subject to central control under the hybrid type. This practice could be a valuable reference for managing multi-sector infrastructure projects in Bangladesh, where implementing organizations have traditionally been strong.
- In this sense, it is essential to centralize the planning and monitoring functions of the implementation framework in Bangladesh. For this purpose, it is desirable to establish an organization dedicated to planning and monitoring MIDI under the Prime Minister's Office.

Table 2.10 Comparison among Different Types/Cases in Implementation Frameworks for Multi-sector Infrastructure Development

Functions of Implementation Framework	Types of Implementation Framework		
	Centralized	Hybrid	Decentralized
Role of Planning/ Coordinating Body and Implementing Body	In <u>RAJUK</u> hole urban development activities are centralized consistently from planning through implementation. <u>Hokkaido Development Agency (HDA), Japan,</u> takes charge of planning and implementing projects on behalf of line ministries.	In <u>Eastern Economic Corridor (EEC), Thailand,</u> planning, and monitoring are centralized in planning/coordinating bodies, and implementation is decentralized among implementing bodies. <u>In New Industrial City Development, Japan</u> EPA and lead ministries jointly prepare national programs and prefectural governments prepare MP and implement projects accordingly. <u>Okinawa Development Agency(ODA), Japan,</u> prepares MP, secure/use the budget on behalf of implementing bodies. Okinawa Promotion	In <u>Kajima Seaboard Development (KSD), Japan,</u> <u>the prefectural government prepares MP and implementing bodies, and the prefectural government</u> implement projects based on the MP.

			Division coordinates between ODA and implementing bodies in project implementation	
Establishment Law		<u>RAJUK Act Hokkaido Development Law</u>	Eastern Special Development Zone (ESDZ) Act for <u>EEC</u> .	<u>NICD Law Act on Special Measures for Okinawa Promotion and Development</u>
Decision Making		In <u>RAJUK</u> chairman and members of the board make the decision. Under the decision by SG of HAD, <u>Hokkaido Development Division</u> implements projects.	In <u>EEC</u> , Policy Committee (PC) makes decision and Office of PC monitors project implementation by line ministries. In <u>NIDC</u> , Prefectural governors decide in consultation with EPA.	In <u>KSD</u> , the prefectural governor decides in consultation with EPA.
Role of Local Government		None	In <u>NIDC</u> , prefectural governments play key roles in making MP, securing subsidies, and increasing their revenues.	In <u>KSD</u> , the prefectural governor takes the initiative in planning, investment promotion, land acquisition, and lobbying relevant ministries, politicians, and the business community.
Planning (1)	Policies and Programs		In <u>EEC</u> , the role of Cross-sectoral organizations is increasing more at the policy and program level than project In <u>NIDC</u> , policy proposals from different ministries are combined and pave the way for NIDC Law.	
	Preparatory Activities, i.e., policy and planning studies	In <u>RAJUK</u> , varying studies have been accumulated and used in.	In <u>EEC</u> , preparatory studies are used to shape the direction of EEC-related government policies. <u>EPA</u> conducted studies on economic and regional development policies for NIDC.	
	Area Designation	Designated based on <u>RAJUK Act</u> .	Designated based on <u>ESDZ Act</u> Based on <u>NIDC Law</u>	Designated In <u>KSD</u> , based on NIDC Law
	SDP	Incorporated in MP of <u>RAJUK</u>	Prepared by implementing organizations in <u>EEC</u> . It was incorporated in MP of prefectural governments under <u>NIDC</u> program.	
	MP	Prepared by <u>RAJUK</u> The cabinet approved MP for Hokkaido Development.	Prepared by Office of PC of <u>EEC</u> with an emphasis on overall strategies, targets, land use framework, and priority projects.	The prefectural government prepared the <u>KSD</u> plan.

			Prefectural governments prepare MP for <u>NICD</u> . <u>ODA</u> prepares MP.	
	Project Identification	Chairman approves projects in <u>RAJUK</u> .	In <u>EEC</u> , line ministries prepared projects for approval by PC. In <u>NIDC</u> , lead ministries and prefectural government jointly identify projects.	
	Process Planning		In <u>EEC</u> , the Office of PC coordinates the timing of projects implemented by line ministries. Project timing is coordinated in each <u>NICD</u> . EPA provides allocates funds for adjusting the timing of projects and offsetting missing links between projects.	
	Plan Approval	DMDP of <u>RAJUK</u> is approved primarily by the chairman and the prime minister.	MP of <u>EEC</u> is approved by PC. MP of <u>NICD</u> is approved primarily by the prefectural governor and the prime minister.	
Funding (2)	Budget Deal	<u>RAJUK</u> requests budget to MHPW.  <u>HAD</u> requests a lumpsum budget for parts of the projects under the Ministries of Public Works and Agriculture under the name of <u>Hokkaido</u> development.	In <u>EEC</u> , line ministries request to Budget Bureau the budget for implementation. Office of PC requests the budget for preparatory works such as preparing MP and FS in a lump. In <u>NICD</u> , prefectural governments request budget, including project subsidies, through line ministries to the Ministry of Finance. <u>ODA</u> requests a lumpsum budget for all the projects under the name of <u>Okinawa</u> development.	
	Budget Allocation	It is allocated by the chairman and the members of the board of <u>RAJUK</u> .	In <u>EEC</u> , the budget for the preparatory works such as FS are allocated among line ministries by Office of PC at its discretion. Under <u>NIDC</u> , the budget for prefectural projects, subsidized mainly by line ministries, are allocated in the prefectural government.	
	Subsidies		In <u>NICD</u> , prefectural projects are mostly subsidized by line ministries.	
	Borrowings	<u>RAJUK</u> borrow funds within the ceiling set by the national government.	In <u>EEC</u> , Office of PC can borrow within a ceiling amount set by the PC In <u>NIDC</u> , the prefectural government can borrow	In <u>KSD</u> , the prefectural government has established Special Account for Estate Development(SAED) and Special Account for Living



			within a ceiling amount set by the Ministry of Finance. The ceiling amount is larger in NIDC than its outside.	Environment Development(SALED) . The proceeds from land sales finance 60% of SAED. 100% of SALED is financed by the contributions from investors in industrial estates.
Implementation	Project Approval	In <u>RAJUK</u> , chairman approves	In <u>EEC</u> , Policy Committee (PC) approves.	
	Project Coordination	Within <u>RAJUK</u> , the chairman and members the board coordinate projects.	In <u>EEC</u> , PC, and Office of PC coordinate.	
	Land Acquisition (3)	<u>RAJUK</u> prepares land acquisition plan to be implemented by DC according to Land Acquisition Act 2017.	In <u>EEC</u> , Office of PC acquires lands based on the criteria set by PC. In <u>NICD</u> , implementing organizations acquire lands based on a land use plan and the laws related to real estate transactions.	In <u>KSD</u> , the prefectural government set up <u>KSD</u> Association for land acquisition. The association practiced a special arrangement for land acquisition called “six-to-four method” In this method, the prefectural government purchases 40% of the land privately owned and exchange the remaining 60% with public lands.
	Industrial Priority Setting		In <u>EEC</u> , PC set industrial priority is set by PC incantation with Ministry of Industry.	
	Arranging Public-Private Partnership		In <u>EEC</u> , Policy Committee together with Office of PC arrange public-private corporation,	In <u>KSD</u> , railway company, wharf company and urban development company were established on a public-private partnership basis
	Public Consultation	<u>RAJUK</u> has been conducting public consultation through strategic environmental assessment(SEA)	<u>EEC</u> Act specifies that public consultation be considered. In <u>NICD</u> , the prefectural government-organized Public-Private Consultative Committee for <u>NICD</u> .	
	Monitoring (4)	Annual Reporting	Prepared by <u>RAJUK</u> itself.	Prepared by Office of PC in <u>EEC</u> Prepared jointly by EPA and prefectural governments for <u>NICD</u>
Project Monitoring		Monitoring Cell of <u>RAJUK</u> monitors continuously.	In <u>EEC</u> , the Office of PC monitors continuously. In <u>NIDC</u> , EPA monitors the development and reports to National Land Development Council.	

Table 2.11 Performance and Challenges in Different Types of Implementation Frameworks for Multi-sector Infrastructure Development

Function	Centralized type Typical example: Bangladesh RAJUK		Intermediate type Typical example: Thailand EEC		Decentralized type Typical example: Japan's NICD	
	Performance	Challenge	Performance	Challenge	Performance	Challenge
Organizational operation	Consistently manage the planning, implementation, and monitoring of specific fields (city development). Flexible operates as an independent administrative organization. There is no division-specific system.	Difficult to coordinate with organizations and businesses outside of a specific field.	Within the designated area, the authority for planning and monitoring is concentrated in the committee directly under the prime minister. Each ministry shares implementation.	Flexibility is unknown after the transition to legal-based management.	Stable operation through a system of lead ministries and EPA. Make full use of the local administrative and financial systems.	They are more rigid to social-economic changes because they are enacted based on a wide range of development-related laws, regulations, and budgetary systems rather than based on political initiative.
Plan	Integrity and planning within RAJUK are sufficient.	City planning in an opaque overall Dhaka's strategy for economic and infrastructure development	Policy research and planning that embody national strategies and anticipate policy needs	There is little replicability because it is the development of national determination.. It is in the transition from government-led development to private-led development.	Government guidelines and planning targets respect the vitality of the private sector and local autonomy. Capacity building at the local level for planning and implementation through the planning and implementation process	Unified plan based on national financial measures (especially the subsidy system)
Financial resource measures	MoHPW Utilities secures budgets and allocates them flexibly within the boundaries.	Future challenges are whether the current budget system, which depends on a budget of MoHPW, can deal with the rapid urbanization of Dhaka.	Budget by the Budget Bureau for each ministry. However, for the upstream of policies and projects, the Budget Bureau will allocate them directly to the EEC Policy Committee Office to ensure the overall direction.	There is no particular problem with sectionalism organizations.	In addition to the regular budget request from each ministry, the prefectural government requests the budget through the EPA	Planning of funding measures and allocation of subsidy dependencies.

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Implementation	Consistently implement planning and implementation within RAJUK's responsibilities.		Supported by each ministry	Notably no problems	Implemented by each ministry and prefecture.	No problems, in particular.
Monitoring		Notably no problems	The EEC Policy Committee Office frequently monitors the implementation status of each ministry.	Notably no problems	The prefectural government and the EPA monitor the progress and report it to the National Land Council.	Notably no problems

Source: JST

## 2.4 Comparison of Functions of the Implementation Framework

The following section compares functions under different types of an implementation framework and summarizes the implications of the comparison for MIDI in the future. In addition, noteworthy development methods that emerged from the analysis of similar cases are also summarized. The functions are grouped into (1) planning, (2) budgeting & financing, and (3) implementation & monitoring.

The implementation framework is supported by interdepartmental organizations and functions and organizations and functions in charge of departments. In a centralized system, all functions are carried out by a single organization in an integrated manner. In the intermediary system, the planning and monitoring functions are carried out by the interdepartmental organizations, while the financial and implementation functions are carried out by the organizations in charge of each department. In the decentralized system, the cross-departmental organization is responsible for the planning function, and the organizations in charge of each department are responsible for the other functions.

Table 2.12 Example of Implementation Framework by Type

	Centralized	Hybrid	Decentralized
Example	Hokkaido Development Agency, Japan RAJUK, Bangladesh Chittagong Development Authority, Bangladesh Cox's Bazar Development Authority, Bangladesh	Okinawa Development Agency, Japan Eastern Seaboard (ESB)- Eastern Economic Corridor , Thailand	New Industrial City Development (NICD) , Japan Kajima Seaboard Industrial Development, Japan Tanger MED , Morocco MIDI

Source: JST

MPs are prepared regardless of the type of implementation framework and are approved by law or cabinet decision; SDPs are basically prepared by the organization in charge of the sector; MPs may also cover the SDPs.

Table 2.13 Planning

Major functions		Centralized	Hybrid	Decentralized
Plan	MP	Available, e. g. RAJUK Act stipulates Dhaka Metropolitan Development Plan (DMDP)	Available, e. g. MP is as stipulated by Cabinet Order/EEC Act	Available, e. g. NICD Law, Japan The law stipulates the guideline to be prepared for the basic plans of respective NIDCs. The law also stipulates local governments to prepare their MPs.
	SDP	Covered by MP, e. g. DMDP	SDPs prepared by sector organizations, e. g. Thailand	SDPs prepared by sector organizations. e. g. NICD, Japan
Capacity		A large organization is necessary, e. g. RAJUK :1250 staff members	Dedicated department, e. g. CIPO for ESB with 30 staff members at the beginning and 100 staff members later.	No new section
Approval/ Authorization		Approved by the cross-sectoral organization, e. g. RAJUK Act	Authorized by ECC Policy Office/Prime Minister e.g.by Cabinet Order/EEC Act	Authorized by the prime minister according to NICD Law, Japan

Source: JST

The method of requesting and allocating the budget differs depending on the implementation framework. In the centralized type, the funding is allocated within the organization dedicated to the area of jurisdiction, while in the hybrid and decentralized types, the budget is allocated to the respective sector organizations. However, in the hybrid type, the budget for the upstream activities, including research and planning, is allocated by the cross-sectoral organization, which is usually in charge of planning and monitoring. Regardless of the type of implementation framework, the procurement and utilization of off-budget funds are being addressed.

Table 2.14 Budgeting and Financing

	Centralized	Hybrid	Decentralized
Budget request	Dedicated organization, e. g. RAJUK to Ministry of Housing and Public Works	Sector organizations for project Cross-sectoral organization for preparatory activities such as studies, on the lumpsum basis, e. g. EEC of Thailand	Sector organization for projects, e. g. NICD and Kajima Seaboard Development, Japan
Budget allocation	A dedicated organization allocates budget internally, e. g. RAJUK	The budget authority allocates the funds The cross-sectoral organization allocates preparatory activities to sector organizations, e. g. EEC of Thailand	The budget authority allocates the funds. e. g. NICD, Japan
Funding other than budgeting	Borrowings and own revenue of the dedicated organization, e. g. Tanger MED; rents and sales of public lands of RAJUK and Kajima of Japan, Public-private corporation	Borrowings and own revenue of sector organization, e. g. EEC of Thailand; set-up of a limited company, promotion of private investments, and joint capital investment.	Borrowings and own revenue of sector organization, e. g. NIDC, Japan; the issue of the bond, borrowings from banks, donation/ contribution from private for infrastructure

Source: JST

Sector and area-specific organizations are responsible for the implementation process, including project approval, land acquisition, project coordination, construction, maintenance, and operation. The same is true for project monitoring and project risk management, but in the hybrid implementation framework, the cross-sectoral organization also works with the sector organizations.

Table 2.15 Implementation and Monitoring

	Centralized	Hybrid	Decentralized
Project approval	The dedicated organization itself, e. g. RAJUK	Cross-sectoral organization, e. g. Office of Policy Committee (OPC) of ECC, Thailand	Sector organization is responsible for the project, e. g. case of NICD of Japan
Land acquisition	Dedicated organization and Deputy Commissioner, e. g. RAJUK	Sector organization, e. g. SEB Thailand (in case of EEC, OPC acquires lands)	Sector organizations, e.g. NICD of Japan; in the case of NIDC and Kajima, local governments acquire land
Coordination among projects	N.A.	The cross-sectoral organization coordinates the location and timing of projects of different sector organizations, e. g. ESB & ECC, Thailand	Sector organizations coordinate the location of infrastructure projects and private investments, e. g. NICD and Kajima of Japan; in the case of NIDC and Kajima, local government

			coordinates.
Construction and O&M	Dedicated organization (partially concessionaire) e. g. RAJUK	Sector organization (partially concessionaire) e. g. ESB, Thailand	Sector organization (partially concessionaire)
Project monitoring	Monitoring section of dedicated organization e. g. Monitoring Cell of RAJUK	The cross-sectoral organization monitors e. g. once in three months by EEC Act	Sector organization
Project risk control	N.A.	The cross-sectoral organization is responsible for risk control before the completion of the construction period. e.g. EEC Act, Thailand	N.A.

Source: JST

Based on the above review of the existing implementation framework, relevant suggestions and reference cases for the future regarding the functions of the MIDI implementation framework are summarized within Tables 2.16 and 2.17.

Table 2.16 The Way forward of MIDI

Major functions	Implications for the way forward of MIDI
Planning	To incorporate a process of preparation and approval of plans, including MP, as authorized by a legislative basis The hybrid type could be the way forward of MIDI because of 1) the need for preparing and revising MP continuously, 2) continuity of ongoing projects and 3) Sufficiently feasible arrangement of staffing
Budgeting and funding	To have certain authority on the legislative basis to: <ul style="list-style-type: none"> <li>Request budget for planning and project implementation.</li> <li>Allocate budget based on programs/projects of MP</li> <li>Mobilize private money/institution for government projects</li> </ul>
Implementation and monitoring	Clear division of roles of the organizations concerned in the project implementation process; approval, coordination, monitoring, and risk control.

Source: JST

MIDI implementation framework will promote integration and coordination among departments at each stage of planning, budgeting, implementation, and monitoring, based on legal and administrative documents. An emphasis will be placed on continuity with the current implementation framework and securing of staff.

Table 2.17 Reference for MIDI

Means of development as a reference for MIDI		Outline	Implications and some points to note
Allocation of fund for research and planning	ESB Development, Thailand	Bureau of Budget allocated the budget for research and planning to a national planning organization such as NESDB of Thailand.	A hint of preferable measures to help prepare MIDI MP in the future. Some adjustments maybe have to be made to the ongoing budget system
“6-4 method” for land acquisition	Kajima Seaboard Development, Japan	The local government purchased 40% of the land owned by farmers and provided them with alternative sites (land) worth 60% of their lands to enable them to continue farming and gain profit from rising land values.	A hint of a solution to balancing the land acquisition for development and the landowner’s livelihood. A survey may be necessary on the available lands for alternative

			sites.
Mobilization of private money for public investments	Kajima Seaboard Development, Japan	The local government used the gain on the sale of lands for industrial infrastructure development and called for contributions by the investors for local infrastructure development.	A hint to secure and optimize investments in MIDI projects on a PPP basis or beneficially pay principle. An independent public body may be desirable to organize and promote relevant projects.
Participation in development and management	Tanger MED, Morocco	The whole operations are managed by Tanger MED Special Agency (TMSA) owned by the government. TMSA established companies for managing and operating the port, industrial base, and logistics/services jointly with the private sector to keep self-sustainability and transparency.	A hint of establishing management and operation organizations to be more sustainable. MIDI implementation framework is desired to involve significant with financial institutions with broad information access to potential investors
Strategic environmental assessment (SEA)	RAJUK, Bangladesh	RAJUK applies the methodology and experience of strategic environmental assessment (SEA) not only for the environmental evaluation on an area-wide basis but also for public consultation to reflect stakeholders' opinions in government planning.	A good reference for taking public participation in MIDI effectively. It is desirable to secure consultants with field experience in the SEA.

Source: JST

## Chapter 3 Analysis and Proposal on MIDI Implementation Framework

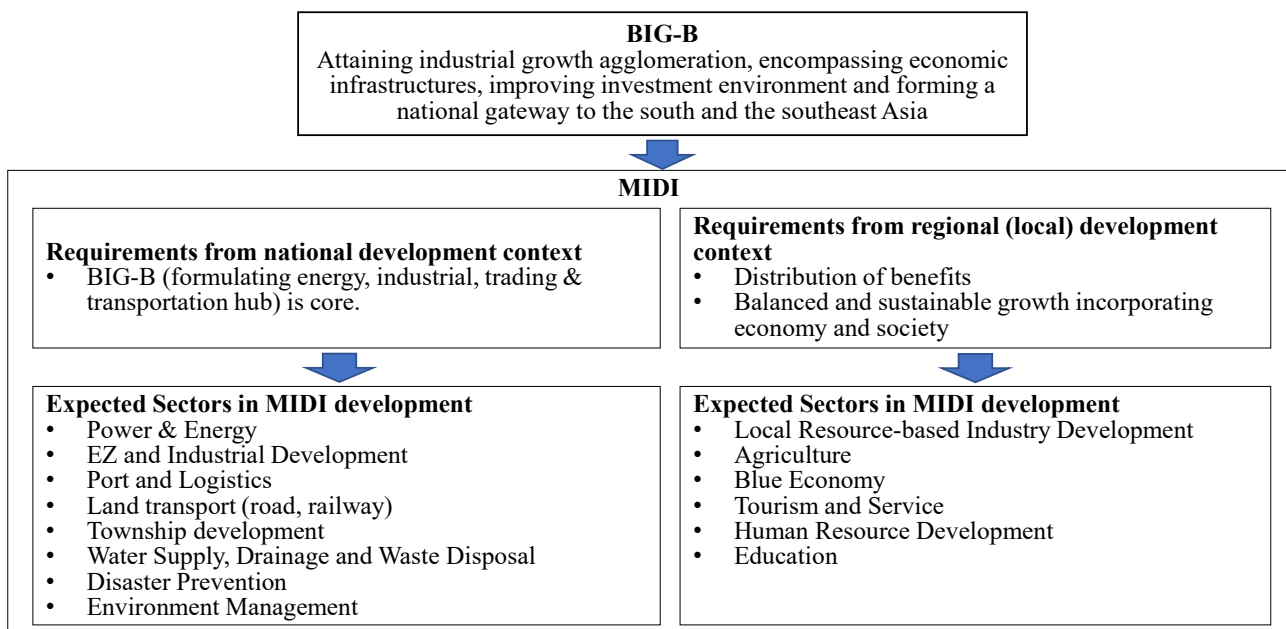
### 3.1 MIDI Concepts

The idea for MIDI stems from BIG-B, which aims at developing an industrial belt from Dhaka, Chattogram down to Cox's Bazar. The prime ministers of Bangladesh and Japan agreed to cooperate in realizing the BIG-B in May 2014.

The framework of the BIG-B was clearly laid out in the speech "BIG-B toward Growth beyond Borders" delivered by JICA President Akihiko Tanaka at the University of Dhaka in June of the same year. The Dhaka-Chattogram-Cox's Bazar belt will vastly improve the economic infrastructure, investment environment, and connectivity, accelerating industry concentration. The three pillars of BIG-B are Matarbari Port, Matarbari Power Generation, and Dhaka-Chittagong-Cox's Bazar transport trunk line.

The MIDI concept is assumed based on the above background, as shown in Figure 3.1.

In other words, MIDI will promote integrated infrastructure development on the islands of Moheshkhali and Matarbari and their periphery under BIG-B, which will create a regional industrial hub suitable for leading the national economic growth. MIDI has importance to the overall development of Bangladesh as clearly stated by the Chairperson in the 1st meeting of the MIDI CC held on 4 March 2018. At the same time, MIDI will create a balanced urban-rural area in and around the two islands and contribute to its local benefits and sustainable development.



Source: JST

Figure 3.1 Concept of MIDI



## **3.2 Further Strengthening of MIDI Implementation Framework**

### **3.2.1 Achievements, Needs and Issues on Current MIDI Implementation Framework**

#### **(1) Need for Strengthening MIDI Implementation Framework**

##### MIDI at present and in the future: from planning toward implementation

MIDI-related projects have been planned individually by the implementing ministries/divisions in charge in the early stages. The MIDI CC was established in March 2018 to coordinate among projects to accelerate the MIDI. Since then, 13 meetings have been held to coordinate among relevant organizations and facilitate project implementation. In March 2019, the MIDI-Cell was created to provide the MIDI CC with administrative and technical support.

Major infrastructure projects such as coal-fired power plant construction, Matarbari port development (Phase 1), Matarbari access road development, and economic zone development have been started, and construction is in progress, while other projects are in the process of planning, budgeting, and preparation of implementation. Various implementing ministries/divisions will launch more and more projects, and many projects will be implemented in parallel.

Under such circumstances, the following risks could affect the progress of MIDI. These risks are not limited to individual project risks. They may affect other projects in close proximity or functionally related, resulting from possible delays in overall planning and unexpected supply-demand gaps.

- Coordination of project location
- Project delays due to budget disbursement delays
- Project delays due to the delays in land acquisition
- Unexpected bottlenecks caused by misassumptions on-site, for example, the clearance to be kept in grade separation and the space for construction material. These are mostly technical problems.
- Environmental impact
- Conflict with society is caused in the course of developmental activities.

##### Need for Strengthening the MIDI Implementation Framework

A robust MIDI Implementation Framework is required to address the above-mentioned possible risks and ensure the realization of MIDI.

#### **(2) Achievement and Issues of Ongoing MIDI Implementation Framework**

From the perspective of strengthening the risk management of MIDI as a whole and each project, we can point out the following achievements and issues of the MIDI implementation framework as analyzed in Chapter 2 of this report.

Table 3.1 Achievements and Issues of MIDI Implementation Framework

Achievements	Issues
<ul style="list-style-type: none"> <li>• Coordination will proceed among projects of various implementing ministries/divisions under the PMO's authority.</li> <li>• Flexible authority and membership of the MIDI CC allow for agile management.</li> <li>• MIDI's status as a Fast Track Project (FTP) provides side support in securing the budget.</li> <li>• The implementing ministries/divisions have a wealth of experience in project implementation.</li> <li>• Over the past three years, there has been an accumulation of trust and coordination know-how among the project implementing ministries/divisions participating in the MIDI CC.</li> </ul>	<ul style="list-style-type: none"> <li>• The responsibility and authority of the MIDI CC within the government are not clearly defined despite that the responsibility and authority have been established clear enough in the overall government administration.</li> <li>• The need for a MP has been recognized since the inception of the MIDI CC. However, the MP has not yet been formulated. As a result, it takes time to coordinate the work of each project implementing ministries/divisions.</li> <li>• The MIDI CC and the MIDI-Cell do not have budgetary authority, and it is up to project implementing ministries/divisions to secure their own budget. Therefore, it has not been easy for the MIDI CC and the MIDI-Cell to plan development activities and coordinate the ongoing projects by implementing ministries and divisions. The predetermined policy is to have the personnel and organization of the MIDI-Cell in place as needed. This policy needs to be further strengthened to cope with the creation and implementation of MPs in the future. In this connection, the current status of the implementing ministries'/divisions' personnel is shown in Section 2.1, "Analysis of the MIDI Implementation Framework".</li> </ul>

Source: JST

### 3.2.2 Phasing of MIDI

MIDI is a 20-year project, as shown in Figure 3.2, 25 years from the start of the Matarbari coal-fired power plant and 24 years from the beginning of the MIDI CC in 2018. It is not a process of meticulously planning first and then steadily executing a completed plan. The assumptions of the original plan have to be changed over time, and the planning entities also have to be changed and diversified. It is necessary to understand that the process is one of "planning, implementing, and changing the plan as implemented. In light of this background, it is effective to consider the MIDI phases broadly as the following two phases.

- Phase 1: Up to the formulation of MIDI Master Plan (MP)

The MIDI MP will include development objectives, regional positioning, development strategy, target figures, land use plan, priority projects, development schedule, and implementation structure. In parallel with the preparation of the MIDI MP, the MIDI Development Agency (the MDA) will be

established and structured, and projects under planning will be implemented.

- Phase 2: Implementation and revision of the MIDI MP

After the MIDI MP is formulated, the national infrastructure designated as priority projects in the MIDI MP will be implemented. In parallel, the MIDI MP will be revised. Subsequently, planning and implementation systems will be strengthened for the development of local infrastructures such as schools, medical facilities, water supply, drainage, waste disposal, housing and streets.

### **3.2.3 Type of Implementation Framework for Multi-sector Infrastructure Projects**

The implication of the review of similar cases of the multi-sector infrastructure project in Chapter 2 for the MIDI implementation framework is that:

- Broadly speaking, the implementation framework is a combination of organizations primarily responsible for planning and budgeting and those primarily responsible for implementing sector-specific projects.
- These organizations share common understanding of development objectives, targets, land use framework, and development schedule.
- In regions of national importance, such as MIDI area, region-specific intersectoral organizations may be established. The main reason for this is that existing sector organizations, while experienced in stand-alone projects and country-wide sector programs, have limited development experience with specific regions. Intersectoral organizations also typically base their activities on the activities of sector organizations, and thus have extensive experience with country-wide planning and budgeting, but limited development experience in targeting specific regions. While local governments can be expected to play the role of intersectoral organizations to some extent in countries with well-established local administrative systems, local administrative and financial systems in developing countries are generally weak.

In order to further strengthen the current MIDI implementation framework, the following perspectives are considered important.

The MIDI CC and the MIDI-Cell will address issues by utilizing the achievements they have made to date e.g., information sharing among implementing ministries and divisions, development of project monitoring systems.

Under the current implementation system, in which each ministry and division plans and implements its own projects, the process of information sharing, consultation, and coordination among ministries and bureaus will be increased. Such processes are especially important in the planning and monitoring phases.

Based on the above outlook and the analysis of similar examples of implementation frameworks in Chapter 2, the following assumptions were made for implementing multi-sector infrastructures.

- The main functions of the implementation framework are monitoring, planning, budgeting, and project implementation.

- The implementation framework consists of a part that integrates and coordinates sectors and a part that deals with individual sectors.
- From the perspective of the above functions and structures, the implementation framework is classified into centralized, hybrid, and decentralized types, as shown in the table below:

		Functions			
		Monitoring	Planning	Funding	Project implementation
Types of the implementation framework	Centralized	Functions taken care by cross-sectoral organizations			
	Hybrid	Functions taken care by cross-sectoral organizations		Functions taken care by sector organizations	
	Decentralized	Functions taken care by cross-sectoral organizations	Functions taken care by sector organizations		

Details of the analysis of the implementation framework are described in “2.3 Summary of similar cases and suggestions to MIDI” of this report.

Table 3.2 Comparison of Types of Implementation Framework in Multi-sector Infrastructure Project as Applied to MIDI

Function	Types of Implementation Framework		
	Centralized	Hybrid:	Decentralized:
Management	<p>A new government authority is to be established as an independent administrative agency under the jurisdiction of PMO. It is responsible for planning, monitoring, and implementing programs/projects in the MIDI area. A board chaired by the prime minister will govern the new authority. The new authority might as well plan and implement in its own hands the local infrastructures in different sectors, such as urban development, health, water supply, and garbage disposal. Meanwhile, national infrastructure projects, including energy and transportation, are implemented by line ministries as in the past.</p>	<p>A development committee, chaired by the prime minister and composed of relevant line ministries and the Ministry of Planning and Finance Division, will be established to discuss and decide on the development strategy for MIDI. Implementation will be taken care of by the relevant line ministries.</p>	<p>The MIDI CC facilitates common understanding and coordination among relevant ministries through consultations. Progress will be reported to the FTP monitoring committee for advice.</p> <p>Under the prime minister's authority, flexible monitoring and coordination will be implemented.</p> <p>Include Ministry of Planning and Finance Division as permanent members to strengthen lobbying for plans such as a 5-year plan and ADP and budgetary measures.</p>
Planning	<p>Secretariat</p> <p>The above-mentioned new authority also serves as the secretariat.</p> <p>It will operate flexibly as an independent administrative agency with its own personnel rules and internal organization. Particularly, it will make full use of private sector personnel.</p>	<p>The secretariat of the development committee will be a government agency with extensive experience in multi-sectoral planning, financing and monitoring, e.g., the Ministry of Planning and Finance Division. The secretariat is responsible for the committee, especially in planning and monitoring.</p>	<p>Define the organizational position of the MIDI-Cell in the Rules of Business, etc.</p> <p>To strengthen the network and human resources of . For this purpose, maximize the use of the Focal Point System, secondment system, and hiring of in-house consultants.</p>
	<p>The MIDI MP consists of overall strategy, land use, and priority projects.</p> <p>The above authority will prepare the overall strategy and project plans in the industry, urban development, disaster prevention, and the environment. The relevant ministries/divisions will prepare project plans for the energy and transportation sectors in consultation with the new authority.</p>	<p>The secretariat prepares the draft plan and conducts monitoring.</p> <p>The MP consists of an overall strategy, targets, land use plan, priority projects and development schedule.</p> <p>The secretariat of the development committee will prepare these in consultation with the ministries.</p> <p>The provinces and municipalities prepare their own MPs with the support of LGED.</p>	<p>MP consists of overall strategy, targets, land use plan, priority projects and development schedule.</p> <p>The MIDI-Cell will prepare it in consultation with each ministry. Project plans will be prepared by each ministry in a way to be consistent with the MIDI MP.</p> <p>Local governments will prepare their own MPs with the support of LGED.</p>
	<p>The MIDI-Cell will prepare a draft MIDI MP based on information from relevant ministries, consult with relevant ministries, Ministry of Planning, Ministry of Finance, and local governments, and then obtain approval from the new authority/the development committee/the MIDI CC. An annual plan will be updated on</p>		

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	a three-year rolling basis based on the MP.	
Funding	<p>The ministries concerned allocate project budgets for the energy and transportation sectors.</p> <p>The PMO allocates project budgets for other sectors and distributed to the new authority, similar to BEZA and RAJUK.</p>	<p>Each ministry secures its budget.</p> <p>Expenditures for the preparation of MIDI-related policies and plans will be allocated by the secretariat of the development committee directly from the Finance Division, similarly with additional spending for the disaster recovery and those from the reserve fund to FTP.</p> <p>Their own resources and local grants will cover the cost of implementing the MPs of local governments from LED.</p>
Implementation	<p>The relevant ministries handle projects in the energy and transportation sectors. The new authority handles other sectors.</p>	<p>Each ministry secures its budget.</p> <p>Their own resources and local grants will cover the cost of implementing the MPs of local governments from LGED.</p> <p>The MPs of local governments will be implemented by themselves with technical support from LGED and financial support from LGD.</p>
Project Monitoring	<p>Internal monitoring by the new authority itself, with the ministries in charge of projects in the transportation and energy sectors.</p> <p>The new authority will not monitor project one by one, but overall MIDI strategy and land use in light of MP.</p>	<p>The secretariat of the development committee periodically collects results of project monitoring from implementing ministries/divisions. It analyzes monitoring results jointly with the implementing ministries/divisions and reports to FTP monitoring committee.</p> <p>Projects will be monitored through information sharing at the MIDI CC. They also be monitored through information of each ministry/division. Monitoring results will be reported to the FTP monitoring committee.</p> <p>Local government level plans and projects will be monitored through the monitoring system of LGED.</p>

Comparing the three types in terms of both needs and feasibility, each has its own characteristics (See Table 3.3).

The centralized implementation framework is desirable for the efficiency and certainty of MIDI because it allows for concentrating the authority in multiple related areas into a single organization. It also ensures a consistent flow from planning, budgeting, implementation, and to monitoring. On the other hand, it takes time to set up a new organization, and there is a risk that it may lead to duplications with the existing administration. The decentralized type, on the other hand, is more feasible because it allows the current MIDI system to proceed progressively, but it also means continuing the current approach and current shortcomings of adjusting the plans having been prepared by the implementing ministries/divisions after.

The hybrid implementation framework can be established using the existing project implementation authority and mechanism in Bangladesh, as there are successful examples of EEC development in Thailand. Still, there is also a risk that the MIDI CC/the MIDI-Cell will need to be significantly modified and that it will take time to establish the structure.

Considering the characteristics of these three types, it would be effective to shift from the current implementation framework, which is decentralized, to a hybrid implementation framework, that a new viable organization is expected to lead.

**Table 3.3 Type and Feature of Implementation Framework for Multi-sector Infrastructure Projects**

	Centralized Type	Hybrid Type	Decentralized Type
Advantage	<ul style="list-style-type: none"> <li>The new government authority is responsible for efficiently planning and implementing local infrastructure projects in different sectors. At the same time, line ministries are responsible for national infrastructure projects, including energy and transportation.</li> <li>In this manner, the new authority could plan and implement such infrastructures that are too large for local governments to take care of but too small for line ministries.</li> <li>As an independent administrative agency, this will possibly make active use of private sector personnel and consultants.</li> </ul>	<ul style="list-style-type: none"> <li>A strong secretariat structure where Prime minister, Ministry of Finance and Ministry of Planning together take lead in policy making for development.</li> <li>Consistency between policy making and project implementation.</li> <li>Full utilization of each ministry's execution capability</li> </ul>	<ul style="list-style-type: none"> <li>This type can make full use of the authority of prime minister and the Office of Prime Minister.</li> </ul>
Disadvantage	<ul style="list-style-type: none"> <li>It will take time to build a system for independent administration, drafting legislation to establish the corporation, sharing work with other related organizations,</li> </ul>	<ul style="list-style-type: none"> <li>Sustained commitment from the leadership of the government is essential for a new implementation framework to coordinate among different</li> </ul>	<ul style="list-style-type: none"> <li>Because of the consultative structure, the direction of development is likely to be broad. It also takes time for various adjustments.</li> </ul>

	<p>financial accounting, evaluation system, personnel recruitment system, etc.</p> <ul style="list-style-type: none"> <li>It takes time to set up the new authority which can prepare and implement a program for developing a set of various local-level infrastructures.</li> <li>It may be difficult to coordinate with the vested interests of each ministry.</li> <li>There is a risk of double administration, resulting in waste in operation and budget use.</li> </ul>	<p>implementing agencies.</p> <ul style="list-style-type: none"> <li>It takes time to set up the new organization.</li> </ul>	
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The following table shows the transition of key functions in the implementation framework in the light of the two phases of MIDI envisioned above: 1) up to the formulation of the MP, and 2) implementation and revision of the MP.

Table 3.4 Changing Functions in Implementation Framework According to Phase of Development

Function		Division of works between cross-sectoral organization and line organization (see Footnote)		Phase of Development and Examples of Major Activity	
		Cross-sectoral organization	Line organization	Up to the formulation of MP	Implementation and revision of MP
Planning	Policy study	Applicable			Identify emerging needs for infrastructure Method of land acquisition Urbanization strategy
	Project plan		Applicable	Priority projects	Revision of priority projects.
	Preparatory works; FS, etc.			FS on priority projects Urban development study	
	Area designation	Applicable		designate MIDI area	Review MIDI area
	Land use plan			Prepare land use plan	Review land use plan
	Development schedule for national infrastructure	Applicable		Prepare development schedule	Review development schedule
	Preparation and revision of MP	Applicable		Prepare local-level MPs Prepare local-level MPs supported by LGED	
	Approval of MP			Approve MP	Approve municipal MP
Funding	Preparation of DPP		Applicable	Prepare DPP	
	Budget deal			Budget deal with budget authorities	
	Project	Applicable		Designate priority projects and prepare/revise mid-	



	designation & mid-term public investment programming			term public investment program	
Implementation	Land acquisition		applicable	Land acquisition	
	Inter-ministerial coordination in land use	applicable		Coordination	
	Budget use	Applicable		Budget use	
	Revision of project plan	Applicable			Revise project plan
	Public consultation	Applicable		Conduct before drafting MIDI MP	Conduct before drafting municipal MP
Monitoring	Development of method	Applicable		Discuss and agree on monitoring method between the MIDI-Cell and line ministries	
	Monitoring			Continue monitoring	

Note: Cross-sectoral organization and line organization are described in Section 2.1.2 Current Status and Issues from the Perspective of Promoting MIDI Projects, (1) Role of Government Organizations in this report. A cross-sectoral organization is primarily responsible for policy, planning, finance, and legislation; a line organization is primarily responsible for the implementation aspects of a particular sector.

### 3.2.4 Options for Institutional Basis of Implementation Framework for Multi-sector Infrastructure Project

The institutional basis for the implementation framework has been discussed based on examining the functions of the future MIDI implementation framework. There is no legal basis for the MIDI CC, and there is a Circular issued by the PMO that defines the work of the MIDI-Cell. If a new organization is to be established, it is essential to prepare a bill for its establishment and assume a specific ministry to initiate it. Table 3.5 compares the options for a possible institutional basis for MIDI.

Table 3.5 Institutional Basis of Implementation Framework for Multi-sector Infrastructure Project

	Option 1	Option 2	Option 3
Type of institutional basis	Law e. g. Town Improvement Act for RAJUK	Order by Prime minister, Cabinet Decision e. g. The Order of Prime minister, ESB, Thailand	Administrative documents such as Rules of Business and government circulars e. g. The MIDI-Cell
Major articles of the rules and regulations	Establishment of MIDI implementation framework; organization, roles of stakeholders Preparation and approval of MP Implementation		
Advantages	Power is permanently supported by law  Less influence by government appointments or regime changes	Quick decision  All ministries follow the supreme authority of prime minister.	Easy to apply.

Challenges	It takes time to pass the bill.  Risk to influence progress of MIDI projects due to spending long time to pass the bill.	There is a risk of regime change in long term.	Limited power to other ministries  Need to be careful in preparation, otherwise it fails to be similar situation.
Comments of JICA Team	Unlike in the case of implementing agencies that are primarily responsible for routine tasks, detailed legislation in the policy and planning agencies inhibits organizational flexibility, which in turn affects the relationship with other relevant ministries and agencies	In this option, policies and plans are driven by top leadership rather than the legal system, and thus can be flexible to national and international socioeconomic conditions.	This is practical but uncertain as to its validity in the long term.

Source: JST

### 3.2.5 MIDI Development Authority

According to the record of JICA-PMO meeting on February 13, 2022, the Prime Minister has given instructions to establish the MIDI Development Agency (denoted as the MDA). In accordance with this directive, preparations are currently underway for the drafting of the MDA bill.

### 3.3 MIDI Implementation Framework

Table 3.6 summarizes the current status and issues, with special reference to implementation framework, reference cases, and the recommendations based on the reference case. The following six functions are assumed to be indispensable to the implementation framework; (1) management, (2) preparation and use of MP, (3) funding, (4) land acquisition, (5) monitoring, and (6) public consultation. Based on the analysis in "Table 2.10 Comparison of Implementation Framework for Multi-sector Infrastructure Development" these functions have been identified in Chapter 2 of this report.

The MIDI implementation framework analyzed below is not specific to a new development authority that is tentatively named the MIDI Development Authority (the MDA) discussed in the Chapter 4 of this report, but it is intended to contribute to a more general MIDI implementation framework that can be envisioned. In this context, it is hoped that some aspects can be used as a useful reference for the MDA.

Table 3.6 Issues, Reference Cases and Suggestions for Functions of MIDI Implementation Framework

Functions	Issues	Reference Cases	Suggestions Derived from Reference Cases
3.2.1 Organization	Responsibility and authority of The MIDI CC/The MIDI-Cell are not clearly stated  Insufficient size of the MIDI-Cell personnel and organization	ESB/EEC: The basis for the ESB/EEC is a cabinet decree; the ESB has been transformed into the EEC and moved to a statutory plan implementation framework. The secretariat continues to be handled by the national planning organization.	The MIDICC/The MIDI-Cell will be transferred to the MDA, a new organization.

		<p>RAJUK: An independent administrative corporation based on the Town Improvement (Amendment) Act. RAJUK has certain discretionary powers, e.g., hiring personnel.</p> <p>New Industrial City Development: The prefectures lead in planning and implementation under the EPA and the lead ministries with various subsidy systems.</p>	
3.2.2 Preparation and Use of MP	MP has not been formulated. Without MP, inter-sectoral coordination has not been well-organized.	<p>ESB/EEC: MP is available. Cabinet approves and changes it. A framework is specified in the National Five-Year Plan.</p> <p>RAJUK: MP is available. RAJUK is responsible for its preparation and changes. This is clearly stated in the Town Improvement (Amendment) Act. RAJUK Act.</p> <p>New Industrial City Development: MPs are available. The NICD law clearly states that the prefectural governor is responsible for its preparation and revision.</p> <p>Kajima Seaboard Development (KSD): Basic plan exists. It is clearly stated in the Law on Special Industrial Development Zones that the prefectural governor is responsible for preparing and revising the plan.</p>	The role of the MP and the procedures for its early preparation and subsequent update should be specified in the MIDI Implementation Framework; the MP is important as a source of information and a basis for sharing development directions and project information, and for ensuring that implementing ministries/divisions are able to secure their budgets.
3.2.3 Funding	Securing budget is the responsibility of the project implementing ministries/divisions. Therefore, depending on the policy of the project implementing ministries/divisions, there is a risk that the MIDI project will be postponed, which will delay other related projects and the overall development.	<p>RAJUK: As an independent administrative corporation, RAJUK has its own financial resources, including real estate income.</p> <p>EEC: The Bureau of Budget directly allocates a lump-sum budget to the Secretariat of Policy Committee for the studies on policy and planning.</p> <p>Through this mechanism, the Secretariat of PC guides projects/policies of the implementing ministries/divisions ahead of time.</p> <p>New Industrial City Development: MPs are the basis for each ministry's subsidy. In this sense, the basic plan is directly linked to the budget.</p>	<p>The budget for policy research and planning for updating MP, conducting feasibility and other studies shall be allocated by the MDA to each ministry project at its discretion.</p> <p>A coordinated budget will be allocated to bridge the gap between ministries and divisions in terms of project location, timing of implementation, etc. This budget will be administered by the MDA.</p> <p>A program budget will be set aside to develop various local infrastructures in the MIDI area as a package.</p>
3.2.4 Land Acquisition	It is implemented by the project implementing ministries/divisions and DCs in accordance with the Land Acquisition Act 2017. It is	Kajima Seaboard Development (KSD): The KSD Industrial Zone Development Association, established by the prefectural	Staff of Deputy Commissioner will be reinforced to accelerate land acquisition activities.

	time consuming and possibly causes delays in project implementation.	government, was in charge of acquiring land for the site and alternative relocation sites. In addition, the prefecture adopted its own "6-4 system" as a means of smoothly securing land. Under this system, 40 percent of the land to be acquired was purchased by the prefecture, and the remaining 60 percent was exchanged for alternative land.	
3.2.5 Monitoring	The status of project implementation in each ministry was shared at the MIDI CC and reported to the FTP Monitoring Committee.	ESB-EEC: The EEC Act stipulates that monitoring of each ministry's projects be undertaken once every three months by the Secretariat of the Policy Committee.	Standard framework should be discussed for project monitoring and risk control by the MDA and should be carried out accordingly by the MDA. For important projects, the MDA and the implementing agency will jointly conduct monitoring, including site inspections, to share understanding of progress.
3.2.6 Public Consultation	It has not been conducted.	RAJUK: Urban Resilience Project (2015-2023, supported by the World Bank) continues to conduct Strategic Environmental Assessments (SEA). The SEA has proven to be an effective method of disseminating the plan and incorporating input from residents and local institutions.	Strategic Environmental Assessment could be used in the process of preparation and revision of MIDI MP with reference to RAJUK's experience in SEA

In light of the functions shown in the above table, the background to the proposed MIDI Implementation Framework is described below.

### 3.3.1 Organization

#### (1) Issues Ahead

The responsibilities and authorities of the MIDI CC are not explicitly stated. In addition, the personnel and organization of the MIDI-Cell are limited, and there is a risk that it will hardly be able to handle future increases in workload.

#### (2) Lessons from Reference Cases

##### RAJUK

RAJUK is an independent administrative corporation established in 1986 under the Dhaka Improvement (Amendment) Act and is under the jurisdiction of the Ministry of Housing and Public Works (MHPW). It has a legal basis. As an independent administrative corporation, it can secure human resources through relatively free recruitment and use of consultants.

##### Eastern Economic Corridor (EEC)

The Eastern Economic Corridor (EEC) made full use of the NESDB, which has a long history as a policy and planning institution since 1950. It played the role of ESB secretariat under the direct supervision of the prime minister. Later, the EEC Act established in 2018 defined the Policy Committee of the EEC to be a policy decision making body under the EEC Act.

New Industrial Cities Development (NICD)

The New Industrial Cities Development (NICD) was led by a team of seven ministries with the General Development Bureau of the Economic Planning Agency (EPA) as the secretariat. The NICD was a joint effort of the EPA and six implementing ministries of transportation, public works, international trade and industry, labor, agriculture and local government. Members of the staff from the six ministries were seconded to the EPA's General Development Bureau to form a team. Even after the seconded officials returned to their home ministries, they continued to interact with each other in public and private and played an essential role in inter-sectoral coordination.

The NICD Law (1967), its enforcement ordinance, the ordinance of the Local Industrial Development Council, the Cabinet decision on the delineation of areas, and various other systems were established by various ministries and agencies, including special financial measures and an industrial development advisor system.

In addition, through new industrial city development, the related prefectures enhanced their planning and coordination capabilities for regional development.

**(3) Recommendations: Transform the MIDI CC and the MIDI-Cell into the MDA**

In the future progress of MIDI, it is necessary to develop a MIDI MP, to make progress on MIDI projects, and to establish a new structure of the MDA and to carry out its work simultaneously and promptly. For the time being, current MIDI CC and the MIDI-Cell will be continued, but beyond them will be transferred to the MDA.

Phase		Until Formulation of MIDI MP (Before Full-Fledged MDA)	After Formulation of MIDI MP (After Full-Fledged MDA)
The MIDI CC	Role	Forming a common understanding, consultation and coordination among the ministries and divisions concerned. Project monitoring and sharing of monitoring results among the ministries and divisions concerned. Reporting to FTP monitoring committee and prime minister.	
	Authority	Organizing consultations chaired by the Principal Coordinator for SDGs of the PMO Chairman's ruling on inter-ministerial coordination Renewal of membership	The MIDI CC will be restructured and strengthened into the MDA Board. It is authorized to: Select and renew the members of the committee. Approve MIDI plans and projects Secure and allocate budget for studying MIDI policies, plans and projects Monitor ministry plans and projects, and revise based on the monitoring
	Information Sharing and Alignment with	Information is consolidated and shared at regular meetings, and issues are discussed.	Each ministry routinely reports and discusses all issues on a ministry-by-ministry basis at the

	Relevant Organizations	The chair will make rulings as needed. Rulings are recommendations for guidance and coordination, and final decisions are left to the ministries involved in planning and implementation. The consultations and rulings are reported to the FTP monitoring committee for advice.	MDA Board, and obtains its approval and instructions. Issues related to MIDI as a whole, e.g., revision of MPs, changes in plans for major projects and disasters, are discussed in the MDA Board, and instructions are obtained from the relevant minister or the board chair (prime minister).
The MIDI-Cell	Roles	Administrative support to the MIDI CC -Suggesting potential the MIDI CC members to be added -Organizing meetings and preparing agendas -Liaison with related organizations -Sharing of relevant materials and data -Preparation of draft plans, including MP, land use plan, development schedule for national infrastructure projects, and mid-term public investment program -Coordination among projects in their site -Planning and implementation of public consultation	The MIDI-Cell will be reorganized and strengthened to be the MDA. Its role will be as follows: -Preparation of all submissions to the MDA Board. -Maintaining the exchange of information and opinions among the ministries concerned -Sharing of relevant materials and data -Preparation and revision of draft plans, including MP, land use, development schedule of national infrastructure development, and mid-term public investment program -Coordination among projects in their site -Planning and implementation of public consultation
	Authority		Request for information from relevant ministries Consolidate monitoring of each ministry's plans and projects Preparation of monitoring reports from the perspective of MIDI
	Organization and Staff	The MIDI-Cell is an organization established within the PMO. The current staff of 3 members under the DG will be increased to about 15 members in total for administration and monitoring.	The MDA staff is assumed to consist of the following five sections: Administration & Finance, Planning, Coordination, Monitoring, and Implementation & Operation , Assuming that there are 10 staff members per section, the MDA staff is expected to have about 50 members.

### Implementing Ministries/Divisions

In addition to the implementing ministries/divisions of main projects, MIDI will need to address various issues in the Matarbari and Moheshkhali areas, such as environment, disaster management, IT, the investment promotion including PPP, and public safety. In addition to the implementing ministries/divisions of main projects, MIDI will need to be flexible enough to convene other relevant ministries/divisions as needed.

Phase		Until Formulation of MIDI MP (Before Full-fledged MDA)	After Formulation of MIDI Master MP (After Full-fledged MDA)
Relevant Organizations	Position in MIDI Implementation Framework	The following may be invited to become members of the MIDI CC <ul style="list-style-type: none"> <li>Organizations with projects in the MIDI area</li> <li>Organizations responsible for work related to the MIDI project</li> </ul>	The following may be invited to become the development authority or a development committee. <ul style="list-style-type: none"> <li>Organizations with projects in the MIDI area</li> <li>Organizations responsible for the work</li> </ul>

		Local governments in MIDI area	related to the MIDI project. Local governments in MIDI area
	Role	Implementation of MIDI projects Provide project information and coordinate projects through the MIDI CC	Implementation of MIDI projects Provide project information and coordinate projects through the development authority or a development committee.
	Authority	Follow the MIDI Implementation Framework and other relevant rules such as Rules of Business	Follow the MIDI Implementation Framework and other relevant rules such as Rules of Business

### 3.3.2 MIDI MP

#### (1) Issues Ahead

Currently, there is no MIDI MP and the development planning of the sector is left to the respective sector ministries/divisions. As a result, the overall picture of MIDI is not clear. In addition, because there is no overall picture to share, it takes time for the sector ministries/divisions to coordinate their projects among others.

In addition, MIDI MP does not have a defined institutional status, and there are no clearly defined procedures for its creation and revision. Therefore, even if MIDI MPs are formulated in the future, there is a risk that they will not either be used or continuously updated.

#### (2) Lessons from Reference Cases

##### EEC

The development plan of the ESB, the predecessor of the EEC, was included in and implemented as part of the Five-Year Plan for National Economic and Social Development, which is signed by the King, the highest authority of the country. With the enactment of the EEC Act in 2018, the EEC plan became a statutory plan and the Office of Policy Committee (OPC) for EEC Development has been legally positioned as a coordinating body. The law stipulates that the preparation and amendment of the EEC development plan shall be approved by the Policy Committee and the Cabinet.

In addition, the OPC is financially supported to prepare and update the MPs by the direct budget from the Bureau of Budget for the preparatory studies. This mechanism also allows the OPC to guide the implementing ministries/divisions in developing new projects and policies ahead of time.

##### RAJUK

The Dhaka Improvement (Amendment) Act clearly states that RAJUK is responsible for preparing and amending the MP.

##### New Industrial City Development (NICD)

NICD Act stipulates that the Governor of the prefecture is responsible for preparing and revising MP of the new industrial city.

### Kajima Seaboard Development (KSD)

The MP for the Kajima Seaboard Development was prepared by the local government (Ibaraki Prefecture). After the plan was prepared, Kajima Seaboard was designated as a special industrial development area by the national government and as a base for development in the National Comprehensive Development Plan, making it to be a national project.

#### (3) Recommendations

The MIDI MP is important as a basis for the preparation of the DPP so that each implementing agency can share information on the direction of MIDI and implementation projects. The implementing agencies can possibly secure their budgets as well. Therefore, early preparation of the MIDI MP and its subsequent updating to respond to socioeconomic changes will be included in the MIDI Implementation Framework.

The effectiveness of a MIDI plan depends as much on the approval process as on its content. Table 3.7 compares the options for this approval process. A simple process is desirable as shown below:

Step1: The MDA prepares a draft MIDI MP and submit it to the MDA Board.

Step2: Prime minister as the chair of the MDA Board the draft MIDI MP based on the discussion in the MIDI Board.

### **3.3.3 Securing Budget for MIDI**

#### (1) Issues Ahead

The MIDI CC and the MIDI-Cell do not have budgetary authority, and it is up to each project implementing ministry/division to secure its own budget. Therefore, there is a risk of delay in securing the budget for MIDI projects depending on the policy and budget negotiations of each ministry/division. In addition, such delay may escalate into a chain reaction of other project delay.

#### (2) Lessons from Reference Cases

##### RAJUK

As an independent administrative institution, RAJUK has its own financial resources such as real estate income.

##### Eastern Economic Corridor (EEC)

The Office of the Policy Committee is directly funded by the Bureau of Budget for preparatory studies in policy and planning. Through this mechanism, the EEC is able to guide the implementing agencies to develop new projects and policies ahead of time.

##### New Industrial City Development (NICD)

The basic plan prepared by each prefecture becomes the basis for subsidized projects from the relevant



ministries. Therefore, the basic plan is directly related to the budget.

### (3) Recommendations

At present, there is no area-specific category in the national budget, nor is it possible for a specific agency to allocate a budget on behalf of other ministries. MIDI will follow the existing budget system in Bangladesh, no exceptions. On the other hand, the Okinawa Development Agency and the Hokkaido Development Agency in Japan, both specialized in developing specific areas, apply for lump-sum budgets for projects under the jurisdiction of other ministries and divisions, and transfer the budgets back to the ministries and divisions after the applied budgets are finalized. The ministries and divisions to which the transfer is made also execute the budgets.

Phase	Until Formulation of MIDI MP (Before Full-fledged MDA)	After Formulation of MIDI MP (After Full-fledged MDA)
Funding	<p>Each ministry will have responsibility and authority for the budget to implement project.</p> <p>The budget authorities, i.e. finance and planning ministries standing members of the MIDI CC to deepen their understanding on MIDI.</p>	<p>Each ministry will have responsibility and authority for the budget to implement project.</p> <p>However, the budget for upstream process, including policy research, planning and FS, will be allocated directly to the development authority or the secretariat of a development committee, by the Finance Division in a lump sum. Such budget will then be allocated to each ministry. In this way, the overall direction of development and inter-ministerial coordination will be guided in a strategic way.</p>

Under the current system of Annual Development Program, budget negotiations are conducted through ministries and equivalent bodies such as national parliament, PMO, ministries, divisions and commissions, while other bodies including authorities, boards, bureaus, councils, and institutes do not request or receive budget allocations directly from the Ministry of Planning and the Finance Division without going through the ministries and equivalent bodies. All ministry and division budgets are organized by sector, while almost 99% of the development budget comes from the ministries and divisions. From MIDI's point of view, the study team recommends the four measures shown in Table 3.8 to overcome this situation as much as possible within the framework of the current budget system. These measures are not alternatives, nor are they meant to be contrasted.

Table 3.7 Proposed Budget Securing Measures for MIDI

	Measure 1: Lumpsum budget for planning activities	Measure 2: Coordination budget	Measure 3: DPPs to be pre- approved by MDA before it is submitted to to MoP	Measure 4: Program budget for developing local infrastructures
Budget compilation and MP	A budget may be earmarked on a lumpsum basis for planning activities.  The MDA can allocate the budget to responsible ministries to facilitate their project. e.g. ESB, Thailand	A budget may be earmarked for coordinating projects of different ministries, e. g. timing and location.  It is earmarked under PMO, so that the MDA can make its use for project-specific coordination.	Responsible ministries may submit their DPPs to the MDA for its pre-approval, whereby enabling closer information sharing and consultation among them. The MDA may follow the budget compilation process and work on the responsible ministries, whenever necessary.	A program budget may be earmarked to finance local infrastructures in MIDI area. Such program is beneficial for securing budget by packaging many small projects in MIDI. e. g. RAJUK, Chattogram Development Authority etc.
Advantage	Encourage responsible ministries to proceed feasibility study, detailed design and other preparatory works.	Encourage ministries to recover from discrepancies between projects in different sectors.	Share and exchange information and ideas with MoP on the progress of MIDI	The development authority or the secretariat of a development committee has flexibility on implementation and budget allocation for local infrastructures.
Challenge	These measures as proposed need to be checked against ongoing budget rules. Some modification may be necessary. Particularly, validity and feasibility need to be examined  In particular, it is desirable for the budget authorities to consider the appropriateness and feasibility of the MDA securing and allocating to each ministry a budget for preparation costs such as FS for projects.			

The above four measures are intended to (1) guide the direction of development from the perspective of MIDI, (2) eliminate bottlenecks between sectors in the implementation process, (3) share information and understanding of progress, and (4) efficiently improve local infrastructure, which is often put off until later. The table below shows the relationship between these intentions and each of the four measures.

	Measure 1: Lumpsum budget for planning activities	Measure 2: Coordination budget	Measure 3: DPPs to be pre- approved by the MDA before it is submitted to MoP	Measure 4: Program budget for developing local infrastructures
Guide the direction of development from the perspective of MIDI	Highly relevant			
Eliminate bottlenecks between sectors in the implementation	Relevant	Highly relevant	Relevant	

process,				
Share information and understanding of progress,			Highly relevant	
Efficiently improve local infrastructure, which is often put off until later				Highly relevant

### 3.3.4 Land Acquisition

#### (1) Issues Ahead

Land acquisition takes time. This causes a risk of project delay.

#### (2) Lessons from Reference Cases

##### Kajima Seaboard Development (KSD)

MP prepared by each prefecture is the basis for project subsidies from the relevant ministries. Therefore, the MP is directly related to the budget.

In order to acquire land for the development of the Kajima Seaboard Industrial Zone, the local government (Ibaraki Prefecture) established the Kajima Seaside Industrial Zone Development Association to acquire land for development and to acquire land for resettlement scheme. It also developed its own "6-4 method" to ensure the smooth acquisition of land for development. The 6.4 method is a large-scale and systematic application of the land readjustment method based on the Land Readjustment Law (1954), which involves the conversion of land into lots with a high rate of reduction in the number of lots. The significance of this method is that it shared the development profits with the original landowners and enabled them to continue farming. This facilitated the securing of land for the project. The success of this method can be attributed to the fact that there was ample alternative land available in the target area, that Ibaraki Prefecture, under the leadership of its governor, actively lobbied the landowners, and that land prices were expected to rise in the early years of Japan's rapid economic growth period.

#### (3) Recommendation

The implementing ministries/divisions and DCs have collaborated to secure land for each MIDI project, in accordance with the Acquisition and Requisition of Immovable Property Ordinance (2017) (Ordinance II). It deems most realistic to continue land acquisition in this manner.

Phase	<u>Until Formulation of MIDI MP</u> <u>(Before Full-fledged MDA)</u>	<u>After Formulation of MIDI MP</u> <u>(After Full-fledged MDA)</u>
<u>Land Acquisition</u>	<p><u>Ongoing process of land acquisition . -</u> <u>Implementing ministry/division secures</u> <u>budget for land acquisition.</u></p> <ul style="list-style-type: none"> <li>• <u>DC carries out land acquisition</u></li> <li>• <u>DC reports the acquisition to the MIDI</u></li> </ul>	<p><u>Ongoing process of land acquisition .</u> <u>Implementing ministry/division prepares land</u> <u>acquisition plan, obtains the MDA's approval,</u> <u>and then submits the plan to the DC.</u></p> <p><u>Implementing ministry/division secures budget.</u></p>

	<u>CC</u>	<p><u>The MDA advises on land acquisition.</u></p> <p><u>-Implementing ministry/division secures budget for land acquisition.</u></p> <ul style="list-style-type: none"> <li>· <u>DC carries out land acquisition</u></li> <li>· <u>DC reports the acquisition to the MDA.</u></li> </ul>
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Within the current framework of land acquisition, there is room for future research on Framework such as, for example, the establishment of an organization to acquire land in advance, or the provision of alternative land within the MIDI, for example, Japan's 6.4 method, where the government buys up 40% of the land to be acquired in a designated area and exchanges the remaining 60% for alternative land. A possibility should be examined on its consistency with the ongoing legal framework of land management in Bangladesh, availability of alternative sites, possibility of a steady land price increase and the willingness of farmers to continue farming.

The basic principle of the 6.4 method is to reduce private land to reallocate it to public use with compensation and to convert land into land. There are many examples and experiences of land-to-land conversion in Bangladesh. It is however necessary to examine Bangladesh's case studies and experience in land reduction. The legal basis for land readjustment and land reduction with compensation in Japan is the Land Readjustment Law. JICA has been conducting technology transfer projects in South and Southeast Asian countries regarding land readjustment projects and this law, as well as providing training for many years.

### 3.3.5 Monitoring

#### (1) Issues Ahead

Monitoring of MIDI projects is carried out through information sharing at the MIDI CC. For projects recognized as FTPs, monthly progress (on the basis of annual development plans) will be reported by the MIDI-Cell to the FTP Monitoring Committee. However, this monitoring is done voluntarily. The implementation of monitoring is to be explicitly stated in the MIDI Implementation Framework for the sake of a maximum use of the monitoring information.

#### (2) Lessons from Reference Cases

In Thailand's EEC, the Eastern Special Development Zone Act provides for monitoring. In other words, the Office of EEC Policy Committee is to monitor the implementation of the projects of the relevant ministries and agencies in light of the policies, plans, and measures established by the Policy Committee, and to submit a monitoring report to the EEC Policy Committee once every three months. The Committee is chaired by the Prime minister. Office of the Policy Committee is also supposed to compile the monitoring reports and submit an annual report to the Council of Ministers.

#### (3) Recommendation

Monitoring of project has been conducted by the MIDI CC since the beginning. Basically, this monitoring will continue in the future. In addition, the following is proposed:

MIDI's monitoring to date has relied on the results of monitoring by the IMED and the project implementing

agencies themselves, but it will now be conducted on a regular basis in accordance with the MIDI Implementation Framework and a common monitoring format.

Monitoring will be conducted jointly by the MDA and the relevant implementing agency for site checks for projects in question to facilitate information sharing between the MDA and the project implementing agency through monitoring, and to ensure that the monitoring results are used promptly

Phase		Until Formulation of MIDI MP (Before Full-fledged MDA)	After Formulation of MIDI MP (After Full-fledged MDA)
Monitoring	Project Monitoring	<p>As in the past, each ministry will conduct monitoring of the project progress and report to the MIDI CC with a greater emphasis on the following steps:</p> <p>The MIDI-Cell prepares, improve and make sure everyone knows the monitoring format jointly with implementing ministries/divisions</p> <p>The MIDI Cell conducts project monitoring jointly with implementing ministries/divisions</p> <p>The MIDI-Cell summarizes the whole process of project monitoring and reports to the MIDI CC.</p>	The MDA takes over the operation of the MIDI CC and MIDI-Cell.
	Environmental Monitoring	<p>As in the past, appropriate assessment will be carried out at the MP stage and at the project implementation stage, and after EIA approval, the results of the monitoring will be reported to the MIDI CC in accordance with the Environmental Management Plan (EMP).</p> <p>SEA is conducted at the time of preparation of MIDI MP.</p> <p>EIA is conducted by the implementing ministry/division at the time of project implementation.</p> <p>After approval by MOEFCC, the ministry/division reports to the MIDI CC.</p> <p>The ministry/division reports monitoring results to the MIDI CC according to the Environmental Management Plan.</p>	The MDA takes over the operation of the MIDI CC and the MIDI-Cell.

### 3.3.6 Public Consultation

#### (1) Issues Ahead

There has been no public consultation on MIDI. In the future, public consultation will be included in the

Implementation Framework in order to gain understanding and cooperation for MIDI.

## (2) Lessons from Reference Cases

In Dhaka, the Urban Resilience Project (2015-2023) is underway by the Project Coordination and Monitoring Unit, Dhaka North City Corporation, RAJUK, and the Department of Disaster Management, with support from the World Bank.

In this project, Strategic Environmental Assessment (SEA) has been conducted in an effort to take in the views of a wide range of citizens in Dhaka's disaster management planning with a focus on environment. The first attempt was made in 2007, and the project has been continued every year since. Although there is a big difference between the living environment in big cities and infrastructure development in rural areas, the method of public consultation can be used as a reference.

## (3) Recommendations

Public consultation will be conducted in the preparation and updating of the MIDI MP. It will also organize MIDI workshops on the implementation of MIDI projects, broader collaborations with development partners, and MIDI investment seminars to promote foreign investment.

Phase		Until Formulation of MIDI MP (Before Full-fledged MDA)	After Formulation of MIDI MP (After Full-fledged MDA)
Public Consultation	Public Consultation	<p>Organizer: The MIDI CC</p> <p>Purpose: SEA</p> <p>Timing: During the preparation and revision of MIDI MP</p> <p>Participants: Relevant ministries/divisions, local governments, local residents, development partners, NGOs, business community, media, etc.</p>	<p>Organizer: The development authority or the secretariat of a development committee</p> <p>Purpose: SEA</p> <p>Timing: During the preparation and revision of MIDI MP</p> <p>Participants: Relevant ministries/divisions, local governments, local residents, development partners, NGOs, business community, media, etc.</p>
	MIDI Workshop	<p>Organizer: The MIDI CC</p> <p>Purpose: To introduce the progress of MIDI and to share issues and requests from a local perspective</p> <p>Time: Once a year.</p> <p>Participants: Relevant ministries/divisions local governments, local residents, NGOs, business community, media, etc.</p>	<p>Organizer: The development authority or the secretariat of a development committee.</p> <p>Purpose: To introduce the progress of MIDI and to share issues and requests from a local perspective</p> <p>Time: Once a year.</p> <p>Participants: Relevant ministries/divisions local governments, local residents, NGOs, business community, media, etc.</p>
	MIDI Seminar for Investors	<p>Organizer: The MIDI CC</p> <p>Objective: To exchange information and ideas with investors and development partners.</p> <p>Time: Once a year.</p> <p>Participants: Investors, development partners, relevant ministries/divisions, local governments, business community, media, etc.</p>	<p>Organizer: The development authority or the secretariat of a development committee.</p> <p>Objective: To exchange information and ideas with investors and development partners.</p> <p>Time: Once a year.</p> <p>Participants: Investors, development partners, relevant ministries/divisions, local governments, business community, media, etc.</p>

### 3.3.7 Other Important Elements at Implementation Stage

Table 3.8 summarizes the policies and responsible entities for other important issues in the implementation phase, including land acquisition, monitoring, and public consultation.

Table 3.8 Other Important Elements at Implementation Stage

	Policy	Responsibility
Monitoring	The MDA and the implementing ministry/division will exchange information and opinions to develop and jointly implement methods and formats for project monitoring and project risk management. Coordination between the planning and implementing organizations in monitoring will be even more important to ensure that monitoring results are used for next actions and risk management.	The MDA  Responsible ministries/divisions
Operation and maintenance	The organization which has constructed will carry out operation and maintenance.	Responsible ministries The MDA
Land acquisition	Implemented along with the existing law after approval by ECNEC/responsible ministries.	Responsible ministries Deputy Commissioner
Environmental impact assessment/ Strategic environmental assessment	EIA is to be carried out according to the Environmental Conservation Act.  SEA is also to be carried out based on the National Environmental Policy.	Responsible ministries MOE
Public relations for companies and investors	The MDA undertakes the sessions together with relevant organizations, potential investors and media.	The MDA

Source: JST

### 3.4 MIDI Implementation Framework, and MIDI Operating Policy and Procedure

This implementation framework as well as the operational policy and procedures are hypothetical suggestions made by the survey team. The suggestions do not reflect the opinions of the Bangladesh government.

#### 3.4.1 Role of the MIDI Operating Policy and Procedure

The MIDI Operating Policy and Procedure provide the matters and procedures necessary to implement the basic policies set forth in the Implementation Framework. The MIDI Implementation Framework and MIDI Operating Policy and Procedure are effective upon approval by the MIDI CC. The MIDI CC can modify these procedures and MIDI Operating Policy and Procedure as necessary.

#### 3.4.2 Descriptions in the MIDI Operating Policy and Procedure

##### (1) Zoning

Currently, there is no area designation for MIDI. If it is a single project development, there is little need to designate an area regardless of the scale of the project. However, to systematically form MIDI as an extensive industrial complex and a living area, a development policy and plan covering a certain geographical area is

necessary, and therefore, zoning is essential. Regulations accompany these development policies and plans on location and land use. Thus, zoning is also required from the perspective of administrative fairness and transparency.

The following are similar examples of zoning.

#### New Industrial Cities in Japan

The main conditions for zoning are industrial location and the existence of a central city. In addition, zoning is combined with higher subsidies and larger bond limits, so that zoning is the core of the institutional mechanism that effectively determines the allocation of public investment. Therefore, under the intense competition among the provinces, the prime minister made the final zoning decision.

#### RAJUK in Bangladesh

The reference example of zoning in Bangladesh is the RAJUK, which requires parliamentary approval for designation or modification of RAJUK zones. The procedure involves the following five steps. (1) RAJUK prepares a proposal, (2) the Ministry of Housing and Public Works, which is RAJUK's competent ministry approves it, (3) the Ministry's standing committee in the National Assembly reviews it, (4) the Cabinet and the President approve it, and (5) the Ministry submits the bill to the National Assembly, which passes it by majority vote. Technically, the zones are designated based on population distribution and land use status. It is noteworthy that the designated areas have expanded with the progress of urbanization. The first designation was 320 square miles in 1958 (population 1.6 million in 1974), and the second designation was 590 square miles in 1987 (population 12.6 million in 2005). planning work is underway for 2035, and further area expansion is expected.

#### Thailand's EEC

From the beginning, the target area was the four provinces of eastern Thailand, but it had a strong meaning as a region centered on the core projects being Laem Cha Bang Port and Map Ta Phut Port. It was not until the EEC Act was enacted in 2018 that the zone was institutionally delineated in response to the expansion of the area where private companies locate.

The implications of these reference cases of zoning for MIDI are as follows.

- It is important to pay attention to industrial location, urban functions and securing labor force.
- Access should be ensured to port, major nodes of land transport and airport.
- Zoning does not have to be fixed, but can be changed flexibly as in response to urban and industrial expansion. The geographic extent of MIDI has not yet been determined. For example, assuming that the islands of Moheshkhali and Matarbari form part of it, there is one municipality and nine union parishad within its limits. Unlike the redistricting of RAJUK, which includes the capital, these administrative areas can be changed relatively easily with the approval of the LGD. Municipal mergers are also possible with the approval of the LGD.



## (2) MIDI MP

In Bangladesh, with few exceptions, local governments are responsible for preparing MPs for their areas, which must be approved by the Ministry of Local Government. These MPs are not linked to the national development plan (five-year plan). The MPs for Dhaka, Chattogram, and Cox's Bazar are prepared by the respective development authorities. However, these MPs are basically urban plans and not plans for infrastructure development for the formation of industrial hubs, which are expected in MIDI MPs.

In this sense, the MIDI, which is for the nation-wide industrialization can refer to the plan for the development of a new industrial city in Japan, which has a similar character. The plan has the following characteristics.

- The national government, Economic Planning Agency and the six lead ministries of Transport, Public Works, International Trade & Industry, Local Government, Agriculture and Labor in particular, prepares the basic guideline, and the 14 designated prefectures prepare MP in accordance with the basic guideline, which the national government then approves.
- In preparing the MP, the national government and the prefectures closely discussed and set the development targets including priority industries, industrial output, urbanized area, industrial land area, population and employment, housing supply, industrial water demand, number of elementary and junior high school classes, number of planned hospital beds, volume of waste disposal, number of vocational trainers, and estimated public investment amount.
- Through this process, the MP of the prefecture is directly used as a document to request government subsidies for the prefecture's projects. Actually, most of the prefecture's projects are subsidized by the government except for wealthy prefectures,

## (3) Project Designation

The Implementation Framework describes the necessity and basic concept of project designation, i.e., project designation from the perspective of MIDI and the medium-term perspective. Some examples are the Handbook for Strengthening Public Investment Management Capacity prepared by JICA (2018, introducing cases in Bangladesh, Malawi, Laos, and Indonesia) and Strengthening Public Investment Management Structure, Phase 2, which is being implemented in cooperation with the Ministry of Planning. Of these, the Public Sector Investment Program (PISP) case study in Malawi is particularly noteworthy. This is the development of a system to consolidate project review information, which is the basis of the Public Investment Program, from sectoral government agencies in real-time. For this purpose, the Ministry of Development Planning and Cooperation, with the support of JICA, visited sectoral government Secretariats to update the project review information and develop a user-friendly database. Therefore, the experience of Malawi will be useful for the preparation of a medium-term investment plan and the designation of projects on a continuous and systematic basis, while strengthening MIDI's project monitoring.

## (4) Securing public land

As in all other cases, MIDI projects will be implemented by the Deputy Commissioner at the request of the

implementing ministries/divisions that plan to acquire public land according to the Land Acquisition Act of 2017. Meanwhile, an attempt might as well be made to explore the possibility of using an innovative approach to securing public lands, e.g. land readjustment scheme based on the reduction of sites and land exchange as practiced in Japan.

(5) Need for environmental and social considerations

There are important ecologically protected areas in the vicinity in the MIDI area, and the main Ecologically Critical Areas (ECAs) are Sonadia Island ECA and Cox's Bazar-Teknaf Peninsula ECA. In addition, there are National Parks (NP), Wildlife Sanctuaries (WS), Game Reserves (GR) and Reserved Forests (RF) in the southern region of Chattogram. In the southern part of Chattogram, including the MIDI area, a number of small-scale forest reserves have been established, some of which are open to customary use by local people, and mangrove plantation activities supported by the World Bank have been conducted in the coastal areas and along the banks of the Kohelian Canal as of 2015. Under these circumstances, it is important to conduct a comprehensive environmental impact assessment at the planning stage, especially for industrial and urban development in coastal areas.

(6) Project Budget

The procedures for securing budgets for the national projects are as shown in the Implementation Framework. On the other hand, it is expected that the need to secure budget for local infrastructure projects will increase rapidly later. Thus, the MDA will need to prepare for the increasing demand for local infrastructures in conjunction with the preparation and revision of the MP. Significant is the division of responsibility and cost-sharing among relevant organizations at the local and national levels, in terms of construction, maintenance and repair of local infrastructures, such as those for primary and general education, secondary and higher education, health service, and housings.

(7) Monitoring

Monitoring is one of the most important tasks of the MIDI CC and the MDA. Its primary purpose is to identify impediments to the project as early as possible and minimize the risk of project delays. For this purpose, ones should try to share the monitoring results promptly, communicate directly with MID-Cell and project parties (Project Management Units), and improve the frequency of on-site verification by the MDA. Particular attention should be given to the following points:

- There should be a thorough exchange of views between the respective implementing ministries/divisions and the MDA on the use of the monitoring format developed by the MDA, and both parties should share a thorough understanding of the basic objectives of the monitoring described above.
- Monitoring should be carried out jointly by the MDA and each implementing ministry/division to improve its monitoring process methods and minimize risks soon through the results of monitoring. The need for joint implementation will increase as the number of projects to be monitored grows.

- Multiple projects call for the monitoring of not only individual projects but also MIDI's overall progress in terms of balancing, bottlenecks and cascading effects. For the former, the results of the monitoring conducted by each of the implementing agencies and by IMED, the Ministry of Planning, will be fully utilized, as in the past. For the latter, the MDA should take the lead in collecting monitoring results and analyze them in collaboration with the respective implementing ministries/divisions.

The Urban Resilience Project (2015-2023) in Dhaka is a project that involves many ministries and agencies to strengthen the disaster management system in Dhaka City. The monitoring itself is a key component of the whole project, and the Project Coordination and Monitoring Unit (PCMU) has appointed coordinators in relevant ministries to monitor the progress of the project on a quarterly and yearly basis, and revise the project plan periodically based on the results. The fact that the Bank has established a liaison network with many ministries and agencies and continues to maintain a monitoring system can serve as a reference for MIDI. This project is a direct involvement of the Programming Division of the Ministry of Planning with support from the World Bank, and involves many ministries and agencies to strengthen the disaster management system in Dhaka City, led by PCMU, RAJUK, North Dhaka Municipal Corporation, and Department of Disaster Management. Based on the results, the project plan has been revised periodically.

#### (8) Public Consultation

In general, environmental and social considerations in development planning are seen as part of the evaluation process at the planning and policy formulation stage. It is easier to reduce rework and lead to sustainable growth and development strategies if planning is carried out at the higher levels of the planning process, focusing on the long-term impact on society and the importance of environmental and social considerations.

For a project such as MIDI, which is long-term and has a significant impact over extensive areas, it is effective to understand the people involved from all walks of life and reflect their opinions in the plan for efficient implementation. In particular, the Strategic Environmental Impact Assessment (SEA) is an effective way to continuously gather stakeholders' opinions on environmental conservation and regional development in general, and reflect them in the planning process. Although the direct impetus for SEA is broad-based environmental conservation, its effectiveness in building a common understanding among stakeholders is attracting attention. This participatory SEA has been used in JICA-supported studies such as the Nairobi Urban Development MP Study and the Managua Urban Development MP Study, and a public consultation focusing on this participatory SEA could be conducted in MIDI. This participatory SEA aims to emphasize "citizen (or resident) participation in planning" and "consensus building with stakeholders. It has been attracting attention for its effectiveness to build a common understanding among stakeholders.

A full-scale example of SEA in Bangladesh is the World Bank-supported RAJUK, Urban Resilience Project (URP: 2015-2023) in Dhaka. The first SEA in Dhaka was conducted in 2007 as part of the Dhaka Metropolitan Development Programme (DMDP). Currently, the SEA is still ongoing in Dhaka. This SEA is positioned as a part of monitoring in the URP, and its approach is as described in the previous section (7) Monitoring.



## **MIDI Implementation Framework (draft)**

Note: This draft of the Implementation framework was prepared on the premise that the MIDI CC and the MIDI-Cell, which play a major coordinating role in the current activities for MIDI, will be transferred to the MDA, which is currently being prepared for establishment. Descriptions of the activities of current MIDI CC and the MIDI-Cell are shown in black, while descriptions of the activities of the MDA are shown in red. Descriptions of activities common to both are in black.

### 1 General Provisions

#### 1.1 Development Principles and Objectives

The project aims to develop an industrial base that supports the national economic growth in line with the PP2041, which aims to make Bangladesh one of the developed countries by the year 2041. The project also aims to contribute to the BIG-B by formulating and implementing an integrated plan for MIDI. At the same time, the MIDI area will be developed as a balanced urban-rural area. The time horizon for MIDI is the year 2041, the target of the PP2041.

#### 1.2 Definitions in this Implementation Framework

##### (1) The MIDI Coordination Committee (The MIDI CC)

The MIDI CC is a committee for consultation and coordination to promote MIDI. This committee consists of the following standing members:

Principal Coordinator for SDGs, Prime Minister's Office (Chair)

Prime Minister's Office

Bangladesh Economic Zone Authority

Power Division

Energy Division

Ministry of Water Resources

Road Transportation & Highway Division

Ministry of Shipping

Ministry of Industry

Ministry of Commerce

Local Government Division

Chattogram Division

Cox's Bazar District

Director-General/ Sub-regional Cooperation Cell, PMO

Ministry of Land

The MIDI CC may request organizations other than those listed above to join it. In order to further deepen the understanding of MIDI by the financial and planning authorities, the MIDI CC shall request Ministry of Finance and Ministry of Planning to join it.

**(1) The MIDI Development Authority (The MDA)**

The MDA is responsible for preparing, deciding and monitoring on plans and projects for the purpose of promoting MIDI. The MDA is governed by the MDA Board chaired by prime minister. Prime minister, in its capacity as the Board chair, appoints other members of the Board. Board decisions are made by the prime minister in its capacity as the Board chair based on discussions in the Board.

**(2) The MIDI-Cell**

The MIDI-Cell is established in the PMO to provide administrative and technical support to the MIDI CC.

**(2) The MDA**

The MDA is established in the PMO to provide administrative and technical support to the MDA Board.

(3) "Project Implementing Organization" means the government organization that is implementing projects in the MIDI area.

**(4) MP**

MP means a plan that summarizes in a systematic manner the objectives, targets, strategies, land use plan, development schedule, and priority projects of MIDI.

**(5) Project**

Project refers to a public investment with a specific purpose, location, and timing of implementation.

**1.3 Effective Period, Approval, and Amendment of the Implementation Framework**

This Implementation Framework shows the framework of MIDI and the roles of the organizations concerned

The effective period is until 2041, comprising an earlier period and the latter period.

Descriptions related to the earlier period are shown in **red**.

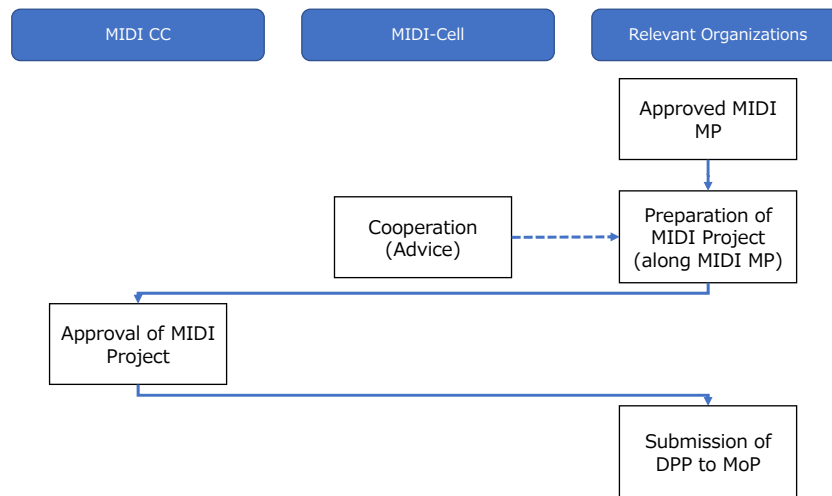
The Implementation Framework will be drafted by the MIDI CC and will come into effect after approval by PMO. PMO can modify this Framework as necessary.

**2 Role and Authority of the Governmental Organizations Concerned in MIDI**

**2.1 The MIDI CC**

(1) Hold regular meetings to share understanding, consultation, and coordination among the organizations concerned. Coordination includes changes in plans of ongoing projects.

(2) Request project implementing organization to submit draft DPP to the MIDI CC before DPP is submitted to the Ministry of Planning, and make necessary adjustments.



Source: JST

Figure 3.2 Approval Process of MIDI Projects

(3) Approve the MIDI MP.

(4) Conduct monitoring of the ongoing projects share the results among the member ministries/divisions and other relevant organizations. Report the results to the Fast Track Project (FTP) Monitoring Committee, as the prime minister chairs.

(6) Explain broadly the MP and project within and outside the government.

### 2.1 The MDA

(1) Take over the role and power of the MIDI CC.

(2) Based on the monitoring of ongoing projects, it instructs the appropriate member ministries/divisions to revise the project plan as necessary.

### 2.2 The MIDI-Cell

(1) Propose the new organizations to be invited to join the MIDI CC.

(2) Prepare to hold regular meetings of the MIDI CC and prepare agenda.

(3) Continuously exchange information and ideas with the member ministries/divisions.

(4) Prepare a draft MIDI MP.

(5) To share and store the materials and data related to MIDI.

### 2.2 The MDA

(1) To take over the role and power of the MIDI-Cell.

(2) To prepare and revise MIDI MP

- (3) Prepare all materials to be submitted to the MDA Board regarding plans and projects.
- (4) To request to member ministries/divisions the submission of materials.
- (5) Maintain and promote the exchange of information and ideas among member ministries/divisions
- (6) Explain broadly the MP and the project progress within and outside the government.

#### 2.3 Project Implementing Ministries/Divisions

- (1) Prepare draft project plans, discuss them with the MIDI CC, and revise them as necessary.
- (2) Submit the draft project plan to the Ministry of Planning for appraisal and ECNEC for approval.
- (3) Secure a budget for the project plan through negotiations with Ministry of Finance and Ministry of Planning.
- (4) Implement the project plan.
- (5) Monitor the progress of the project and report to the MIDI CC and IMED of Ministry of Planning.
- (6) Revise the project plan as necessary.

#### 2.3 Project Implementing Ministries/Divisions

- (1) Prepare draft project plans and submit them to the MDA
- (2) The draft project plan shall be revised as necessary after consultation with the MDA.
- (2) The draft project plan is appraised by the Ministry of Planning and submitted to ECNEC for approval.
- (3) Secure a budget for the project plan through negotiations with the Finance Division and Ministry of Planning.
- (4) Implement the project plan.
- (5) Monitor the progress of the project and report to the MDA and IMED of the Ministry of Planning.
- (6) Revise the project plan as necessary based on the monitoring.

#### 2.4 Deputy Commissioner

- (1) Secure public land
- (2) Maintain public safety in the MIDI area
- (3) Monitoring of FTPs

### 3 MIDI

#### 3.1 Area Designation

MIDI CC designates MIDI area.

#### 3.1 Area Designation

MIDI area is designated by the MDA Board.

#### 3.2 MIDI MP



The MIDI-Cell will prepare a draft MIDI MP, and the MIDI CC will approve it. The MIDI MP will be consistent with the national five-year plan, nation-wide sectoral plans by each member ministry/division, and the priority project plans. If necessary, the MIDI-Cell will revise the draft MIDI MP, and the MIDI CC will approve it.

### 3.2 MIDI MP

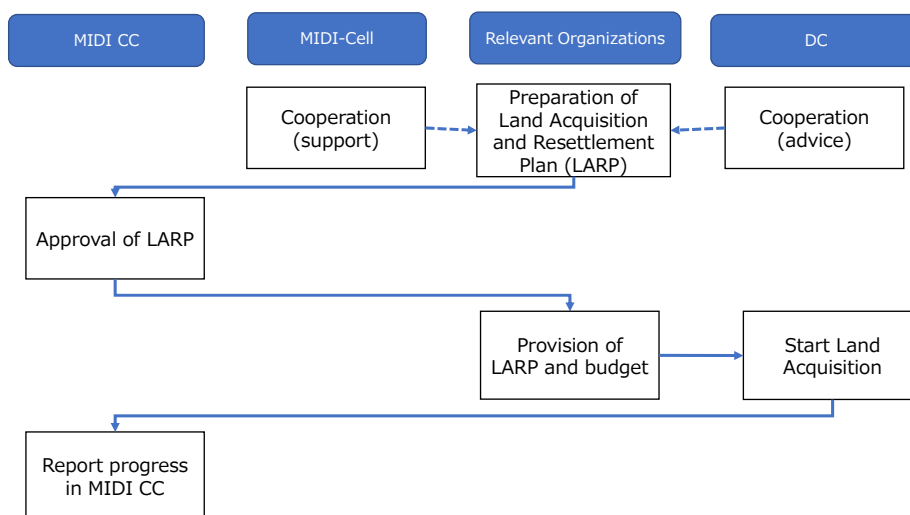
The MDA will revise the MP as necessary, and submit it to the MDA Board for the approval by prime minister based on discussions in the MDA Board. If necessary, The MDA will amend the MIDI MP and the MDA Board will approve the amendment. The MDA Board will also approve the DPP for the project to be implemented in the MIDI area before the project implementing organization submits it to the Ministry of Planning.

### 3.3 Project Designation

The MDA will designate MIDI projects to be implemented over the next three years based on priority projects identified in the MIDI MP, and the Annual Development Program approved by ECNEC. This designation will be renewed annually. The project implementing organizations obtain pre-approval by the MDA, when they submit DPPs to the Ministry of Planning.

### 3.4 Securing Public Land

In accordance with the Land Acquisition Act 2017, the member ministry/division in charge of implementation of the project will submit a proposal to Cox's Bazar Deputy Commissioner (hereinafter referred to as DC) for acquisition of public land required for MIDI. This proposal should also be submitted to the MDA in advance for pre-approval by the MDA. . The DC will acquire the land in accordance with the proposal and hand it over to the ministry/division concerned, which will pay compensation through the DC.



Source: JST

Figure 3.3 Process of Public Land Acquisition for MIDI

### 3.5 Need for Environmental and Social Considerations

Sufficient environmental and social considerations will be taken into account in the MIDI MP and each project in order to mitigate the rapid environmental and social changes that MIDI's intensive infrastructure and industrial development will bring about in the MIDI area. Such environmental and social considerations are also essential to ensure that the MIDI area attracts a wide range of high-quality labor and enables sustainable development by creating an attractive and safe city.

#### 4 Funding Arrangement

##### 4.1 Project Budget

The budget for a MIDI project is secured and executed by the project implementing ministry/division through negotiations with Ministry of Finance and Ministry of Planning.

The budget for considering and preparing policies and plans such as policy research, planning and feasibility study is allocated by the Finance Division directly to the MDA in a lump sum, which is then distributed to the ministries/divisions.

#### 5 Monitoring

Purpose of monitoring under MIDI is project risk management and identification of the actions to be taken. MIDI's monitoring consists of monitoring the progress of individual projects and that of overall progress of MIDI. Monitoring of the progress of individual projects will be carried out according to the form of the MIDI CC (and/or MDA), using the results of periodic monitoring by each project implementing agency and IMED, Ministry of Planning. The monitoring results will be shared among relevant organizations and reported to the FTP Monitoring Committee for future reference in the development strategy.

#### 6 Public Consultation

MDA will host public consultations with various sectors of society for the smooth promotion of MIDI. The organizer will decide the subject matters but should include MIDI MP, Strategic Environmental Assessment (SEA), project progress, and expected economic and social benefits.

## **MIDI Operating Policy and Procedure (draft)**

Note: This draft of the Operating Policy and Procedure was prepared on the premise that the MIDI CC and the MIDI-Cell, which play a major coordinating role in the current activities for MIDI, will be transferred to the MDA, which is currently being prepared for establishment. Descriptions on the activities of current MIDI CC and the MIDI-Cell are shown in black, while those on the activities of the MDA are shown in red. Those on the activities common to both are in black.

Note 2: The item numbers in this Operation Policy and Procedure correspond to those in the Implementation Framework.

### **1 General Provisions**

#### **1.1 Effective Period, Approval, and Amendment of the Operating Policy and Procedure**

These operating policies and procedures indicate the items and procedures needed in the process of project implementation based on the Implementation Framework. These operating policy procedures will come into effect after being drafted by the MIDI CC and approved by the PMO. PMO can amend these procedures and details as necessary.

### **3 MIDI**

#### **3.1 Area Designation**

It is essential to designate a specific area for the systematic development of MIDI as an industrial base and living area. The designation of the area is also necessary from the viewpoint of fairness and administration transparency.

The areas shown in Section 3.1 of the Implementation Framework shall be established by considering the following requirements.

- Adequate industrial and residential land

- Adequate urban areas and appropriate location and space of new urban areas

- Access to Matarbari Port, major land transportation network and Cox's Bazar Airport

- Adequate industrial and urban water supply

- Adequate labor force

- Ensuring safety against disasters

The area designation shall be in accordance with the existing administrative boundaries, and at this time the combined area of both Moheshkhali Upazila and Chakaria Upazila meets the above requirements. This area is referred to as the MIDI area. The area designation may be changed as needed. **When the MDA designates or**

changes an area, it may establish an advisory council and consult with the Deputy Commissioner, Upazila representatives, and other local leaders.

### 3.2 MIDI MP

The main role of MIDI MP is to present the vision of the future that should be shared by the organizations and individuals concerned. It is also an important basis for the project implementing organizations to justify project budget. More specifically, the following three points are important.

- (1) Promote a common understanding on MIDI among government organizations including member ministries/divisions, Ministry of Planning and Finance Division is to share the vision of the future that the related organizations should share. In particular, it is essential to share the understanding of the timing, location, and responsible organization of the project.
- (2) Demonstrate the future development potential of MIDI in the Bangladeshi economy to foreign capital and other companies interested in MIDI.
- (3) Demonstrate clearly to local governments and residents in Cox's Bazar district the policies for environmental conservation, land use control and living environment improvement.

Therefore, the MIDI Master Plan is not merely a land use and urban settlement plan within the MIDI area, but it is important to clearly state the following points and share the understanding within the government and with potential investors, local leaders and residents.

- The role of MIDI in the development of Bangladesh's economy and the economic linkages between the MIDI area and other parts of the country.
- Timing, location, and interrelationships of key projects
- Specific measures and actors related to environmental protection, land use control, and improvement of living conditions

Major points of reference in the MIDI MP are as follows

Development objectives

MIDI in the regional context

Development strategy in terms of industry, land use, transportation network, environmental protection, human resources, implementation system

Target figures such as population, employment, production and investment

Land use and transportation network planning

Public facilities plan

Project plans, including those for priority project

Development schedule

Environmental and social considerations

Implementation system

Monitoring and evaluation system

The MIDI MP shall thus be prepared. If necessary, the MDA will revise the MIDI MP and the MDA Board will approve the revised proposal.

### 3.3 Project Designation

The project designation indicated in Section 3.3 of the Implementation Framework is for the projects proposed in the MIDI MP that should be funded for the next three years. All projects listed in the ADP of the Ministry of Planning will naturally be eligible for the project designation, and the projects not listed in the ADP but meet any of the following conditions will be positively considered for the project designation.

- (1) Based on the monitoring, the project is recognized as important or urgent for accelerating MIDI.
- (2) It is listed in nation-wide sector plan of the implementing ministry/division.

Projects that are not listed in the ADP but are recognized by the MDA will be proactively lobbied the fiscal authorities through the implementing ministries/divisions to be included in the next year's ADP. As part of this effort, a priority will be given to the implementation of FS on the project.

Project designation will be renewed annually.

### 3.4 Securing Public Land

As indicated in Section 3.4 of the Implementation Framework, securing public land in advance is essential for infrastructure development, transportation network in particular. Whereas the legal system for public land acquisition is well defined, it takes a lot of time to agree on the compensation and to confirm the land ownership. Therefore, it is essential for MIDI, where project planning is concentrated, to have personnel and organization for the DC to efficiently handle the following procedures as stipulated by the Land Acquisition Law 2017.

- (1) Preparation of land acquisition plan by project implementing organization
- (2) Pre-approval of the land acquisition plan by the MDA and submission to DC
- (2) Disclosure of the details of land acquisition
- (3) Decision on land acquisition
- (4) Determination of the amount of compensation
- (5) Execution of land acquisition

### 3.5 Necessity of Environmental and Social Considerations

The environmental and social factors listed in Section 3.5 of the Implementation Framework are to be assessed by Department of Environment in accordance with the Bangladesh EIA Act, paying particular attention to cyclones, storm surges, coastal erosion, air pollution, water pollution, waste, wastewater, coastal resources, and the occurrence of brownfield sites in MIDI area.

Projects supported by JICA are supposed to make use of JICA's guidelines for environmental and social

considerations. Strategic Environmental Assessment(SEA) shall be undertaken in making MIDI MP.

## **4 Funding**

### **4.1 Project Budget**

With regard to the project budgets shown in 4.1 of the Implementation Framework, it is the responsibility of the implementing ministries to secure the annual budget for each individual project. At the same time, it is necessary to have a medium-term investment outlook for MIDI as a whole, and the MDA will prepare a mid-term public investment program for MIDI based on the project designation system.

The following steps will be taken

- (1) Submit the plan of the projects to be designated as MIDI to ECNEC through the implementing ministry/division and Ministry of Planning for approval. The approved projects will be included in the ADP of Ministry of Planning.
- (2) Based on the ADP and the tripartite consultation among the Finance Division, the implementing ministry/division, and the Ministry of Planning, a budget plan will be prepared and approved by the Parliament.
- (3) Additional spendings from the reserve fund may be made directly by the Finance Division for the FTP.
- (4) The MDA will prepare a medium-term public investment plan for MIDI, including projects not included in the ADP.

A system of lump-sum budget allocations for reviewing or preparing policies and plans could be an effective means for MIDI to strategically promote projects in the relevant ministries from a MIDI perspective. Therefore, while preparing the MIDI medium-term public investment outlook, consultations with the PMO, FD, and MoP should soon be initiated to realize this system

## **5. Monitoring**

Since the inception of the MIDI CC, monitoring, as described in the Implementation Framework, has been its most important role. The MIDI CC meetings have become the primary forum for sharing information on the progress of projects. The monitoring function of the MIDI Cell will be further enhanced in order to strengthen project risk management , update plans, and create new projects, Specifically, the MIDI Cell will collect the following information at least once in several months to monitor the progress of individual projects and once in several years to monitor project impact. The monitoring of MIDI projects shall make full use of the results from the followings: .

- (1) Monitoring by the project implementing ministries/division
- (2) Monitoring by IMED, Ministry of Planning
- (3) Monitoring by the project implementing ministries/divisions using the monitoring form created by the MIDI CC/the MIDI-Cell,
- (4) On-site monitoring undertaken jointly by the MDA and project implementing organization .

The joint monitoring shall be undertaken on a selective basis with a focus on the projects in question such as

those (1) delaying, (2) affected by disasters and other unexpected impacts, (3) under pressing needs for revising project plan, (4) opposed by local residents and (5) suffering from discrepancies in planning, design or implementation schedule with a project under different implementing organization

The main monitoring items are as follows

- (1) Status of achievement of planned targets
- (2) Gaps in progress among projects
- (3) Land use, environmental protection, and disaster prevention in the MIDI area
- (4) Major changes in the external environment
- (5) Common risks among the projects
- (6) Operational issues and risks that have arisen in the implementation framework of MIDI
- (7) Trends of development partners

Monitoring results shall be promptly reported to the MDA. Coordination and shared understanding between the MDA and the project implementing agency are extremely important to ensure that monitoring results lead to risk management and next actions. In particular, it is essential to exchange views in the process of the development of monitoring forms, joint site inspections, and exchange of views on the monitoring results

## 6 Public Consultation

The purpose of the public consultation, as described in Section 6, is to obtain a broad understanding of MIDI and to reflect the many opinions in the MIDI MP. The timing of the consultation will be an opportunity to finalize or revise the draft MIDI MP. The seminar will be organized by the MDA and consultants with the participation of residents of Cox's Bazar, politicians, NGOs, media, local businesses, the companies interested in investment, and relevant staff of the project implementing ministries and divisions. An attempt shall be made at making use of a Strategic Environmental Assessment for the public consultation.

After the seminar, a small group meeting will be held to discuss the suggestions and comments made in the seminar. The results will be discussed at the MDA and reflected in the revision of the MIDI MP.

## Chapter 4 Preliminary Study of MIDI Development Authority

According to the records of JICA-PMO meeting, dated on February 13, 2022, the Prime Minister of Bangladesh directed to establish a MIDI Development Authority (hereinafter referred to as the MDA). Following this Prime Minister's order, this chapter focuses on suitable ways of MDA development based on study results obtained of Chapters 2 and 3 of this study.

### 4.1 Establishment of Authority

#### 4.1.1 Authorities in Bangladesh

##### (1) Existing Authority in Bangladesh

As summarized Table 4.1, there are currently 31 authorities in Bangladesh. Authority in Bangladesh is a legal entity that is legally established by the government (ministry) through a legal process. The authority is given the administrative power by establishment of relevant act. Most of authorities are established by the implementing ministry and authorities are mainly in charge of implementing projects under the jurisdiction of their implementing ministry.

Table 4.1 Authority in Bangladesh

Ministry	Authority
Prime Minister's Office	<ul style="list-style-type: none"> <li>• Bangladesh Economic Zones Authority (BEZA)</li> <li>• Bangladesh Export Processing Zone Authority (BEPZA)</li> <li>• Bangladesh Investment Development Authority (BIDA)</li> <li>• National Skills Development Authority</li> </ul>
Ministry of Agriculture	<ul style="list-style-type: none"> <li>• Barind Multipurpose Development Authority</li> </ul>
Ministry of Civil Aviation and Tourism	<ul style="list-style-type: none"> <li>• Civil Aviation Authority</li> </ul>
Ministry of Road Transport and Bridges	<ul style="list-style-type: none"> <li>• Dhaka Transport Coordination Authority</li> <li>• Bangladesh Bridge Authority</li> <li>• Bangladesh Road Transport Authority (BRTA)</li> </ul>
Ministry of Education	<ul style="list-style-type: none"> <li>• Non-Government Teachers' Registration and Certification Authority</li> </ul>
Ministry of Power, Energy and Mineral Resources	<ul style="list-style-type: none"> <li>• Sustainable and Renewable Energy Development Authority</li> </ul>
Bank and Financial Institutions Division	<ul style="list-style-type: none"> <li>• Insurance Development and Regulatory Authority of Bangladesh</li> </ul>
Ministry of Housing and Public Works	<ul style="list-style-type: none"> <li>• National Housing Authority</li> <li>• Capital Development Authority (RAJUK)</li> <li>• Chittagong Development Authority (CDA)</li> <li>• Khulna Development Authority</li> <li>• Rajshahi Development Authority</li> <li>• Cox's Bazar Development Authority</li> </ul>
Ministry of Local Government, Rural Development and Cooperatives	<ul style="list-style-type: none"> <li>• City Water Supply and Sewerage Authority (WASA)</li> <li>• Dhaka WASA</li> <li>• Khulna WASA</li> <li>• Chattogram WASA</li> </ul>
Ministry of Posta, Telecommunications, and Information Technology	<ul style="list-style-type: none"> <li>• Controller of Certifying Authority</li> <li>• Mailing Operator and Courier Services Licensing Authority</li> </ul>
Ministry of Shipping	<ul style="list-style-type: none"> <li>• Chittagong Port Authority</li> <li>• Bangladesh Land Port Authority</li> <li>• Bangladesh Inland Water Transport Authority</li> </ul>



	<ul style="list-style-type: none"> <li>• Mongla Port Authority</li> <li>• Payra Port Authority</li> </ul>
Ministry of Science and Technology	<ul style="list-style-type: none"> <li>• Bangladesh Hi-Tech Park Authority</li> <li>• Bangladesh Atomic Energy Regulatory Authority</li> </ul>

Source: <https://bangladesh.gov.bd/site/page/3c1910f1-686d-4a57-9400-0b2743241438/Directorates-and-Other-Offices>

## (2) Requirements for Establishment of Authority in Bangladesh

There is no law nor regulation that describe the procedure and method of establishing an authority in Bangladesh, and the establishment of each authority is made by a specific law. Authority can be set up by each ministry. However, responsibilities of the authority must be limited within the scope of the responsibilities of the ministry, as defined in Rules of Business of the ministry of the Government of Bangladesh. In addition, one authority cannot be jointly supervised by several ministries.

Table 4.2 Authority Requirements in Bangladesh

Item	Description
Establishment	<ul style="list-style-type: none"> <li>• There is no general written definition or law/act regarding authority in Bangladesh.</li> <li>• An act is made to establish an authority.</li> <li>• Ministry develops a concept note and a draft act to establish an authority.</li> <li>• Private company cannot establish authority.</li> </ul>
	<ul style="list-style-type: none"> <li>• Ministry which establishes authority supervises the authority.</li> <li>• An authority cannot be supervised by multiple ministries/divisions.</li> </ul>
Scope	<ul style="list-style-type: none"> <li>• Authority operates within the scope of work of the supervising ministry as stipulated in the Rule of Business.</li> <li>• Authority deals mainly with implementation.</li> <li>• Authority works for public benefit.</li> <li>• The staff of an authority comprises civil servant except for consultants in the authority.</li> </ul>

Source: JST based on interviews with Ministry of Law and Parliamentary affairs.

### 4.1.2 Comparative Authority in Bangladesh

Table 4.3 summarizes the comparison of outline of establishment act of BEZA, BEPZA, PPPA, BIDA, which are under the supervision of the PMO, and CPA and RAJUK as a sample of authority under Implementing ministry. Each law commonly has articles regarding the following:

- Matters related to the organization/operation of authority like organization, management, decision-making system etc.
- Matters related to Authority operations like functions, powers, financing, land acquisitions etc.
- Matters related to the supervision of Authority operations like auditing, annual reports etc.

Table 4.3 Comparing Bangladesh Authority

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
Objectives	<ul style="list-style-type: none"> <li>To foster and generate economic development of Bangladesh by encouraging and promoting foreign investments in a Zone.</li> <li>To diversify the sources of foreign exchange earnings by increasing export of Bangladesh through a Zone 4.</li> <li>To encourage and foster the establishment and development of industries and commercial enterprises in a zone in order to widen and strengthen the economic base of Bangladesh;</li> <li>to generate productive employment opportunity and to upgrade labour and management skills through acquisition of advanced technology</li> </ul>	<p>To establish economic zones in all potential areas, manage, operate and control the zones to increase and diversify employment, industry, and production.</p>	<p>Port management, Maintenance, Advancement &amp; Development</p> <p>Provide skilled and sufficient services to the port and entrance of the port</p> <p>Bathing, Controlled &amp; Supervise the movement of ships at the port area</p> <p>Any other duties conferred upon by the Government</p>	<p>Creating an enabling environment for government institutions through public-private partnerships in the delivery of sustainable public service infrastructure.</p>	<p>To assist in investing national-international funds in private sectors;</p> <p>To occur administrative coordination and provide more services ensuring the utmost utilization of national organizations and their unused resources, to consolidate the Investment Board and Private Commission.</p> <p>This act repeals the previous Investment Board Act, 1989 and the Privatization act, 2000; extinction the investment board and privatization commission.</p>	<p>To provide legal support to the public agency, Capital Development Authority (RAJUK), which is responsible for coordinating urban development in Dhaka city</p> <p>Involved in policy making, planning and development control of Dhaka.</p> <p>Preparation of development plans, widening roads and reduce congestions, lay out plans for better traffic circulation, providing open spaces for recreation, demolishing or constructing buildings and construction of roads, bridges, and culverts.</p>

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
Date of issuing	26th December, 1980	21 <sup>st</sup> June, 2012	7 <sup>th</sup> July, 1976	16 <sup>th</sup> September, 2015	1 <sup>st</sup> August, 2016	15th May, 1953
Number of Sections and Sections	23	41	53	49	36	193
Articles	-	-	-	-	-	-
Chapter	-	-	7	7	8	8
Legal code structure (Section)	Authority shall be a body corporate having perpetual succession and a common seal. Head office shall be located at Chittagong. [Section 3(2)]	Authority is statutory body and be a permanent continuity and have a permanent seal. [Section 17(2)]	Authority is a corporate body [Section 4(2)]	It is a Statutory body under [Section 4(2)]	Authority is statutory body and be a permanent continuity and have a permanent seal. [Section 4(2)]	Rajdhani Ummayan Karripakkha (Capital City Development Authority) [Section 3]
Governin g Body	Chairman, Minister-in-charge of the Ministries or Divisions dealing with industries, commerce, finance, planning, foreign affairs, energy, ports, and shipping, ex-officio; Governor, Bangladesh Bank, ex-officio; Secretaries of the Ministries or Divisions dealing with industries, commerce, finance, planning, foreign affairs, energy, ports and shipping and internal resources, ex-officio; [Section 5]	The Prime Minister or a member nominated by him shall be the chairman. Other members: -Ministers/State Ministers of the ministries/divisions of Industries, Commerce, Finance, Planning, Science and Information and Communication Technology, Power, Energy and Mineral Resources, Communications, Labor Employment, Environment and Forests, ex officio; -principal secretary to the Prime Minister, ex officio; -Governor,		5 members; Prime minister is the chairperson, Finance minister is the vice-chairperson, and the other members are- -a minister nominated by the prime minister -minister/state minister of the concerned ministry of the project -principal secretary to the prime minister and the chairman, PPP authority. [Section 7]	Consists of 17 members. Chairman (Prime Minister) Vice-chairman (Ministry of Finance) Members: -ministry of industries -ministry of power, energy and mineral resources -ministry of commerce -ministry of jute & textile -ministry of planning -ministry of agriculture -ministry of housing & public works - executive chairman -governor, Bangladesh Bank -secretary, ministry of home affairs -secretary, department of internal resources -chairman, Bangladesh Security	

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
		<p>Bangladesh Bank, ex officio;</p> <p>-Executive chairman, Board of Investment, ex officio;</p> <p>-Secretaries of The Ministries/Divisions of Industries, Commerce, Finance, Planning, Agriculture, Labor and Employment, Posts and Telecommunications, Science and Information and Communication Technology, Foreign Affairs, Power, Energy and Mineral Resources, Home, Shipping, Environment and Forests, and the Prime Ministers Office, and the Chairman, Bangladesh Board of Revenue, ex Officio;</p> <p>-President, FBCCI, ex officio;</p> <p>-representatives of chambers of commerce and industries of the districts relevant to EZs.</p> <p>-Government nominated 2 women entrepreneurs.</p> <p>-president, Specialized</p>			<p>&amp; Exchange Commission</p> <p>-president, FBCCI</p> <p>-2 government nominated members of Specialized Chamber, of whom 1 is a woman.</p> <p>[Section 6]</p>	

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
		<p>Chamber of Commerce &amp; Industries.</p> <p>- Executive chairman, ex officio, who shall also be its secretary.</p> <p>Government can co-opt anyone as the member of governing body by notification in official gazette.</p> <p>[Section 21]</p>				
Executive Body	<p>There shall be an Executive Board of the Authority consisting of a chairman and three other members.</p> <p>[Section 5B]</p>	<p>Executive Board consists of a chairman and 3 members appointed by government. In absence of executive chairman, the senior most member shall preside over any meeting of the executive board.</p> <p>[Section 24]</p>	<p>1 chairman and not more than 4 members (full-time working)</p> <p>[Section 6]</p> <p>Chairman is the CEO (In absence, a member will be appointed)</p> <p>[Section 6, 7]</p>	<p>Headed by the Chairman who is the Ex-Officio of the Principal Secretary of GoB</p> <p>CEO shall be a grade 1 rank Govt. officer and be appointed by the governing board.</p> <p>[Section 10]</p>	<p>The authority shall have an executive council, consisting of 1 Executive Chairman (CEO), (his rank, terms of services shall be determined by Government) and not more than 6 executive members (at least additional secretary ranking and appointed on deputation).</p> <p>Authority shall have a secretary in rank of at least additional secretary, who shall assist and act upon the executive chairman.</p> <p>[Section 9]</p>	<p>The Kartipakkha (Authority) shall consist of a Chairman and not more than five other members appointed by the Government on such terms and conditions as it may determine.</p> <p>[Section 4]</p>
Quorum	<p>To constitute a quorum at a meeting of the Consultative Committee not less than one third of the total number of its members shall be present.</p> <p>[Section 6A (5)]</p>	-	<p>At least 2 board members shall be present except the Chairman.</p> <p>[Section 7]</p>	-	<p>For quorum of the meeting, the majority of the members should be present.</p> <p>[Section 10(4)]</p>	
Functions	<p>(a) to take possession of land to be acquired</p>	<p>General functions;</p>	<p>Port management, improvement and</p>	<p>-Approval of bid</p>	<p>To provide all kind of facilities for the domestic and foreign</p>	<p>✓ RAJUK exercise development control</p>

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	<p>or requisitioned by the Government for the purpose of creation and development of a zone;</p> <p>1[(b) to allot land and building-spaces in a zone to investors on sale, lease or on rent and to allow them to mortgage the allotted lands for raising loan from financial institutions or commercial banks;</p> <p>(c) to provide infrastructure facilities, including buildings, utilities and warehouses;</p> <p>2[(d) to process applications for setting up of industries within a Zone and accord sanction in accordance with the guidelines given by the Government from time to time;</p> <p>(e) to provide customs bonded facilities in accordance with customs regulations for importation into a zone of building materials for construction purposes and packaging raw materials and</p>	<p>-Identifying best potential sites for industrial or relevant sectors for the best utilization in the light of clustering principles.</p> <p>-Acquiring lands for EZs (public, private, PPP) and taking possession on behalf of the government.</p> <p>-Ensuring infrastructure development &amp; supports; management of zones; allotment/ lease/ rent of plots, lands, or buildings on competitive commercial basis in prescribed manner</p> <p>-establishing due rights of workers and backward linkage industries in EZs to meet the requirements of local economy.</p> <p>-expediting implementation of industrial policy of country.</p> <p>[Section 19]</p>	<p>development;</p> <p>Regulation and controlling vessel movements and navigation;</p> <p>Providing adequate and efficient port services.</p> <p>[Section 9]</p>	<p>documents related to PPP.</p> <p>-negotiation activities</p> <p>-promulgating, approving, publishing, and issuing PPP related policies, regulations, and guidelines.</p> <p>-Developing model PPP contracts and obtaining vetting</p> <p>-framing technical and best quality requirements &amp; bid documents.</p> <p>-approving the selected bidder; termination of PPP contracts</p> <p>-Executing and signing PPP contracts</p> <p>[Section 9]</p>	<p>investment for the rapid industrialization in the private sector</p> <p>To implement the Government Policies regarding the capital investment in the private sector</p> <p>To formulate the industrial investment-schedule for the private sector and determine incentives for that sector</p> <p>To formulate area-schedule for the industrial setup by the private sectors and determine incentives for those areas</p> <p>[Section 8]</p>	<p>function as per provisions laid down in the East Bengal Building Construction Act, 1952 and its subsequent Amendments and the Rules &amp; By-laws framed there under.</p> <p>Every construction/erection/excavation with in the jurisdiction of RAJUK requires permission/approval from the Authorized Officer or Building Construction Committee appointed under the provision of the Town Improvement Act, 1953.</p> <p>Any type of building construction, housing, commercial, industrial, and whatsoever need planning permission and they must be in conformity with the land use provision of Master Plan/Urban Area Plan/Detailed Area Plans of different SPZ's.</p> <p>At present, two Building Construction Committees in force in which the Authorized Officers has been working as member-secretary of the committee.</p> <p>[Section 38-45]</p>

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	<p>intermediate goods for the purpose of processing for exports;</p> <p>(f) to allow import of raw materials or semi processed or other goods required for use in the zone and export of semi processed, processed or other goods to be specified by the 3[Board] in such manner as may be prescribed;</p> <p>(g) to assist in transportation of imported raw materials and intermediate goods in bonded condition and export of finished products;</p> <p>(h) to provide necessary banking facilities within the zone in consultation with the Bangladesh Bank;</p> <p>(i) to establish liaison with the port, municipal and other authorities to make arrangement for transportation of imported raw materials and intermediate goods on bonded condition and for export of finished products;</p>					

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	(j) to sanction employment of foreign nationals in accordance with the guidelines given by the Government from time to time, to posts for which local expertise is not available for efficient running of the industries in a zone; 4[(j)] subject to the approval of the Government, to enter into any contract or agreement of any kind for the purposes of this Ordinance;] (k) to do such other acts and things as may be necessary to be done in connection with, or conducive to, the performance of the aforesaid functions. [Section 7]	Government can by notification in official gazette, provide any zones or any area of it with special tariff for a specific period, according to the Customs Act, 1969.  Government shall provide with financial incentives & benefits to units of EZs as	Without prejudice to the generality of sub-section conferred powers, authority shall- -Function within the limits of Chittagong port to regulate custom agents licensed under the Customs Act, 1969; -To enter any bond, agreement, contract or	-The Chairman directly and the CEO through the Chairman be accountable to the board for all actions. -Shall execute any PPP related work -Shall do other PPP related acts as Government may assign it to authority. [Section 9]	Authority can be able to decide the hand over any government industrial/commercial organizations pricing within 100 crore BDT with loans. But properties, price exceeds 100 crore BDT, shall need the approval of the Cabinet Committee on Economic Affairs.  Authority can take steps when the hand overing terms,	The Chairman or any person either generally or specially authorized by the Chairman in this behalf may, with or without assistants or workmen, enter into or upon any land, in order (a) to make any inspection, survey, measurement, valuation, or inquiry, (b) to take levels,
Power	<ul style="list-style-type: none"> <li>✓ To take possession of land to be acquired or requisitioned by the Government.</li> <li>✓ To allot land and building-spaces in a zone to investors on sale, lease or on rent and mortgage.</li> <li>✓ To provide infrastructure</li> </ul>					



	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	<p>facilities, including buildings, utilities, and warehouse.</p> <p>✓ To process applications for setting up of industries within a Zone, provide customs bonded facilities allow import of raw materials or semi-processed or other goods required for use in the zone and export.</p> <p>✓ To provide necessary banking facilities within the zone.</p> <p>✓ To establish liaison with the port, municipal and other authorities to make arrangement for transportation</p> <p>✓ To sanction employment of foreign nationals in accordance with the guidelines given by the Government.</p>	<p>provided under Bangladesh Export Processing Zones Authority Act, 1980 and Bangladesh Export Processing Zones Authority Act, 1996.</p> <p>Besides the reserved category industries, sectors like- small &amp; cottage industries, agro farms or service-oriented organizations can be established within the EZ area. [Section 22, 29]</p>	<p>whatever purposing this ordinance;</p> <p>-If necessary, shall order removing any vessels, objects, infrastructure, site belonging to authority by notice in writing.</p> <p>-Maintain, support, operate and construct infrastructure, vessels, &amp; vehicles within docks;</p> <p>-Loss, destruction, deterioration of goods of which authority has taken charge shall be that of a bailee under section 151, 152, 161 &amp; 164 of the Contract Act, 1872;</p> <p>-Shall bound to stop vessels entering or leaving port not abiding by the provisions of the Custom Act, 1969;</p> <p>-Under section 18, none except the authority can shall male, erect or fix below high-water mark;</p> <p>[Section 10]</p>	<p>Approval</p> <p>In- principle and final approval for a project shall be granted by a cabinet committee, the committee can declare any project as national priority.</p> <p>[Section 14]</p> <p>Financial Participation</p> <p>The Govt. may provide financing in PPP Projects. [Section 16]</p> <p>Incentives</p> <p>The governing board can recommend government to declare incentives in gazette to promote private sector investments. [Section 17]</p> <p>Contracting authority</p> <p>Contracting authorities can enter into any PPP project contract in their own sector.</p> <p>But the PPP authority can require anytime any report from the contracting authorities.</p> <p>Government may provide finance against, -technical assisting,</p>	<p>conditions and process are finalized for hand overing any government industrial/ commercial land or their unused lands to any EPZs/ EZs/ relevant authorities/ local or foreign bodies.</p> <p>Registration:</p> <p>-private commercial companies registered in abroad shall have to take permission from the authority to establish any local branches or liaison offices.</p> <p>-all unregistered industries established in private sectors shall have to be registered by regulations [Section 14]</p> <p>Permit registration</p> <p>Persons intending to establish industries in private sector shall have to apply to the authority with regulations.</p> <p>Authority shall permit or give legible decisions considering all facts and other aspects such as- amount of loan</p> <p>-connection deadline of water, gas, and electricity; sewerage &amp; tele communication lines</p> <p>-clearance from department of environment</p> <p>-deadline of clearing from the customs authority for importing materials and appliances</p>	<p>[Section 181 to Section 189]</p>

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	<p>✓ To do such other acts and things as may be necessary to be done [Section 9, 10, 11(A)]</p>			<p>-viability gap -equity and loan -linked competent -PPP authority declared activities.  All rights and obligations of the private partner shall be assigned to the project company after signing the contract.  The contracting authority shall execute the PPP contract with the selected partner based on the agreed terms &amp; conditions. [Section 18]  Negotiation Only those terms shall be negotiated which are open for negotiation and shall exclude all terms of partnership contract which are not open for negotiation. [Section 21]</p>	<p>-allocation of plots owned by local body's or in controlled industrial zones.  The authority can exercise power of government through the Bangladesh Security &amp; Exchange Commission while issuing the capital and selling of shares of the companies registered under the Approved Industrial Companies Act, 1994. [Section 15]  One Stop Service An inter-ministerial one-stop-service center shall be established to ensure fast services for the approved organizations. [Section 16]  Cancellation of approval Authority can cancel any industry with regulation if it violates any rules or breaks any terms. [Section 19]  Royalty Approved industries can apply with regulations to the authority of it needs to have royalty on import materials/appliances/wrapping materials etc. The related companies shall</p>	

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
					<p>have to apply to the authority for fixing the Royalty fees. [Section 18]</p> <p>Inspections</p> <p>The authority can inspect, investigate or visit and give further opinion any companies or industries if required and the industries shall have to provide all supports for such. [Section 20]</p> <p>Identifying industries</p> <p>By this act and authority, Government can declare any area as industrial zones or change the name/type of the existing industries by government gazette. [Section 21]</p>	
Finance	<p>(a) grants and loans from the Government;</p> <p>(b) loans from such other sources as the Government may approve;</p> <p>(c) proceeds from the land allotted for setting up of industries in the zone;</p> <p>(d) rental of buildings leased out to the industries set up in the zone;</p> <p>(e) fees and service charges, if any,</p>	<p>-grants and loans from all entities;</p> <p>-income from allotment, rent;</p> <p>-service charges &amp; various fees;</p> <p>-profits from partnerships and other sources.</p> <p>All funds to the authority shall be deposited at any scheduled bank and be operated by the prescribed regulations.</p>	<p>To the credit of the Chittagong Port Authority Fund shall be placed-</p> <p>(a) grants made by the Government;</p> <p>(b) loans obtained from the Government;</p> <p>(c) grants made by local authorities;</p> <p>(d) sale proceeds of movable and immovable property and receipts for services rendered;</p>	<p>The PPP authority shall have a fund kept in a scheduled bank with approval of the board of governors.</p> <p>(a) grants made by the Government;</p> <p>(b) grants made by local authorities and other statutory organizations;</p> <p>(c) loans taken from internal sources;</p> <p>(d) grants made by, and loans taken from foreign governments, and organization,</p>	<p>The authority shall have a fund where collected money be deposited which can be received from both</p> <ul style="list-style-type: none"> <li>- the government allocation and</li> <li>- money received from other sources by the authority.</li> </ul> <p>[Section 29]</p>	<p>Government Grants, Foreign Grants, License fees, Levy collection, Registration Fees, Publication and sell, Business Interest, Required Interest, Required Rent, Land sell.</p> <p>[Section 103 to Section 118]</p>

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	received for services rendered; (f) any other sums not specified accruing to or due to the Authority from any other source. [Section 9]	[Section 30]	(e) loans obtained by the Authority with the special or general sanction of the Government; (f) foreign aids and loans obtained from any source outside Bangladesh with the sanction of, and on such terms as may be approved by, the Government; (g) proceeds of all charges and recoveries made under the Ports Act, 1908 (XV of 1908), and the provisions of this Ordinance; and (h) all other sums receivable by the Authority. [Section 35]	international organizations the sanction of, and on such terms as may be approved by, the Government; (e) service charges and success fees received from the private organizations; and (f) money received from all other legal sources. [Section 37]		
Audit	Without prejudice to the provisions of the Comptroller and Auditor-General, the accounts of the Authority shall be audited by an Auditor. The auditor shall report to the Government on the accounts examined by	With prior permission of governing body, authority shall appoint a Chartered Accountant auditor to examine all the accountants, balances, properties, all documents, also can examine any officials or members of governing and executive boards. A written auditing report shall be submitted to	The government shall appoint at least 2 auditors (being chartered accountants) to be paid by the authority, who shall examine all the accountants, balances, properties, all documents, also can examine any officials. The auditors shall report to the authority. Government may	The Comptroller and Auditor-General shall audit each year and submit a report to government and the authority. The Comptroller and Auditor-General or any person appointed by them shall have access to all documents, records, cash, stores, properties, or all data and may examine the CEO, and other officials. [Section 40]	The Comptroller and Auditor-General shall audit each year and submit a report to government and the authority. Besides, accounts can be audited by chartered accountants within the meaning of the Bangladesh Chartered Accountants Order, 1973. The auditors shall have access to all documents, records, cash, stores, properties, or all data and may examine the CEO, and other officials.	The accounts of the [Kartripakkha] shall, once in every fiscal year, be examined and audited by such auditor as the [Government] may appoint in this behalf. [Section 144 to Section 147]

	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
	him. [Section 18]	the government. [Section 32]	direct the auditing, extend/ shrink any scope of auditing. [Section 38]		[Section 31]	
Submission of yearly reports and returns	The Authority shall submit to the Government, as soon as possible after the end of every fiscal year, a report on the conduct of its affairs for that year. [Section 19]	The authority shall submit to the government as soon as possible after the end of every fiscal year, an annual report on the conduct of its affairs in that year furnishing multiple aspects of information including financial, administrative, authoritative, industrial, and all others. [Section 35]	The Authority shall submit to the Government, as soon as possible after the end of every fiscal year but before the last day of December next following, a report on the conduct of its affairs for that year. [Section 47]	By government specified date each year, the authority shall submit to government the annual budget and estimation for approval for the next year. [Section 39]	-Authority shall submit an annual report on the activities performed in that year to the Government within 90 days after the expiry of that fiscal year. [Section 9]	The Chairman shall, at a special meeting to be held in the month of [May] in each year, lay before the [Kartripakkha] an estimate of the income and expenditure of the [Kartripakkha] for the next ensuing fiscal year. [Section 122]
Land acquisition	Where any land or any interest in any land is required by the Authority for any of its purposes under this Act that land or the interest therein may be acquired by the Government under the Land Acquisition Act, 1894 (I of 1894), for the Authority and the land or interest therein so acquired shall be deemed to be required for a public purpose. [Section 11]	Government can acquire any land for this purpose under the Acquisition and Requisition of Immovable Property Ordinance, 1982 for zones or infrastructure. [Section 6]	If required for the authority's purpose, land requisition and acquisition shall be by the Deputy Commissioner or any officer in accordance with any law for the time being. [Section 46]		If required, Government can acquire or requisite lands in declared industrial areas by the regulation of the Acquisition and Requisition Act of the GoB. Acquired land can't be used for other purposes besides the acquisition purposes without the permission of the authority. [Section 22]	Acquiring of land under Town Improvement Act 1953 for area development, providing urban facilities and services for public uses and for improvement schemes. The Kartripakkha may retain, or may let on hire, lease, sell, exchange or otherwise dispose of any land vested in or acquired by them under this Act. [Section 78, 79]
Power of	The Authority may,	For the purpose of this	The Authority, may,	The PPP authority shall	The authority shall formulate	Authority can make

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	BEPZA	BEZA	CPA	PPPA	BIDA	RAJUK
the Authority to make regulations	with the approval of the Government, make regulations, not inconsistent with the provisions of this Act and the rules made thereunder, to provide for all matters not required to be provided for by rules and for which provision is necessary or expedient for carrying out the purposes of this Act. [Section 22, 23]	act, the authority can, by notifications in official gazette, make regulations not inconsistent with the provisions of this act and rules made there under, with the prior approval of government. [Section 38, 39]	with the prior approval of the Government, make regulations for carrying out the purposes of this Ordinance. [Section 52]	formulate regulations by notifications in official gazette [Section 45]	regulations by notifications in official gazette [Section 33]	regulations, (prior to approval of Government) for carrying out the purposes of this ordinance. [Section 153]

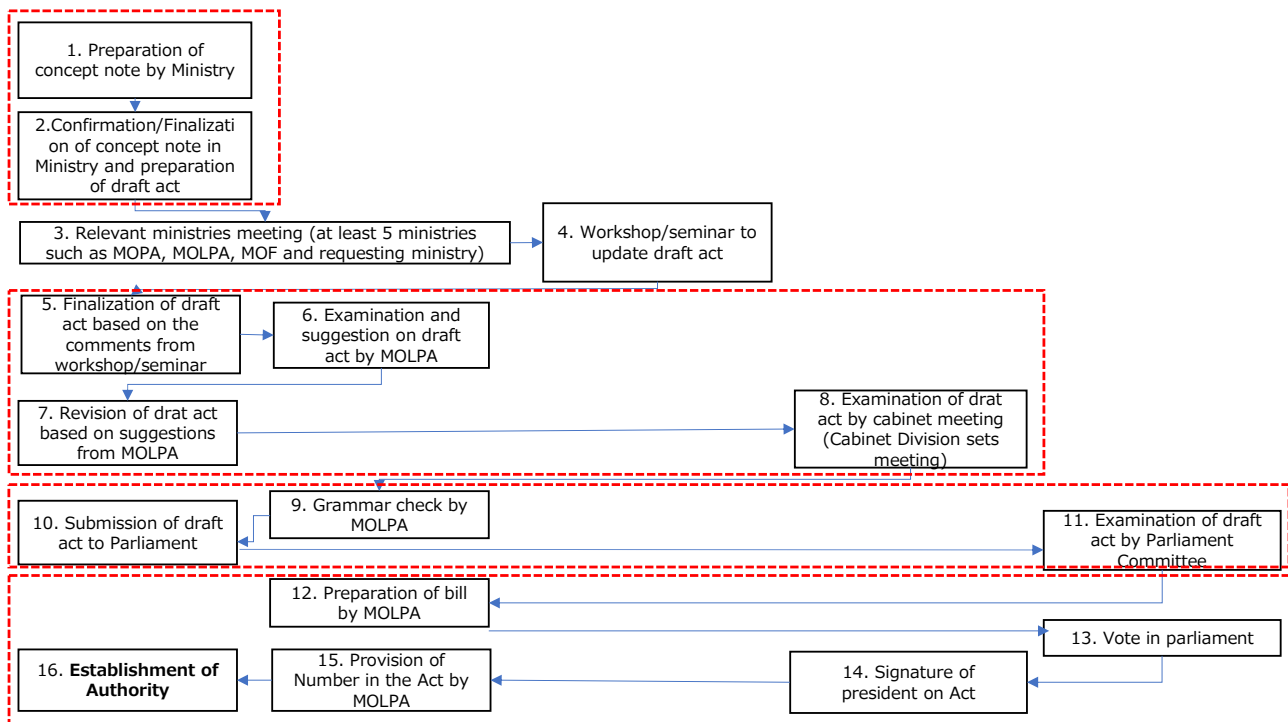
Source: JST compiled each law.

### 4.1.3 Process of establishing Authority

#### (1) Process of Establishment Act

The procedure for the establishment of the Authority in Bangladesh usually requires its establishment act. The procedure until the enactment of the establishment law is basically the same procedure as the enactment of a usual law. The bill is prepared by the ministry which intends to establish the Authority, and the bill is completed through discussions among relevant ministries, public hearings, and reviews of Ministry of Law and Parliamentary Affairs. Following approval by the cabinet, it is approved by the parliament.

The detailed procedure is shown in Figure 4.1 below. According to discussions with the MIDI-Cell, it would take at least four months to complete the MDA establishment bill (corresponding to Box 1- Box 2, drawn in this figure), 4 months for coordination with related organizations and a consultation workshop with associated parties (Box 3- Box 4, drawn in this figure), 2 months to finalize the establishment act, and 5 months to approve it by the Cabinet and the Diet. So, it would take about 12 months in total.



1. When a Ministry feels it is essential to form an Authority, a concept note is prepared in the Ministry. Usually, it is prepared by the Law Wing/legal Wing of the Ministry (responsible body, RB).
2. After formation of the concept note, it is placed to the Minister in Charge of the Ministry. If Minister is happy with the concept note, he asked to arrange a meeting with the concerned officer of the Ministry. There, participants discuss and highlight the fault (if any) in the concept note. The concept is usually two to three pages. Finally, the Minister finalizes the concept note. Basing the concept note, draft Act is formulated in the RB. It may be formulated by the Ministry official or by the hired consultant. Draft must contain (a) Name of the Authority, (b) Background/Introduction, (c) vision/mission, (d) detailed function and process of decision making.
3. A meeting is arranged with the representatives of at least 5 Ministry, where the participation from the Ministry of Public Administration (MOPA), Ministry of Law and Parliamentary Affairs (MOL&PA), Ministry of Finance (MOF), Cabinet Division and the concerned Ministry requiring to form the Authority. In addition, all the Ministries, which are linked with the functions of the proposed Authority, must have representation in the inter-Ministry meeting.
4. The concerned Ministry will also arrange workshops/Seminars with the Trade Bodies/Civil Societies and with the legal experts. After a series of meetings/workshops/seminars, the updated draft act shall be published in the web-site of the all the Ministries participated in the inter-ministerial for further comments (if any) from the experts.
5. After receive opinion in the web-sites, opinions will be incorporated in the draft Act to finalize. The RB will approve it.
6. The RB will send the draft act along with the note-sheet to the MOL&PA for comments and suggestions. The MOL&PA examines the draft and

suggest changes if required and then sent it back to the RB.

7. After receiving back, the paper from the MOL&PA, the RB will revise draft act and send it to the Cabinet for the Cabinet meeting headed by the Prime Minister.
8. The Cabinet Division will place it in the Cabinet meeting and the Act will be discussed in the Cabinet meeting. The Cabinet meeting may provide opinion and suggest changes (if required) in the draft act.
9. Thereafter, it will go to the MOL&PA again and they will check the grammar of the draft act, not the content and will send it to the RB.
10. RB will not change it again. It will send the draft act to the Parliament for approval.
11. After receiving it in the Parliament, it will give the draft act to the standing committee of the Parliament and the standing committee will have a threadbare discussion and examination of the draft act.
12. The standing committee will highlight the fault (if any) in the draft act. If it finds it all right, it is returned to the MOL&PA. The MOL&PA will prepare it as a bill and will be placed by the RB on the full Parliament.
13. The Parliament will have discussion on the in the session. After discussion, the speaker will place it for vote. If the bill receives majority of the vote in the Parliament, it will be sent to the President for final signature.
14. President has the right to sign it. If the President signs it, it gets the status of an Act. But if the President considers it not suitable, he may back it to the Parliament for rethought.
15. After signature, it goes to the MOL&PA. The MOL&PA gives the number in the Act, publish it from the Government Press (minimum 500 copies) and will send to the RB.
16. The RB starts to establish Authority. The revenue, budget and workforce of the Authority is finalized on the basis of the Act.

Source: JICA Survey Team developed based on interviews to MOL and MOPLA.

#### Figure 4.1 Procedure until establishment of Authority

##### 4.1.4 Concept Note

To conduct the process mentioned above to establish the authority in Bangladesh, the preparation of Concept Note would be of very importance as a beginning action. Concept Note is a paper (3-5 pages) delineating the outlines the authority to be established. It is also an important document for obtaining the permission in the ministry as well as from the minister. A bill is created based on this Concept Note.

There are no specific document form or formats for Concept Note. Each time the ministry which wants to establish an authority normally prepares for it. According to the Ministry of Law and Parliamentary Affairs, the Concept Note usually includes the following information:

- Name of authority
- Background (Necessity of authority)
- Authority's vision and mission
- Functions of authority (functions are within the scope of ROBs of the ministry/department (division) in charge)
- Decision-making process

Concept Note generally does not include detailed organizational structure or personnel information, which generally discusses gradually in the approval process.

## 4.2 Considerations for Establishing MDA

### 4.2.1 Background and Objectives of Establishing MDA

MIDI is a multi-sector infrastructure-development program, so that many implementing ministries /divisions are concerned with MIDI. In order to comprehensively plan MIDI, monitor each project of MIDI, and coordinate various projects of different implementing ministry/division smoothly, the government established MIDI Coordination Committee (MIDI CC), comprising of 15 related ministries/divisions, and then, established



MIDI-Cell within the Prime Minister's Office (MPO) as the secretariat office of the MIDI CC. MIDI has progressed at an accelerating pace under this structure. Under the MIDI CC, implementing ministries/divisions have regularly exchanged information/views and shared understandings and relevant information.

Under the decision of MIDI CC, the Sector Development Program (SDP) has been developed by the relevant implementing ministries/divisions, and 68 projects have been proposed in the existing SDPs. It is possible that MIDI MP is expected to work with more additional sectors to be included into MIDI, and then, eventually incorporating more potential projects of various sectors within the MIDI MP. Accordingly, it becomes clear that the existing MIDI CC and MIDI-Cell structures alone may be insufficient to manage it. In particular, following points need to be addressed as soon as possible:

- To fully share the common understanding of MIDI decision-making process and target areas with MIDI CC, MIDI-Cell, and relevant implementing ministries/divisions, and,
- To develop MIDI MP in order to make the Government of Bangladesh to promote MIDI while making implementing ministries/divisions to take actions for actual implementation under same understanding of MIDI policies.

Therefore, the establishment of MDA will be considered with the aim of strengthening MIDI implementation system based on experiences and knowledge obtained within past MIDI -related activities so far.

#### 4.2.2 Vision and Mission of MDA

##### (1) Vision

MDA is an organization that drives MIDI formulation and operate the entire implementation of MIDI development. The progress of MIDI contributes and supports the development of BIG-B. While MIDI requires coordination among a number of ministry and agencies, departments, and organizations, MDA will take an effective lead and implement MIDI projects, to be initiated by many development actors.

##### (2) Mission

In order to materialize the vision, mentioned above, MDA will have the following actions:

- To continuously develop, coordinate, monitor, and revise MIDI MP and other planning and programs for MIDI.
- To promote budgeting for MIDI.
- To coordinate between relevant implementing ministries/divisions for MIDI, between national and local governments, and between the government and private sectors.
- To study policy issues, development plans, project feasibility, implementation methods, monitoring methods, and others.
- To monitor and control project risks (especially the cascading spillover of risks) in MIDI.
- To plan, implement, and operate a “specific project(s)” of MDA (e.g., 1) A project across jurisdiction of implementing ministries/divisions, 2) A project to be an advanced model for project implementation in Bangladesh such as innovative approaches, technologies, and financing mechanisms, and 3) Experimental projects for local socio-economic development in the MIDI Area)

### 4.2.3 MDA Functions and Operations

#### (1) Learning from the EEC in Thailand

MDA is considered to be responsible for the several works including establishing a MIDI MP, implementing specific project(s), and monitoring MIDI MP and MIDI projects.

For this reason, MDA should have not only for the implementation functions of projects of which ordinal authority in Bangladesh has, but also for the coordination and cooperation functions of MIDI projects among relevant implementing ministries/divisions. Specifically, MIDI MP will be created through coordination and cooperation with relevant implementing ministries/divisions, and MDA will monitor the MIDI MP and the projects under MIDI MP. Therefore, it is considered that the following issues must be considered for the establishment of the MDA in the future.

- Relationship between MDA and other implementing ministries/divisions, especially, how to continue and coordinate the functions of MIDI CC with MDA?
- If the MDA prepares MIDI MP, how will the implementation of the project under the jurisdiction of the implementing ministry/division other than the MDA be secured? (How the effectiveness of the MIDI MP created by the MDA be maintained by each implementing ministries/divisions becoming?)

In considering the above, EEC Act of Thailand may give useful implications to consider MDA. An overview is given in Table 4.4.

Table 4.4 Comparing EEC Act and BEZA Act

	EEC Act (Thailand)	BEZA (Reference for Comparison)
General	Rationale Name and Effective Date of Law	Name, Effective Date, Definitions and Priorities for Other Laws
Basic Policy	N/A	N/A
Promotion plan	Target infrastructure and utilities in the plan	N/A
Special Measures for the Promotion of Industry	N/A	Tax and financial incentives for tenant companies and certain exemptions from laws and regulations
Target areas	Target area (designate 4 provinces)	Selection of economic zones Securing and allocation of land
The Role of the Central Government	Support in infrastructure, technological innovation, budgeting, finance, and environmental assessments, and simplification of unnecessary laws and regulations	N/A
Establishment of Authority	Establishment of policy committee to discuss authority	Mentioning establishment
Functions of Authority	N/A	Ownership and disposal of real estate Development, approval, and supervision of infrastructure development plan, Promotion of public-private partnerships, poverty reduction, and development of industrial cities
Authority's Governing body (Policy Committee of EEC)	Members of the Policy Committee (Prime minister, relevant ministers, the budget bureau, NESDB, the investment agency, and the heads of chambers of commerce)  Functions of the Policy Committee: Policy decisions, approval and submit of various plans to the Cabinet, designation of special economic promotion zone, designation of benefits to businesses, approval of plans, projects, and budgets, monitoring, reporting to the Cabinet, and requests for private investment	Members (Prime minister, relevant ministers, investment agencies, Bangladesh banks, chambers of commerce, and other top executives)
Authority's management	N/A	Participants: Deputy Minister of State for relevant ministries/divisions

Authority's operation (Office of EEC Policy Committee)	Office of EEC Policy Committee: Preparation of detailed plans for infrastructure Land use and public facilities in cooperation with relevant government agencies Reporting to the Policy Committee's administrative support, monitoring, and policy committee Collaboration with relevant government agencies Acquisition and leasing of land Revenues and accounting of secretariat office Qualification of secretary-general Duties and Authority of the secretary-general The Prime Minister directly control the secretariat office.	Description of personnel affairs
Borrowing	Borrowing of secretariat office (Approved by the Cabinet)	Possible to borrow (government approval is required)
Annual budget	N/A	Submit the annual budget to the government for approval.
Fund	The Special Development Fund is established in the secretariat office and managed by the secretariat office to use for welfare for residents and communities in the EEC area. The fund will be provided through subsidies, corporate support funds, donations, etc.	Funds can be established and managed. Funds include government grants, borrowings, and self-income (real estate, services, public-private cooperation projects, etc.), Use is for the purpose of BEZA method.
Accounting Audit	Submitted to and approved by the Cabinet	Implemented in the same manner as normal government agencies
Consistency with environmental laws and regulations	N/A	Regulated by relevant laws
Consistency with Labor Laws and Regulations	N/A	Regulated by the relevant laws
Annual Report	Prepared by the secretariat office and submitted to the Cabinet	N/A

Note: N/A: no available

Source: JST

In the EEC Act, coordination at the policy level, planning level, and business level is relatively clearly written. As an implementation system, the division and relationship between the Policy Board and the Secretariat Office are clearly stated in the act. It also emphasizes the capacities and authorities of the Secretariat (particularly the Secretary-General) in the act. The Secretariat is positioned as an independent authority and is regulated under the direct control of the Prime Minister. The Secretariat is given authority to lead the planning and implementation of projects in the ECC too. Particularly, the following three points may have useful implications for MIDI such as:

- Clear description to designate roles and authority of Policy Committee and Office of Policy Committee of EEC is available in the act.
- Office of Policy Committee is not only an independent agency but also has been directly connect to the prime minister.
- Qualifications, abilities, and experiences necessary for the secretary-general of Policy Committee are specified in the EEC act. In other words, personnel for key posts are emphasized and their transparency is ensured.

The points mentioned above with regard to EEC Act are considered to be helpful in drafting the establishment legislation as powers and authorities that MDA should have over the implementing ministries/divisions. Based on this, the following roles of the MDA and the division of roles with relevant implementing ministries/divisions, and the content of the MDA's operations.

(2) Relationship between MDA and Implementing Ministries/Divisions

Various ministries, divisions, and organizations involves in MIDI. MDA plays a leading role in it and coordinates among relevant implementing ministries/divisions. The implementing ministries/divisions are responsible for planning, implementing, and monitoring projects according to their respective jurisdictions.

(3) MDA

The MDA is responsible for:

- Formulating a MIDI MP and indicate to the implementing ministries/divisions the direction of MIDI development. (MIDI MP defines a comprehensive development vision, policy and overall and plans.)
- Implementing approval process of MIDI project(s) prepared by the implementing ministry/division before the implementing ministry/division submits DPP.
- Implementing approval process of land acquisition plan of the MIDI project(s) prepared by the implementing ministries/divisions before the implementing ministry/division submits DPP.
- Supporting the implementing ministries/divisions to realize MIDI projects.
- Implementing specific project(s) proposed in MIDI MP.
- Managing the progress of the entire MIDI through monitoring and risk management.
- Conducting PR activities related to MIDI.

(4) Implementing Ministry/Division

The implementing ministry/division shall be responsible for:

- Preparing SDPs based on MIDI MP development policy.
- Coordinating with other implementing ministry/division in accordance with MDA policy.
- Getting approval of project and land acquisition plan before submitting DPP
- Implementing project(s).
- Implementing project monitoring and risk management.

(5) MDA's operations

Depending on the functions of the MDA described above, the following operations will be conducted.

- Creating and Revising MIDI MP
- Specifying MIDI area
- Planning and support for implementation of policy surveys and plan surveys
- Assistance in securing MIDI project-budgeting through:
- Sharing information with government agencies and divisions
- Preparation and management of medium-term investment framework
- Support for implementation of feasibility studies
- Implementing approval process of project(s) and land acquisition plan prepared by the implementing ministry/division
- Planning and Implementation of the specific project(s)

- Assisting to Deputy Commissioner and the implementing ministry/division in charge of land acquisition (e.g., introduction of good practices in land acquisition, introduction of private support companies (e.g., local consultants) to assist process and documentation.
- Implementing public consultation related to MIDI
- Planning and implementing project monitoring (in collaboration with the implementing ministry/division)
- Preparing annual reports

#### 4.2.4 Implementation Organization (proposed)

##### (1) General

MDA is established under PMO. MDA’s decisions are made by the MDA Board. An MDA Executive Committee is to be established under the MDA Board to manage and administer the day-to-day operations of the MDA. An Office of MDA is to be established under the Executive Board.

##### (2) MDA Board

The Board is chaired by the prime minister and the prime minister, who chairs, appoints another director. The decision is made by the Chairperson after consultation with the Board of Directors.

##### (3) MDA Executive Committee

MDA Executive Committee is composed of the representative executive officer and few numbers of executive officers (about 3 persons), The committee supervises the day-to-day operation of the Office of MDA. The Executive Committee exercises all of the powers and performs all functions that may be exercised and implemented by the Office of MDA.

The representative executive officer and the executive officers are appointed by the MDA Board. The representative executive officer is responsible for all documents submitted to the MDA Board.

##### (4) Office of MDA

The Office of MDA provides technical and administrative support to the MDA Executive Committee and implements its decisions. The office is composed of staffs from the following departments. The representative executive officer supervises their operations.

Department	Areas of responsibility
General Affairs	Administrative Support to the MDA Board General affairs Human Resources Management Preparation of DPP, ADP, APP etc. Legal Affairs Finance and accounting Prepare annual report

<p>Coordination</p>	<p>Support for monitoring, coordination, and implementation of MIDI MP</p> <p>Implement approval process of MIDI project</p> <p>Implement approval of land acquisition plan</p> <p>Advice on land acquisition to relevant implementing ministry/division and DC</p> <p>Communicate and coordinate with development partners</p> <p>Implement monitoring with the Implementing ministries/divisions</p> <p>Coordinate and support for project risk management by relevant organizations</p>
<p>Planning</p>	<p>Prepare and revise MIDI MP</p> <p>Support to relevant Implementing ministries/divisions to prepare sector paper of MIDI MP</p>
<p>Project Implementation and Management</p>	<p>Plans for specific project(s) of which MDA directly control</p> <p>Implementation and management of specific project(s)</p>

## Chapter 5 Review of the SDP

### 5.1 SDP

MIDI is a large-scale complex infrastructural development composed of several projects, such as power, energy, port, railways, economic zones, and urban development (townships). The relevant agencies have prepared Sector Development Plan (SDP) and submitted it to MIDI CC as a development plan for their responsible administration. The following seven areas of SDP are currently submitted.

Table 5.1 SDP Submitted

	SDP	Year of submission	Submitting Organization
1	Sector Development Plan of Power Division Ministry of Power, Energy & Mineral Resources for Moheshkhali-Matarbari Area	2019.11	Power Div.
2	Sector Development Plan (Energy)	2019.9	EMRD
3	Sector Development Plan (Port)	2019.9	CPA
4	Industrial and Economic Zones Sector Development Plan (IEZ-SDP)	2021.1	BEZA
5	Draft Sector Development Plan of Roads and Highways Department for Moheshkhali and Matarbari Area	2019.8	RHD
6	Development Plan of Rail Link to Matarbari/Moheshkhali	2019.12	BR
7	Sector Development Plan of Local Government Division for MIDI Area of Cox's Bazar	2021.2	LGD

Source: JST

These SDPs identify the current development plans of significant infrastructure sectors in MIDI with clarifying relevant upper-level policies and plans, sector development plan and projects. Existing SDP will be a basis to formulate sector development plan of MIDI MP in future. In this regard, SDPs are reviewed and comparatively analyzed. Detailed technical review of each SDP is described in following chapters.

### 5.2 Comparative Analysis of SDP Composition

#### 5.2.1 Year of Preparation

The preparation year of each SDP is different from the one submitted in 2019 (power, energy, port, road, railway), and the one submitted in 2021 (industrial and EZ development, urban development).

#### 5.2.2 Structure of SDP

At the sixth MIDI CC meeting, the SDP is requested to prepare and submit to the implementing ministry/division responsible for the significant infrastructure development sectors. In the meeting, MIDI CC approves the SDP to consist of 1) basic policy, 2) demand forecast, 3) master plans, 4) priority project, and 5) environmental and social considerations, which is proposed by 2019 JICA Land Use Survey Team. Although the SDPs are structured according to this format, there is difference in the sections under the chapters. The Industrial and EZ Development SDP has different structure from other infrastructure development sectors due to different planning targets and methodology due to necessity to plan both for investors for EZ development and investors for individual factories in the EZs. Table 5.2 shows the outline of the comparison of the composition of each SDP.

Table 5.2 SDP Composition Comparison

Sector	Power	Energy	Port	Road	Railway	Industrial/EZ Development	Urban Development
Organization	Power Division	BPC/Petrobangla/RPGCL	CPA	RH Department	BR	BEZA	LDG
Submission	Nov. 2019	Sep. 2019	Sep. 2019	Aug. 2019	Dec. 2019	Jan. 2021	Feb. 2021
Volume (page)	21	17(5+4+3 + 5(back data))	8	16	21	31	53+Appendix 35
1. Basic Policy	Perspective Plan 2041	no description	Bangladesh Vision 2021	BIG-B	National Land Transport Policy, 2024	Bangladesh Economic Zone Development Act, 2010	Perspective Plan 2041
	Available at "1.1 Project Brief"	Not clearly described	Available at "2.0 Bangladesh Growth Perspectives and Infrastructure"	no description	Available at "1.1 Bangladesh Government Policy"(only role of railway in the national land transport policy".	BIG-B	Available at "1.1 Current Situation and Identify Major Challenges" and "1.2 Role of the SDP at MIDI
	Available at "1.3 Role of Coal and LNG Based Power Plant at Moheshkhali-Matarbari Area"	Not clearly described	Available at "3.0 Current Port Sector of Bangladesh", and "4.0 Port of Chittagong"	Available at "1.2 Expected role of the road sector at Moheshkhali-Matarbari area", and "1.3 Current Situation of the Existing and Proposed Corridors"	Available at "1.2 Role of Railway at Moheshkhali - Matarbari Area" and "1.3 Role of Moheshkhali - Matarbari for Railway"	no description	Available at "13 Role of MIDI for the Sector Development Plan"
2 Demand Forecast	Available at 2.1 Demand Forecast and 2.2 Perspective Energy Plan of Present Government	Available at "1.1 of SDP of Petrohanga", "2. Demand Forecast" (available petroleum demand at SDP of BPC) and "2.2 demand Forecast" (available gas demand at figure at SDP of BPC (no description))	Available at "4.0 Port of Chittagong" (short description)	Not applicable (less meaning to mention over demand)	Available at "2.1 2.1 Passenger Traffic" and "2.2 Container Forecasts"( but no detailed figures by 5 year interval)	no description	Available at "CHAPTER 2 DEMAND FORECAST" (population in levels of nation, division, district)
	Demand and Supply gap of sector	no description	Available at "5.0 Forecast Traffic"	Available at "2.1 Estimated Future Traffic for Port Access Road" (detailed survey on the other roads are not yet done.)	no description	no description	Available at "CHAPTER 2 DEMAND FORECAST" (population, population increase from MIDI development, land use analysis etc.)



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Sector	Power	Energy	Port	Road & Highways	Railway	Industry and EZ	Township
3 Master Plan	Available at 3.1 List of development works, 3.2 Overall Master Plan and 3.3 Location of Power Plants	Available at 3.1 Sectoral Master Plan	Available at 6.0 Expected Port Development Program, 7.0 Port Development Program at Matarbari	Available at "3.1 Proposed Target Roads of These roads (but necessity is available in "1.3 Current Situation of the Existing and Proposed Corridors")"	Available at "3.3 Sector Master Plan for Matarbari-Mohakhali" and "3.4 Proposed Rail Alignment Matarbari-Moheshkhali"	Unique structure due to difference of characteristics of project Available selection of EZ location, policy on provision of infrastructure and incentives and cost at 2.0-8.0	Available transportation plan and township plan at "CHAPTER 3 SPECTRAL DEVELOPMENT PLAN" (detailed plan and design are available in Appendix F)
	not applicable (land acquisition is almost completed)	no description	no description	no description	Available at "3.5 Land Acquisition"	no description	no description
4 Priority Project	Available at "3.4 Phased Development Plan"	not applicable (there are all short term projects)	Available at "7.1 Phase 1 of the First Stage Development (Target Year 2026)", "7.2 Phase 2 of the First Stage Development (Target Year 2036-41)" and "7.3 Second Stage and Industrial Port Development"	Available at "3.2 Short Term Development Plan (by 2024)", and "3.3 Mid-term Development Plan (by 2031)".	Available at "3.6 Phase Development", "3.7 Final Location Survey and Detailed Engineering", "3.8 Works involve" and "3.9 Phasing and timing of implementation"	available at "10.0 Timebound Implementation Plan"	Available at "CHAPTER 4 TIMELINE FOR SDP IMPLEMENTATION"
	Available at 4 Priority Projects (no description but all information are at table)	Available at 4 Priority Project	not applicable (there is only phasing plan to develop/expand Matarbari Port)	Available information on route, scope of works and expected funding source at "4.0 Priority Projects"	Available at "4. Priority Project" (but not so detailed due to SDP completed before FS)	not applicable (short term projects are identified as priority project.)	Available at "CHAPTER 5 PROJECT PRIORITIZATION"
5 Environment & Social Consideration	Available at "4 Priority Projects" (no description but all information are at table)	no description	Available at "8.1 ~8.8"	not applicable (due to not carrying out FS of each proposed roads/highways)	Available at "4. Priority Project" (but not so detailed due to SDP completed before FS)	not applicable (private concessionaire may developed detailed plan)	Available detailed project profiles at "Appendix C"
	Available at "5.0 Environmental/Social Assessment" (but not substantial description)	Available at "5.0 Environmental/Social Assessment" (but not substantial description)	no description	Available at "5.0 Environmental/Social Assessment" (but not substantial description)	Available at "5. Environmental/Social Consideration"	no description	CHAPTER 6 SOCIAL AND ENVIRONMENTAL CONSIDERATION
Remark	no description	no description	no description	no description	Available some important information at "5.2 Social Analysis of Project Impact"	no description	6.1 Socio-Economic Profile
	Separate SDPs from BPC/Petrobrangla/RPGCL						

Source: JST complies, based on SDPs

### 5.3 Review of the SDP and Improvement Points toward MIDI MP

In the future, MIDI-Cell will prepare the MIDI MP which will have an overall policy of MIDI development, and the Implementing ministry/division will prepare SDP along it. Accordingly, each SDP will be required to ensure the integrity of the overall policy of the MIDI MP and integrity with other SDPs. From this point of view, existing SDPs are reviewed to obtain implications for preparing the SDPs in the MIDI MP.

#### 5.3.1 Basic Policy

##### (1) Rationalization of Sector Development

Most SDPs rationalize sector development and projects based on the BIG-B. Some SDPs (energy, port) also refer to Bangladesh's long-term national plan, PP2041 or Vision 2021.

Table 5.3 Upper-level Policies and Plans referred to in the SDP51

SDP	Upper-level plans mentioned by SDP, etc.
Power	PP2041 Power System Master Plan 2016
Energy	No description
Port	BIG-B Bangladesh Vision 2021
Road	BIG-B
Railway	National Land Transport Policy, 2004 Railway Master Plan (July 2010- June 2030) Revised Railway Master Plan (July 2016- June 2045)
Industrial/EZ Development	Bangladesh Economic Zone Development Act, 2010 BIG-B Land Use and Development Planning Survey of Moheshkhali and Matarbari Area, 2019

Source: JST based on SDPs

##### (2) Recommendations for improving Basic Policy of Sector Plan in MIDI MP

Looking at the SDP from a consistency point of view, it is recommended to use same upper-level policies ns plan to rationalize each sector development in MIDI, when MIDI MP is made. Since the basic policy of the sector plan in MIDI MP aims at providing a rationale for the implementation of the sector and projects in MIDI, the following two points are considered to be required to be described:

- Sector-wide development philosophy and policy
- Roles of MIDI projects in the respective sector development

In light of these two points, at a minimum, the sector plan in MIDI MP should refer to the following upper-level plan as summarized in Table 5.4.

Table 5.4 Upper-level Plans referred in SDP and Proposal to be referred in MIDI MP

SDP	Description	Upper-level Plans etc. to be referred
Common	Long-term development goals Development objectives of the five-year plan	PP2041 8 <sup>th</sup> 5 Year Plan (8FYP) 2020-2025
Power	Development Policy of the Power Sector (Nationwide Demand, Concept and Policy of Supply) Basic Policy on Power Location and the Roles and Importance of MIDI	National Energy Policy PSMP (revised PSMP) IEPMP
Energy	Concept and policy of demand in the energy sector	National Energy Policy

	Energy Sector Development Policy (Energy Import and Supply Policy) Roles and Importance of MIDI in the Development Policy of the Energy Sector	PSMP (revised PSMP) Gas Sector Master Plan IEPMP
Port	Nationwide demand for port cargo and supply concepts and policies Role and Importance of the Port of Matarbari	Strategic Master Plan for Chittagong Port ADB) Preparatory Survey on Matarbari Port Development Project in the People's Republic of Bangladesh (JICA)
Road	Approach to the sharing of facilities in transport Concept of Future Road Network and Priority Projects Roles of Roads in MIDI's Transport sector	Road Master Plan National Land Transport Policy National Integrated Multi-modal Transport Policy
Railway	Approach to the sharing of facilities in transport Concept of future railway networks, priority projects Roles of Railway in MIDI's Transport Sector	Railway Master Plan National Land Transport Policy National Integrated Multi-modal Transport Policy
Industrial/EZ Development	Targets and Policies for Industrial Development in Bangladesh Meaning of creating industrial clusters in the MIDI region in this context Significance and role of EZ development in this context	There is no upper-level planning or comprehensive policy other than PP2041 and 8FYP.
Urban Development	Significance of Urban Development in MIDI Region (Employment and Population Response by the above-mentioned Sector Development)	Not specifically required

Source: Prepared by JST based on SDP

### (3) Need for Quantitative Analysis of MIDI Roles in Sector Developments

Although the SDP discusses the importance of developing MIDI based on upper-level policies and plans, there is no SDP that quantitatively explains its importance. It may have great impact/appeal to explain the importance of MIDI by quantitatively showing the roles of MIDI in each sector as a core development of BIG-B.

From this viewpoint, Table 5.5 summarizes the roles of MIDI in major sectors of power, energy, port, and industrial development.

- Power generation by gas in MIDI accounts for 18% of the national total in 2041. Energy storage also accounts for about 60% of oil and gas, and about 21% of LPG against nationwide.
- The volume of cargo handled at Matarbari port accounts for 25% of the national total in containers.
- MIDI's investment in EZs accounted for approximately 17% of the national FDI through 2041.

Table 5.5 Analysis the Roles and Positions of MIDI in Total Sector Development

Sector	Demand in Bangladesh (A)	Supply in MIDI (B)	% of MIDI (B/A)
Power	Total power demand •40-45 GW in 2031 •72-82 GW in 2041 (Revising PSMP 2016)	Total power supply in MIDI • 14 GW (BPDB) by Gas in 2041 •5 GW (CPGCBL) by Coal in 2041 (SDP)	Gas: 18% Coal: 82% (2041)
Energy	Total demand of Petroleum: •7 million tons in 2017 •About 24.2 million tons in 2041  LPG (import volume): •700,000 tons per year in 2017 •5.7 million tons in 2041 (BPC's estimates)  Gas demand:	Total supply by Petrochemical Complex in MIDI: •15-20 million tons in 2041  LPG (import volume) supply in MIDI: •50,000-ton LPG tank receiving facility in 2041: • annual capacity of about 1.2 million tons/year in 2041  Gas Supply in MIDI:	Petroleum: 62~82% (2041)  LPG: 21% (2041)  Gas:

	<ul style="list-style-type: none"> <li>•3,200MMSCFD in 2018</li> <li>•5,870 MMSCFD in in 2041 (Petrobangla's estimates)</li> </ul>	<ul style="list-style-type: none"> <li>•1,000MMSCFD (via FSRUs) in 2020</li> <li>•3,500 MMSCFD (1,000 MMSCFD from FSRU offshore Matarbari in 2041</li> <li>•2,500 MMSCFD from the onshore LNG terminal in 2041 (SDP)</li> </ul>	60% (2041)
Port	<p>Industrial Cargo:</p> <ul style="list-style-type: none"> <li>•Dry &amp; liquid bulk: 715.5 million tons in 2041</li> </ul> <p>Commercial Cargo:</p> <ul style="list-style-type: none"> <li>•Containers: 10.2 million TEUs in 2041</li> <li>•Break-bulk: Information is not available. (JICA)</li> </ul>	<p>Industrial Cargo :</p> <ul style="list-style-type: none"> <li>•Dry &amp; liquid bulk: 141.45 million tons in 2041</li> </ul> <p>Commercial Cargo :</p> <ul style="list-style-type: none"> <li>•Containers: 2.55 TEUs in 2041</li> <li>•Break-bulk: Information is not available. (SDP)</li> </ul>	<p>Dry &amp; liquid bulk: 19.8% (2041)</p> <p>Containers: 25.0% (2041)</p>
Industrial/EZ Development	<p>Accumulated FDI:</p> <ul style="list-style-type: none"> <li>•US\$115 billion (2041) (JICA Study Team's estimate)</li> </ul>	<p>Accumulated FDI in MIDI:</p> <ul style="list-style-type: none"> <li>•US\$20 billion in 2041 (SDP)</li> </ul>	17% (2041)

Source: Prepared by JST based on SDP

### 5.3.2 Demand Analysis

#### (1) Descriptions in SDP

Demand analysis for each SDP differs depending on the sector's characteristics. Power SDP, Energy SDP, and Port SDP set supply (facility size) volume based on nationwide demand and the roles of MIDI in the sector.

On the other hand, Road SDP and Railway SDP assume that traffic demand is the traffic generated from transporting containers to/from Matabari Port. Generally, the demand analysis for inter-city and regional transport of the MIDI area including roads and railways should be carried out. Then, the demand analysis for individual project is implemented in the feasibility study during the project preparation stage. Although both discussions are not available in these SDPs, demand forecast would be a subject of transport planning in MIDI MP.

Demand analysis has not been implemented in the Industrial and EZ Development SDP. Generally speaking, the demand analysis for EZ is conducted at the planning stage of individual EZ based on the consideration of the location of the EZ, the targeted industries, etc. So, it can be carried out at the stage of planning individual EZ in the future. Urban development assumes a population-based on increased number of workers in the MIDI area. The current demand forecast in each SDP is briefly shown below:

- Power SDP examines nationwide power demand and supply forecasts (2017, 2021, 2026, 2031, 2036, 2041), and describes the amount and necessity of power supply of power plants in MIDI from the gap between future demand and supply of power based on SPMP2016.
- Energy SDP plans to respond to the total import volume of oil and gas in MIDI after examining the nationwide demand for gas, oil, and gas (every budgetary year from 2019 to 2041).
- In the Port SDP, the size of the Matarbari port is examined in consideration of the estimated cargo volume at the port of Chittagong (2020, 2025, 2030, 2035, 2040,2043) and the capacity to expand the facility at the port of Chittagong (taking into account the port of Pillar as well).
- The Road SDP does not provide traffic demand forecasts nationwide or within the MIDI region.

Demand for port access roads (2026, 2027, 2028, 2035) is examined as an individual project based on the traffic generation and concentration of port cargo of Matarbari port.

- The Railway SDP does not provide traffic demand forecasts nationwide or within the MIDI region. Demand forecast for the Matarbari port access railway is either not described.
- The Industrial and EZ Development SDP does not analyze the demand for industrial land and EZ nationwide. Demand analyses of EZ in MIDI have not been conducted, too. However, the required land area for each EZ is examined.
- The Urban Development SDP does not provide a nationwide population forecast, but considers population forecasts for the MIDI region (2021, 2026, 2031, 2036, 2041) and induced population from MIDI (2026, 2041). Based on it, the SDP plans the area and location of townships accordingly.

Table 5.6 Overview of SDP Demand Forecasts

SDP	Sector in Bangladesh	Sectors in MIDI	Individual project
Power	Nationwide power demand and supply forecast. (2017, 2021, 2026, 2031, 2036, 2041)	Analyze the gap between future demand and supply of power based on SPMP2016 and bear about 40% of that in MIDI.	N/A
Energy	Forecast of demand for gas, oil and gas nationwide. (every budget year from 2019 to 2041)	MIDI of oil and gas import windows handles the entire volume.	N/A
Port	Forecast of Cargo Volume at Chittagong Port (2020, 2025, 2030, 2035, 2040, 2043)	Taking into account both expansion of demand for cargo volumes at Chittagong Port which accounts for almost 90% of Bangladesh's export and import via port, and the further expansion capacity of facilities at Chittagong Port (including consideration of Pillar Port as well), the size of the facility at Matarbari Port is considered.	N/A
Road	No description.	No description.	Demand for port access roads (2026, 2027, 2028, 2035) is examined only for traffic generated from port cargo. Other demand are not considered.
Railway	No description.	No description.	Port access railway assumes to transport all containers from/to Matarbari Port.
Industrial/EZ Development	No description.	No description.	No description. However, the demand for land required in each EZ is examined.
Urban Development	No description.	Population forecast (2021, 2026, 2031, 2036, 2041) Induced Population Growth by Developing MIDI (2026, 2041)	Allocation of increased population from MIDI to each townships.

N.B.: N/A not applicable.

Source: Prepared by JST based on SDP.

(2) Details that should be included as supply and demand analyses for sector planning in MIDI MP

For the supply and demand analysis of each sector of MIDI MP, it is desirable to use the same base year for the analysis in all sectors. The table below shows the points to be improved in each SDP when MIDI MP is made.

Table 5.7 Demand and Supply Analysis in SDPs and to be stated in MIDI MP

SDP	Description of Demand and Supply in the SDP	Points in analyzing Demand and Supply for MIDI MP
Power	Nationwide power generation demand and supply. MIDI handles that gap.	Update Power Demand Based on IEPMP Review of the land area required for the power plant in conjunction with the revision of the fuel for the power plant.
Energy	As above	Update of Energy Demand Based on IEPMP
Port	Taking into account the expansion of demand for cargo volumes at the port of Chittagong and the capacity (supply) of facilities at the port of Chittagong (taking into account the port of Pillar as well), the size of the facility at the port of Matarbari is set out from that gap.	Examine of the necessity of reviewing the supply-demand analysis from the perspective of trends in the latest relevant socio-economic indicators. (If there is a major socio-economic change which may affect freight from after SDP and it is considered to require revision of demand-supply analysis, an update of demand-supply analysis shall be done.)
Road	No description.	Transport demand and modal share in MIDI Region Traffic demand forecasts for each road
Railway	No description.	Traffic demand forecast for railways
Industrial/EZ Development	No description.	Analysis of demand for industries and industrial lands nationwide Supplies in MIDI area (roles of MIDI in demand for industrial land nationwide)
Urban Development	Population and the current land use are described.	Update population forecasts, especially review the induced population from MIDI

Source: Prepared by JST based on SDP reviews

### (3) Example of Demand-Supply Analysis for SDP in MIDI MP

Power, energy, port, and industrial development are the major sectors in MIDI, which have the roles of attracting transform of Bangladesh's industrial structure into a higher-value-added industry, establishing an international logistics hub, and creating hub to achieve stable supplies of power and energy in Bangladesh. In order to clarify the roles of MIDI mentioned, the supply and demand of the whole country is analyzed.

On the other hand, road, railway, and urban development are sectors supporting these major sectors, so that the importance and roles of these sector are rationalized from the role in MDI area point of view.

Demand and supply for each sector at the national level are shown below.

Table 5.8 Nationwide Demand-Supply Analysis by Major Sector

Sector	Demand	Supply
Power	Total power demand in Bangladesh •72-82 GW in 2041 •40-45 GW in 2031 (Revising PSMP 2016)	Installed capacity of power generation (nation) •20 GW in 2017 •The capacity will increase to meet the total demand (>82GW) in 2041.  Power mix •54% gas, 1.5% coal in 2017 •35% gas, 5% coal (PSMP 2016)
Energy	Current demand of Petroleum: •7 million tons in 2017 •About 24.2 million tons in 2041  LPG (import volume): •5.7 million tons in 2041(BPC's estimates)  Gas demand: •3,200MMSCFD in 2018 •5,870 MMSCFD in in 2041 (Petrobangla's estimates)	Refinery capacity in Bangladesh •1.3 million tons/year in 2017 Petrochemical complex in MIDI: •15-20 million tons of petroleum products/year, which would cover the entire country's demand for 2041  LPG: •50,000-ton LPG tank, receiving facility (annual capacity of about 1.2 million tons)  Gas Supply: •1,000 MMSCFD in 2018 •the total gas supply in 2041 will be 5,900 MMSCFD (Petrobangla's estimates)
Port	( Industrial Cargo) Dry & liquid bulk: demand of Power & Energy Sect (coastal zone industries in MIDI area where pipeline transport from MIDI is feasible)  Coal: 71.3 million tons LNG: 43.0 million tons Oil: 33.4 million tons Cement Clinker: 65 million tons Fertilizer: 480 million tons Steel products/scrap, Iron: 11.5 million tons Rice: 0.1 million tons Wheat: 6.2 million tons Sugar: 5.0 million tons  ( Commercial Cargo) Containers(nationwide): 10.2 million TEUs Break-bulk: 9.7 million tons (Note: overflow from Chattogram Port only)	( Industrial Cargo)  Coal: 41.0 million tons LNG: 31.6 million tons Oil: 26.8 million tons Cement Clinker: 32 million tons  Steel products/scrap, Iron: 9.2 million tons  Wheat: 0.9 million tons  ( Commercial Cargo) Containers: 2.55 million TEUs Break-bulk: 9.7 million tons (Note: overflow from Chattogram Port only)
Industrial/EZ Development		Accumulated FDI in Bangladesh: US\$115 billion in 2041 (JICA Study Team's estimate)
Road		
Railway		
Urban Development	Population (nationwide) •167.7 million in 2020 •206.5 million in 2041 (BBS, 2015)	

Source: Prepared by JST based on SDP

### 5.3.3 Master Plan

#### (1) Overview

“Land Use and Development Planning Survey in Moheshkhali and Matarbari Area, Supplement of Preparatory Survey on Matarbari Port Development Project, (August 2019, JICA) (2019 JICA Land Use Plan) is the first

plan indicating MIDI projects in all sectors. The 2019 JICA Land Use Plan was approved at the meeting held on March 19<sup>th</sup> 2019, presided by the Prime Minister.

The 2019 JICA Land Use Survey and SDPs for power, energy, port, road and railway are parallelly prepared and submitted in 2019, so the projects listed in these SDPs are not prepared in line with that of the 2019 Land Use Survey. As a result, there is some difference on projects between them. On the other hand, the Industrial and EZ Development and Urban Development SDPs are prepared based on the 2019 JICA Land Use Survey, so they are consistent with each other.

Each SDP has a section called the master plan, which summarizes MIDI projects such as location, facility plan, implementation body etc. in each sector.

A land acquisition plan to implement the projects is hardly mentioned in other SDPs, although there are detailed descriptions in the Urban Development SDP. The Power SDP also did not mention a land acquisition plan but, it is presumed that this was because 98.4% of the land required had already been acquired at the time of preparation of the SDP.

## (2) Projects proposed in the SDP

### Number of MIDI Project

“Land Use and Development Planning Survey in Moheshkhali and Matarbari Area, Supplement of Preparatory Survey on Matarbari Port Development Project, (August 2019, JICA) (2019 Land Use Survey) is the first occasion to comprehensively compile all projects formulated by the implementing ministries/divisions into one MIDI development plan. This 2019 JICA Land Use Survey proposes 47 projects in the power, energy, port, road, railway, and industrial and EZ development sectors, which are written in the 2019 JICA Land Use Survey. On the Other hand, as shown in the following table, 65 projects in total have been proposed in SDPs. According to interviews with the implementing ministries/divisions (and relevant organizations), the project proposed by SDP has some reorganization due to implementation reasons. Still, there is almost no change at present. Two projects have been canceled in the energy sector and one new project has been added to the road sector.



Table 5.9 Proposed Projects in SDPs

	2019JICA Land-Use Planning Survey	SDP	After SDP	Remarks
Power	19	22	22	Three projects increased due to the integration and splitting of projects under the SDP.
Energy	12	9	9	At the SDP, the project was reviewed, two projects were canceled, and two projects were reorganized into one project.
Port	3	8	8	At the SDP, the project was reviewed and reorganized into eight projects.
Road	3	9	10	Six projects were added to SDP, and one project was added to SDP later.
Railway	1	1	1	No change
Industrial/ EZ Development	7	8	8	EZ8 was added to the SDP.
Urban Development	0	8	8	
Other	2	NA	NA	Polder Project of 2019JICA land-use surveys and Logistics projects are other sectors from existing SDPs and are not included.
Total	47	65	66	

N.B.: N/A not applicable.

Source: JST compiled based on SDP reviews.

### Project Implementation Timeline

In SDPs, 27 projects in total are expected to be completed and in service in the short term (within 2026). This is approximately 41% of the total MIDI projects. The first half of the medium-term (2027-2031), the second half of the medium-term (2032-2036), and the long-term (2037-2041) consisted of 9 projects, 2 projects, and 2 projects, respectively. On the other hand, there were 25 projects to be examined in the future for the timing of implementation. At the SDP stage, the implementation of MIDI projects was to be concentrated in the short term and the first half of the medium term.

Since then, the number of short-term projects has declined to 23 due to delays in formulating projects, financing, land-acquisition, and the impact of COVID-19.

Table 5.10 Timing of Project Implementation Proposed in SDPs

	Short term (~2026)	First half of the medium term (2027~2031)	Second half of the medium term (2032~2036)	Long pull (2037~2041)	Undecided	Total
Power	3	2			17	22
Energy	8				1	9
Port	6				2	8
Road	3	1			5	9
Railway	1					1
Industrial/EZ Development	3	3	2			8
Urban Development	3	3		2		8
Total	28	9	2	2	25	65

Source: JST compiled based on SDP reviews.

Table 5.11 Timing of Current Project Implementation

	Short term (~2026)	First half of the medium term (2027~2031)	Second half of the medium term (2032~2036)	Long pull (2037~2041)	Undecided	Total
Power	3	2			17	22
Energy	8				1	9
Port	4	2		2		8
Road	2	3			5	10
Railway	1					1
Industrial/EZ Development	1				7	8
Urban Development	3	3		2		8
Total	22	10	0	4	30	66

Source: JST

### (3) Current Progress of Projects Proposed in the SDP

The implementation stage of MIDI project will be divided into the following five stages.

The Data Collection Survey for Strengthening Framework of Operation and Implementation  
of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative

Stage		Details of Stage
First Stage	Not Started	After the SDP, the survey and planning of individual MIDI projects, such as FS, have not yet begun.
Second Stage	Planning	Planning and surveys for individual MIDI projects such as FS, environmental study and plan, and land acquisition plan which assume the implementation of the project, or at the stage of preparing and submitting DPP.
Third Stage	Project preparation	After the budget of DPP is approved, the stage of the implementation of land acquisition, EIA approval, detailed design, tender etc., which are completed before starting construction work.
Fourth Stage	Construction	Construction stage, including land reclamation, construction of buildings and facilities, and procurement of materials and equipment.
Fifth Stage	Completion and Service	Construction completion, infrastructure service stage.

Looking at the number of projects by implementation stage according to the above classification (Table 5.12), there are five projects at the completion and service stages, seven projects at the construction stage, seven projects at the project preparation stage, and nine projects at the planning stage. The remaining 38 projects have not yet made progress to date.

**Table 5.12 Current Project Progress**

	State 5: Completion and service Stage	State 4: Construction Stage	State 3: Project Preparation Stage	State 2: Planning Stage	State 1: Not Started	Total
Power	1	1	2	4	15	22
Energy	5	1	2		1	9
Port	1	3			4	8
Road		1	2	4	3	10
Railway				1		1
Industrial/EZ Development		1			7	8
Urban Development					8	8
<b>Total</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>37</b>	<b>66</b>

Source: JST

**Projects at Completion and Service Stages (Stage 5)**

Among the projects in SDPs, the following 6 projects have been completed.

**Table 5.13 MIDI Projects Completed (as of 2022)**

Sector	Projects completed and in service
Power	None
Energy	Moheshkhali Floating Liquefied Natural Gas Project Moheshkhali FSRU Project Moheshkhali-Anowara Gas Transmission Pipeline Moheshkhali-Anowara Gas Transmission Parallel Pipeline Moheshkhali Zero Point Gas Transmission Pipeline & CTMS
Port	Matarbari Port 1 <sup>st</sup> Stage-Phase 1 Breakwater
Road	None
Railway	None

Industrial / EZ Development	None
Urban Development	None

Source: JST

Project at Construction Stage (Stage 4)

Among the projects in SDPs, the following 8 projects are in the construction stage.

Table 5.14 MIDI Projects in Construction Stage (as of 2022)

Sector	MIDI Project	Expected Year of Service in SDP	Expected Year of Service at Present
Power	Matarbari USC Coal Power Plant #1,#2	2024	2024
	Matarbari-Madunaghat 400kV Transmission Line	2024	2024
Energy	Installation of Single Point Mooring with Double Pipeline	2021	2022
Port	Matarbari Port 1st Stage -Phase 1 Container Terminal	2024	2024
	Matarbari Port 1st Stage -Phase 1 Multi-Purpose Terminal	2024	2024
	Matarbari Port 1st Stage -Phase 1 Navigation Channel Turning Basin		
Road	Matarbari Power Plant Access Road Connecting Road	2024	2027
Railway	None		
Industrial/EZ development	MM EZ#5 (510 acre by SPPL)	2025	2026
Urban Development	None		

Source: JST

Project Preparation Stage (Stage 3)

Among the projects in SDPs, the following 6 projects are in the project preparation stage.

Table 5.15 MIDI Projects in Project Preparation Stage (as of 2022)

Sector	MIDI Project	Expected Year of Service in SDP	Expected Year of Service at Present
Power	CPGCBL LNG Power Plant	2025	2025
	Land Development of Moheshkhali Power Hub	2025	2025
Energy	Land-based LNG Terminal at Matarbari	2025	2026
	Imported based LPG Mother Terminal and Distribution Plant at Matarbari	2023	2024
Port			
Road	Matarbari Port Access Road	2024/25	2027
	Matarbari Power Plant Access Road	2024	2026
Railway	None		
Industrial/EZ Development	None		
Urban Development	None		

Source: JST

Project in Planning Stage (Stage 2)

Among the projects in SDPs, the following 9 projects are in the planning stage.

Table 5.16 MIDI Projects in the Survey Planning Stage (as of 2022)

Sector	MIDI Project	Expected Year of Service in SDP	Expected Year of Service at Present
Power	Matarbari USC Coal Power Plant #3, #4	2024	2030
	CPGCBL Coal Power Plant	2025	Not fixed
	Matarbari USC Coal Power Plant #5, #6	2025	Not fixed
	Madunaghhat-Moheshkhali 765kV Transmission Line	2028	Not fixed
Energy	None		
Port	None		
Road	Improvement of National Highway No.1	Not fixed	Not fixed
	Improvement of National Highway No.1 5 intersection	Not fixed	Not fixed
	Construction of Cox's Bazar-Cowfidi-Eidmoni Road	Not fixed	Not fixed
	Improvement of Janatabazar-Gorakghata Road (Z-1004)	Not fixed	Not fixed
Railway	Matarbari Port Access Railway	2024	2026
Industrial/EZ Development	None		
Urban Development	None		

Source: JST

#### Projects Not Started (Stage 1)

Among the projects in SDPs, the following 37 projects have not reached the planning stage.

Table 5.17 Projects Currently under Construction in MIDI (as of 2022)

Sector	MIDI Project	Expected Year of Service in SDP	Expected Year of Service at Present
Power	Moheshkhali Power Hub Common Facility Phase 1		Not fixed
	Common Facility Phase 2	2025	Not fixed
	Common Facility Phase 3	2025	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-1	2025	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-2	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-3	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-4	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-5	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-6	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-7	Not fixed	Not fixed
	Construction of 1,320MW USC Coal based Power Plant-Block-8	Not fixed	Not fixed
	Construction of 3,000MW LNG based Power Plant	2023	Not fixed
	CPGCBL Solar Power	Not fixed	2026
	Matarbari 400/320/132kV Substation	Not fixed	
Energy	Coal Transshipment Terminal	2025	Not fixed
Port	Matarbari Port 1st Stage -Phase 2 Container Terminal	2023	2028
	Matarbari Port 1st Stage -Phase 2 Coal and LNG Terminal	2023	2028
	Matarbari Port 2nd Stage -Phase 2 Container Terminal	Not fixed	2041
	Matarbari Port 2nd Stage -Phase 2 Multi-purpose & Bulk Terminal	Not fixed	2041
Road	Trans Moheshkhali Highway	Not fixed	Not fixed
	Improvement of Regional Highway R170	Not fixed	Not fixed
	Improvement of Reginal Highway R172	Not fixed	Not fixed
Railway	None		
Industrial/EZ Development	MM EZ#1	2035	Not fixed
	MM EZ#2	2035	Not fixed
	MM EZ#3	2035	Not fixed
	MM EZ#4	2030	Not fixed
	MM EZ#6	2030	Not fixed
	MM EZ#7	2025	Not fixed
	MM EZ#8	2030	Not fixed
	Urban Development	LGED Township#1	Not fixed
LGED Township#2		Not fixed	2026
LGED Township#3		Not fixed	2031
LGED Township#4		Not fixed	2031
LGED Township#5		Not fixed	2026
LGED Township#6		Not fixed	2031
LGED Township#7		Not fixed	2041
LGED Township#8		Not fixed	2041

Source: JST

### **5.3.4 Priority Project**

Each SDP lists projects to be implemented as the master plan. Among these projects, projects to be implemented in the short term are described as priority project. Each SDP has a slight difference in the description of the priority project. Industrial and EZ Development SDP provides detailed information on the process of selecting priority projects, but there is no description on the planning of each EZ. On the other hand, Power SDP and Port SDP list up and provide information on the project outline of the priority projects. Urban Development SDP also describes an overview of priority projects. Energy, Road, and Railway SDPs are not included in the outline of individual projects.

In the short-term project, as mentioned above, 28 projects are listed in the SDPs. Among 28 projects, 6 projects have been completed, and 8 projects are currently in the construction stage.

### **5.3.5 Environmental and Social Considerations**

All SDPs have descriptions of environmental and social considerations, but it seems to have room for improvement. Although some SDPs describe the EIA process, no SDP describes the environmental and social considerations that need to be noted in planning, designing, constructing, and operating stage. There is also no descriptions regarding monitoring system and organization as well. While, Urban Development SDP has detailed information on land acquisition process and the IEE process, and the current status (baseline) of the natural communities in the MIDI area.

From now on, the level of project preparation of each project gradually progresses. The project preparation activities, including IEE, EIA, Land Acquisition and Resettlement Plan (LACP) and land acquisition. Environmental monitoring based on EIAs will be also required in the construction stage. Since there environmental and resettlement issue is important to keep mutual understandings with society and local society, it is necessary to describe the implementation procedure and organizational structure responsible for monitoring environment, land acquisition and resettlement, when SDP is newly prepared as a part of MIDI MP.

## 5.4 Land Use Policy in 2019 JICA Land Use Plan

### 5.4.1 Basic Concept of Land Use Plan

The current land use plan of MIDI is developed based on the land use plan proposed in the 2019 JICA Land Use Survey, and is shown in Figure 5.1, which is approved in the meeting held at 19 March 2019.

The basic policy of the land use plan is to divide the areas into 2 areas: namely, the area to be developed and areas to be controlled development, in order to achieve efficient land use, effective investment on infrastructure development to avoid environmental deterioration to neighboring communities and agricultural land and disordered development.

### 5.4.2 Approach to Zoning

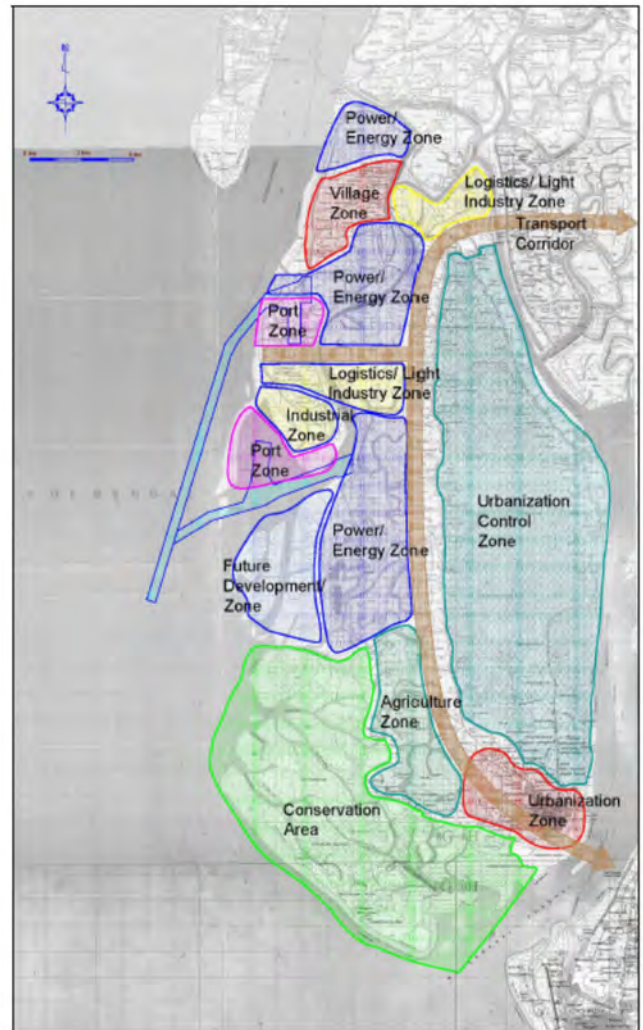
With such zoning as described above as a basic policy, the current land use has established the following 7 zones as areas where development is promoted such as:

- Power Energy Zone
- Port Zone
- Logistics/light industry Zone
- Industry Zone
- Power Energy Zone
- Future Development Zone
- Urban Zone

On the other hand, the following 3 zones have been set as areas to restrict/control development.

- Village Zone
- Urbanization Control Zone
- Conservation Area

There is a north-south traffic axis between the areas to be developed and areas to be controlled development. Among the areas to be developed with consideration given to mitigate the negative impact on the area to be controlled development. The zones need to utilize waterfront are located at the coastal line. Such zoning concept of the current land use is in generally sufficiently understandable, and specific problems cannot be found.



Source: Land Use and Development Planning Survey in Moheshkhali and Matarbari Area, Supplement of Preparatory Survey on Matarbari Port Development Project, (August 2019, JICA)

Figure 5.1 Zoning Concept of Land Use Plan (2019 JICA Land Use Study)



### 5.4.3 Review of Current Land Use from the Characteristics of Individual Project

Based on the concept of zoning mentioned above, the projects location seems to be adjusted/coordinated among the MIDI projects. In this regard, Table 5.18 confirms whether the location of the projects is appropriate or not from the viewpoint of the function and operation of project.

In conclusion, it is considered that there are no specific problems in the current land use plan in general.

Table 5.18 Review of Land Use Plan in 2019 JICA Land Use Plan

Sector	Project	Requirements on Location	Current Land Use Plan
Power	Power plant LNG terminal	It is advantageous to locate at the place where water intake and drainage can be done such as shoreline, river, etc.  Locating at the coastline (port and harbor) is advantageous to facilitate to transport fuel imported for power generation.	Current location satisfies the requirements.
Energy	SPM, LNG terminal Transmission	It is necessary to secure landing sites along the shoreline to facilitate the transport of imported fuel.	Current location satisfies the requirements.
Port	Port Phase 1 Port Phase 2	It is necessary to locate along the shoreline  The place with Less dredging  It is advantageous to have a place where the channel can be easily secured.	Current location satisfies the requirements.
Road	Port Access Road	It is preferable to locate with good access to the above facilities  It is preferable to use existing roads (less land compensation) and few permanent structures	Current location satisfies the requirements.
Railway	Port Access Railway	It is preferable to locate a route with good access to the above facilities, existing roads (less land compensation), and a few permanent structures.	Current location satisfies the requirements.
Industrial/EZ Development	EZ (#2, 3, 4, 5, 6, 7, 8)	It is advantageous to locate at adjacent to Matarbari port for export processing and import substitution industries.  It is advantageous to locate at adjacent to Matarbari port for heavy industry to intake, drainage, and import of raw materials.  Locations with good traffic access to the markets are advantageous.  General industries can locate surrounding areas with lower development cost (land, disaster prevention and infrastructure etc.)	Current location satisfies the requirements. (Heavy industry is planned at the coastal area, and the other industries are planned in surrounding areas)
	EZ #1 Eco-park	Sites with good access to tourism resources, transport bases (airports), and clusters of hotels, food and beverage shops are advantageous.  It is desirable to avoid places with deterioration of landscape and environmental impacts.	it is necessary to pay attention to the development with the change of geographical feature of Sonadia ECA from the viewpoint of environmental protection.
Urban Development	Township # 1~8	It is desirable that the service of existing cities is easy to receive and that the existing urban infrastructure is easy to use and extend.  The Proximity to work and residence is desirable.  A place with good traffic access is desirable.  A location with a low risk of disaster.	Current location satisfies the requirements.

Source: JST

## 5.5 Current Progress of MIDI Project and Future Land Use

The progress of the MIDI project as of February 2022 is shown in the following sections along with the land use plans for 2026, 2031, 2036 and 2041.

### 5.5.1 Projects to be in Service by 2026

A total of 22 projects are expected to be in service in 2026. Among them, core projects of MIDI such as Matarbari USC Power Plant Phase 1 and Matarbari Port Phase I (Stage 1-Phase 1) and EZ #5 are scheduled to be in service.

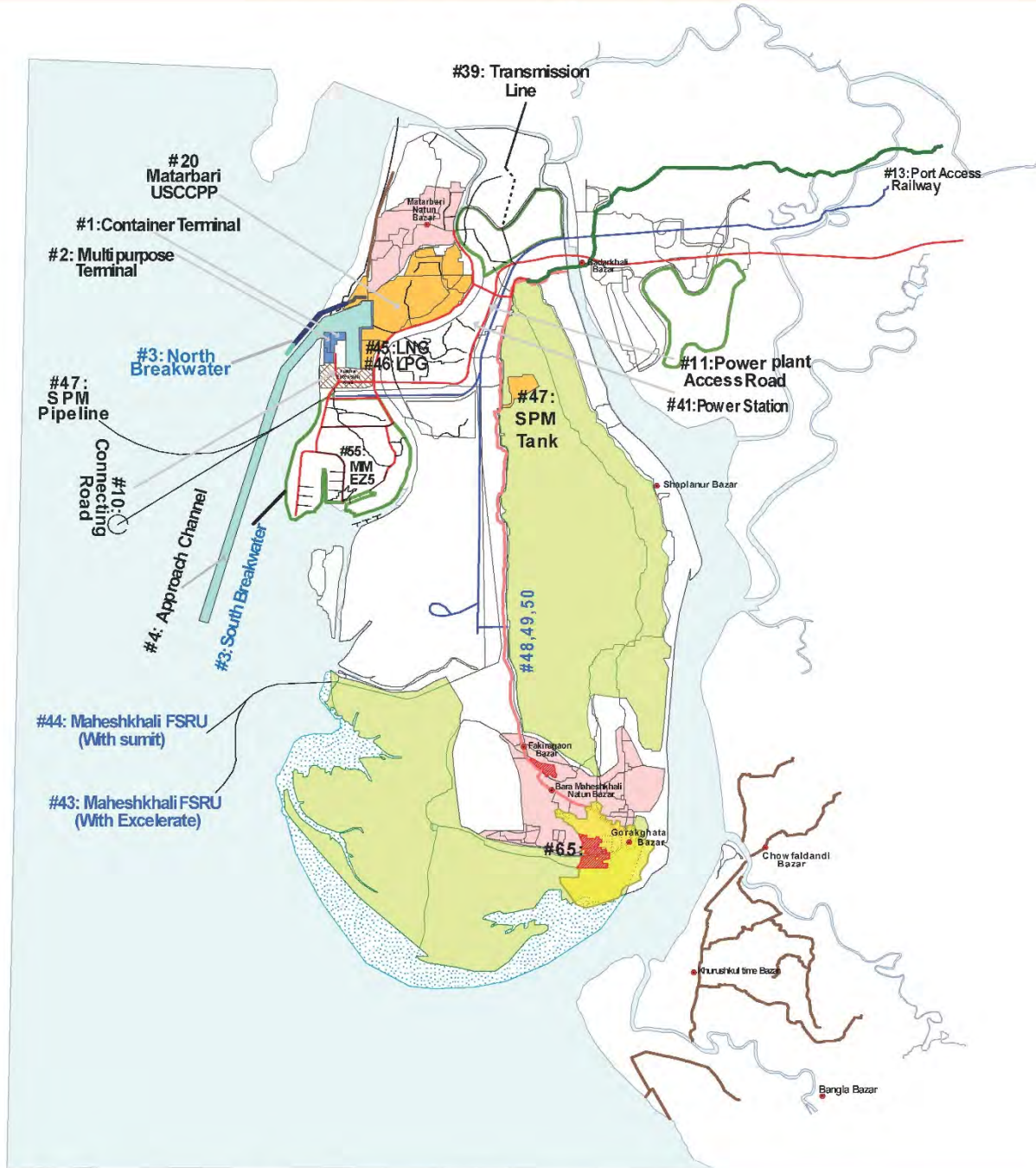
Table 5.19 MIDI Planning Projects (2026)

Sector	MIDI Project	Current Progress				
		FS	DPP	Land	Const.	Ope.
Power	Matarbari USC Coal Power Plant Phase-1 (#1,#2)	XX	XX	XX	XX	2024
	Matarbari-Madunaghat 400kV Transmission Line	XX	XX	XX	XX	2022
	Matarbari 400/320/132kV Substation					2026
Energy	Moheshkhali Floating Liquefied Natural Gas Project	XX	XX	XX	XX	2018
	Moheshkhali FSRU Project	XX	XX	XX	XX	2019
	Land-based LNG Terminal at Matarbari	XX	BOOT	XX		2026
	Import based LPG Mother Terminal and Distribution Plant at Matarbari		BOOT	XX		2024
	Installation of Single Point Mooring with Double Pipeline	XX	XX	XX	X	2022
	Moheshkhali-Anowara Gas Transmission Pipeline	XX	XX	XX	XX	2018
	Moheshkhali-Anowara Gas Transmission Parallel Pipeline	XX	XX	XX	XX	2019
	Moheshkhali Zero Point Gas Transmission Pipeline & CTMS	XX	XX	XX	XX	2021
Port	Matarbari Port 1st Stage-Phase 1-Stage 1 Container Terminal	XX	XX	XX	X	2024
	Matarbari Port 1st Stage-Phase 1-Stage 1 Multi-Purpose Terminal	XX	XX	XX	X	2024
	Matarbari Port 1st Stage-Phase 1-Stage 1 Breakwater	XX	XX	XX	XX	2022
	Matarbari Port 1st Stage-Phase 1-Stage 1 navigation ChannelTurning Basin	XX	XX	XX	X	2024
Road	Matarbari Port Access Road Connecting Road	XX	XX	XX	X	2026
	Matarbari Power Plant Access Road	XX	XX	XX	X	2023
Railway	Matarbari Port Access Railway	XX	XX	XX	X	2026
Industrial/EZ Dev.	MM-EZ#5	XX	XX	X (SPPI)	X	2025
Urban Development	LGD#01 Project Package					2026
	LGD#02 Project Package					2026
	LGD#05 Project Package					2026

Note :XX refers to completion and X refers to implementation. Projects shaded with yellow are completed projects as of 2022.

Source: JST

# Landuse Map 2026



<b>Legend</b>		<b>Roads</b>	<b>Railroad</b>	<b>Landuse_Classification</b>	<b>Project status</b>
Location of Bazar	Inner_Links	Matarbari Port Access Road	Matarbari Railway (Proposed)	Approach Channel	Already operating
Coastal boundary	Waterbodies	Janatabazar to gorakghata_Road		Bareland	To be operating
<b>Township development</b>		Local Roads		Urban area	
Proposed Township development	Paurashava	Road-172		Green area	
				Economiczone	
				Powerplant	
				Port	
				Port for expansion	
				Economiczone -5	
					N
					Scale: 1:200,000

Figure 5.2 Land Use Plan for 2026

## Surrounding Landuse Map 2026

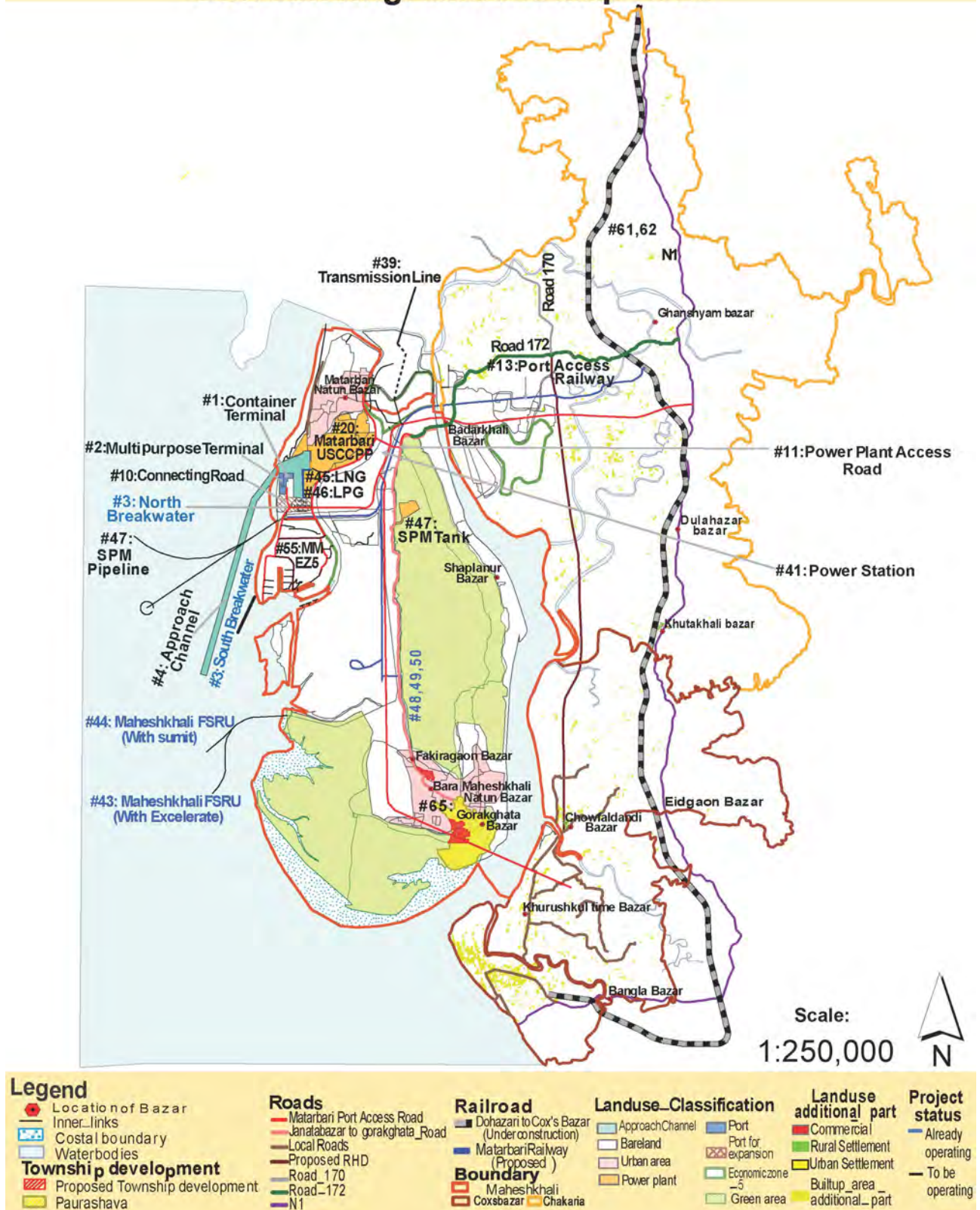


Figure 5.3 Land Use Plan for 2026 (including surrounding areas)

### 5.5.2 Projects to be in Service by 2031

Projects that are expected to be in service in 2031 are the 12 projects shown in Table 5.20.

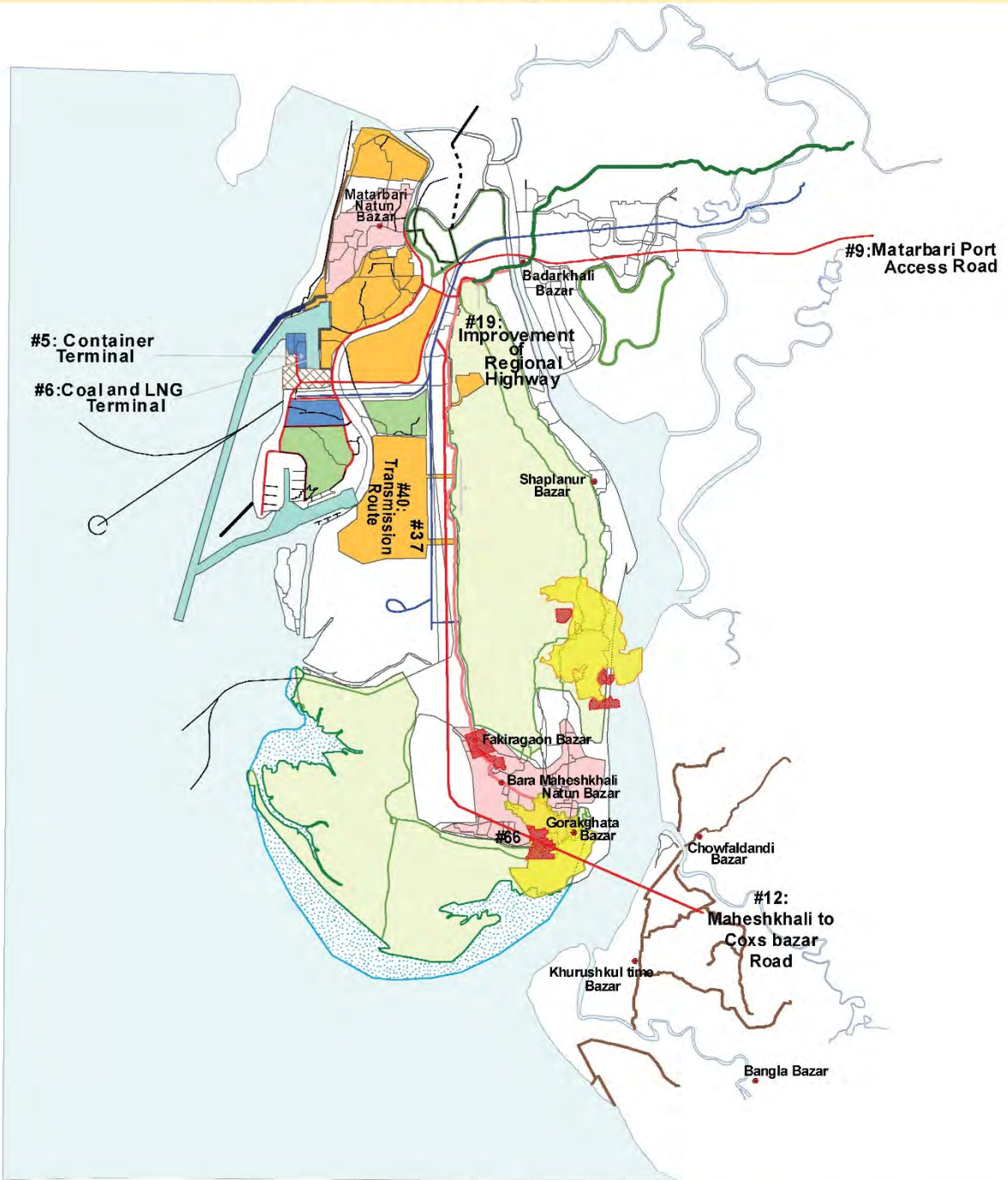
Table 5.20 MIDI Planning Projects (2031)

Sector	MIDI Project	Current Progress				
		FS	DPP	Land	Const.	Ope.
Power	CPGCBL LNG Power Plant	XX	XX	X		2028
	Madunaghat-Moheshkhali 765kV Transmission Line 400kV Transmission Line	X				2028
Energy	NA					
Port	Matarbari Port 1st Stage-Phase 1-Stage 2 Container Terminal					2028
	Matarbari Port 1st Stage-Phase 1-Stage 2 Coal and LNG Terminal					2028
Road	Matarbari Port Access Road	XX	XX	XX	X	2027
	Trans Moheshkhali Highway					2031
	Improvement of Janatabazar-Gorakghata Road (Z-1004)					2031
Railway	NA					
Industrial/EZ Dev.	NA					
Urban Development	LGD#03 Project Package					2031
	LGD#04 Project Package					2031
	LGD#06 Project Package					2031

Note :XX in the table refers to completion and X refers to implementation.

Source: JST

# Landuse Map 2031



<b>Legend</b>			
<ul style="list-style-type: none"> <li><span style="color: red;">◆</span> Location of Bazar</li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Inner links</li> <li><span style="border: 1px dashed blue; width: 20px; height: 10px; display: inline-block;"></span> Costal boundary</li> <li><span style="background-color: lightblue; width: 20px; height: 10px; display: inline-block;"></span> Waterbodies</li> <li><b>Township development</b></li> <li><span style="border: 1px dashed red; width: 20px; height: 10px; display: inline-block;"></span> Proposed Township development</li> <li><span style="background-color: yellow; width: 20px; height: 10px; display: inline-block;"></span> Paurashava</li> </ul>	<ul style="list-style-type: none"> <li><b>Roads</b></li> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> Matarbari Port Access Road</li> <li><span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Janatabazar to gorakghata_Road</li> <li><span style="border-bottom: 1px solid brown; width: 20px; display: inline-block;"></span> Local Roads</li> <li><span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> Road_172</li> </ul>	<ul style="list-style-type: none"> <li><b>Railroad</b></li> <li><span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> Matarbari Railway (Proposed)</li> </ul>	<ul style="list-style-type: none"> <li><b>Landuse_Classification</b></li> <li><span style="border: 1px solid lightblue; width: 20px; height: 10px; display: inline-block;"></span> Approach Channel</li> <li><span style="background-color: lightblue; width: 20px; height: 10px; display: inline-block;"></span> Bareland</li> <li><span style="background-color: pink; width: 20px; height: 10px; display: inline-block;"></span> Urban area</li> <li><span style="background-color: orange; width: 20px; height: 10px; display: inline-block;"></span> Powerplant</li> <li><span style="background-color: lightgreen; width: 20px; height: 10px; display: inline-block;"></span> Green area</li> <li><span style="border: 1px dashed blue; width: 20px; height: 10px; display: inline-block;"></span> Port</li> <li><span style="border: 1px dashed red; width: 20px; height: 10px; display: inline-block;"></span> Port for expansion</li> <li><span style="background-color: green; width: 20px; height: 10px; display: inline-block;"></span> Economic zone</li> </ul>
			<p><b>Scale:</b> 1:200,000</p>

Figure 5.4 Land Use Plan for 2031

## Surrounding Landuse Map 2031

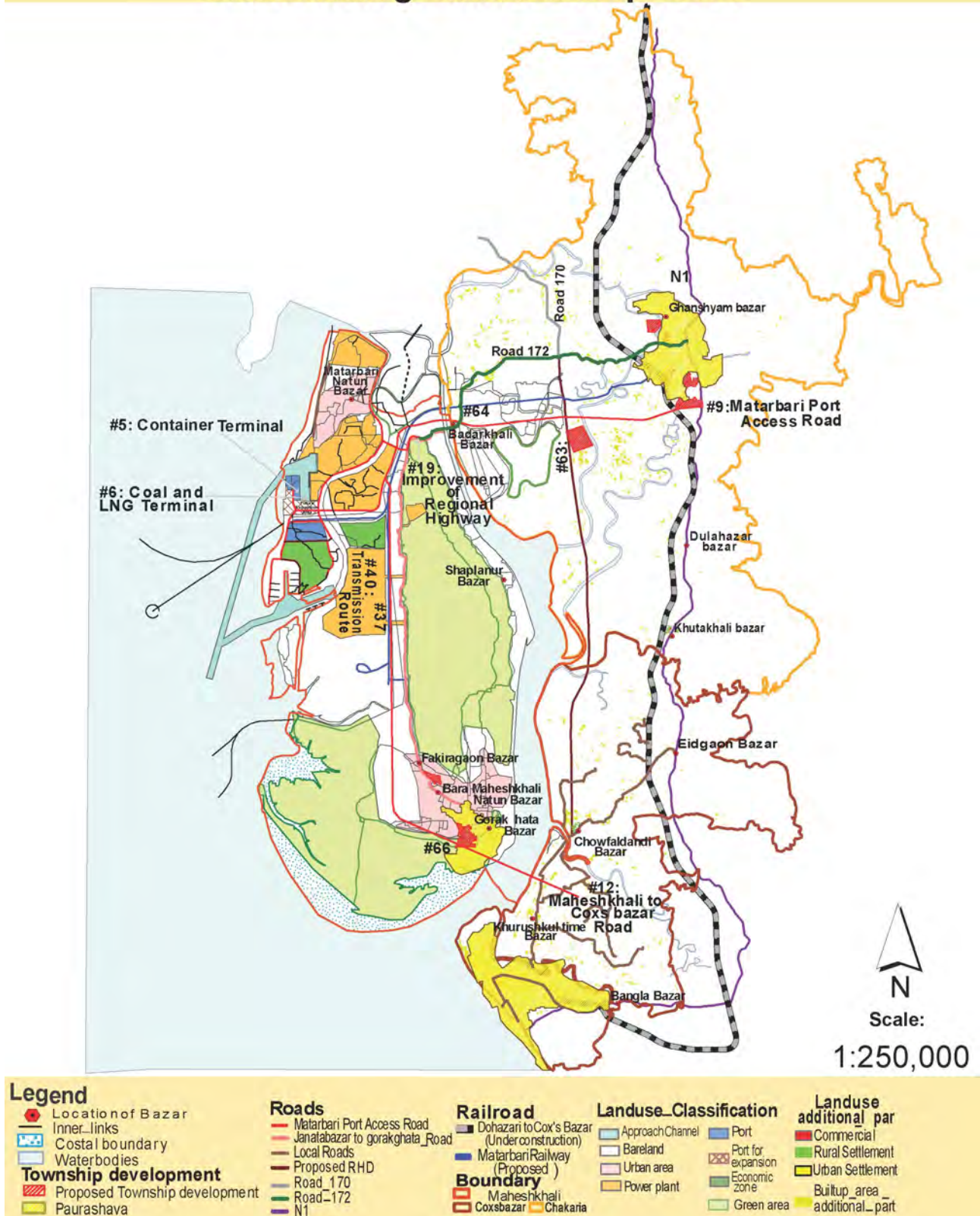


Figure 5.5 Land Use Plan for 2031 (Including Surrounding Areas)

### 5.5.3 Projects to be in Service by 2036

There are no projects scheduled to be completed in 2036.

### 5.5.4 Projects to be in Service by 2041

Four projects are currently planned to be in operation in 2041 as shown in Table 5.21.

30 projects are not yet fixed in operation schedule. At present, no planning activity like a feasibility study has been implemented for these projects. The implementation schedule of these projects will be considered in the future.

Table 5.21 MIDI Planning Projects (2041)

Sector	MIDI Project	Current Progress				
		FS	DPP	Land	Const.	Ope.
Power	NA					
Energy	NA					
Port	Matarbari Port 2nd Stage Container Terminal					2041
	Matarbari Port 2nd Stage Multi-Purpose & Bulk Terminal					2041
Road	NA					
Railway	NA					
Industrial/EZ Dev.	NA					
Urban Development	LGD#07 Project Package					2041
	LGD#08 Project Package					2041

Note :XX in the table refers to completion and X refers to implementation.

Source: JST



Table 5.22 MIDI planning projects (year not yet determined)

Sector	MIDI Project	Current Progress				
		FS	DPP	Land	Const.	Ope.
Power	Matarbari USC Coal Power Plant #3,#4	XX		X		
	CPGCBL Coal PowerPlant	XX	XX	X		
	Matarbari USC Coal Power Plant #5,#6	XX		X		
	Land Development of Moheshkhali Power Hub			X		
	Common Facilities-Phase 1			X		
	Common Facilities-Phase 2			X		
	Common Facilities-Phase 3			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-1	XX		X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-2			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-3			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-4			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-5			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-6			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-7			X		
	Construction of 1,320MW USC Coal Based Power Plant - Block-8			X		
	Construction of 3,000MW LNG Based Power Plant			X		
	CPGCBL Solar Power					
Energy	Coal Trnsmision Terminal					
Port	NA					
Road	Improvement of National Highway No.1	XX				
	Improvement of National Highway No.1 5 Intersections	XX				
	Improvement of Regional Highway R170					
	Construction of Cox's Bazar - Cowfaldi - Eidmoni Road					
	Improvement of Regional Highway R172					
Railway	NA					
Industrial/EZ Dev.	MM EZ 1			XX		
	MM EZ 2					
	MM EZ 3					
	MM EZ 4			XX		
	MM EZ 6					
	MM EZ 7					
	MM EZ 8					
Urban Development	NA					

Note :XX in the table refers to completion and X refers to implementation.

Source: JST

# Landuse Map 2041



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">●</span> Location of Bazar</li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Inner_Links</li> <li><span style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></span> Costal boundary</li> <li><span style="background-color: lightblue; width: 20px; height: 10px; display: inline-block;"></span> Waterbodies</li> </ul> <p><b>Township development</b></p> <ul style="list-style-type: none"> <li><span style="background-color: yellow; width: 20px; height: 10px; display: inline-block;"></span> Proposed Township development</li> <li><span style="background-color: orange; width: 20px; height: 10px; display: inline-block;"></span> Paurashava</li> </ul>	<p><b>Roads</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> Matarbari Port Access Road</li> <li><span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Janatabazar to goraghata_Road</li> <li><span style="border-bottom: 2px solid brown; width: 20px; display: inline-block;"></span> Local Roads</li> <li><span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> Road-172</li> </ul>	<p><b>Railroad</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> Matarbari Railway (Proposed)</li> </ul>	<p><b>Landuse_Classification</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid lightblue; width: 20px; height: 10px; display: inline-block;"></span> Approach Channel</li> <li><span style="border: 1px solid lightblue; width: 20px; height: 10px; display: inline-block;"></span> Port</li> <li><span style="background-color: lightblue; width: 20px; height: 10px; display: inline-block;"></span> Bareland</li> <li><span style="border: 1px dashed black; width: 20px; height: 10px; display: inline-block;"></span> Port for expansion</li> <li><span style="background-color: lightgreen; width: 20px; height: 10px; display: inline-block;"></span> Urban area</li> <li><span style="background-color: green; width: 20px; height: 10px; display: inline-block;"></span> Economiczone -3,4,5,6,7</li> <li><span style="background-color: yellow; width: 20px; height: 10px; display: inline-block;"></span> Powerplant</li> <li><span style="border: 1px solid green; width: 20px; height: 10px; display: inline-block;"></span> Economic zone-8</li> </ul>
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**Scale:**  
1:200,000

Figure 5.6 Land Use Plan for 2041 (Including Pending Projects Implemented)

# Surrounding Landuse Map 2041

N  
Scale:  
1:250,000



Figure 5.7 Land Use Plan for 2041 (including projects not yet implemented)

## **5.6 Further Considerations of Land Use Plan**

As it is anticipated that such project reviews will be carried out as appropriate in the future, it is considered crucial to review the land-use plan in conjunction with the preparation of MIDI MP. At present, the following points are considered to have an impact on land use plans in the future.

### **5.6.1 Impact of Reviewing the Power and Energy Master Plan and Fuel of Power Plants**

Many power plants and energy-related facilities are planned to be located in the MIDI area. A revision of fuel of power plant was announced in June 2021, which may have significant impact on power plants and energy-related facilities in MIDI. Furthermore, the Ministry of Power and Energy is currently working with JICA to revise PSMP2016 and update as the Integrated Energy and Power Master Plan (IEPMP). Under the circumstances of global warming and SDGs, it appears that the plan will be formulated to integrate with power transmission, energy supply, etc., considering various latest global trends such as CO<sub>2</sub> reduction, carbon-neutral, renewable energy use, and distributed power generation and transmission systems. This IEPMP will clearly indicate the overall policy on power and energy plan, so power and energy SDP may need to review to reflect it. Specifically, the following two points will be significantly important:

- Possibility of changing site or size of area of power plants due to fuel change of power plant
- Securing land for large-scale LNG terminals that will be required if the use of LNG expands

### **5.6.2 Securing of Piers for LNG**

As an issue that needs to be adjusted in the short term, it is considered necessary to accommodate the land use in conjunction with securing the coastal line for LNG. For the planned LNG terminal in RPGCL and the LPG terminal in BPC in Matarbari Port Phase 1 area, it is found that the coastal line length is insufficient to install two jetties, and it is currently being adjusted.

These projects are adjacent to the port's logistics area in the north and south of CTT, and there is little room to simply increase the coast length of the assignment. This also affects the dredging scope of Matarbari Port Stage 1-Phase 2, and needs to be reflected in coordination among stakeholders and in MIDI's overall land use plan.

### **5.6.3 Port**

After the development of Phase 1 (Stages 1 Phase 1 and 2), Matarbari Port is scheduled for Stage 2 development from around 2035. The Matarbari Port Stage 2 project will be carefully considered based on the demand of port cargo for Bangladesh as a whole and the division of roles with the Chittagong and Pillar port. Therefore, the size of port currently anticipated may be changed significantly, and land use plan needs to reflect this at that time.

There is also the possibility of changes in LNG and LPG terminal sites due to changes in the government's energy policy. This may make it necessary to adjust the boundaries with energy facilities for the development of Stage 1 Phase 2. In that case, as pointed out in the JICA's Preparatory Study on Matabari Port Development, 260,000m<sup>3</sup> capacity class (Q-Max) LNG carrier needs to be put into service, and in that case, it is necessary to consider either Q-Max may enter the port to the deepest water area in the port or not. If necessary, alternatives should be con

#### **5.6.4 Local Transport**

As an inter-urban highway linking MIDI area with Chattogram and Dhaka, National Highway No. 1 and Marine Drive were listed in the 2019 JICA Land Use Study as well as Road SDP. In addition to these two inter-city highways, RHD has been considering the extension of National Road 170 (R170) as new additional MIDI project in recent years. It is anticipated that this will greatly impact the traffic pattern in the north-south direction, which may require revision of the road network plan and implementation schedule of road development in MIDI.

## **Chapter 6 Power Sector**

The SDP for the power sector is directed and coordinated by the Power division, while the BPDB, CPGCBL, and PGCB formulate plans for individual sectors and projects. In preparing the SDP, consultations have been held with stakeholders such as the ERD, Ministry of Planning, PMO and other upstream policymakers, the DC office and other local authorities, the MIDI cell, and the JICA.

SDP of the power sector summarizes the power development to be carried out in the Moheshkhali-Matarbari region and the transmission of the generated electricity to the backbone grid. The national electricity demand forecast in the power sector SDP is based on the Revisiting PSMP (Power System Master Plan) 2016, which is 42 GW in 2030 and about 82 GW in 2041.

The SDP is based on the Power division's estimation of electricity demand and its future, as well as the economic and supply stability of the power supply mix. It will be included in PSMP (in the future, Integrated Energy and Power Master Plan (IEPMP)) as a short- and medium-term specific power generation and transmission plan and will serve as a basis for development studies for the PSMP, which is a long-term plan. The SDP and the PSMP, for example, are in a mutually influential relationship, as the higher-level policies and master plans are included in the DP.

### **6.1 Existing Facilities in MIDI Area**

Currently, all power generation facility is under construction or planned. Regarding to power transmission facility, construction of "Matarbari Ultra Super Critical-Fired Power Project (ii) (PGCB Part: "Matarbari-Madunaghat 400 kV Transmission Line")" is completed and waiting Matarbari USC's operation start. Owner of the project is PGCB with JICA's support, and its cost was 141 million USD.

Other local distribution networks are likely to exist, but the subject of power sector development in MIDI is not the electrification of this region but the development of power sources (power plants and associated transmission lines) for the entire country, which will not be discussed here.

### **6.2 The role of MIDI development in sectoral development across the country**

The SDP's Demand Forecast and the Perspective Energy Plan of the present government both justify the development of large ports to import coal and natural gas. In addition, coal-fired power plants in MIDI will be built to tackle the backdrop of rising domestic demand for electricity and declining domestic production of natural gas.

#### **6.2.1 Basic Policy**

The basic policy of the SDP is Project Belief, Present Situation, and Major Challenges, Role of Coal and PNG Based Power Plant in MIDI Area, Role of MIDI Area for Coal and PNG Based Power Plant of MIDI Area for Coal and PNG Based Power Plant.

This report explains that the government is promoting large-scale power development in the area based on the development target for 2041 and the PSMP, which is the overall plan for power development and the organization's primary objectives/target.

As for the status of the project, it describes the project's background, the activities of the concerned companies, and the issues such as land acquisition and cyclone risk (climatic hazards).

The reason the area was selected as a site for large-scale power development is also briefly explained in terms of ease of port development and land use.

Followings are top-level policies, told by Power Div., Five-Year Plan and PSMP are the most essential input to the SDP.

(1) PP2041

In PP041, the government of Bangladesh has set a long-term plan to increase the income to a level compared to other developed countries by 2041. This PP2041, issued by the Prime Minister and formulated by the National Economic Council, is a national strategic plan to develop Bangladesh's socio-economic status significantly. It is assumed that this will be the basis for formulating various policies, including future Five-Year Plans.

Specifically, as part of the Fourth Five-Year Plan to be implemented between 2022 and 2041, Bangladesh aims to achieve high-income status through industrialization, achieving nominal GDP per capita of at least \$16,000 in 2041 and an annual income from exports of \$300 billion.

The realization of these goals naturally requires significant development progress in the power and energy sectors, such as the efficient development and utilization of domestic resources, infrastructure development for resource imports, grid expansion, reliability improvement, and capacity building.

(2) 5 Year Plan

The 5 Year Plan (FYP) is Bangladesh's basic national development plan. In addition to the cross-cutting agenda of economic growth, poverty reduction, and public service governance, it also describes sectoral plans for the industry, agriculture, forestry, fisheries, energy and power, transportation, education, health, culture, and social security.

Currently, the 8<sup>th</sup> FYP for 2020-2025 (8FYP) is provided, and in the power and energy sector, the following targets have been set:

- Rapid growth in electricity generation;
- Development of transmission and distribution system in line with generation;
- Mobilizing private and joint-venture investment in the power sector;
- Diversification of primary fuel for electricity generation, with a particular focus on increasing renewable energy generation;
- As part of its pursuit of the strategy of least-cost power generation, it continues to have some highly efficient, least polluting coal plants;
- Improving power sector efficiency and reducing transmission and distribution losses;
- Use of nuclear energy for power generation;
- Exploring electricity-trading options with neighboring countries (India, Nepal, Bhutan, and Myanmar); and
- Use alternative financing sources (Export Credit Agency (ECA), etc.)

The report states that the development of power sources using imported coal and LNG should be promoted to meet the strong growth in electricity demand and that the construction of new large coal-fired power plants should be Ultra Super Critical (USC) from an environmental perspective. However, as mentioned below, the Prime Minister's Office announced in June this year (2021) that the development of large coal-fired power plants would be suspended.

The 5 Year Plan has no description regarding SDP, while the SDP also has no description regarding the 5 Year Plan. However, according to the Power Division, SDP is developed along with the basic policy mentioned of 5-year plan and PSMP.

### (3) Energy Policy

The primary energy policy in Bangladesh is the National Energy Policy (NEP), enacted in 1996 and updated in 2005. Its objectives are as follows:

- i) To provide energy for sustainable economic growth so that the economic development activities of different sectors are not constrained due to the shortage of energy,
- ii) To meet the energy needs of different zones of the country and socio-economic groups,
- iii) To ensure optimum development of all indigenous energy sources
- iv) To ensure sustainable operation of the energy utilities
- v) To ensure rational use of total energy sources
- vi) To ensure environmentally sound sustainable energy development programs causing minimum damage to the environment
- vii) To encourage public and private sector participation in the development and management of the energy sector

In addition, the following important areas are indicated for the 2005 update:

- |  |  |
|--|--|
| a) Primary energy resources            | e) Imported fuel                                   |
| b) Primary biomass fuel                | f) Power:  |
| c) Animal power                        | i) Power generation, distribution, and consumption |
| d) New and renewable energy technology | ii) Rural electrification program                  |
| i) Mini hydropower                     | iii) Load management                               |
| ii) Solar                              | iv) Energy conservation                            |
| iii) Wind                              |  |
| iv) Tidal and wave power               |  |

On the other hand, NEP has not been revised since 2005, despite progress in domestic natural gas development and imported coal-fired power development, opposition to coal-fired power generation, and the global expansion of renewable energy installations.

The NEP has no description regarding SDP, while the SDP also has no description regarding the NEP. However, according to the Power Division, SDP is also developed along with the basic policy of NEP, and there is no contradiction between both.

### (4) PSMP

With the support of JICA, the Government of Bangladesh formulated a sector-wise development plan (Power



System Master Plan 2010) in 2010 with a focus on long-term power supply diversification. Since then, it has become necessary to review the plan from various perspectives, especially in light of the decline in domestic natural gas production, increasing the rapid number of power plants using rented power plants and imported coal, inadequate maintenance due to lack of financial resources and power shortages in the power sector, and consideration of measures to curb power demand.

Based on this background, it was decided that the PSMP2016 should be formulated with JICA's support to study measures to identify and resolve comprehensive development issues in the sector over the medium and long term and to consider effective support strategies. The plan includes PP2041. In this plan, it was required to consider the expansion of capital investment towards becoming a developed country according to PP2041 and changes in primary energy supply and demand due to changes in the industrial sector. The PSMP 2016 is the first plan to be jointly implemented by the Power division and Energy and Mineral Resources Division (EMRD) of the Ministry of Power, Energy, & Mineral Resources (MoPEMR) and was expected to serve as a mediator for collaboration between the two departments.

SDP refers to the demand and supply analysis of the PSMP2016 and uses it as a rationale for the necessity of power development in MIDI.

In 2018, the demand forecast was revised in Revisiting PSMP 2016, and the demand growth by 2041 was revised upward significantly.

#### (5) Integrated Energy and Power Master Plan (IEPMP)

As mentioned above, with the need to expand development in the power and energy sectors to realize PP2041, Bangladesh's previous policy was to meet the growing demand by importing coal and LNG. However, with the increasing demand for decarbonization and response to global climate change, Bangladesh is also required to develop climate change-friendly development and methodologies for greenhouse gas emissions. Greenhouse gas emission makes it challenging to promote the development of power sources, which is mainly dependent on coal.

Bangladesh's international greenhouse gas emission reduction commitment (NDC) is to reduce greenhouse gas emissions by 12 million tons annually in the power, transportation, and industrial sectors by 2030. However, these emission reductions are not included in the 8FYP or the SDP for the power sector, and consideration of these emission reductions will be included in IEPMP.

In addition to the legal system and business framework, terminals and pipelines need to be established for importing LNG, which will significantly impact development.

As for the current development policy, the PSMP for power supply development and the Gas Sector Master Plan (GSMP) is being planned separately, and there is also an energy conservation master plan, which is not mentioned here. To realize concrete and effective development in response to changes in domestic and international conditions, an integrated master plan for the sector is needed. IEPMP is currently being formulated with a target date of 2023.

### 6.2.2 Environment & Social Consideration

This section presents the overall status of ESIA studies and reviews, as well as the unique features of the MIDI

area.

It explains that large-scale development in this area is subject to supervise by the Ministry of Environment, that BPDB and CPGCBL have been conducting ESIA and mitigation studies respectively, that the area is rich in natural resources, and people have been engaged in various activities in agriculture and fishery, and that the area has been exposed to disaster risks.

It is also stated that the project will be monitored and mitigated in accordance with the environmental management plan. Although it does not show specific scoping results, it shows the history of the study, which contributes to understanding the overall picture, as there is no description of environmental and social considerations in the PSMP.

The construction of a large-scale power plant and related facilities in the MIDI area is classified as a Red category under the Environment Conservation Rules (ECR), which requires a location clearance certificate for land expropriation, and an environmental clearance certificate for environmental impact must be obtained from the Department of Environment (DOE), and BPDB and CPGCBL are continuing to conduct related studies.

A draft ESIA report has been submitted to the Ministry of Environment for the BPDB hub, and a draft ESIA report for the Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 1st Phase by CPGCBL has been submitted to the Ministry of Environment. The ESIA report for the 500-600 MW LNG Based Combined Cycle Power Plant Project is under preparation.

### **6.3 Demand Forecast**

As for the national electricity demand forecast in the power sector, SDP says that it is based on the PSMP 2016, but the actual figures are from the Revisiting PSMP 2016. According to Revisiting PSMP 2016, the total electricity demand in Bangladesh is expected to be 40-45 GW in 2031 and 72-82 GW in 2041. The current installed capacity of power generation in the whole country is about 20 GW, and it is necessary to develop a power supply throughout the country.

In addition, the power mix in 2017 is 54% gas and 1.5% coal, and in 2041 it will be 35% gas and 35% coal with PSMP 2016.

In the Moheshkhali-Matarbari region, BPDB and CPGCBL are planning to develop about 14 GW and 5 GW of power generation capacity by 2039, which will provide about 1/4 of the nation's electricity. Without considering PMO's direction to stop coal power development (because countermeasure/alternative plan is yet available), 18% is from gas, and remain is from coal.

### **6.4 Infrastructure Currently under Construction and its Progress**

The following table shows the priority project under the SDP under construction for power generation.

Table 6.1 Priority Projects (Generation)

SN.	Project	Project Owner	Investment	Project Cost (USD Million)	Schedule
6.	Construction of Matarbari 2*600 MW Ultra Super Critical Coal Fired Power Project (1st Phase) Including port facilities	CPGCBL	JICA	4,589 (only EPC cost)	From year 2017 to 2024

Source : SDP

The following is a selection of priority project under construction in the SDP related to power transmission: “Dhaka-Chattogram Main Power Grid Strengthening Project” is scheduled for completion in June 2023. The delay is mainly due to COVID-19.

Table 6.2 Priority Projects (Transmission)

Project	Project Owner	Investment	Project Cost (USD million)	Original Schedule
Dhaka-Chattogram Main Power Grid Strengthening Project	PGCB	JICA	589	December, 2020

Source : SDP

#### 6.4.1 Progress of Land Acquisition

All land expropriation has been completed for 6# in Table 6.1.

As for power transmission projects, all land acquisition has been completed for 1# in Table 6.2, and 2# is not to be constructed in this area.

Each of these projects is being implemented in line with the land use plan presented in the “Land Use Planning Study.”

#### 6.4.2 Progress of Construction

Considering the power generation project, the EPC progress of 6# in Table 6.1 was 57% as of August. Currently, land development has been completed, and earthwork and electrical work are in progress; and Unit 1 and Unit 2 are expected to start operation in January 2024 and July 2024, respectively, as scheduled. Commissioning of Unit 1 and Unit 2 is tentatively scheduled to begin in October 2022 and April 2023, respectively, with a partial start.

As for power transmission projects, 1# in Table 6.2 is scheduled to be commissioned and go for operation by December 2021. 2#, which will be constructed in other areas, is scheduled to be completed by July 2022.

### 6.5 Infrastructure Currently Planned and its Progress

In the Master Plan of the SDP, the following items are presented: a list of Development Works, Overall Master Plan, Location of Power Plants, and Phased Development Plan.

This section presents the list of development works in the MIDI area under each agency's jurisdiction, the details, location, layout of each project, the required land area and acquisition status, and the development

schedule. The position and details of each project are concise and comprehensive. In addition, each project has been implemented in line with the land use plan presented in the "Land Use Planning Study."

The following is an excerpt from the Master Plan of the SDP to give an overview of the situation.

### 6.5.1 Bangladesh Power Development Board (BPDB)

The series of projects shown in Table 6.3 above are consolidated into a single power development project called the BPDB Hub, consisting of land development, shared facilities, coal-fired power plants, and LNG-fired power plants. Currently, there are no projects under construction.

According to the BPDB, almost all the land acquisition has been completed for the power generation projects, as shown in 1# of Table 6.3. This additional acreage will be used for the solar power plant under consideration by Bay of Bengal Power. Little progress has been made on the eviction as long time is needed to arrange compensation.

As for 3# in Table 6.3, a feasibility study was underway by Bay of Bengal Power. However, since the development of coal-fired power plants has been suspended, the company is considering changing the fuel to LNG, and, as mentioned above, BPDB has secured another block for solar power generation, aside from table 6.3.

Table 6.3 BPDB Project List

S.L No	Description Purpose	Purpose	Volume Quantity / Capacity	Remarks
01.	Land Development	Construction of Power Plant	12,47,609 m3	BPDB will construct by ECA Finance
02.	Common Facilities (Port, Coal Stock Yard, Ash, Dyke, Roads, Greenery, Pooling Station & Township area)	Supporting for construction and operations of power plants		BPDB will construct by ECA Finance
03.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-1)	Power Generation	Capacity: 1320 MW	Bay of Bengal Power Company Pvt. Ltd will construct
04.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-2)	Power Generation	Capacity: 1320 MW	BPDB will construct by ECA Finance
05.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-3)	Power Generation	Capacity: 1320 MW	JV BPDB and KEPCO, Korea, will construct
06.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-4)	Power Generation	Capacity: 1320 MW	JV BPDB and KEPCO, Korea, will construct
07.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-5)	Power Generation	Capacity: 1320 MW	JV BPDB and KEPCO, Korea, will construct
08.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-6)	Power Generation	Capacity: 1320 MW	JV BPDB and TNB, Malaysia, will construct
09.	Construction of 1320 MW Ultra Super Critical Coal Based Power Plant (Block-7)	Power Generation	Capacity: 1320 MW	-
10.	Construction of 1320 MW Ultra	Power Generation	Capacity:	-

	Super Critical Coal Based Power Plant (Block-8)		1320 MW	
11.	Construction of 3000 MW LNG Based Power Plant	Power Generation	Capacity: 3000MW	JV BPDB and General Electric will construct

Source: SDP

### 6.5.2 Coal Power Generation Company Bangladesh Ltd (CPGCBL)

In Table 6.4, the Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 1st Phase, which is the top one, is the project under construction, as shown in Section 6.4. As for the second phase of the Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project, the land expropriation and the FS are completed to determine the project implementation.

As for the Kohelia 700MW Ultra Super Critical Coal Fired Power Project and the 1200MW Ultra Super Critical Coal Fired Power Project, the FS and land acquisition have been completed, but the development of coal-fired power plants has been suspended. According to the CPGCBL, it is difficult to say when the decision on the conversion of each fuel will be implemented and when they will be in operation.

As for the 500-600MW LNG Based Combined Cycle Power Plant Project, the FS and land acquisition for the power plant have been completed, and the gas pipeline land is under acquisition. COD will be in 2028.

Table 6.4 CPGCBL Project List

Name of the project	Capacity	COD	Remarks
Matarbari 2*600 MW Ultra Super Critical Coal Fired Power Project (1st Phase)	1200 MW	1st Unit January 2024 and 2nd Unit July 2024	Technical Feasibility Study (TFS), Environmental & Social Impact Assessment (ESIA), and EPC work started on 22 August 2017
Matarbari 2*600 MW Ultra Super Critical Coal Fired Project (2nd Phase)	1200 MW	Expected COD 2028	DPP is to be prepared based on the source of financing
Kohelia 700MW Ultra Super Critical Coal Fired Power Project (JV of CPGCBL-Sembcorp)	700 MW	Expected COD 2025	TFS, Land Acquisition Completed and ESIA, Financial Advisory Services (FAS) ongoing. Land Acquisition DPP Approved. Fitchner was appointed as the owner's engineer.
500-600 MW LNG Based Combined Cycle Power Plant Project (JV of CPGCBL-Mitsui)	500-600 MW	Expected COD 2024	TEPCO is appointed as the TFS consultant, and ERM is appointed as the ESIA consultant. Consultant selection for FAS is ongoing.
1200 MW Ultra Super Critical Coal Fired Power Project (JV of CPGCBL-Sumitomo)	1200MW	Expected COD 2026	Consultant Selection for TFS, ESIA, and FAS is ongoing. Land Acquisition is ongoing.
Matarbari Coal Transshipment Terminal	-	-	Preparatory survey completed. Land Acquisition is under process, and DPP is to be prepared based on Feasibility Study Report.
Solar Power Project	-	-	Administrative Approval of 490 acres of land acquisition is obtained.

			CPGCBL approached JICA for finance in the solar Power Project. DPP is to be prepared based on Feasibility Study Report.
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Source: SDP

### 6.5.3 Power Grid Company Bangladesh (PGCB)

The list of projects under SDP is shown in Table 6.5,1, and 2 projects are under construction as indicated in Section 6.4, and 2, 3, and 5 are not to be constructed in the MIDI area. Projects 1 and 2 are under construction as described in Section 6.4, and projects 2, 3, and 5 are not for construction in the MIDI area. 3 is undergoing a complete review as described below.

In the above table, number 4 has completed the FS but before the commencement of land acquisition. According to the interview with PGCB, the project will start its operation in 2028-29, which is different from the above table.

According to PGCB, number 3 of table 6.5 will be replaced by the following.

Table 6.5 PGCB Project List

SN	Project Name	Major Scope of Works	Project Cost			Financing	Project Coordination
			Local	Foreign	Total		
1	Matarbari Ultra Super Critical Coal Fired Power Project (ii) (PGCB part: Matarbari-Madunaghat 400kv Transmission Line)	i 400 kv line: Matarbari-Madunaghat 400kv double circuit line 92 km	39	102	141	JICA	December 2020
2	Dhaka-Chittagon Main PowerGrid Strengthening Project	i 400 kv line: 214 km ii 230 kv line: 38 km iii 400/230 kv, GIS S/S Madlhunaghat (2*750 MVA) iv 2 no of 230 kv bay extension at Meghnaghat	232	357	589	JICA	December 2020
3	Banshkhali-Madnaghat 400 kv Transmission Line Project	i 400 kv line: 130 Ckt km ii 400 kv GIS Bay Extension: 2 no's	29	69	99	Proposed for Saudi Fund	June 2023
4	Madhunaghat-Moheshkhaki 765 kv Transmission Line	i 765 kv line:200	149	194	343	Proposed for EDCF, Korea	June 2024
5	Madhunaghat-Bhulta 765 kv Transmission Line	i 765 kv line:500 ckt km (conductor: heza Cardinal) ii 400 kv bay extension: 4 no's (Bhulta) & Madhunaghat	293	432	705	Proposed for AIIB	December 2024

Source : SDP

Table 6.6 Alternative Plan by PGCB

SN	Project Name	Major Scope of Works	Project Cost			Financing	Project Coordination
			Local	Foreign	Total		
3	Construction of Matarbari 400/230/132 kv substation including associated transmission line project	i 400/200/132 kV SS: Matarbari (3x750MVA,2x520MVA) ii 400 kV T/L: 28 ckt. Km iii 230 kV T/L: 16 ckt. Km iv 132 kV line: 22 ckt. Km	46	96	142	Proposed for JICA	

Source : SDP

## 6.6 Infrastructure Development and its Timing with 2041 Target

### 6.6.1 Description of Future Expansion Potential of Power Grid

Comparing the capacity of the power grid described in the SDP (about 10 GW according to the PGCB interview, although it is stated in the SDP that the capacity is 12GW) with the capacity of the power generation facilities planned for the MIDI area (about 20 GW), the capacity of the power grid appears to be insufficient.

However, according to the PGCB, the transmission lines are being planned for projects that have already materialized. Because the progress of power generation plans varies significantly from project to project. It is expected that eventually, enough transmission lines will be available for all the power generation plans.

### 6.6.2 Cancellation of Coal-fired Power Development and Its Effect

The PMO announced on June 21, 2021 that the development of planned 10 coal-fired power plants across the country were suspended against increasing pressure from various groups against coal. Besides, donors and banks are finding it challenging to finance coal-fired power plants due to the growing global movement towards decarbonization.

On the other hand, CPGCBL and Power Division told us Matarbari USC Units 1 and 2 will be continued. However, in June 2022, Japan's Ministry of Foreign Affairs announced that Japan would not provide loans to Unit 3/4 which are complete FS.

The ten sites are as follows:

- 1,2) Two 660 MW coal-based power plants in Patuakhali
- 3) 1,200 MW super thermal power plant in north Bangladesh
- 4) 522 MW coal-based power plant project in Mawa
- 5) 282 MW coal-based power plant project in Dhaka
- 6) 282 MW coal-based power plant project in Chattogram
- 7) 565 MW coal-based power plant project in Khulna
- 8) 1,320 MW coal-based power plant construction project in Moheshkhali
- 9) 700 MW Bangladesh-Singapore USC coal-based power plant construction project
- 10) 1,200 MW CPGCBL-Sumitomo USC coal-based power plant construction project

Of these, 8), 9), and 10) are related to the Moheshkhali-Matarbari development. 8) is 03 in Table 5.3, 9) is

Kohelia 700MW Ultra Super Critical Coal Fired Power Project in Table 6.4, and 10) is 1200MW Ultra Super Critical Coal Fired Power Project in Table 6.4.

8) Block 1 of the BPDB Hub, where Bay of Bengal Power Company is the project owner, and land expropriation has been completed, and the project was under FS. This is the first phase of the BPDB hub project.

This means that the construction of coal-fired power plants in the Moheshkhali-Matarbari region is likely to end with the Matarbari Units 1/2 under construction (Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 1st phase in Table 6.4) and at least Units 3/4 under consideration (Matarbari 2x600MW Ultra Super Critical Coal Fired Power Project 2nd phase in Table 6.4).

According to the BPDB and the CPGCBL, for each of the canceled and upcoming projects, changes in plans are being considered, such as fuel conversion from coal to LNG and solar power generation at the site. The technical and commercial difference between coal and LNG is that coal is more of a commodity. LNG requires dedicated facilities on the supply and demand sides and has relatively low storage and distribution capacity. The differences are significant, and it is expected to take some time to consider these differences and also for actual implementation.

In addition, the area and facilities required for individual power plants are smaller and less expensive for LNG than coal, but the need to secure large-scale receiving terminals is a significant issue, as it is the question of who will be the entity that will build them and when and where they will be built.

The SDP of the power sector is a compilation of development projects to be shared by the Moheshkhali-Matarbari region as a concrete image of power supply development based on the future electricity demand at the national level and the direction of national power supply type selection. Therefore, the power development policy of the SDP is determined through the requirements and interactions of higher-level policies and plans such as the Energy Policy, the FYP, and the PSMP.

Each of the individual projects that have been canceled is considering switching from coal to LNG or renewable energy. Still, ideally, a higher-level plan such as the PSMP should set a policy on power source composition, including whether coal-fired power development to be continued. Then the development plans should be reviewed accordingly.

However, the IEPMP currently being formulated is scheduled to complete by the end of 2023, and it will take a few times before drafting/finalizing the policy. According to the PSMP 2016, Bangladesh's electricity demand in 2041 will be 51 GW, while the country's solar potential is 19 GW. However, only 1.4 GW is expected to be installed due to restrictions on the conversion of agricultural land; it is technically and politically challenging to introduce hydro power with the current capacity, and the potential for onshore wind power is only about 600 MW. The potential of onshore wind power is only about 600 MW, and it is unlikely that Bangladesh will develop its power supply mainly from renewable energy sources (although the potential of offshore wind power is still under investigation, it is expected to be a significant amount, and if development is carried out in the Bay of Bengal, this area is expected to become a transmission concentration point). If the Bay of Bengal is developed, this area is expected to become a transmission cluster point).

Therefore, it is unrealistic to expect that the canceled coal-fired power projects will be replaced by solar power



generation at other locations, so the conversion of coal-fired power to LNG is a realistic solution.

If LNG-fired power plants are to replace with coal-fired power plants, this will result in additional LNG imports that have not been planned so far. The canceled coal project in the Moheshkhali-Matarbari area would have a capacity of about 13 GW, while about 1 million tons of LNG per year is needed to drive 1 GW of gas-turbine combined cycle, which would add about 1,900 MMSCFD<sup>1</sup> of LNG demand. It is not easy to build a large-scale port like Matarbari Port. The canceled coal projects in other parts of Bangladesh may also add to this LNG demand (the canceled capacity in other parts of Bangladesh by PMO in June (other areas than the MIDI) was about 4 GW, which is equivalent to about 600 MMSCFD).

According to RPGCL, there is a plan to build a Floating Storage and Regasification Unit (FSRU) at Payra on the other side of the Bay of Bengal and connect it to the pipeline. According to Petrobangla, imports through pipelines from India are also expected.

### 6.6.3 Timing of Required Development

As stated in 6.5.1, the SDP aims to have the coal-fired power plant at the BPDB hub in operation by 2039 and the LNG-fired power plant at the BPDB hub in operation by 2029. Also, as stated in 6.5.2, the CPGCBL plans to gradually bring coal-fired and LNG-fired power plants into operation between 2024 and 2028.

However, as mentioned in the previous section, the coal-fired power development plan for the entire country has been canceled, and the power development plan in the MIDI is undergoing a significant overhaul. On the other hand, as mentioned in 6.3, power development in the MIDI is being implemented to meet the growing nationwide's strong electricity demand, and timely power development is still required.

In the MIDI area, BPDB and CPGCBL plan to develop approximately 14 GW and 5 GW, respectively, by 2039. As mentioned above, CPGCBL's power plants are targeted to be developed by 2030, and roughly half of BPDB's power plants should be developed by 2030.

In other words, the desirable development schedule is to build approximately 12 GW of new power generation in the MIDI area by 2030, followed by around 7 GW by 2039, to meet the growth in electricity demand nationwide. On the other hand, as mentioned above, a complete review of coal-fired power development is needed, and it won't be easy to achieve this development schedule, but MIDI must do its best in light of its role in power development.

## 6.7 Other Challenges in the Power Sector

### 6.7.1 Consistency of Higher-level Plans and Demand Estimates Referred in SDPs

The SDP of the power sector contains information on future electricity demand trends and the amount of electricity to be produced in the Moheshkhali-Matarbari region, and it is stated in the PSMP 2016, but the actual figure has been used in Revisiting PSMP 2016.

In the future, we should refer to the IEPMP, equivalent FYP or the exact version of the energy policy currently being prepared.

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<sup>1</sup> million standard cubic feet per day

### 6.7.2 Consistency of Ground Level and Disposal of Excavated and Dredged Materials

The overall issue in this area is that the ground height is low and vulnerable to natural disasters such as storm surges. To address this issue, measures such as land raising are currently being taken in individual projects, but no measures have been taken from comprehensive perspective. As a result, there is a high possibility that the ground's height after each project's completion will be different.

In addition, a dug-in port is currently being developed for the development of the Matarbari USC project, but the residual soil generated from that project and the dredged soil generated from future maintenance dredging cannot be taken out of the premises.

The matter generated during construction will be used for the project's development, but the future dredged material will have to be disposed of in the ash dumping area in the power plant, and the prospective volume ratio of ash and dredged material will be 50/50.

If the dredged material can be used for the local ground raising project, it will be unnecessary to build different weirs, and the project cost can be reduced.

This is beyond the scope of the power and energy's SDP, but it is an essential improvement to the overall development plan for the Moheshkhali-Matarbari region.

## 6.8 Items to be Coordinated with Other Sectors

### 6.8.1 Power Division

The PSC (Project Steering Committee) is indispensable for managing the progress of the PJ and solving problems, and the PJ leader and members need to hold regular meetings to understand the situation. It is also essential to make decisions by actually observing the project site.

### 6.8.2 BPDB

Since no projects have yet entered the implementation stage, no significant issues have been identified. However, it is necessary to cancel the coal-fired power plant project and sift in fuel usage, which will be a fundamental review.

### 6.8.3 CPGCBL

Although there are no serious challenges to the realization of Matarbari USC and other projects, we told the key points for implementing the projects.

- The project specifications must be compatible with the FYP and the Sustainable Development Goals (SDGs). This requires coordination between the implementing ministries/divisions and the Ministry of Planning to approve the project proposal.
- Project financing requires the cooperation of project personnel, implementing ministries/divisions, and the finance department.
- Environmental considerations are essential in both the planning and construction phases of development projects. Therefore, coordination is needed between the project authorities, the competent ministries, and the Ministry of Environment.
- There should be good coordination between the project director and the project team members for the

implementation of the project, either in the planning or implementation phase, and regular communication among all team members is necessary.

- A project to project coordination committee is needed. At least one coordination meeting should be held in three months to follow up the progress of the project and identify critical issues that need to be addressed immediately.

In addition, the following coordination issues have arisen with the CPA regarding the current construction of the Matarbari USC.

- Dredging jurisdiction of the commercial port anchorage section
- Timing of handover of the coal port-channel (250m) for thermal power to CPA
- Implementation and cost-sharing of maintenance dredging in the period before handover

#### 6.8.4 PGCB

The significant issues are land use for setting up substations, rights of way for transmission lines, timelines for power plant construction and transmission line installation, and the timing of the start-up of large-scale demand such as in special economic zones.

In terms of land use, there are overlapping issues and conflicting interests with land allocations by other agencies and companies, and it is necessary to clarify priorities.

PGCB requests that the PGCB be consulted promptly regarding the start-up of large-scale demand, especially in special economic zones.

## Chapter 7 Energy Sector

The SDP for the energy sector is directed and coordinated by EMRD, and plans for individual sectors and projects are prepared by BPC, Petrobangla, RPGCBL, and GTCL. In formulating the SDP, consultations are held with relevant stakeholders, including upstream policymakers such as ERD, Ministry of Planning, and PMO, as well as local stakeholders such as the DC Office.

However, in the Energy SDP, the responsibilities of each agency are listed in parallel, and the cover page is also for each agency, and some of them are not adequately organized.

The Energy SDP outlines the development plan for the import and distribution of energy resources to be implemented in the Moheshkhali-Matarbari region. Nationally, coal is also under the jurisdiction of EMRD, but the coal import terminal in Matarbari is under the jurisdiction of the Power division, perhaps due to its use for power generation.

For petroleum and LPG, there is no master plan at the national level, but the SDP contains the national demand and future estimates compiled by the BPC. As for natural gas, demand and future forecasts by Petrobangla are used instead of GSMP.

### 7.1 Existing Facilities in MIDI Area

Currently, the following gas-related facilities are in operation in the MIDI area.

The facilities owned by GTCL are as follows:

- Moheshkhali-Anowara Gas Transmission Pipeline (30' x 91km, 600MMSCFD, started operation in 2018)
- Moheshkhali-Anowara Gas Transmission Parallel Pipeline (42" x 91km, 1200MMSCFD, operational in 2019)
- Moheshkhali Zero Point Gas Transmission Pipeline & CTMS (24" x 7km, 1500MMSCFD + metering station at Moheshkhali, operational in 2021)

Two LNG FSRUs (floating regasification units) are currently operating off the coast of Matarbari.

- Moheshkhali Floating Liquefied Natural Gas Project
  - (Owner: Excerlerate, 500MMSCFD, the start of operation in 2018)
- Moheshkhali FSRU Project
  - (Owner: Summit LNG, 500MMSCFD, the start of operation in 2019)

### 7.2 The role of MIDI development in sectoral development across the country

The SDP's Demand Forecast and the Perspective Energy Plan of the Present Government both justify the development of large ports to import gas and petroleum. And energy facilities in MIDI will be required to contain the increasing domestic demand for energy and declining domestic production of natural gas.

The followings are related to basic policies.

#### 7.2.1 Basic Policy

BPC states the role of BPC and the development of the Moheshkhali-Matarbari region as a means to attract

foreign investment and development in Bangladesh.

Petrobangla states that natural gas is an essential energy source in Bangladesh, and there is a need to promote the development of import facilities as the demand and import of gas will increase significantly by 2041.

It would be desirable to add an overview of the region's suitability for port development and the status and challenges of growth, similar to the power sector's SDP.

The followings are top-level policies:

(1) PP2041

In PP2041, the long-term plan of the government of Bangladesh, a primary goal has been proposed to increase the income to a certain level comparable to other developed countries by 2041. This vision, issued by the Prime Minister and formulated by the National Economic Council, is a national strategic plan to develop Bangladesh's socio-economic status significantly.

Specifically, as part of the Fourth Five-Year Plans to be implemented between 2021 and 2041, Bangladesh aims to achieve high-income status through industrialization, with a nominal GDP per capita of at least \$16,000 in 2041 and an annual income from exports of \$300 billion.

The realization of these goals will naturally require significant development progress in the power and energy sectors, such as the efficient development and utilization of domestic resources, infrastructure development for resource imports, grid expansion, reliability improvement, and capacity building.

(2) Five-Year Plan

The Five-Year Plan (FYP) is Bangladesh's basic national development plan. In addition to the cross-cutting agenda of economic growth, poverty reduction, and public service governance, it also describes sectoral plans for the industry, agriculture, forestry, fisheries, energy and power, transportation, education, health, culture, and social security.

Currently, the 8th FYP for 2020-2025 (8FYP) is provided, and the following targets have been set in the power and energy sector.

- A rapid growth in electricity generation.
- Development of transmission and distribution system in line with generation.
- Mobilizing private and joint-venture investment in the power sector.
- Diversification of primary fuel for electricity generation, focusing on increasing renewable energy generation.
- As part of its pursuit of the strategy of least-cost power generation, it continues to have some highly efficient, least polluting coal plants
- Improving power sector efficiency and reducing transmission and distribution losses.
- Use of alternative sources of energy.
- Use of nuclear energy for power generation.
- Exploring electricity-trading options with neighboring countries (India, Nepal, Bhutan and Myanmar).
- Use of alternative sources of financing (Export Credit Agency, etc.)

The report explained that there are plans to build an LNG receiving terminal in the Moheshkhali-Matarbari region with an annual capacity of 7.5-15 million tons.

### (3) Energy Policy

The primary energy policy in Bangladesh is the National Energy Policy (NEP), enacted in 1996 and updated in 2005. Its objectives are as follows:

- i) To provide energy for sustainable economic growth so that the economic development activities of different sectors are not constrained due to the shortage of energy,
- ii) To meet the energy needs of different zones of the country and socio-economic groups,
- iii) To ensure optimum development of all indigenous energy sources
- iv) To ensure sustainable operation of the energy utilities
- v) To ensure rational use of total energy sources
- vi) To ensure environmentally sound sustainable energy development programs causing minimum damage to the environment
- vii) To encourage public and private sector participation in the development and management of the energy sector

In addition, the following vital areas are indicated for the 2005 update:

- |  |  |
|--|--|
| a) Primary energy resources            | e) Imported fuel                                   |
| b) Primary biomass fuel                | f) Power:  |
| c) Animal power                        | i) Power generation, distribution, and consumption |
| d) New and renewable energy technology | ii) Rural electrification program                  |
| i) Mini hydropower                     | iii) Load management                               |
| ii) Solar                              | iv) Energy conservation                            |
| iii) Wind                              |  |
| iv) Tidal and wave power               |  |

On the other hand, NEP has not been revised since 2005, despite progress in domestic natural gas development and imported coal-fired power development, opposition to coal-fired power generation, and the global expansion of renewable energy installations.

### (4) GSMP

The Gas Sector Master Plan was formulated in 2006 with the World Bank's support. After that, the Gas Sector Master Plan 2017 (GSMP2017) was prepared again with the World Bank's support in 2017 in light of environmental changes, such as the reduction of domestic gas production and the introduction of LNG.

The master plan was developed not only by the EMRD and Petrobangla but also by the Power Division, a primary electricity user. In this sense, it can be said to be a comprehensive plan, but in reality, the intentions of the Power Division have become dominant, and there is a view that it is not a good plan for the supply of gas for industrial and general use.

The plan has not been fully relied upon as a development plan, as some stakeholders have pointed out that the gas demand forecast for 2041 is excessive.

(5) Integrated Energy and Power Master Plan (IEPMP)

As mentioned above, with the need to expand development in the power and energy sectors to realize PP2041, Bangladesh's previous policy was to meet the growing demand by importing coal and LNG. However, with the increasing demand for decarbonization and response to global climate change, Bangladesh is also required to develop climate change-friendly development and methodologies for greenhouse gas emissions, making it difficult to promote the development of power sources that are mainly dependent on coal. In addition to the legal system and business framework, receiving terminals and pipelines need to be established for LNG imports, which will significantly impact development.

As for the current development policy, the PSMP for power supply development and the GSMP for gas supply is being planned separately, and there is also an energy conservation master plan, which is not mentioned here. To realize concrete and effective development in response to changes in domestic and international conditions, an integrated master plan for the sector is needed. IEPMP is currently being formulated with a target date by the end of 2023.

### 7.2.2 Environment & Social Consideration

For both BPC and Petrobangla/RPGCL, it is only stated that ESIA will be conducted in the future or in the ongoing FS, but there is no explanation of the impact and risks of development specific to this region, its monitoring and mitigation measures.

To understand the impact on the environment and society while looking at the SDP as a whole, it would be desirable to show the history of EMRDs studies, similar to the power sector SDP.

## 7.3 Demand Forecast

Oil and LPG compiled by the BPC show the current national demand and supply balance and demand estimates up to 2041. There is no master plan at the national level, and the estimates compiled by BPC are described.

According to BPC's supply and demand estimations, the current demand for petroleum products is 7 million tons, and the current refining capacity of Bangladesh is 1.3 million tons per year at the refinery in Chittagong. The current refinery capacity in Bangladesh is 1.3 million tons per year at the refinery in Chittagong. The total demand for petroleum products will be about 24.2 million tons in 2041. Also included in the above is the current LPG import volume of 700,000 tons per year, which is expected to increase rapidly to 5.7 million tons in 2041.

BPC is planning to increase the capacity of its refinery in Chittagong, which currently meets about 40% of product demand, to 3 million tons per year, and is constructing a crude oil receiving facility of Matarbari to meet this demand.

In addition, a 50,000-ton LPG tank, receiving facility, and petrochemical complex are planned for the MIDI area. The LPG tank capacity will depend on inventory turnover, but if it is replaced every two weeks, it will have an annual capacity of about 1.2 million tons, enough to meet current demand. The petrochemical complex aims to produce 15-20 million tons of petroleum products annually, covering the entire country's needs for 2041.

Petrobangla's gas supply and demand estimates, not included in the GSMP 2017, show that the total gas

demand in 2018 is 3,200MMSCFD, and 2041 will be 5,870 MMSCFD, while supply in 2041 will be 5,900 MMSCFD. Now 1,000 MMSCFD is coming from the FSRU offshore Matarbari, and 2,500 MMSCFD from the onshore LNG terminal to be built in the MIDI area. The onshore LNG terminal to be made in the MIDI area will account for 2,500 MMSCFD.

#### **7.4 Infrastructure Currently under Construction and its Progress**

The following is the status of projects under construction from the list of projects in the Moheshkhali-Matarbari region under the jurisdiction of the respective agencies listed in the SDP.

##### **7.4.1 BPC**

The "Installation of Single Point Mooring with Double Pipeline" (SPM Project) is under construction and will have the capacity to receive 9 mil.TPA with three crude oil tanks and three high sulfur fuel oil tanks.

##### **7.4.2 RPGCL (Petrobangla)**

There are no projects under construction.

##### **7.4.3 Progress of Land Acquisition**

As for the SPM Project, the land expropriation has been completed, which is consistent with the land use plan presented in the "Land Use Planning Study."

##### **7.4.4 Progress of Construction**

As for the SPM Project, 193 km of pipeline installation has been completed, and the remaining 420 km is in progress. Installation of pumps and other equipment is in progress and is expected to be completed in 2022 as scheduled.

#### **7.5 Infrastructure Currently Planned and its Progress**

The status of projects in the Moheshkhali-Matarbari region under the jurisdiction of the agencies listed in the SDP shows the status of the projects under planning.

As for the oil and LPG projects summarized by the BPC, it only mentions the project name and the fact that the development of these projects is in line with the FYP and the SDGs, which state that the energy supply should be increased. A summary of each project is given in the Priority Projects section below, but the location, layout, and schedule are not shown there either and should be added to either section.

About Petrobangla's gas projects, the onshore LNG terminal will be constructed and expanded by 2041. Its scale and land area are required. The location and layout of the terminal are not mentioned in the following Priority Projects, so they should be added to one.

RPGCL, which is developing the onshore LNG terminal, has the same description as Petrobangla, so it would be better to provide more specific information on the RPGCL side.

As for the LNG terminal at RPGCL, the feasibility study will be completed by the end of this year (2021), and then the contractor will be selected. To start operations on schedule, the construction of the Matarbari Port Stage 1 Phase 2 dugout port by CPA needs to be completed by July 2023 as scheduled, but progress in that



area has been slow.

### 7.5.1 BPC

The facilities planned by BPC are as follows:

- Import Based LPG Mother Terminal and Distribution Plant at Matarbari (50,000-ton tank, Offshore Jetty, targeted to start operation in 2024)
- Petrochemical Complex and Refinery at Moheshkhali (15-20 mil. TPY capacity)

For the LPG Terminal, BPC said that it is in the process of acquiring land from BEZA and has submitted the necessary documents to the DC office; for the Petrochemical Complex, discussions are underway for land acquisition.

As for the FS, the LPG Terminal FS will be conducted after selecting a joint venture partner, and the Petrochemical Complex FS will be conducted after the land acquisition.

### 7.5.2 RPGCL (Petrobangla)

RPGCL plans to build a "Land-based LNG Terminal at Matarbari" with a capacity of 500 MMSCFD in 2026 and another 500 MMSCFD in 2030. RPGCL is acquiring land from BEZA and has submitted the necessary documents to the DC office.

## 7.6 Infrastructure Development and its Timing with 2041 Target

### 7.6.1 Cancellation of Coal-fired Power Development and Its Effect

The PMO announced on June 21 that it was suspending the development of 10 coal-fired power plants planned across the country against increasing pressure from various groups against coal. Besides, donors and banks are finding it difficult to finance coal-fired power plants due to the growing global movement towards decarbonization.

On the other hand, Matarbari USC Units 1 and 2, currently under construction, and Units 3 and 4, under FS, will be continued.

If LNG-fired power plants are to replace with coal-fired power plants, this will require additional LNG to import, that have not been planned so far. The canceled coal project in the MIDI area has a capacity of about 13 GW, while about 1 million tons of LNG per year is needed to drive 1 GW of GTCC, which would add about 1,900 MMSCFD of LNG demand. It is not easy to build a large-scale port other than Matarbari Port, and the canceled coal projects in other parts of Bangladesh may also add to this LNG demand (the canceled capacity in other parts of Bangladesh in June was about 4 GW, which is equivalent to about 600 MMSCFD).

According to RPGCL, there is a plan to build an FSRU at Payra on the other side of the Bay of Bengal and connect it to the pipeline. According to Petrobangla, imports through pipelines from India are also expected.

It is expected that LNG receiving facilities and pipelines will be needed to meet the increase mentioned above in gas demand, and further studies and investigations are required.

### 7.6.2 Timing of Required Development

As noted in 7.3, the demand for petroleum products, including LPG, is expected to be 7 million tons in 2019,

and the demand for petroleum products throughout the country will be approximately 24.2 million tons in 2041. The current production capacity of petroleum products in Bangladesh is about 1.3 million tons, with plans to increase this capacity to 3 million tons in the near future, and the LPG terminal under development at MIDI will have an annual capacity of approximately 1.2 million tons. The figure would be 1,000 metric tons.

The petrochemical complex under development in MIDI aims to produce 15-20 million tons of petroleum products per year, covering the entire country's demand in 2041. In other words, it is essential to get this complex operational by 2041.

In addition, as mentioned in Chapter 6, the national coal-fired power development plan has been suspended, and MIDI's power development plan needs to be drastically revised. On the other hand, as mentioned in 6.3, power supply development in MIDI is being implemented to meet the growing nationwide's strong electricity demand, and timely power supply development is still required. This is the desired development schedule to meet the growth in electricity demand nationwide.

Although the type of power source that will replace coal-fired power generation has not yet been indicated, LNG is expected to play a significant role, and in that case, a new LNG terminal will need to be planned and constructed. As mentioned in the previous section, approximately 13 GW of coal-fired power generation in the MIDI region will need to be replaced by another type of power source, and the equivalent amount of LNG terminals may need to be built in sequence by 2039.

## **7.7 Other Challenges in the Energy Sector**

### **7.7.1 Consistency of Higher-level Plans and Demand Estimates Referred in SDPs**

Also, the oil sector in the Energy's SDP is BPC's statistics, while gas is a mixture of GSMP 2017 and Petrobangla's internal statistics, making it difficult to understand what it is based on. Therefore, it should be shown what kind of statistics were used.

In the future, we should refer to the IEPMP or equivalent FYP or the exact version of the energy policy that is currently being prepared.

### **7.7.2 Organization of the Energy Sector's SDP**

The Power division has compiled the SDP of power, and the parts of the SDP that each agency is responsible, have been incorporated into a single book.

On the other hand, the SDP of Energy is just a merged PDF file of the SDPs prepared by BPC, Petrobangla, and RPGCL. The gas demand forecasting section that follows the RPGCL section is unclear in terms of its position. How to read it, so the uninformative nature of the material should be corrected and clarified. Under the direction of EMRD, the SDP should be reorganized into a book format.

### **7.7.3 Addition of GTCL Project**

The current SDP does not include the gas pipeline project under the jurisdiction of the GTCL, so this should also be added.

#### 7.7.4 Description of future expansion potential of LNG receiving facilities

RPGCL and the advisor of MoPEMR assumed that the national natural gas demand in 2041 will be around 6,000 MMSCFD (smaller than GSMP2017), and RPGCL estimates domestic gas production at that time will be about 1,200 MMSCFD. The current FSRU capacity is 1,000 MMSCFD, and the SDP shows a plan to increase the onshore receiving capacity to 2,000 MMSCFD in 2041.

If there is no other natural gas import base, it would mean that domestic gas demand cannot be met. In addition, the company is considering setting up an FSRU in Payra to prevent the overconcentration of facilities.

Furthermore, the pipeline capacity built by GTCL for Chittagong and Dhaka (1,800 MMSCFD according to the project list already mentioned) does not match the existing FSRU capacity (1,000 MMSCFD) with the LNG terminal capacity (2,000 MMSCFD at SDP) to be built in the future.

According to GTCL, it will consider installing additional pipelines on the receiving facilities and demand side as the project progresses.

#### 7.7.5 Consistency of Onshore LNG Terminal Capacity

According to the SDP and the existing MIDI project list, the onshore LNG terminal at RPGCL is listed with a capacity of 1,000 MMCFD by 2024, 1,500 MMCFD by 2030, and 2,000 MMCFD by 2041.

However, according to the RPGCL representative's interview, RPGCL plans to add 500 MMCFD by 2026 in Phase 1 and another 500 MMCFD by 30 years in Phase 2.

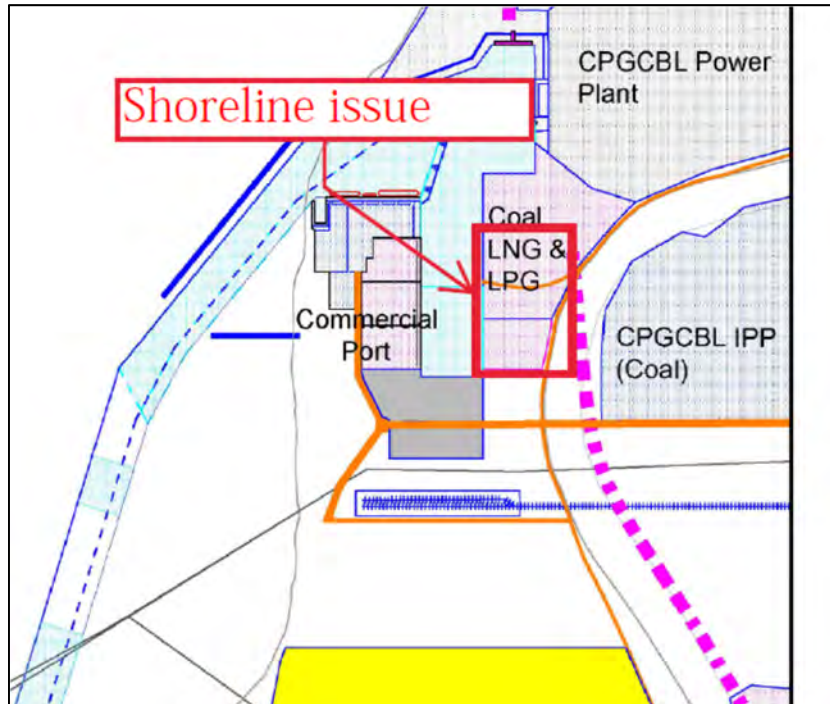
The actual status of the plan needs to be confirmed and reflected in the future MIDI MP. Moreover, to build Phase 2, the shoreline length issue discussed below needs to be resolved.

#### 7.7.6 Insufficient Shoreline Length for LNG and LPG Terminals

It was found that the shoreline length of the proposed LNG terminal of RPGCL and the LPG terminal of BPC in the Matarbari Port Stage 1 area is insufficient to install two jetty units each.

RPGCL's plan allocates 45.23 hectares of land, but two jetty units are needed to add according to the planned terminal capacity, which is 100 meters short of the required length with Q-max. As for the adjacent BPC LPG terminal, 50 hectares of land and 360 meters of shoreline have been allocated, but considering the size of the ships and the separation distance, 620 meters of length is needed to accommodate the planned two lines of receiving equipment.

These projects are adjacent to the coal terminal in the north and the port logistics area in the south, so extending the allocated shore length is not a simple matter. This is an issue that may affect the area of the Matarbari Port Stage 1 excavation and needs to be coordinated among the stakeholders and reflected in the MIDI MP and, eventually the overall development plan for the MIDI area.



Source: JICA Report on Land Use Planning Study in MIDI Area

Figure 7.1 Location of LNG Terminal and LPG Terminal

## 7.8 Items to be Coordinated with Other Sectors

In this section, we will discuss the comments from the authorities developing the energy sector and the inter-sectoral coordination issues.

### 7.8.1 BPC

The acquisition and allocation of land is a significant issue. The project's theme is to respond to the residents, distribute the land among the PJs, and formulate the construction schedule and boundaries.

### 7.8.2 EMRD and Petrobangla

In addition to the importance of coordination meetings between projects, it also needs an efficient way to promote re-migration, such as comprehensive migration throughout the region and a centralized organization to manage it.

### 7.8.3 RPGCL

Land allocation, which will be discussed later, is the biggest issue and is difficult to coordinate with other projects. In addition, resettlement is an issue not only for LNG but also for coal and LPG terminals, and many residents will be affected by this project and need to move.

### 7.8.4 GTCL

The pipeline construction requires a great deal of effort to solve the problems of land acquisition, demand for resettlement sites, demand for employment opportunities related to construction work, acquisition at a reasonable price, and the method of remittance.

As for the demand for employment, it is said that the residents' skills were too low to be hired, and MIDI suggested the establishment of a training center as a solution.

#### 7.8.5 Other

The dredging work on the thermal side between BPC's SPM project and CPGCBL's Matarbari USC (port-channel dredging) had been affected due to a delay in the SPM construction schedule and suspicion that the pipe installation depth did not meet the design. However, the issue was brought up in the MIDI meeting, which led to a dialogue between EMRD (BPC) and the Power Division (CPGCBL), leading to the resumption of construction work.

## Chapter 8 Port Sector

### 8.1 Existing Port Facilities in MIDI Area

The port facilities of the 1200 MW Matarbari Ultra Super Critical Coal-fired Power Plant Project funded by the government of Japan includes a navigation channel of 14 km length and a training dike to reduce sedimentation into the navigation channel. They have been almost completed. In the First Stage Development Phase 1 of Matarbari Port, the navigation channel is planned to be widened from 250m to 350m, and the navigation channel and turning basin are planned to be deepened from 15.3m to 16.0m. The First Stage Development Phase 1 also includes both extension of the training dike to 1,850m and upgrade of its sections to make it North Breakwater of Matarbari Port, and construction of a new breakwater of a 700 m length on the south side to make it South Breakwater of the port. As of June 2022, the channel widening and the extension, upgrading and construction of the breakwaters are completed.

In Photo 8.1, the port facility construction of the power plant on 20 October 2021 is shown. At that time, the construction of the training dike, navigation channel, dredging of the turning basin and berths for the power plant were almost completed.



Source: JST

Photo 8.1 Construction of Port Facilities for Matarbari Thermal Power Plant

### 8.2 Demand Forecast

JICA's "Preparatory Survey on the Matarbari Port Development Project in the People's Republic of Bangladesh" (JICA Preparatory Survey) concluded that the future container cargo of Bangladesh will be as shown in Table 8.1.

Table 8.1 Future Cargo Volume for Each Scenario (Containers)

unit: TEU

	Base Case	Scenario A	Scenario B	Scenario C	Base Case
Target Year	2026				2041
Chittagong	3,409,171	3,659,385	3,099,444	3,431,033	6,897,179
Payra	480,526	122,918	312,183	462,083	546,228
Matarbari	599,073	689,188	1,092,486	627,100	2,550,599

Source: JICA Preparatory Survey

In JICA Preparatory Survey, container cargo throughput of these 3 ports is forecasted to substantially increase to approximately 10 million TEUs in 2041. The share of container throughputs among Chittagong Port, Matarbari Port and Payra Port is based on the three scenarios<sup>1</sup>. Among these scenarios, it is reported that the case of Scenario A to make the navigation channel of Payra 14m deep was changed, and MoS decided to continue the project to make it 10m deep<sup>2</sup>, that is, to implement the Payra Port development in the base case. Therefore, it is considered appropriate to formulate the development plan of Matarbari Port based on the demand forecast of the base case shown in the table.

Regarding the traffic forecast of the Chittagong Port, Strategic Master Plan assisted by ADB (ADB Master Plan) and conducted by Hamburg Port Consultants (HPC) in 2015 provides the traffic forecasts of the Chittagong Port. The results are summarized in SDP as shown in Table 8.2 and in Table 8.3.

Table 8.2 Forecast Throughput of Chittagong Port

Throughput	2020	2025	2030	2035	2040	2043
Containers (TEU)	2,901,212	4,364,091	5,127,900	5,546,297	5,410,781	5,048,370
Breakbulk/General Cargo (t)	5,306,341	6,661,470	7,843,427	8,814,475	9,590,124	9,942,998
Vehicles (each)	6,506	9,246	13,434	19,881	28,668	35,255
Dry Bulk through GCB (t)	1,772,811	2,295,351	2,821,716	3,374,871	3,750,767	3,882,919

Source: SDP

According to SDP, the Chittagong Port currently handles 7% of the breakbulk/general cargo through the port at the general cargo berths (GCB). The remainders of the dry bulk cargoes are handled at the private terminals. For forecasting the traffic through the Chittagong Port in the ADB Master Plan, it has been assumed that this 7% trend continues into the future. The number of breakbulk/general cargo vessel calls of the GCB has been taken as 7% of the total breakbulk/general cargo vessel calls forecast for the port.

<sup>1</sup> Base case: Channel of Payra Port will be deepened to 10m depth and the coastal shipping cost from Matarbari will remain as it is.

Case A: Channel of Payra Port will be deepened to 14m depth and the maintenance dredging cost will be recovered by channel usage.

Case B: The coastal shipping cost will be reduced by 40%.

Case C: Bonded transportation will be materialized at the border with Bhutan and northeastern states of India.

<sup>2</sup> Refer to URL below: <https://www.tbsnews.net/bangladesh/infrastructure/payra-downgraded-seaport-deep-seaport-234118>

Table 8.3 Forecast Ship Calls of Chittagong Port

Ship Calls	2020	2025	2030	2035	2040	2043
Containers	1,294	1,639	1,658	1,545	1,320	1,147
Breakbulk/General Cargo	421	510	581	626	654	663
Vehicles	34	42	54	69	88	101
Dry Bulk at GCB	50	63	76	88	95	97
Total Ship Calls	1,799	2,254	2,369	2,328	2,157	2,008

Source: SDP

With respect to the traffic forecast of containers, the ADB Master Plan estimates 4,364,091 TEU in 2025 while the JICA Preparatory Survey estimates 4,008,244 TEU (Chittagong Port 3,409,171 TEU plus Matarbari Port 599,073 TEU) in 2026. As the results are similar to each other, it is considered reasonable to implement the container terminal development of the First Stage Development Phase 1 of the Matarbari Port based on the container traffic forecasted either by JICA Preparatory Survey in 2018 or by ADB Master Plan in 2015.

Regarding the traffic forecast of breakbulk/general cargo, it is considered reasonable to implement the multi-purpose terminal development of the Matarbari Port to mitigate the congestion of GCB of the Chittagong Port by moving to the Matarbari Port a part of breakbulk/general cargo of 6,661,470 ton which is forecast in 2025 in the ADB Master Plan.

### 8.3 Ratio of Cargo to be handled at Matarbari Port against Nationwide Demand

By adding about 200,000 TEU / year handled by Mongla Port to the demand forecast shown in Table 8.1, the ratio of throughput of ocean containers to be handled at Matarbari Port against the total throughput of ocean containers in Bangladesh is calculated. The results are 12.8% in 2026 and 25.0% in 2041. It should be noted that the base case is applied to the calculation based on the reasons as previously mentioned.

Regarding the traffic forecast of container cargo in 2041 which will be shared by Matarbari Port, there are several unknown elements to consider at present, e.g., the traffic in 2041 of Matarbari Port will depend on the success and timing of completion of the ongoing projects to increase the cargo handling capacity of the Chittagong Port. The ongoing projects are described in the SDP as follows:

- a. Construction of a major new container terminal at Patenga which is ongoing
- b. Reconstruction of Berths 1 to 13 as container berths as recommended by BUET (Bangladesh University of Engineering and Technology)
- c. The development of breakbulk berths as a Public Private Partnership project at Laldia Char
- d. Construction of a major new port consisting of container and multipurpose terminal at Bay Area.

The projects a. to c. above are considered to develop the port facilities along the River Karnaphul, which cannot relieve the limitation of the length and depth of the vessels to call Chittagong Port. Once the First Stage Development Phase 1 and Phase 2 are implemented, it is obvious that these projects will have less priority. In addition, it was informed after the commencement of this JICA survey that the Laldia Char project would not be implemented.

Regarding the Bay Terminal Project, the government decided in 2019 to implement the project consisting of one multi-purpose terminal and two container terminals with breakwater and approach channel. The multi-purpose terminal will be constructed and operated by CPA and two container terminals by two private operators.



The breakwater and approach channel will be constructed by use of the government finance. In October 2021, one RFP was being prepared to update F/S and other RFP had been prepared for design of breakwater, channel and on-land connectivity. In 3 years after the F/S is concluded, the construction will start, probably in 2023, and the Bay Terminal will be operated in 2026. Since the Bay Terminal Plan of the Chittagong Port Strategic Master Plan (ADB Master Plan<sup>3</sup>) was not implemented, it is necessary to pay close attention to the progress of the current CPA's plan of Bay Terminal.

Since nationwide cargo demand is not estimated for breakbulk cargo, it is not possible to estimate the percentage to be handled at Matarbari Port against the nationwide demand at this time. For dry bulk cargo, it is expected that many coastal industries will seek location in Matarbari Port when the Second Stage Development of Matarbari Port is implemented, and large bulk carriers will call the port to supply raw materials for these industries. Therefore, it is expected that the volume of dry bulk cargo to be handled at Matarbari Port will increase. However, since there is no nationwide dry bulk demand forecast at this time, it is not possible to estimate the ratio of dry bulk to be handled by Matarbari Port to the nationwide volume.

## 8.4 Ongoing Infrastructure Development and the Progress

### 8.4.1 Achievements in 7th Five Year Plan and Development Plan in 8th Five Year Plan

In the 8th Five Year Plan from July 2020 to June 2025 (8FYP), the performance of the port sector during the period of the 7th Five Year Plan (7FYP) is summarized as follows:

- The maritime port sector played an important role in the development of Bangladesh, especially growth of GDP through sea borne trade,
- The total tonnage of sea borne trade was over 45 million tons at the end of the , growing over 10 per cent per annum,
- The Chittagong Port was the principal maritime port and handles about 92% of the country's sea borne export and import trade. As a port it acted as the linkage between the inland and sea transportation of goods,
- In Mongla Port, the total cargo handling was expanded at an average pace of 20% per year, growing from 4.5 million metric tons to 11.3 million metric tons in FY2019.

The 8FYP also summarizes the achievement of infrastructure development of the port sector during the 7FYP as follows:

- CPA expanded its container holding capacity from 37,000 TEU's to 50,000 TEUs to facilitate trade.
- Two new private ICDs (Inland Container Depots) were established. Thus, a total 18 private ICDs were in operation in 2020,
- CPA increased its permissible draft of calling vessels from 9.14m to 9.5m and permissible length from 186m to 190m,
- CPA has completed the construction of one CFS (Container Freight Station) shed, one car parking shed

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<sup>3</sup> The major port facilities for Bay Terminal Project studied in ADB Master Plan are as follows:

- 1,500 m quay wall for seagoing vessels
- 340m quay wall for dispatch of river vessels/barges
- 15 ship-to-shore cranes / 52 RTG blocks / Up to 74 RTGs / 4 railway tracks with 3 railway cranes / 18 gate lanes / 17.7 ha container yard

and one Custom Auction Shed to enhance its operational capacity,

- The construction of the Patenga Container Terminal (PCT) project is underway, and it is expected to become operational by June 2021<sup>4</sup>.
- In Mongla Port, dredging of the outer bar of the Pasur River enabled vessels with drafts over 10 meters to berth.
- In Payra Port, a Service Yard of 48 acres of land connected by 4 lane road to National Highway was built.

In SDP prepared by CPA, it is described that there are 3 seaports which are handling international maritime cargo in Bangladesh i.e., Chittagong Port, Mongla Port and Payra Port. These three ports cannot accommodate large vessels to the berths and lighterage is required to move the substantial portion of the import trade from anchorage in the Bay of Bengal to the quay. The status of these 3 ports is also briefed in SDP as follows:

- Chittagong Port

The port is located in the Southern-eastern part and its installations are situated along the bank of the River Karnaphuli, about 16km from its outfall into the Bay of Bengal. The maximum permissible draft ranges from 8.50m to 9.50m with the length restriction up to 190m.

- Mongla Port

The port is located in the South-western part and in the Pasur River about 130km inland from the bay and its permissible draft ranges from 7.00m to 8.50m with length restriction of vessel being 225m. The government of Bangladesh will take all necessary steps to promote the use of the currently under-utilized port facilities.

- Payra Port

The Payra Port Authority Act, 2013 was enacted to establish a port at Payra in Patuakhali District. The development of port facilities for coal imports will be given top priority in order to support the power sector of the country. The port is located in middle south part of the country and planned to be built at Rabnabad Channel with 68km long approach channel.

Meanwhile, according to SDP, the total tonnage of sea born trade of Bangladesh is growing on average 10% per annum. The trend to the containerization in the maritime traffic is also remarkable and the container cargo is growing on average 12% per annum. Even though the present trend in world shipping is to have bigger ships to derive economies scale, Bangladesh is unable to realize the benefits of such larger container vessels because of the navigational limitations of the seaports. It is also mentioned in SDP that the port facilities for deep draft vessels are necessary not only to ensure economical and steady maritime transport services to the Bangladesh's export and import but also to serve the domestic market as well as the potential regional markets from Nepal, Bhutan, Yunnan Province of China and the landlocked northeastern states of India.

Even though significant improvements were achieved during the 7FYP period, it is stated in the 8FYP that the trade to GDP ratio is projected to expand further substantially during the 8FYP period, requiring strong attention to expanded and efficient port services, and that the global trade logistic performance comparison shows that the efficiency of port services is lower than in competitor countries thereby lowering trade competitiveness of Bangladesh. Thus, the 8FYP puts strong emphasis on further improving the efficiency of

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<sup>4</sup> The construction was delayed because of the COVID-19 pandemic and the operation will supposedly be commenced early 2022. See <https://thefinancialexpress.com.bd/trade/patenga-container-terminal-set-to-start-operation-early-next-year-1630640663>

the port performance to strengthen the competitiveness of the Bangladesh economy. Among the steps to be undertaken for the maritime port development in the 8FYP, the Bangladesh government sets up the infrastructure developments of the port sector as follows:

- Emphasis will be placed on removing all the constraints to the use of the Mongla Port to its full capacity through a combination of investments in strategic dredging and investments in port equipment and facilities to support expanded and efficient cargo handling.
- The investment programmes for the expansion of Chittagong Port capacity will be fast tracked along with other investments for expanding container traffic handling and management.
- Completion of minimum 16.0m draft deep-sea port at Matarbari, Cox's Bazar.
- The storage area in the ports will be expanded.
- Required dredging to allow handling of bigger shipping will be carried out.
- Capacity to handle large container traffic will be expanded by constructing deep water-container hub ports.
- Inter-modal transport connectivity with ports will be ensured for speedy forward transport to the final destination of imports as well as easy transit factory gate to port for exports.

Among the above infrastructure developments during the 8FYP period, the largest impact on the maritime transport will certainly be brought by the completion of Matarbari Port, which will be the first deep-sea port in Bangladesh and able to be the deep water container hub port of the country and the region.

#### 8.4.2 Matarbari Port Development

##### Necessity of deep-sea port

The Chittagong Port will continue to be the leading seaport of Bangladesh. However, in anticipation of the growing demand for port services emerging from growing income and international trade, including from neighbouring countries, which is related to the implementation of the regional connectivity agenda of the government of Bangladesh, and the specific needs of the power sector emerging from the substitution by imported coal and LNG/LPG for domestic gas, a substantial port capacity which can be created by a new seaport is needed. Furthermore, a so-called deep-sea port with a deep approach channel with a sufficient width is indispensable to materialize the call of large container vessels that can reduce the marine transport cost so that the necessity of a deep-sea container hub port is described in the 8FYP.

In this regard, the government once pursued an initiative to construct a deep-sea port in Sonadia of Cox's Bazar under PPP in the past. Due to the environmental preservation issues, however, the construction of a deep-sea port at Sonadia was aborted. Now, steps have been taken to implement power plant project associated with a deep-sea port at Matarbari under Government to Government (G2G) arrangement. This deep-sea port can be further expanded to a deep-sea commercial and industrial port as described at the beginning of this chapter.

##### Utilization of port facilities of 1200 MW Matarbari Ultra Super Critical Coal-fired Power Plant Project

If mooring facilities for commercial vessels and cargo handling facilities on land are built near the turning basin which is dredged for the power plant, it is possible to economically construct a deep-sea commercial port. For this reason, JICA has conducted several surveys as technical assistance regarding the possibility of developing a commercial deep-sea port in Matarbari area.

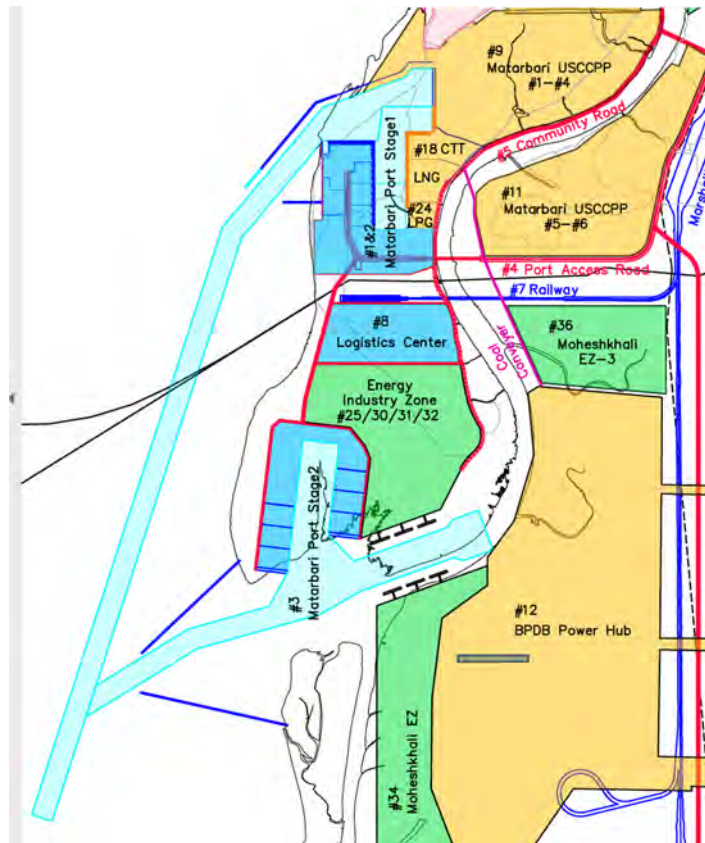
### Matarbari Port development plan

As a result of several JICA studies, the Matarbari Port Master Plan has been incorporated as part of the long-term development of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative (MIDI). Land Use and Development Planning Survey of Moheshkhali and Matarbari Area in the People's Republic of Bangladesh (JICA Supplemental Survey (Land Use Plan)) which is the supplemental survey of JICA Preparatory Survey on Matarbari Port Development shows the master plan of Matarbari Port as shown in Figure 8.1. From the perspective of terminal development, the Matarbari port development consists of the First Stage Development Phase 1 and Phase 2, and Second Stage Development.

The bid announcement for construction of the First Stage Development Phase 1 is scheduled in June 2022 and the construction will be completed in mid-2026. Therefore, the implementation of the First Stage Development Phase 2 is expected to be delayed according to the delay of the First Stage Development Phase 1. Meanwhile, the construction of LNG and LPG terminals will be implemented urgently due to the reduction of the coal-fired power generation development according to the policy change of the government. As a result, the dredging of the water area of the port scheduled in the First Stage Development Phase 2 may start immediately after the completion of the First Stage Development Phase 1. Under these current circumstances, the development of the First Stage Development Phase 1 and Phase 2 is expected to be carried out as follows.

- First Stage Development Phase 1 (target year to complete):  
Container Terminal (mid-2026) x 1, Multi-purpose Terminal (mid-2026) x 1
- First Stage Development Phase 2 (target year to complete):  
Container Terminals x 3 (first one in 2030, the others to follow the demand), dredging for expansion of the water area (2030), CTT (2030), LNG Terminal (2030), LPG Terminal (2030)
- Second Stage Development (long-term):

Container Terminals x 3, Multi-purpose / Bulk Terminals x 4



Source: JICA Supplemental Survey (Land Use Plan)

Figure 8.1 Long-term Development of Matarbari Port

### 8.4.3 Current Status of Development of Matarbari Port

The cost required to implement the First Stage Development Phase 1 of Matarbari Port is covered by Japanese ODA, CPA own fund, and Bangladesh government fund, and construction of the port facilities previously mentioned in the current status of the development is covered by Japanese ODA. The situation of the dredging area of the First Stage Development Phase 1 is shown in Photo 8.2 as of October 20, 2021. Several private houses are shown in the photo. The land acquisition procedure has been completed and eviction of the residents was being expected.



Source: JST

Photo 8.2 Dredging Area in First Stage Development Phase 1, Matarbari Port

Since the construction of the port facilities for the CGPCBL thermal power plant is almost completed in a timely manner, it can be inferred that there is almost no technical risk or risk in estimating the construction cost. Therefore, as far as the First Stage Development of Matarbari Port is concerned, it can be judged that there is almost no financial risk.

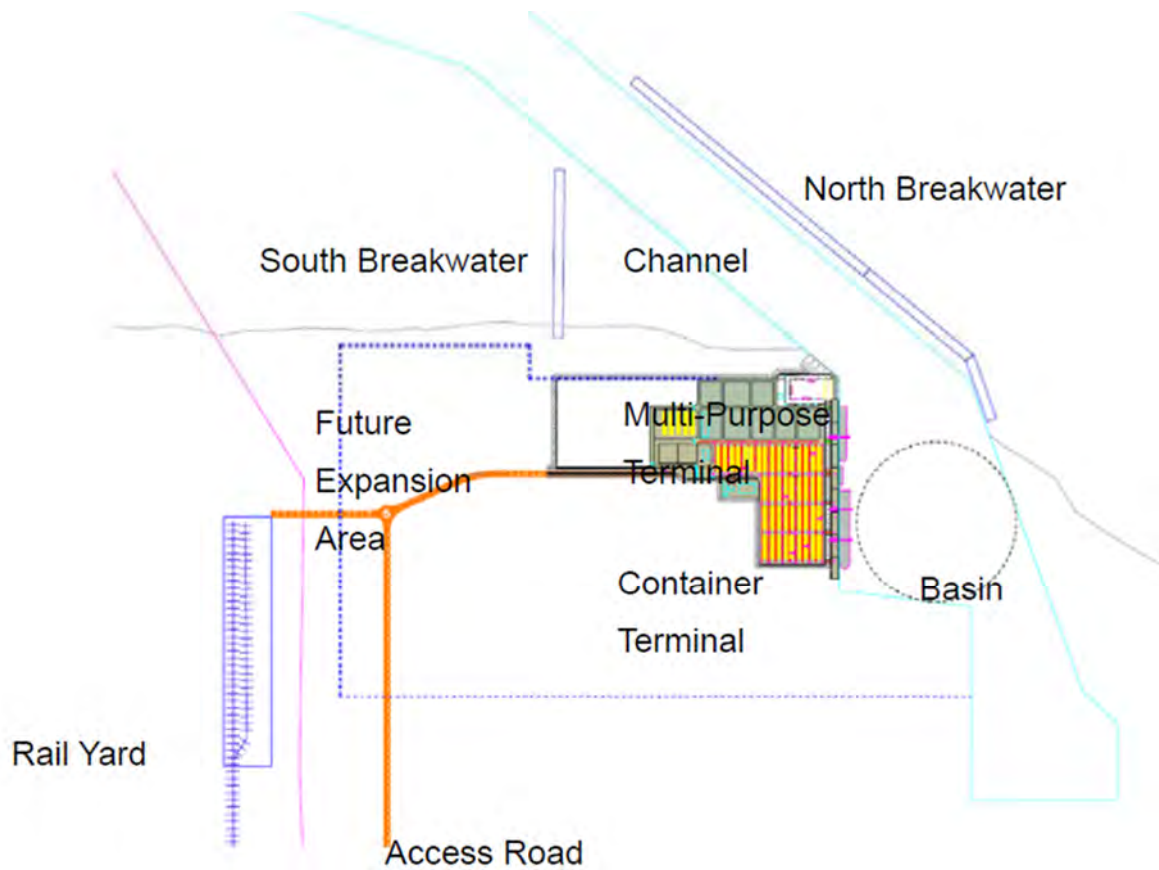
According to SDP, the First Stage Development Phase 1 of Matarbari Port is based on the JICA Preparatory Survey on the Matarbari Port Development in the People's Republic of Bangladesh 2018 (JICA Preparatory Survey). The major port facilities are planned as shown in Table 8.4. The layout is shown in Figure 8.2.

Table 8.4 First Stage Development Phase 1 of Matarbari Port

Facilities	Size	Max Vessel Size	Cargo & Capacity	Remarks
Container Terminal	L=460m, D=CDL-16m Area 20ha.	8,000TEU Type 250TEU (Feeder)	Container 700,000 TEU	Full size berth x 1 Feeder berth x 1
Multi-purpose Terminal	L=300m D=CDL-16m Area 12ha.	70,000DWT	General Cargo 1.5 m.t. Bulk Cargo 0.6 m.t.	General cargo ships Panamax Bulker
Breakwater	North L=2,150m (Incl. 397m by CPA) South L=670m			Phase 1 to be developed by power plant project
Navigation Channel Turning Basin	W=350m, L=11km Turning basin=75ha.	100,000DWT (8,000 – 8,200TEU)		Phase 1 to be developed by power plant project

Note: m.t. stands for million tons

Source: JICA Preparatory Survey



Source: JICA Preparatory Survey

Figure 8.2 First Stage Development Phase 1

According to the project briefing session by JICA for companies of interest on 14 September 2021, the First Stage Development Phase 1 and its facilities layout are being finalized as shown in Figure 8.3 and

the major facilities of the First Stage Development Phase 1 are as follows:

- Container Berth: Length: 460m Depth: -16m CDL, 8,000TEU vessel,
- Multi-purpose Berth: Length: 300m Depth: -16m CDL,
- Yard: Area: 36 ha, Elevation: +10m CDL
- Buildings, Utilities
- Equipment: Cargo Handling Equipment, Boats

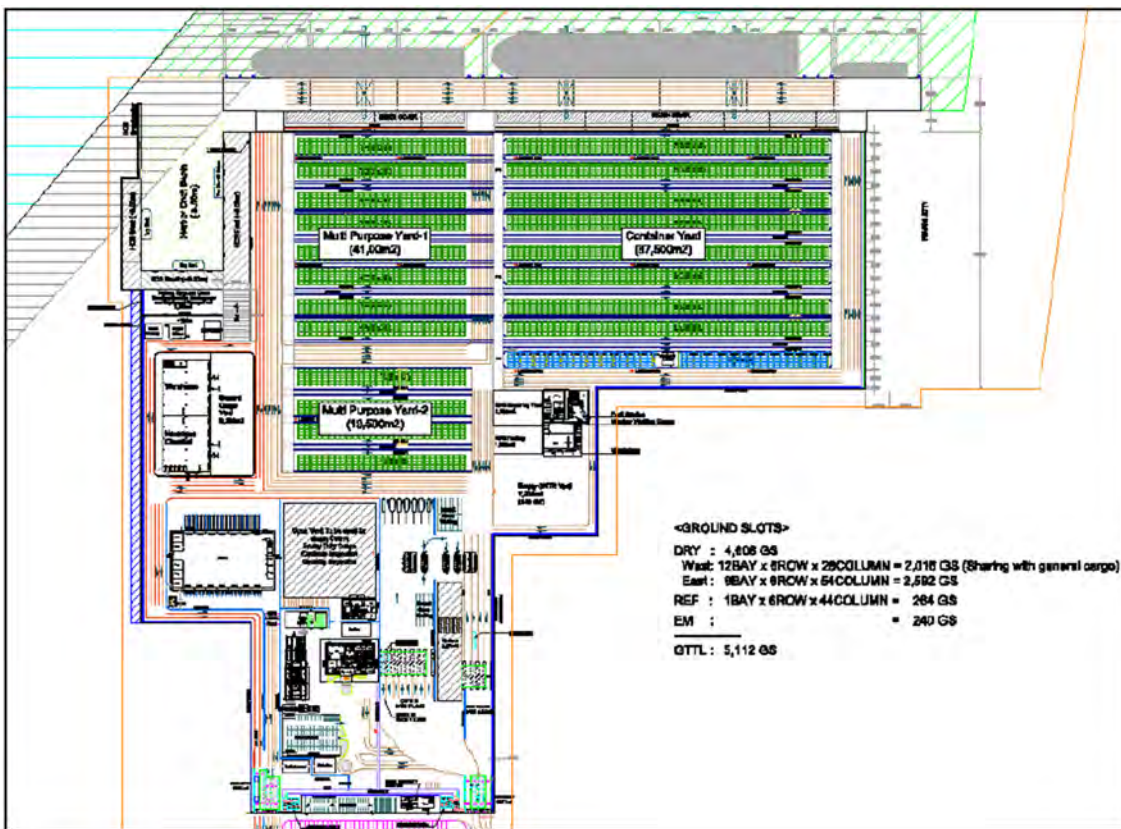
The above facilities will be procured in the 3 packages below:

- Package-1 to be procured in accordance with JICA Standard Bidding Documents (Works)
  - Civil Works: Reclamation, Soil Improvement, Pavement, Drainage, Retaining Wall, Seawall, Revetment
  - Marine Works: Main Jetty, HCB, Breakwater, Slope Protection, Dredging
  - Building / Utility Works: Admin. Building, CFS, Warehouse, Workshop, Gates, Workers' House, Utilities, etc.
- Package-2a to be procured in accordance with JICA Standard Bidding Documents (Design Build)
  - Cargo Handling Equipment: Quay Gantry Crane (outer reach 51.5m) x 2, Multi-Purpose Gantry Crane (outer reach 51.5m) x 1, Rubber Tire Gantry Crane x 6, Reach Stacker (40.6t) x 1, Top Lifter (40.6t) x 2,

Terminal Tractor and Chassis x 12,

- TOS and Security System: CCTV and Monitoring System, Gate Security System
- Package-2b to be procured in accordance with JICA Standard Bidding Documents (Design Build)
- Boats: Tugboats (60t bollard pull, 50t bollard pull) x 2 or 3, Pilot boat x 1, Survey boat x 1,
- VTMS System: VTMS (Vessel Traffic Management System), VTMS tower x 1, Navigation Aids

Accordingly, all the facilities described in the SDP including the installation of water treatment plant and control tower will be procured by the above-mentioned 3 packages except for the residential complex for port officials, customs house, quarantine office, bank office, etc.<sup>5</sup> The survey team is informed that CPA provides these buildings at its own cost at the port premises or in the vicinity.



Source: Project briefing session for companies of interest by JICA, 14 September 2021

Figure 8.3 General Layout of the Terminals

As of June 2022, the implementation of the First Stage Development Phase 1 is scheduled as follows:

- Contract Periods:
- Package 1 : Bid announcement in June 2022, Bidding in September 2022, Works commencement in end-2022, Works completion in mid-2026
- Package 2a : Bid announcement in June 2022, Bidding in August 2022, Procurement commencement in early-2023, Commencement of operation in mid-2026

<sup>5</sup> A customs house and bank office are reportedly built at the project site. They might temporarily be built for the calling vessels for equipment and materials import for the CPGCBL project.



- Package 2b: Bid announcement in June 2022, Bidding in August 2022, Procurement commencement in early-2023, Commencement of operation in mid-2026

The defect liability period is set as 12 months.

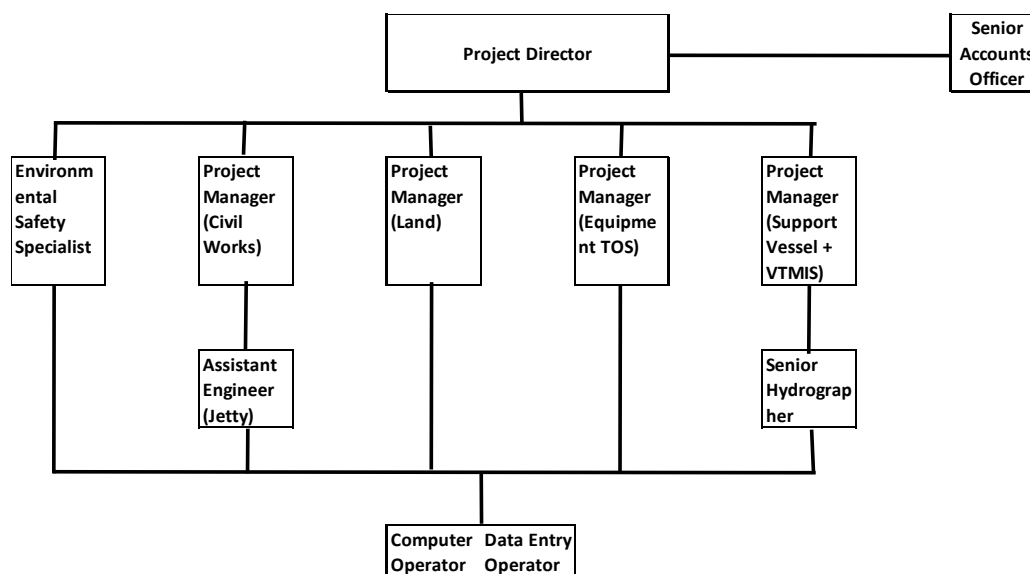
The design of the access road for Matarbari Port is supervised by RHD and the financial assistance is provided by JICA. As of June 2022, it is expected that the bidding will soon be called, and the construction will be commenced in September 2023 and completed in February 2027. As the completion of the First Stage Development Phase 1 of the Matarbari Port is scheduled in mid-2026, it is important that the construction progress of both the port and access road should be periodically monitored and, if required, the priority issues should be identified at the earliest to synchronize the timeline of port and access road components of Matarbari Port project. In this regard, it is worth being noted that both components are under the supervision of MoS.

Regarding the railway access in terms of the effectiveness of cargo transport, the alignment shown in Figure 8.2 is nothing but shows the necessity of the railway access to the port. It is informed that the consultant of CPA who has been engaged in the detailed design of the First Stage Development Phase 1 of Matarbari Port has been preparing the alignment of railway which will be proposed to CPA. The detailed design of the railway in the vicinity of the port as well as the access to the port from the national railway between Chittagong and Cox's Bazar, which is essential for the reduction of transport cost between Matarbari and Dhaka, is completed by ADB assistance.

Regarding the water supply to the port, it is reported that deep wells will be developed in the port premises to supply potable water. For the First Stage Development Phase 1, no outside water supply from source is required. For the further development of the port, more reliable and steady supply of water will be required.

In the First Stage Development Phase 1, CPA is planning to manage and operate Matarbari Port. Since CPA has human resources and accumulated know-hows from the experience of management of Chittagong Port, CPA also has experience in operating similar terminals at Chittagong Port, and JICA is providing technical assistance for the capacity building for management of operation and maintenance as well as for administration, the risk of port management and operation of Matarbari Port is considered to be extremely low.

The Ministry of Finance of Bangladesh has approved the allocation of personnel as shown in Figure 8.4 for the purpose of supervising the First Stage Development Phase 1 by CPA. In addition, it has been decided that international consultants engaged in construction supervision will be procured through the Japanese ODA loan. Therefore, there should be no problem in carrying out construction supervision by CPA personnel shown in Figure 8.4.



Source: CPA

Figure 8.4 Organization of CPA Supervision for First Stage Development Phase 1

CPA has accumulated experience in procuring and hiring international consultants in the range from F/S to construction supervision in project implementation. For this reason, CPA has sufficient capacity to procure and supervise international consultants to carry out the project, and it is expected that the capacity required for project implementation can be secured by CPA.

## 8.5 Current Status of Development of Matarbari Port

### 8.5.1 First Stage Development Phase 2

The First Stage Development Phase 2 will expand the turning basin to the south and add three full size container berths, which will have a length of 1,050m and back up area of 50ha. Future expansion area will be used for truck parking, warehouses, logistic park, ancillary services and further expansion of container berths when required.

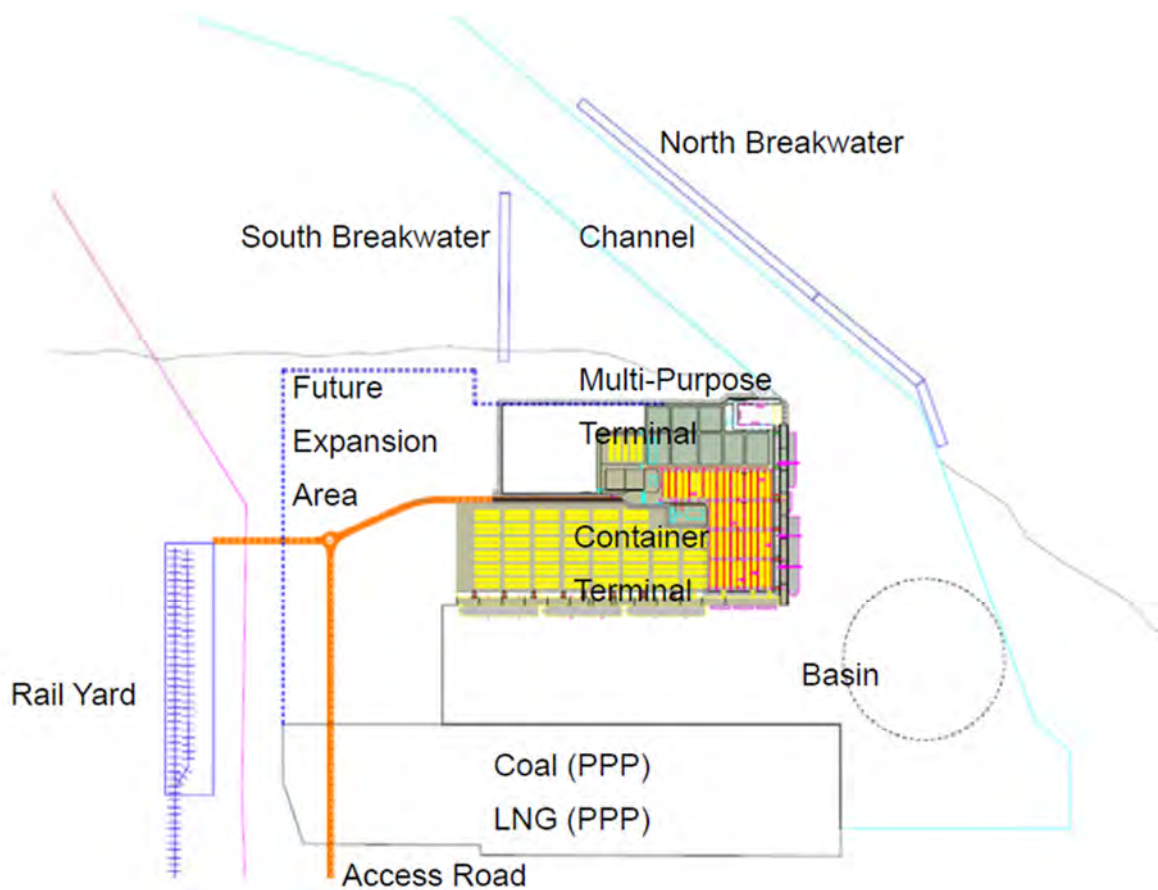
According to SDP, the expansion of the turning basin to the south is considered to enable the development of CTT terminal and LNG terminal, which will accommodate 80,000 DWT coal bulkers and 145,000 (260,000) m<sup>3</sup> type of LNG carriers respectively. For the navigation and berthing of LNG carriers, safe maneuvering is an important issue and requires deployment of suitable patrol boats and tugboats. Studies on wave conditions, tidal current and safety navigations are also required.

The layout of the port facilities of the First Stage Development Phase 2 is shown in Figure 8.5 and Table 8.5. In addition, as shown in 2019 JICA Land Use Survey the First Stage Development Phase 2 includes the construction of LPG terminal. According to Bangladesh Petroleum Corporation (BPC), the LPG terminal will be located adjacent to the LNG Terminal and the terminal berths will accommodate Very Large Gas Carrier (VLGC) with maximum LOA (length overall) of about 230m and two vessels for domestic distribution (bulk sale) with the maximum LOA of about 120m. BPC informed the MIDI Survey Team of JICA that the required shoreline for the berths would be 620m in total. In case that the development of LPG Terminal in the First Stage Development Phase 2 as planned by BPC is acceptable, the extension of the water area should be

reviewed and concluded as soon as possible.

Since the funds for the construction of First Stage Development Phase 1 have already been prepared and there is a high possibility that Japanese ODA will be used for the First Stage Development Phase 2 as well, and, when the First Stage Development Phase 2 is completed and put into operation, it is foreseen that the FIRR of the Matarbari Port Development project will exceed the FIRR of the First Stage Development Phase 1 i.e., + 2.89% for the base case. Even though the public fund will be required for construction of truck parking, warehouses, logistic park, ancillary services, etc., the amount in total is considered relatively small. Therefore, it can be inferred that there is no difficulty in financing by use of CPA own fund and Bangladesh government fund.

Like the site of the First Stage Development Phase 1, there are not many residents who have to move out from the site of the First Stage Development Phase 2 and the land can presumably be expropriated with financial compensation to the residents. As the status of the site of the First Stage Development Phase 2 is almost the same as the land use of the site of the First Stage Development Phase 1, and the inhabitants are less than that of the First Stage Development Phase 1, it is presumed that there is no problem with land acquisition for the First Stage Development Phase 2.



Source: JICA Preparatory Survey

Figure 8.5 First Stage Development Phase 2

Table 8.5 First Stage Development Phase 2

Facilities	Size	Max Vessel Size	Cargo & Capacity	Remarks
Container Terminal	L=1,050m, D=CDL-16m Area 52.5ha. L=300m (Feeder)	8,000TEU Type 250TEU Type	Container 2.1 mil TEU to 3.5 mil TEU	Full size berth x 3 Feeder berth x 3
Coal and LNG terminal (PPP*)	L=900m (Coal) L=110 (LNG)	80,000DWT 145,000 M <sup>3</sup> Type	Coal 9.0 – 10.3 Mil Ton LNG 3.8 mil ton	Coal berth x 3 LNG berth x 1

Note: \*to be developed by private sector

Source: JICA Preparatory Survey

## 8.5.2 Second Stage Development

The target year of the completion of the Second Stage Development of Matarbari Port is set forth in 2041. Therefore, the detailed facilities layout will be developed in parallel with the economic and social development in coming years and the current layout should be considered preliminary subject to changes in future.

The Second Stage development is recommended to be located at the mouth of Kohelia River. According to SDP, three full size container berths are to be built on the west side of commercial port with a length of 1.050m with a backup area of 50ha and multi-purpose berths and bulk berths are to be built on the east side of commercial port with a length of 1,200m with a backup area of 60ha. The depth of the approach channel and port basin is planned to be -16m, which is the same with the first stage development. The commercial port area is provided with more space for future expansion i.e., four additional container berths and four multi-purpose/bulk berths. The port facilities to be development in the Second Stage Development are shown in Table 8.6.

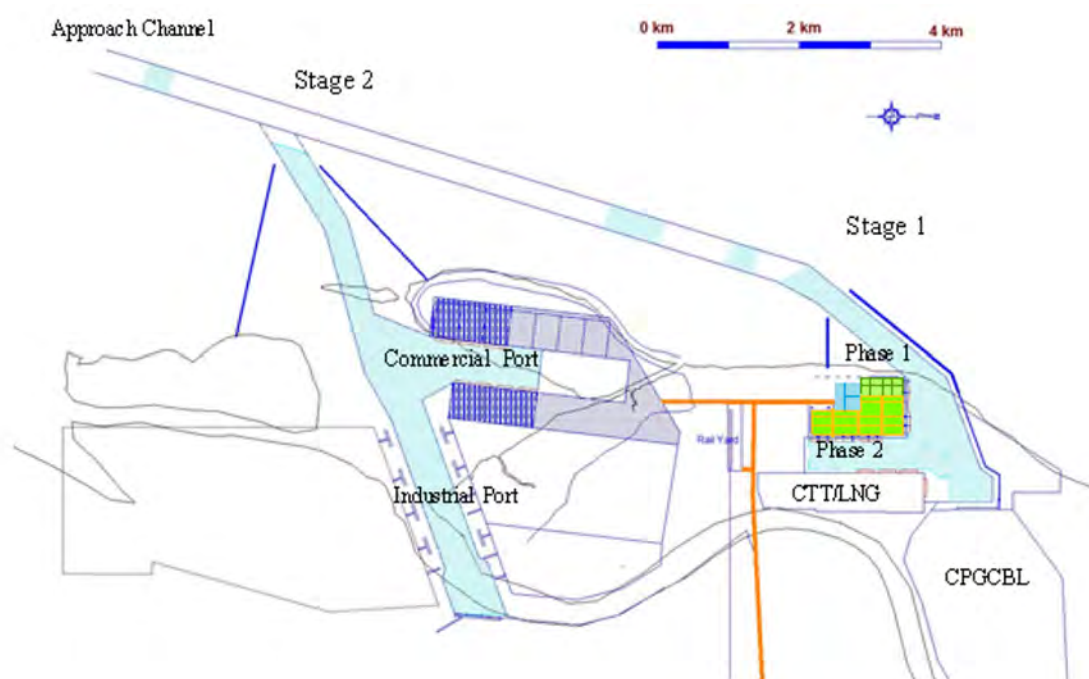
Based on the previous JICA study titled as “Data Collection Survey on Integrated Development for Southern Chittagong Region”, an industrial port is proposed next to the commercial port. Since Industrial and Economic Zone SDP has a plan for EZ development in general, but there is no master plan of each EZ yet, the proposed plan in Figure 8.6 would be considered preliminary.

The finalization of the Second Stage Development plan will be based on the updated demand forecast of volume and type of cargo as well as type and size of vessels to call Matarbari Port. SDP is also pointing out that the cost allocation between industrial port and commercial port is required. At this stage, therefore, the layout of the commercial port and industrial port of the Second Stage Development plan shall be considered tentative, and MIDI-Cell should initiate the coordination among the relevant implementing ministries/divisions and organizations for the Second Stage Development from broader and longer perspective under the integrated infrastructure development plan “MIDI MP.”

Table 8.6 Second Stage of Matarbari Port Development

Facilities	Size	Max Vessel Size	Cargo & Capacity	Remarks
Container Terminal	L=1,050m, D=CDL-16m Area 50ha. L=300m (Feeder)	8,000TEU Type 250TEU Type	Container 2.1 mil TEU to 3.5 mil TEU	Full size berth x 3 Feeder berth x 3
Multi-purpose Terminal	L=1,200m Area 60ha.	80,000DWT		Multi and bulk berth x 4

Source: JICA preparatory survey



Source: JICA Preparatory Survey

Figure 8.6 Second Stage Development of Matarbari Port

### 8.6 Scope and Timeline of Port Development up to 2041 with respect to Land Use

Regarding the development of Matarbari Port, the planning up to 2041 has already been made as the Second Stage Development. The entire port area is shown in the MIDI land use plan.

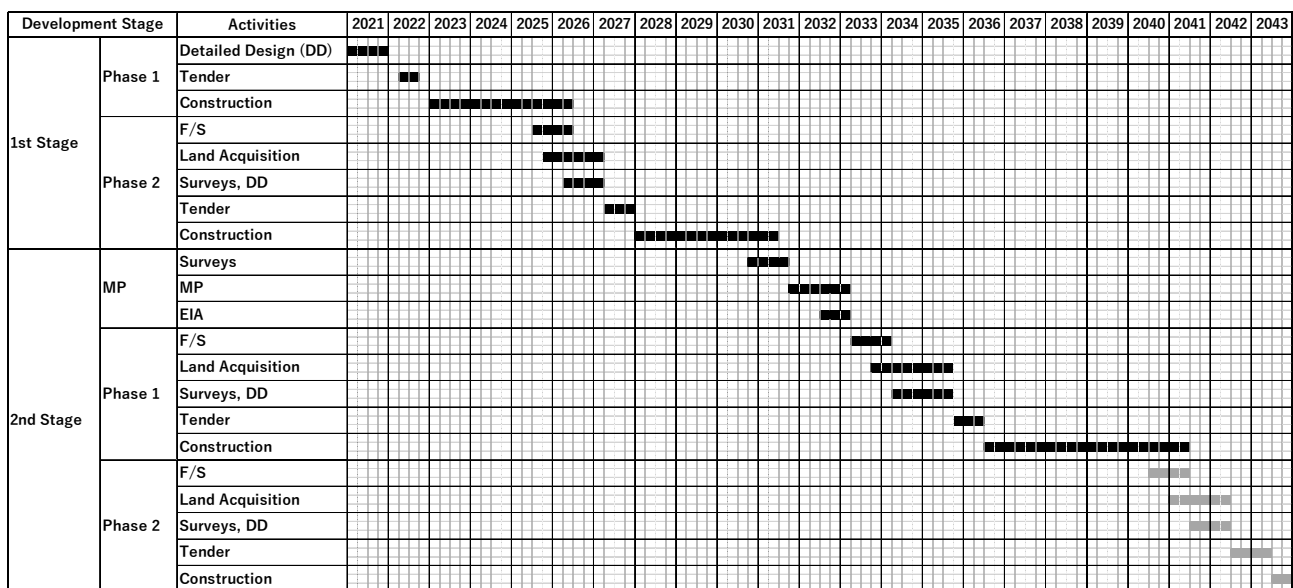
Regarding the First Stage Development Phase 1 and Phase 2, sufficient information has been obtained from the JICA survey reports as well as from the information session sponsored by JICA for the private firms. However, it should be noted that, since the Second Stage Development is the development of a large-scale new port that has both commercial and industrial port functions, Therefore, in addition to the survey on the cargo demand and target vessels, the natural conditions such as bathymetry, subsoil conditions and oceanographic conditions, which are mentioned in the JICA's information collection survey to be considered for the Second Stage Development, various simulations will have to be conducted to work out the layout of breakwaters, navigation channel, turning basin, slips, etc. Based on this layout, it is necessary to formulate the layout of commercial

port functional facilities (maritime cargo terminals such as container terminals) and industrial port functional facilities (cargo handling piers for various waterfront industries). Therefore, it is necessary to prepare a roadmap for formulating the Second Stage Development at an early stage.

Due to the government's policy change regarding the coal-fired power plant development plan, it may be necessary to accommodate large LNG carriers at Matarbari Port. In this case, it is generally better to avoid allocating berthing facility for a large LNG carrier in the back of the port basin from the viewpoint of safety, so there is a possibility to construct an LNG base with berth facilities near the entrance of the port. As a result, the port facility planning, and the land use planning, may be significantly affected.

For the reasons above, it is desirable to formulate a master plan for the Second Stage Development to be followed by F/S at the time when the construction of the First Stage Development Phase 2 is completed.

Figure 8.7 shows the expected future project implementation schedule on the assumption that the Second Stage Development Phase 2 will be completed in 2041.



Note: It is assumed that the Second Stage Development Phase 1 consists of the basic port facilities like breakwaters, navigation channel, turning basin, slips, etc. Phase 2 of the same consists of container/multi-purpose terminals and berthing facilities for the waterfront industries, etc.

Source: JST

Figure 8.7 Proposed Implementation Scheduled of Matarbari Port Development by 2041

It is considered that a large amount of dredged soil to be obtained in Second Stage Development of Matarbari Port can be used as the embankment materials required for the initial stage of the MIDI development. Since there is concern about a shortage of embankment materials in the initial stage, attention should be paid for possible use of the dredged soil as embankment materials for land development in the low and swampy area in the target area of MIDI.

## 8.7 Validity of Land Allocation for Port Development in MIDI Land Use Plan

The length of container berths that large container vessels can dock is planned to be 960m in the First Stage Development Phase 1 (including multipurpose berths), 1,050m in the First Stage Development Phase 2, and 1,050m in Second Stage Development. The total length of the container berth of Matarbari Port will be about 3,000m when the Second Stage Development is completed. Assuming that the container handling volume per 100m of berth is 200,000 TEU / year<sup>6</sup>, it will be possible to handle about 6 million TEU in the entire Matarbari port. This container throughput greatly exceeds the demand forecast of 2,550,599 TEU / year in 2041 estimated in the JICA Preparatory Survey. In addition, this forecast accounts for about 80% of the container throughput of 7.553 million TEU / year in 2020 at Laem Chabang Port<sup>7</sup>, Thailand, which is handling few transshipment containers as Matarbari Port is likely to be. The total projected container throughput in 2041 at Matarbari Port and Chittagong Port (6,897,179 TEU / year) is estimated approximately 12.9 million TEU / year, which is about 3 quarters of the foreign trade containers of 17.39 million TEU / year handled by all Japanese ports in 2020<sup>8</sup>. As mentioned in the SDP that there is sufficient space for container terminal expansion in the land use plan for Second Stage Development, it is considered that the land allocation to Matarbari port shown in the land use of MIDI is appropriate.

## 8.8 Coordination with Other Sectors

### 8.8.1 Land Acquisition

In the First Stage Development Phase 1 of Matarbari Port, land acquisition is being carried out by the local government in accordance with CPA's plan. Since CPA compensates for costs for the relocation of the affected residents in cash, it is expected that land acquisition will proceed in the same way for the land to be acquired for the First Stage Development Phase 2. Construction work for the First Stage Development Phase 2 is expected to begin in 2027, and since it took approximately three years to acquire the land for the First Stage Development Phase 1, the land acquisition for the First Stage Development Phase 2 should begin in early 2024. Since the target year for Second Stage Development of Matarbari Port is 2041, it is considered premature to acquire land at this time. It is necessary for the industrial sectors participating in MIDI development to agree on the land allocation in principle shown in the JICA's supplementary survey for the land use planning. Therefore, in order to promote land acquisition, MIDI-Cell needs to monitor land acquisition among the industrial sectors in the long term, and if necessary, make coordination for them as the key government agency for MIDI development.

A considerable area of Matarbari and Moheshkhali is covered with very soft soil layers and requires a large volume of embankment materials such as sandy soil, which is rarely available in the vicinity of the port. On the other hand, as revealed in the construction work of the thermal power plant, it is expected that embankment materials of good quality can be obtained from the dredging work for expansion of the water area of the port

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<sup>6</sup> According to the JICA Preparatory Survey Report, the container berth (460m) and the multi-purpose berth (300m), which are developed in Phase 1 of First Stage Development can handle up to 1.1 million / TEU per year.

<sup>7</sup> Statistics of ports by Ministry of Land, Transport and Tourism, Japan.

<sup>8</sup> Cargo volume handled by containers at domestic ports in 2020 (preliminary figures), Japan.

to be carried out in the First Stage Development Phase 2. In order to effectively use the embankment materials to be obtained from the dredging, it seems that time-series priorities among projects will be necessary. MIDI-Cell is expected to integrate each project into the MIDI master plan and coordinate the priority projects to enable effective use of good embankment materials.

In addition, a commercial / industrial port will be constructed at the mouth of the Kohelia River in the Second Stage Development of Matarbari Port. It seems possible to dredge the water area allocated for the Second Stage Development to obtain a large amount of embankment materials without waiting for the implementation of the Second Stage Development. For this reason, if there is a shortage of embankment materials in the early stage of MIDI development, it will be possible to secure the embankment materials by dredging the water area of the Second Stage Development of Matarbari Port and distribute them for the land reclamation at the MIDI area. MIDI-Cell should play this role as a management body of the government, if necessary.

### 8.8.2 Land Use Planning

After the land use plan outline is approved by the government as part of the MIDI master plan, MIDI-Cell will supposedly manage and monitor land acquisition in to achieve integrated development of the MIDI area. For this task, it is considered necessary for MIDI-Cell to improve its function.

The final decision on the Second Stage Development Plan for Matarbari Port will be made in due course and based on the updated demand forecasts inconsideration of the volume and type of cargo as well as the type and size of vessels to call at Matarbari Port. It has been pointed out that allocation of the cost burden between the commercial port and industrial port. At this stage, therefore, the layout of commercial and industrial ports in the Second Stage Development is considered tentative. The Second Stage Development needs to be coordinated by MIDI-Cell from a broad and long-term perspective since the MIDI MP should be understood as an integrated infrastructure project development plan among the implementing ministries/divisions. authorities.

The area for LNG and LPG terminals may change due to changes in the government's energy policy. For this reason and as an urgent issue, MIDI-Cell will need to coordinate facility boundaries between stakeholders for the First Stage Development Phase 2 as a responsible government organization. It was reported that the planned quay length of the LNG terminal of RPGCL was 100 m short in consideration of two jetties required to realize the planned terminal capacity or in case that a Q-max LNG carrier is to be accommodated. It was also reported that the currently allocated 360m quay length of the adjacent LPG terminal of BPC was short in consideration of the size of the LPG carrier and their separation distance and that a quay length of 620 m was required for the installation of the planned two-series of receiving equipment.

### 8.8.3 Access Road

Two government organizations, RHD under the Ministry of Road Transport and Bridges (MRTB) and CPA under MoS, are working together to align and design access road to Matarbari Port. For the development of Bangladesh's first deep-sea port, such a flexible arrangement of government organizations would be a historic and ideal model for dealing with large and complex projects.

An urgent issue is that a large amount of embankment material is required because the access road will be



constructed across the low and swampy land, while a large amount of embankment materials will be obtained from dredging work for both the First Stage Development and the Second Stage Development of Matarbari Port. Given the prospect of being obtained, it seems necessary to coordinate the use of dredged materials between the port sector and the road sector.

Since trucks will be the main transportation means of cargo between Matarbari and the suburbs of Chattogram where the industrial zone developments is in progress, it is desirable to construct a truck terminal including CFS both in the vicinity of Matarbari Port and at the suburbs of Chattogram. It is also desirable for MIDI-Cell to coordinate between the port sector and the road sector in order to develop a cargo distribution center equipped with CFS and stacking yard of empty containers in the MIDI area.

The delay in access road development has a large negative impact on the start of operation of the First Stage Development Phase 1. In this regard, since the construction of the access road is under the umbrella of the Ministry of Shipping along with the Matarbari Port Development, it is expected that the implementation will be coordinated by the same ministry.

#### 8.8.4 Railway Access

In addition to the reduction in maritime transportation costs that can be realized by large container vessels anticipated to call at Matarbari Port, railway transportation between Matarbari Port and Dhaka, the center of Bangladesh's import and export industries, can further reduce transportation costs. If the development of access railways is delayed, the nation-wide economic effects of the Matarbari Port development will be delayed, and as a result, it may not lead to the strengthening of the international competitiveness of Bangladesh export products as expected. In order to realize the reduction of container transportation cost by railway, it is necessary to coordinate the development plan and timeline of related infrastructures between MoS and MoR. In addition, MIDI-Cell needs to coordinate the development of ICD, which is the traffic node between railways and roads. RB has completed the detailed design of the access railway including ancillaries in the vicinity of the port by ADB's technical assistance.

In addition, MoS, MRTB, CPA, BR, and even the private sector need collaboration to enable the efficient operation of the railway container terminal which is required around the marine container terminal at Matarbari Port. MIDI-Cell is certainly in a position to make cross-sectoral coordination.

#### 8.8.5 Other Recommendations

**Coordination of implementation schedule of projects:** One of the important roles of MIDI-Cell seems to monitor the timeline of each project that composes the MIDI MP. It is advisable for MIDI-Cell, therefore, to regularly update the timeline of each project that composes MIDI.

**Confirmation on the scope of First Stage Development Phase 1 of Matarbari Port:** As a result of the interview with CPA, all the facilities listed in the SDP, including the installation of the water treatment plant and control tower, will be procured by Japanese ODA while housing for the port staff, customs office, quarantine station and bank offices will be built at the expense of CPA in the vicinity of the port. It is desirable for MIDI-Cell to check this information, as the port will be only functional with the timely completion of such project components as well as the ODA assisted components.

**Safe entry and exit and mooring of LNG and LPG vessels:** MIDI-Cell should recognize that it is necessary to ensure safe navigation, emergency de-berthing and quick departure of LNG and LPG vessels as an important role of the port management. In particular in the First Stage Development Phase 2, as LNG and LPG berths are allocated in the depth of the docking water area of the port, it is necessary to ensure that they can leave the berths in an emergency.

Also, due to changes in the energy policy by the government, it may be necessary to reallocate the LNG berth when the plan of the First Stage Development Phase 2 was finalized in case the Q-Max LNG vessels call the port much earlier than expected. It is desirable for MIDI-Cell to recognize such potential reallocation of LNG and LPG berths.

In addition, in order to enable the LNG and LPG terminal projects to be implemented in line with the national policy of electricity and energy planning, it seems that the dredging timeline of the port water area expansion planned in of the First Stage Development Phase 2 should be coordinated with CPA.

**Water supply to the port:** For the developments after the completion of the First Stage Development Phase 1, more reliable and stable supply of water will be required for the port. MIDI-Cell should coordinate water supply to the port with implementing ministries/divisions such as the Ministry of Water Resource and LGED.

**Privatization of port operations:** As a government policy, the privatization of terminal operations at Matarbari Port seemingly has not yet been decided. On the other hand, efficient port operations through privatization tend to reduce the labor force, which could affect the labor policy of CPA, who currently employs a significant number of workers. For this reason, MIDI-Cell may need to coordinate policy making regarding privatization of port operations.

**Timing of Rehabilitation at Chittagong Port:** The timing of rehabilitation of existing cargo handling facilities such as GCB at Chittagong Port CPA is planning to implement, and the timing of commencement of the bay terminal development which CPA is also planning to implement are closely related to the timing of implementation of the First Stage Development Phase 1 and Phase 2 of Matarbari Port. They are also related to the volume of cargo that Matarbari Port will really handle after its completion. Therefore, it is appropriate for the MIDI-Cell to update the information about the rehabilitation plan of Chittagong Port and coordinate the development schedule of Matarbari Port with CPA.

## Chapter 9 Road and Highways Sector

### 9.1 Current Development and Existing Roads in MIDI Area

#### 9.1.1 Road and Highways Development in Bangladesh

Prior to Bangladesh Independence in 1971, there were no national or regional highways, but only a few roads connecting Dhaka with the rest of the country. The extensive network of natural waterways served almost the entire country, along with a railway network of around 2900 km.

The transport system of Bangladesh has undergone significant changes over the last four to five decades. Road transport has become the dominant mode of surface transport in Bangladesh, responsible for carrying over 70% of passengers and 60% of freight. The road classification in Bangladesh and the road length is shown in the table below.

Table 9.1 Bangladesh Road by Road Type and Length

Road Category	Definition	Length [km]	Admin
National Highways	Highways connecting National capital with Divisional HQ's /sea ports / land ports / Asian Highway	3,836	RHD
Regional Highways	Highways connecting District HQ's / main river / land ports / with each other not connected by National Highways.	4,704	
Zila Roads	Roads connecting District HQ's with Upazila HQ's / connecting one Upazila HQ to another Upazila HQ by a single main connection with National/Regional Highway, through shortest distance/route.	13,740	
Total Road Length under RHD		22,280	
Upazila Roads	Roads connecting Upazila HQs with growth center with another growth center by a single main connection / connecting growth center to higher road system through shortest distance/route	37,574	LGED
Union Roads	Roads connecting Union HQs with Upazila HQs, growth centers / local markets / with each other	41,831	
Village Roads	a) Roads connecting villages with Union HQs local markets, farms and ghats / with each other. b) Roads within a village	273,669	
Total Road Length under LGED		353,074	

Note: RHD = Road and Highway Division, Ministry of Road Transport and Bridge, LGED = Local Government Engineering Department, Ministry of Local Government, Rural Development and Cooperative

Source: RHD Website and LGED Website

#### 9.1.2 Review of Sector Development Planning

##### (1) 8th Five Year Plan 2020-2025

At the National Planning level, the strategy for road sector development is described in the 8th Five Year Plan which was published by General Economics Division (GED) in 2020. The focus of 8th Five Year Plan is put on the following aspects:

- Strengthening project implementation capacity
- Consolidation and upgrading of the National Highway Network

- Establishing road connectivity with major development points
- Ensure highway and inter-district road side services
- Strengthen road safety

The development targets for road sector are summarized in the following table.

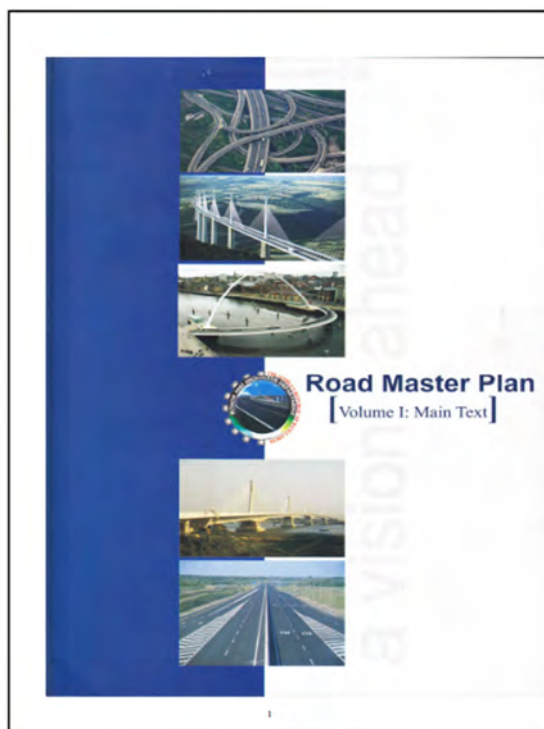
Table 9.2 Road Development Targets for 8th Five Year Plan

Physical Activities	8FYP Targets
Construction of 4/6/8 Lane Road	550 Km
Construction of New Roads Lane	150 Km
Improvement/Rehabilitation of National Highways	1,800 Km
Improvement/Rehabilitation of Regional & Zila Highways	1,800 Km
Construction of Brides/Culverts	12,700 Km
Reconstruction of Brides/Culverts	37,500 m
Construction of Flyover/Overpass	4,100 m
Construction of Brides/Culverts	11,800 m
Construction of Rigid pavement	375 Km
Weight Bridges/Axle Road Control Station	30 members

Source: 8th Five Year Plan 2020-2025, General Economics Division (GED) 2020

(2) Road Master Plan by RHD

Road Master Plan (RMP) was developed in 2009 as the sector development plan of road and bridge sector. RMP guides the development and maintenance of road network (National Highway) of Road and Highway Department (RHD) over the next 20 years. It will be treated as one of the milestones in the sector development.



Source: RHD Website

Figure 9.1 Cover Page of Road Master Plan

This plan was developed in response to the direction provided by the National Land Transport Policy, which committed the government of Bangladesh to develop a long-term road master plan. The following projects have been identified as necessary and feasible to cope with traffic growth during the Master Plan period.

- N1 Dhaka-Chittagong 4 Lane
- N3 Dhaka-Mymensingh 4 Lane (to Mawna)
- N102 Mynamati-Brahmanbaria

- R260 Sylhet-Sunamganj
- Dhaka Eastern Bypass
- Dhaka Western Bypass
- Dhaka Outer Orbital Road
- Upgrading of R750/Z5703 Bhatiapara-Narial -Jessore
- Deep Sea Port to N1
- N1 Chakaria-Chittagong 4 lane
- N8 Dhaka – Mawa 4 lane
- N4 Dhaka – Tangail 4 lane
- N6 Baneshwar – Belephur 4 lane
- N5 Dhaka- Baniajuri 4 lane
- N2 Bhairab – Moulvibazar 4 lane
- N2 Dhaka – Bhariab 4 lane
- N2 Habiganj – Sylhet 4 lane
- N8 Jessore – Benapole 4 lane
- Chittagong By-pass
- N1 - Hatazari Link Road
- N1 2nd Meghna Bridge
- N1 2nd Meghna Gumati Bridge
- N8 Padma Bridge

### 9.1.3 Existing Roads in MIDI Area

#### (1) National Highway N1

National Highway N1 is the main existing road infrastructure in MIDI area. It is a 2-lane paved road connecting Chittagong and Cox’s Bazar. Current situation of the road is shown below<sup>1</sup>.

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<sup>1</sup> Photos taken by the JICA Survey Team during the site visit in December 2021



Source: JST

Photo 9.1 Current Situation of National Highway N1 (Cox's Bazar-Chakaria section)

RHD is responsible for the operation and maintenance of N1. The work includes the identification, planning and implementation of traffic management, improvement of pavement, and measures to improve safety. National Highway N1 is the backbone of the nation's road network, but the operation efficiency is hampered by traffic congestion at a large number of small towns, hats and bazars. This requires the traffic management measures to assist the smooth flow of traffic. Interventions including junction improvement, provision of service lanes, and over bridges are carried out by RHD for N1. As for road safety, besides the above measures, approaches such as enforcement of existing transportation regulations and laws, establishment of designated Road Safety Agency are proposed by RHD. In general, as per the Road Master Plan, it is recommended that 2% of the annual budget for roads and bridges be devoted to road safety projects.

In terms of road maintenance, there is the increased requirement for road and bridge maintenance on N1 along with the traffic growth. According to Road Master Plan, truck traffic will grow between 2.5 to 4 times over the next twenty years. Car traffic will grow at an even faster rate, between 4 and 7 times. The road network maintenance will need to respond to these challenges. In particular, routine maintenance is introduced, and the concept of life-cycle management is adopted by RHD, although the cost will increase slightly in short term.

Private sector participation is also expected for the operation and maintenance of N1. Private sector participation in the road sector was limited to supplying goods, materials, equipment, and consulting services in the past. Its role is expected to cover routine maintenance, and even toll collection depending on the PPP scheme. However, there is the consideration that the collected toll revenues are not sufficient to maintain related road assets, and the economic return on investment would be low, making the project not attractive to private investors.

## (2) Regional Highway R-170

R170 (or Patiya-Anowara-Banshkhali-Toitong-Pekua-Badarkhali-Chokoria (Eidmoni) Road) is a 75km-long Regional Highway. The road is in north-south direction and its south end intersects with R172. It is a 2-lane road, but the Right of Way (ROW) is narrow, as shown below. RHD is responsible for the O&M of R170.



Source: JST

Photo 9.2 Current Situation of Regional Highway R170 (near the intersection with R172)

(3) Regional Highway R-172

Regional Highway R-172 (Janatabazar to Chakaria) is in the East-West direction. It connects with National Highway N1 at Chakaria, intersects with R170 in the middle, and further extends to Z1004 and Matarbari rural road. The length is about 18km while the width is 2-lane. Same as R170, its ROW is narrow, as shown below. RHD is responsible for the O&M of R172.



Source: JST

Photo 9.3 Current Situation of Regional Highway R172 (near Chakaria)

(4) Regional Road Z-1004

Z-1004 is a regional road on the Moheshkhali Island. It starts from Janatabazar at the north of the island and ends at Gorakghata at the south. The length is about 27km. The width is 2-lane. RHD is responsible for the O&M.



Source: JST

Photo 9.4 Current Situation of Regional Road Z1004

(5) Matarbari Village Road

Matarbari village road is the only existing land access to the port area. It starts from the intersection with Z1004, passes the Matarbari Bridge and reaches at the gate of the Power Plant. The road is very narrow. It is unpaved and highly congested in the village section (road section after the bridge). It is not suitable for heavy vehicle. The total length is less than 10km. LGED is responsible for the O&M.

## 9.2 Significance of Moheshkhali-Matarbari Area for Road and Highways Sector Development

With the proposed developments of Matarbari Port and industrial facilities near the coastal area in Matarbari and Moheshkhali, and access road and railway line will be necessary to connect those with the hinterland. Considering the strategy for infrastructure sector described in the 8th Five Year Plan as well as the National Integrated Multimodal Transport Policy (2013), the transport infrastructure in MIDI Area shall be developed under the following principles:

- i) to ensure smooth transportation of cargo to/from the sea ports through the access road
- ii) to ensure the linkage between sea ports, industrial areas, economic zones, urban area and existing municipalities/markets,
- iii) to materialize efficient multi-modal transport network and construct roads/railway in timely manner taking into consideration the schedule of port development, and to consider future widening/expansion and secure the adequate Right of Way.
- iv) The MIDI area needs to be well connected to ensure smooth access and efficient transportation of



cargo as well as passengers to the mainland. For this purpose, a list of priority project is proposed and implemented. Detailed information on priority project is available in section 9.4.

The development of transport sector in MIDI area should consider the modal share at the national level, as indicated below:

- Road takes 70% for passenger traffic and 60% for freight traffic, as per the Road Master Plan
- Rail takes 2.8% for passenger traffic and 4% for freight traffic, as per the Railway Master Plan
- Inland Water is taking 25% of passenger traffic and 50% of arterial freight traffic<sup>2</sup>
- For Port, Chittagong Port is dominating the market, taking almost all the port traffic

### 9.3 Demand Forecast

#### 9.3.1 Demand Forecast for Matarbari Port Access Road

The Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh (JICA 2018) carried out the demand forecast for Matarbari Port Access Road with considerations of the followings:

- Traffic demand generated from the Matarbari Port
- Diverted traffic from existing roads
- Traffic dem and generated by the ongoing development activities

The analysis result from the study indicates that, daily traffic of the access road was calculated as 3,144 vehicle/day (or 6,582 PCU/day) in 2026 which will increase up to 5,655 vehicle/day (or 12,103 PCU/day) in 2035.

Table 9.3 Demand Forecast for Matarbari Port Access Road

	Veh Type	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Port Related Traffic	Truck	1,565	1,691	1,828	1,977	2,138	2,292	2,455	2,631	2,818	3,019
	Car.	730	792	859	933	1,013	1,088	1,169	1,256	1,349	1,448
Diverted Traffic from Present Road	Car	53	54	55	57	58	60	61	63	64	66
	Utility	26	28	29	30	31	32	33	34	36	37
	Truck	107	111	114	118	122	125	128	132	135	139
Power Plant Related Traffic	Car	616	616	616	616	616	881	881	881	881	881
	Bus	47	47	47	47	47	66	66	66	66	66
Total (veh/day)		3,144	3,338	3,549	3,777	4,025	4,544	4,794	5,063	5,349	5,655
Total (PCU/day)		6,582	7,035	7,527	8,060	8,639	9,508	10,093	10,719	11,388	12,103
Peak Hour Flow (veh/hour)		592	627	664	705	739	835	864	894	925	958
Peak Hour Flow (pcu/hour)		1,200	1,281	1,368	1,463	1,543	1,685	1,751	1,821	1,894	1,970
Required No. of Lanes (Ref: Japanese Port Road Standard <sup>1</sup> )		2	2	4	4	4	4	4	4	4	4
Required No. of Lanes (Ref: RHD Standard <sup>2</sup> )		2	2	2	2	2	2	2	2	2	2

Source: Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh, JICA 2018

According to the Japanese port design manual, the traffic capacity of a 2-lane port access road connecting a port to a national highway is 650 vehicles/hour. Therefore, for purposes of planning for the port access road, the design traffic volume would necessitate 4 lanes. On the other hand, the 2-lane highway capacity of RHD’s design standard is 7,000 vehicles/day (or 2,100 PCU/hour) and a 2-lane road would be able to accommodate the traffic up to the year 2035. However, if the proposed development plans such as economic zones are

<sup>2</sup> Source: Website of Bangladesh Inland Water Transport Authority (BIWTA), <http://www.biwta.gov.bd/site/page/a4908f24-5314-4c70-a600-e9f840d0e2a4/>-

executed earlier, the traffic on the project road will increase and the demand for upgrading to a 4-lane road will materialize sooner. In this regard, the project road could be built with 2-lane at interim stage but expandability to a 4-lane should be secured for future widening.

### 9.3.2 Demand Forecast for National Highway N1

The demand forecast for National Highway N1 is conducted in Data Collection Survey on Integrated Development for Southern Chittagong Region (JICA, 2016). The demand forecast result is summarized in below table.

Table 9.4 Demand Forecast for National Highway N1

Year	Vehicle with Goods	AADT (excl. NMT)
2018	1,592	11,291
2023	2,338	16,516
2028	3,280	23,165
2033	4,388	30,999
2038	5,601	39,565

Source: Data Collection Survey on Integrated Development for Southern Chittagong Region, JICA 2016

The “Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh” further narrowed the scope down to MIDI related section of N1 (Chakaria Area). In comparison with the 2017 situation, it is estimated that the present daily traffic on N1 will increase by almost 1.6 times by the year 2026. In addition, by the same time, the traffic from the new access road will be merged which will certainly have an impact on this national highway. The combined daily traffic on this road was estimated to be 31,604 PCU by the year 2026.

Table 9.5 Estimated Daily Traffic Flow on N1 (Chakaria Area)

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Motorcycle	4,206	4,385	4,572	4,766	4,969	5,143	5,324	5,511	5,704	5,904
3 wheeler	8,635	8,985	9,349	9,727	10,121	10,461	10,814	11,177	11,554	11,942
Car	2,999	3,106	3,219	3,340	3,468	3,852	3,978	4,111	4,251	4,399
Utility	2,631	2,739	2,851	2,968	3,089	3,194	3,302	3,414	3,530	3,650
Bus	1,073	1,093	1,114	1,135	1,157	1,196	1,217	1,237	1,259	1,280
Truck	4,375	4,589	4,818	5,061	5,320	5,560	5,813	6,080	6,361	6,658
Total (veh/day)	23,919	24,897	25,922	26,997	28,124	29,407	30,447	31,530	32,658	33,833
Total (PCU/day)	31,604	32,920	34,307	35,767	37,306	39,018	40,472	41,993	43,584	45,249

Source: Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh, JICA 2018

### 9.3.3 Improvement on Demand Forecast for MIDI MP

The demand forecast of road infrastructure should take consideration of the integrated sector development within MIDI Area. MIDI is an integrated infrastructure development initiative consisting of proposals for multiple sector development in the area. For instance, BEZA has the development plans for establishing economic zones and tourist attractive places. CPGCBL has expansion plan of their power plant facility in Moheshkhali. If these development plans are implemented in future and if many investors are attracted to the area by the implemented developments, more traffic will be generated in the project area. Therefore, the Matarbari Port Access Road should be designed and be constructed with the objective of securing compatibility to extend the arterial road link into the southern area of Moheshkhali as well as the road connection to Cox’s Bazar in the future. In order to effectively develop these plans, especially to identify the potential transportation demand induced by the developments, the cross-sectorial coordination is necessary in the formulation of MIDI

MP.

#### 9.3.4 Demand Supply Gap

There is the demand-supply gap for the existing National Highway N1. The proposed Matarbari Port will function as an alternative port to Chittagong Port and the majority of freight transport from the Matarbari Port will be destined for the major cities in the north, such as Chittagong and Dhaka.

As indicated by the demand projection, estimated future traffic demand along N1 in 2026 is approximately 22,000-28,000 and in 2035 is 28,000-38,000 vehicles per day respectively (excluding the traffic to/from Matarbari Port). Based on the demand projection, it is expected that this road section of N1 will have severe traffic congestion. Therefore, the cargo trucks going to/from Matarbari Port will face such situation, if the road condition of N1 is not improved.

The traffic volume on N1 between Chittagong and Cox's Bazar has been reaching its traffic capacity especially at the section through towns along the highway. Though RHD has planned to improve/widen N1 to be 4-6 lanes highway, the section between Chittagong and Cox's Bazar is recognized as a bottleneck of traffic of the national corridor. Therefore, improvement of N1 is indispensable for providing smooth road freight transport from Matarbari Port. Overall, it is recommended that an integrated approach should be taken in the formulation of MIDI MP.

#### 9.4 Ongoing Road Project

Currently, the Matarbari Power Plant Access Road is under construction. The road is from Rajghat to Mohoriguna, connecting the Power Plant into the regional road network. It also covers the Kuhelia River Bridge that connects the port area with the Z1004 road. The road is owned by RHD and developed by CPGCBL. Completion of the road is expected in 2023.

The embankment of the road is shown below. The designed height is 8m, and the refill earthwork utilizes the soil and sand from port dredging.



Source: JST

Photo 9.5 Embankment of Matarbari Power Plant Access Road



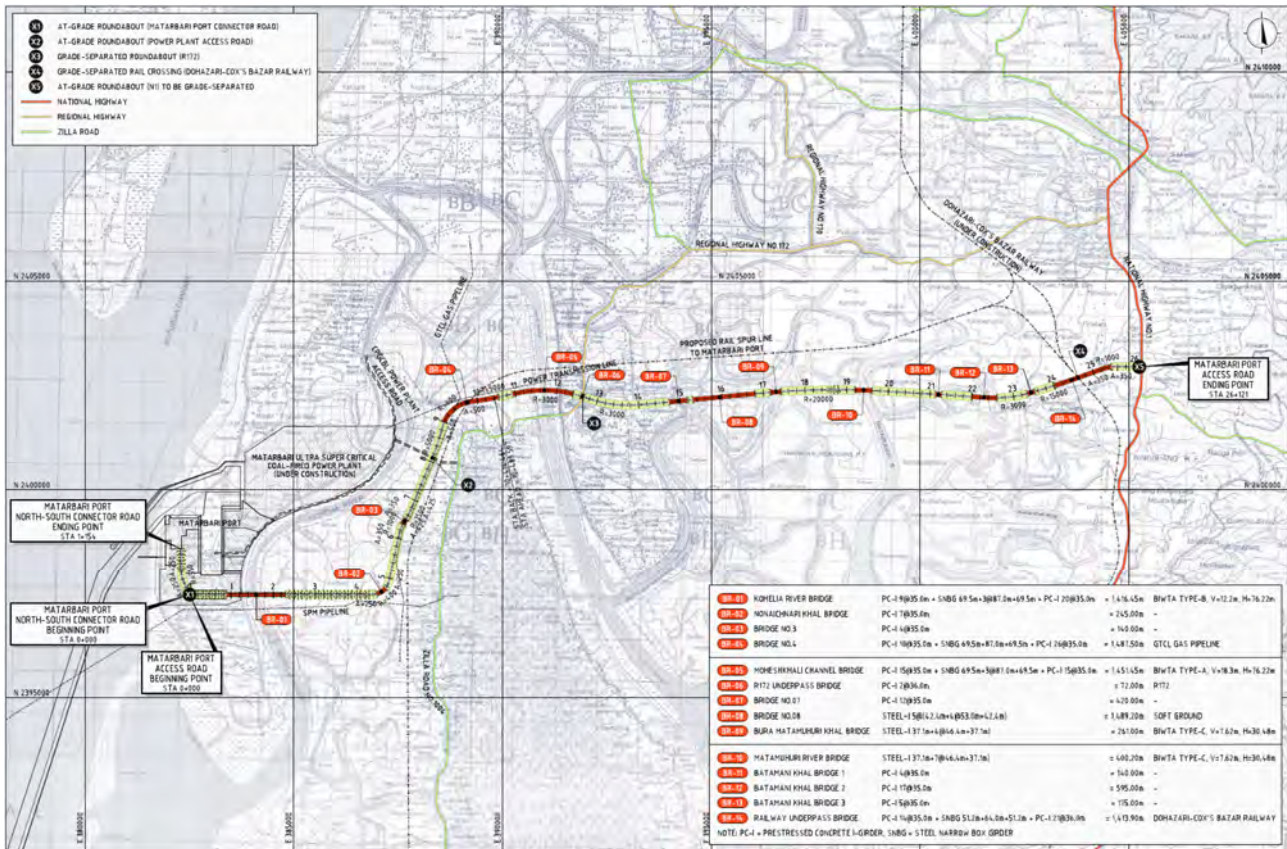
Source: JST

Photo 9.6 Kuhelia River Bridge under Construction

## 9.5 Planned Road Project

### 9.5.1 Matarbari Port Access Road

The project map is show in the Figure below.



Source: JICA Survey Team of Matarbari Port Development Project - Road Component, JICA 2021

Figure 9.2 Matarbari Port Access Road Project Map

The road is implemented by Roads and Highways Department (RHD) and is financed by the Ministry of Shipping. According to the interview with JICA Survey Team of Matarbari Port Development Project - Road Component, the total length of the road is 26.0 km (with 14 bridges).

Currently, the Detailed Design of the road is in progress. EIA and SIA were already carried out by RHD with the support from local NGOs. Regarding the access road alignment, 3 options were proposed at FS stage and the final option of Detailed Design has considered many factors, including road length, resettlement plan, and impact on forest area. Public consultation was held to decide the alignment.

The estimated commencement of construction is in December 2022, with a construction period of 42 months. The road is planned to open in 2026. The implementation schedule is shown below.

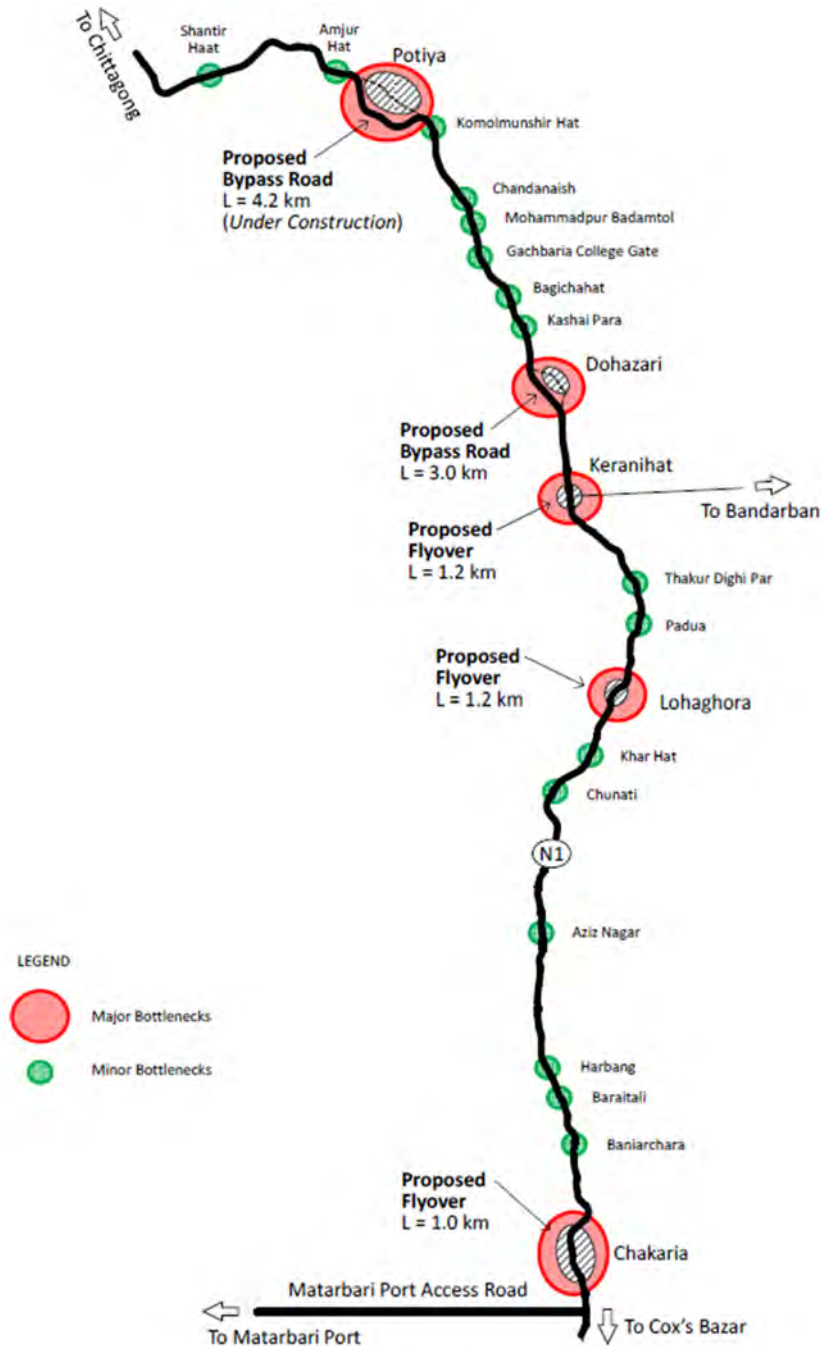
Table 9.6 Implementation Schedule of Port Access Road

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Pre-MP	██████████												
MP				██████████									
FS					██████████								
DD						██████████							
Tender							██████████						
Construction								██████████					
Operation												██████████	

Source: JST

### 9.5.2 Upgrading of National Highway N1

N1 is a 462 km-long National Highway and is one of the most important arterial roads in Bangladesh. The section from Chittagong to Cox’s Bazar has a distance of 120 km and is currently 2-lane. RHD has planned to upgrade the road to a 4-lane or 6-lane carriageway in the future.



Source: JST

Figure 9.3 Major Bottlenecks along National Highway N1

According to JICA funded Chattogram – Cox’s Bazar Highway Improvement Project (E/S), the upgrading project is divided into 2 packages: the 5 major bottlenecks along National Highway N1, and the remaining of the road. The total length of the 5 major bottlenecks is about 25km. It is currently under the Basic Design stage. EIA is supposed to be completed by the end of this year.

The remaining 95km is currently under the FS stage. FS is conducted by Bangladesh University of Engineering Technology (BUET). It is supposed to be completed by Dec. 2021. Introduction of PPP scheme is in consideration at the FS stage.

### 9.5.3 Other Planned Road Project

Besides the Matarbari Port Access Road Project and the Upgrading of National Highway N1, other important road projects planned in MIDI area include:

#### (1) Improvement of Regional Highway R170

As introduced in section 9.1.3, R170 is a 75km-long Regional Highway parallel to N1 but the width of roadway is narrow. According to the interview with RHD in November 2021, the extension of R170 is proposed by RHD and now is under the discussion with JICA. The new project includes the construction of Cox's Bazar Chowfaldi- Eidmoni Road in the south and will reach Chittagong in the north. Once constructed, it will work as the alternative road of N1 (with 54km shorter distance from Chittagong to Cox's Bazar compared to N1). With the ladder-type road network along the coastal line between Chittagong, Cox's Bazar, the MIDI connectivity would be improved.

#### (2) Improvement of Regional Road (Z-1004)

Z-1004 is an arterial regional road and the other major roads will collect local traffic and feed them to these roads. Although new construction is not required, it is necessary to widen and repair the existing roads which are currently damaged. The embankment road has a function of high tide protection and transportation between MIDI and Cox's Bazar. The embankment road can work as city bypass road and collector road to urban area.

#### (3) Trans Moheshkhali Highways (Matarbari - Boro Moheshkhali - Cox's Bazar)

The road connects Moheshkhali and Cox's Bazar with a bridge to cross over Moheshkhali Channel. Its length will be approximately 3.5 km and should avoid ECA of Cox's Bazar city. Moheshkhali channel is used as the Class II waterway, and the following clearance should be kept in designing a bridge. The alignment and the type of the bridge are to be further studied.

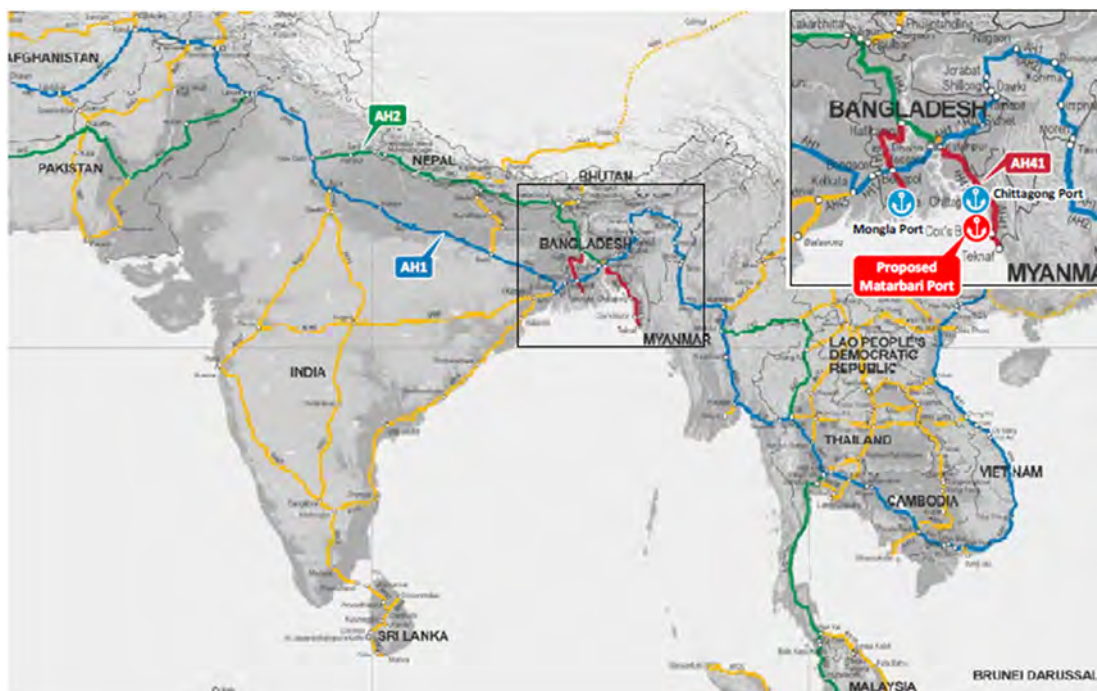
#### (4) Marine Drive from Mirsharai to Cox's Bazar through Moheshkhali - Matarbari

Marine drive road project is targeting to construct new 2-lane road along the coastal line, which connects Mirsharai - Chittagong - Cox's Bazar - Teknaf, the part of which will be the Chittagong City outer ring road and the immersed tunnel road. According to the interview with JICA Survey Team, Chittagong - Cox's Bazar Highway Improvement Project, the road is still at the Conceptual Design stage. In the future, the Trans Moheshkhali Highway will work as part of the Marine Drive, and the Marine Drive would be the 3rd Chittagong-Cox's Bazar arterial road (in addition to N1 and the extended R170).

## 9.6 Consideration on Broad-scope Long-term Development of MIDI by 2041

As illustrated by the road network beyond the national borders (the Figure below), N1 (from Chittagong to Cox's Bazar) comprises a part of Asian Highway No. 41 (AH41), which starts from the border of Myanmar through Teknaf, Cox's Bazar, Chittagong, Katchpur, Dhaka, Hatikamrul, Jessore and ends at Mongla. As of

now, AH41 runs only within Bangladesh and is not directly connected to India or Myanmar, but interconnects with AH1 and AH2 at Dhaka functioning as the feeder connectivity between the main corridor of Asian Highways and transport nodes such as Chittagong Port and Mongla Port. Through these Asian Highways network and major sea ports, Bangladesh would be able to function as the transport hub connecting with neighboring countries such as India, Bhutan and Nepal. Therefore, the traffic demand would become higher than the currently projected if the strategic role of MIDI at broad scope is recognized.



Source: Preparatory Survey on Matarbari Port Development Project in the People’s Republic of Bangladesh, JICA 2018

Figure 9.4 Matarbari Port at Broad-scope

In connection with the Asian Highway network, the following corridors are recognized as the international strategic economic corridors in Bangladesh, including South Asian Association for Regional Cooperation (SAARC) Highway Corridor, South Asian Sub-regional Economic Cooperation (SASEC) Corridors, Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation (BIMSTEC) Road Corridor, and the Bangladesh-China-India-Myanmar (BCIM) Economic Corridor. With the connectivity to these corridors by 2041, MIDI is expected to be a gateway of the freight transport route into the hinterland of the country.

## 9.7 Recommendations and Issues of SDP

Based on the data collection, especially through interviews with various organization, the JICA Survey Team identified the issues with the development of road and highways sector. The issues are summarized below, followed by the recommendations.

### 9.7.1 Issues Within Road and Highways Sector

#### (1) Responsibility and Coordination

Within the Ministry of Road Transport and Bridges (MORTB), there is the issue with coordination between RHD and BBA, though they both are responsible for road and bridge development. Sometimes, there is even competition between them. For example, there is the planned road from Matarbari to Cox’s Bazar with a main



bridge over the water way. There was the intention from RHD to not to design the bridge with a span over 1,500m, so that the project can be handled by them. In summary, it is essential for each implementation agency to be responsible for their roles, and be cooperative so the projects can be implemented smoothly.

The integration of MIDI-related road, including National Highway N1 and Regional Road R170, R172, Z1004, etc. with non-MIDI-related road, namely the rural roads surrounding MIDI area, is not addressed in the current SDP. As introduced in 8.1, LGED other than RHD is in charge of the rural roads. This institutional separation of implementing agency, as well as the non-inclusion of LGED roads in the development planning would cause challenges to the smooth implementation of MIDI, both in the short- and long- term.

Currently, the only land access to MIDI site, starting from Chakaria of R172 to the west, has to go through the rural roads of Matarbari Town as the last section. However, this section is not well maintained narrow unpaved road. With the ongoing MIDI construction, more trucks and heavy vehicles are passing through, which makes the condition even worse. 10km distance can easily cost 1 hour. The rural roads hinder the accessibility of MIDI in the short-term. In the long-term, as discussed in 8.2.3, new townships are planned to accommodate the workforce. The connectivity of residential areas is relying on the rural roads. The increased demand would put more burden on the existing rural road network. Therefore, it is necessary to improve the rural roads network. The institutional integration of LGED into MIDI and the coordination of highways and rural roads network is expected.

## (2) Capacity Building is Necessary

RHD is able to handle the design of ordinary road. However, when it comes to advanced technology, such as expressway, advanced bridge structure like suspension bridge, they are not able to fully manage by themselves and have to consult with international consultants. Procurement capacity is also not good, and it is very often relying on the support from international consultants. Individually, some of RHD employees are not experienced enough. The JICA Survey Team has worked with three experts/officials from RHD. Among them, the recent one is more experienced, and it is obvious that the communication with him is more efficient.

Road sector technical standard is not fully established. That's why highway design guideline and associated manual are introduced from US, Japan, EU into Bangladesh. Sometimes, the local context is not able to support the implementation of such guideline, the difficulties include the availability of materials, manufacturing capability, among others.

As mentioned above, BUET is carrying out the FS for the N1 Highway. However, the team is from university, who is strong in terms of academic capacity but has limited experience with road design and implementation. According to JICA Survey Team, BUET's design looks costly, and their PPP proposal seems to be unfeasible. To coordinate the design of two projects, the JICA Survey Team had many discussions with BUET team.

Therefore, the limitation of capacity of local organizations affected project implementation, relevant capacity building is necessary.

## 9.7.2 Issues of Road and Highways Sector with Other Relevant Sectors

### (1) Lack of Communication

Information sharing between department/agencies is important. The following examples, as observed by JICA

Survey Team, occurred due to the lack of communication. Matarbari Port Authority, a very important party for the port development project, was even not involved in RHD's meetings for port access road. Coal Power Generation Company Bangladesh Ltd (CPGCBL) handles the power plant 1 and 2, while plant 5 and 6 are handled by other company. However, the information on access road is not shared properly, and the company of plant 5 and 6 seems to know nothing about the access road project. The lack of information sharing would cause unexpected problems in the future. In summary, information sharing is especially important for large-scale comprehensive development project such as MIDI.

The communication between department/agencies is slow sometimes. In Bangladesh, it is said document-based email communication is preferred over face-to-face meetings, which slows down the communication efficiency. For example, for the integration of access road and railway project, RHD issued the request of information sharing to BR through the Ministry of Shipping. However, there is no feedback from BR in the following 2 months.

A holistic perspective is necessary for the proper functioning of MIDI, which requires the thorough examination of the multi-modal transport network for both MIDI internal and external at both the short- and long-term. For instance, National Highway N1 would be the bottleneck of the network that hinders the connectivity of MIDI as a whole, considering the future demand increase as indicated previously. To solve the problem, a top-level unit that oversees the whole project and a designated communication unit can be expected. MIDI-CC is playing a positive role in terms of inter-Ministry/Department communication.

## (2) Challenge of Inter-Ministry Coordination

According to JICA Survey Team interviews, Bangladesh Inland Water Transport Authority (BIWTA) under Ministry of Shipping request to follow their navigation clearance standard at the river bridge section which affects the road bridge design very much as sometimes the request is hard to meet (It is said that the same request from BIWTA is not well considered in the design of railway). When such problems occur, RHD has to first report to Ministry of Road Transport and Bridges, then negotiation between the two Ministries starts. After that, the opinion is delivered to BIWTA. When BIWTA has any question, the two Ministries have to be involved again. This bottom-up decision-making process is complicated and time-consuming.

Specific to MIDI, for Matarbari Port Development Project, the whole project is under the finance of Ministry of Shipping, including the road component. Ministry of Shipping is the general financier and oversees the whole project. RHD is a department under Ministry of Road Transport and Bridges, it has no work experience with Ministry of Shipping, and is not used to work with the new Ministry. For every detailed arrangement, such as change of DPP, the report from RHD needs approval from Ministry of Shipping. However, it is a big challenge of such inter-Ministry coordination.

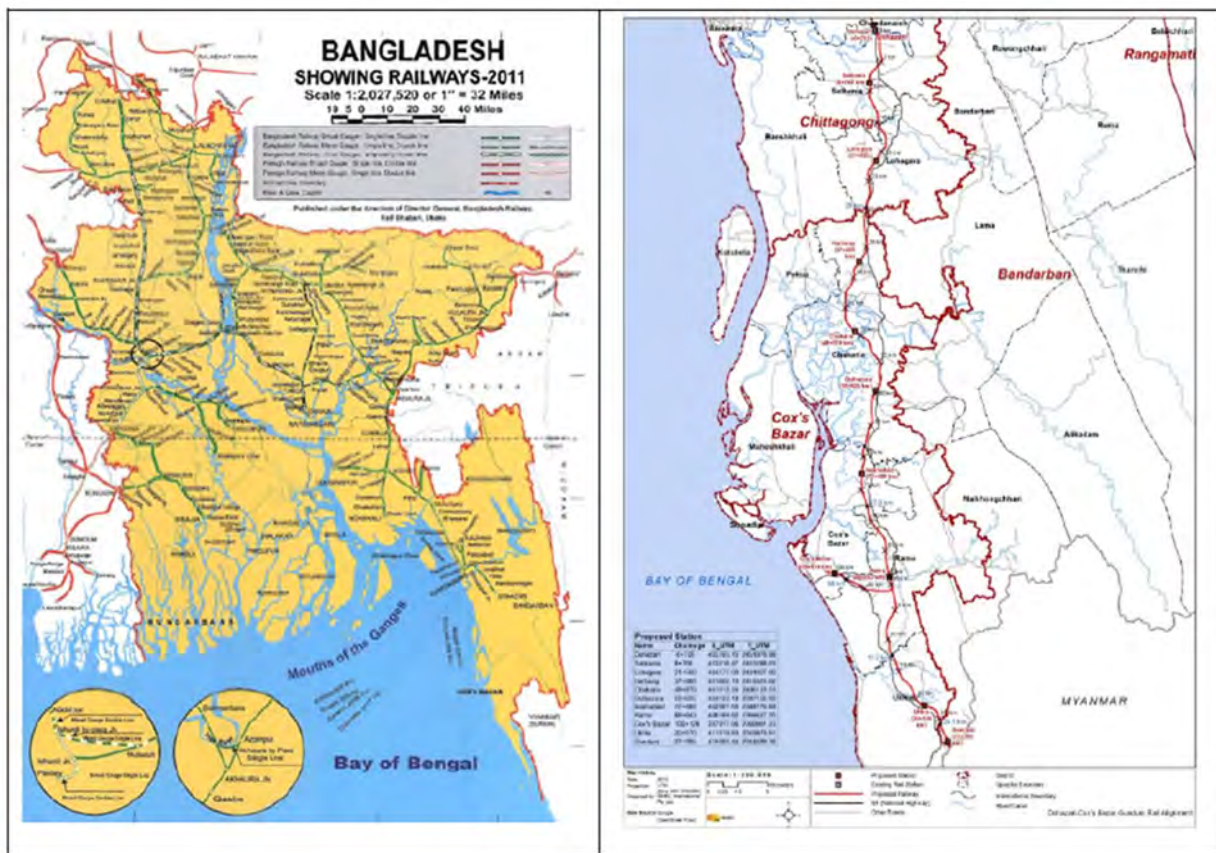
The JICA Study Team suggests that the implementation agency at the lower lever should be empowered so that such problems can be solved without the reporting from bottom to up. To improve the decision-making system, a designated Project Management Unit can be established in Bangladesh. MIDI-CC is playing a positive role in terms of inter-Ministry Coordination.

## Chapter 10 Railway Sector

### 10.1 Current Development and Existing Railway in MIDI Area

#### 10.1.1 Railway Development in Bangladesh

Bangladesh has placed importance on the railway sector as part of economic growth and economic infrastructure development. Bangladesh Railway has contributed significantly to nation's development by helping reducing cost of public transport, reducing travel time, connecting people, enhancing economic activity while minimizing the carbon footprint of the country compared to other modes like road. Existing railway network of Bangladesh and MIDI area regional railway is shown below.



Source: Bangladesh Railway, BR Information Book 2018

Figure 10.1 National Railway Network (left) and MIDI Area Railway (right)

According to BR Information Book 2018, key figures for railway development are summarized:

- Route km - 2955.53 km
- Track km - 432.75 km
- No. of Stations - 466
- Passenger Carried - 90.05 million
- Passenger km: 12993.91 million km
- Daily Passenger Train - 352
- Daily Freight Train - 51
- No. of Employees of BR – 25,823 persons

### 10.1.2 Review of Sector Development Planning

Bangladesh Railways development was outlined in the National Land Transport Policy (2004) and the Integrated Multi-modal Transport Policy (2013), Five Year Plan (2015, 2020), and on the basis of these policies, the National Rail Development Plan was formulated to develop infrastructure, strengthen transport capacity and improve the quality of services in the railway sector.

#### (1) National Land Transport Policy

The National Land Transport Policy (2004) lays down the following goals for railway transport in Bangladesh, they include:

- To encourage greater private sector participation in the provision of services
- To enhance the operational capacity of railways
- To obtain a greater share of the freight market
- More efficient management of the railway's assets
- Improved financial efficiency
- More effective provision of services for social needs
- Fostering inter - national rail links
- Improvement of railway safety
- Improvement of institutional capability of Bangladesh Railway

The Plan has set ambitious development targets for Bangladesh. The vision set for railway sector, is “to expand and improve the railway system to provide safer, better, a more environmentally friendly and cost-effective transport facility to national and international traffic.

#### (2) National Integrated Multi-modal Transport Policy (2013)

The National Integrated Multi-modal Transport Policy (2013) lays primary focus on the roles that rail and inland water transport must play in the development of the overall transport network. In this effort, it prescribes the following imperative measures for Bangladesh Railway:

- Improved inter-city service quality, timetabling and capacity
- Increasing container movement efficiency and capacity
- Establishing more inland container depots
- Taking a lead in providing multi-modal services with operators of other modes
- Developing multimodal corridors between major economic centers which give priority to freight and a high-speed network for passengers. The immediate priority will be the Dhaka Chittagong Economic Corridor
- Establishing technical harmonization and interoperability between various logistics and systems, including regional traffic, particularly for rail-based container movement
- Corporatizing BR in order to bring in efficiency and modern business practices
- Improving value for money for passengers from the Government subsidy
- Bringing forward investment plans and projects to meet these objectives

(3) 7th Five Year Plan (2015) and 8th Five Year Plan (2020)

The 7th Five Year Plan (7FYP) (2015) identifies modern transportation and communication as a key building block for the roadmap to achieve the target growth of 8% and calls for renewed focus on modernizing railways. At the end of 2020, the 8th Five Year Plan (8FYP) is published, with updated development goals for the period from 2020 to 2025. Bangladesh Railways Target for 8FYP include:

- Construction of 798 km new rail line
- Implement dual gauge double tracking of 897 km to increase line capacity
- Rehabilitate/ Upgrade 846 km existing rail line
- Construct 9 important railway bridges
- Procure 160 locomotives to enhance the efficiency, ensure reliability & punctuality of running trains and to introduce new trains
- Procure 1704 passenger coaches and 2000 wagons to improve passenger service quality
- Procure adequate equipment to modernize railway maintenance
- Modernize Railway Workshop and other infrastructure
- Improvement level crossing gates, other infrastructures and rolling stocks
- Construct new ICDs
- Modernize signaling system of 222 stations to ensure safety.
- Increase efficiency and improve performance of Bangladesh Railway
- Ensure full operational cost recovery by FY2025.

(4) Railway Master Plan

The Railway Master Plan complies with each of the above policy directives. The old Railway Master Plan 2010-2030 was approved in 2013 with focuses put on important corridors. The new Railway Master Plan 2016-2045 presents an optimum roadmap to expand operating capacity, increase and capture freight market share, manage railway assets more efficiently, improve financial efficiency, and integrate the gauge system. Vision of Railway Master Plan 2016-2045 is to play an important and dominant role in an integrated transport system for the country by emphasizing its strengths. Key areas where railway will seek to achieve the vision are as follows:

- Transport of Containers, currently restricted to the Chittagong-Dhaka corridor, the market shall be increased
- Inter City Passengers, currently growing at around 3.8% per year, there is massive potential to increase market share in the planned period
- Bulk Freight Movements, which focus on commodities where railway is competitive to increase market share (compare to road mode)
- Role as an International Railway. BR has great potential to play a role in enhancing trade in goods and services

Total of 230 projects with an estimated cost of BDT 5,53,662.00 crore is included in the Railway Master Plan. Specifically, Railway Master Plan indicated the importance of Matarbari Port Development. According to MP, “A large area in Matarbari on Moheshkhali Island is planned to become a power generation hub and an

Economic Zone (EZ) with the following proposed projects and ancillary enterprises:

- Power Plant under CPGCPL
- Petro Chemical complex under the aegis of Kuwait Government and operated by Bangladesh Petroleum Corporation, a statutory body under the Ministry of Power, Energy and Mineral Resources
- Deep Sea Port under the Ministry of Shipping
- EZs

The planned preliminary railway project in MIDI area by the Railway Master Plan is shown below.



Source: Railway Master Plan 2016-2045, Ministry of Railway 2019

Figure 10.2 Planned Railway in MIDI Area

As shown on the map, the proposed railway line includes:

- Dohazari to Cox's Bazar Line (black link in the Figure). From Dohazari, this line goes north to Chattogram and finally Dhaka. It connects the planned townships and SEZs along the route.

- Matarbari Port Access Line and connector lines within the MIDI area (red dotted line in the Figure). The line joins the main line at the north of Chakaria. The connector lines connect the railway terminals at the proposed Coal Power Plant, SEZs, and other industrial sites.

Please note the Railway MP was first drafted in 2010 and updated in 2016, which includes the railway route alignment, with consideration of the land use for EZs, townships. (See section 10.5 in details)

### 10.1.3 Existing Railway in MIDI Area

Currently, there is no railway available in MIDI area.

## 10.2 Significance of MIDI Area for Railway Sector Development

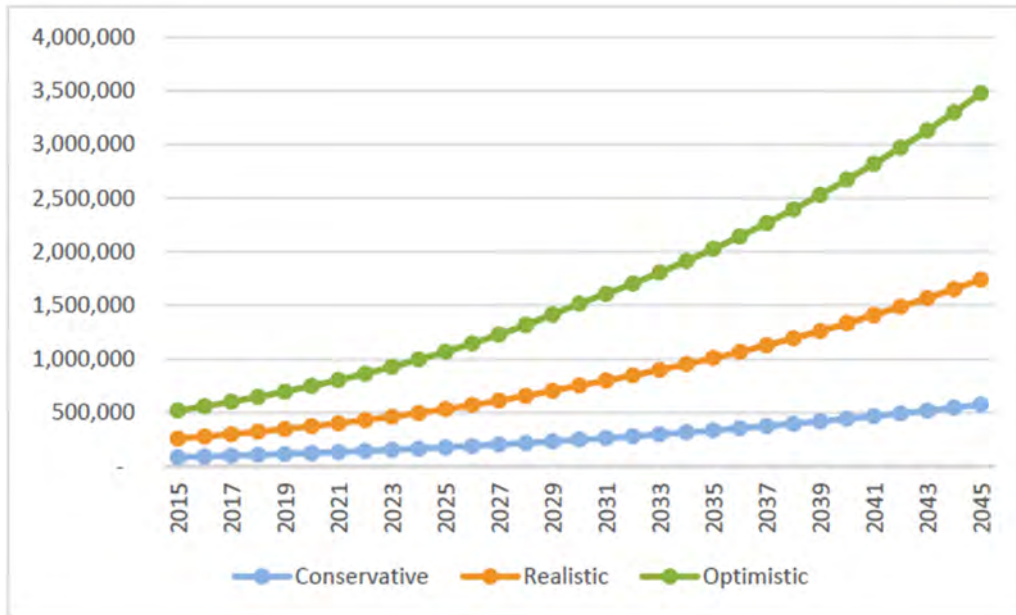
A properly integrated transport plan should utilize the best features of road and rail, and ensure that the two modes can largely complement one another. Rail is more suited to long haul, bulk traffic, while road's strength lays more in short haul, or feeder services. Therefore, intermodal terminals should be planned which utilize rail for the long haul tasks, with road providing the feeder services to and from these intermodal terminals to introduce door to door service.

As mentioned previously, the Port Access Road is under preparation, and is planned to open in 2026. The development of MIDI area requires a coherent plan, designed to utilize more fully the strengths of the rail and road transport modes in a complementary manner. Railway is indispensable to provide efficient and economical transport mode for transporting the container and general/bulk cargo to/from the Matarbari Port.

## 10.3 Demand Forecast

### 10.3.1 National Container Demand Forecast for Major Ports

The Railway Master Plan estimated the future growth of container for major ports in Bangladesh. Summarizing the forecast, BR container traffic will range from 87,000 TEU to 580,000 TEU under the conservative scenario, from 262,000 TEU to 1.7 million TEU under the realistic scenario and the range goes up from 520,000 thousand TEU to 3.5 million TEU under the optimistic scenario, between 2015 to 2045. The result is illustrated in Figure below.

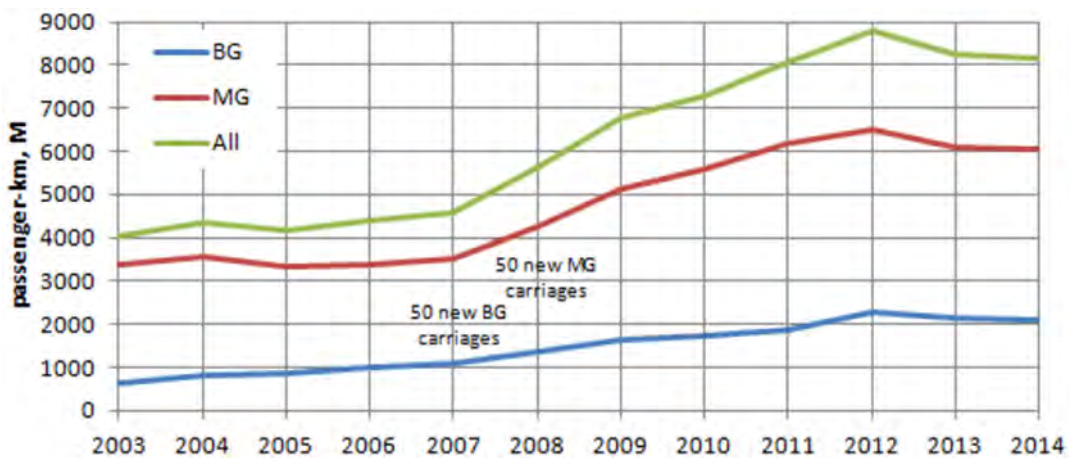


Source: Railway Master Plan 2016-2045, Ministry of Railway 2019

Figure 10.3 BR Container Traffic Forecasts (TEU)

### 10.3.2 National Passenger Demand Forecast

The following table shows the changes of annual passenger carried by BR at the national level.



Source: BR Information Book 2014 (BG: Broad Gauge, MG: Meter Gauge)

Figure 10.4 Annual Passenger-Kilometres, 2014

National passenger travel demand is related to population and economic activity. Population growth results in more people travelling. Higher income per person results in more travelling per person. For passenger demand, a 5% annual increase in passenger transport was assumed over the MP period.

### 10.3.3 Container Demand Forecast for Matarbari Port Access Railway

Based on the National Container Demand Forecast for Major Ports made by Railway Master Plan, the Feasibility Study Report of Component 6 of Technical Assistance for Dhaka-Chittagong-Cox’s Bazar Rail Project Preparatory Facility (ADB 2020) estimated the container demand for Matarbari Port, and further the demand for Matarbari Port Access Railway.



The Table below shows the spilt of containers among the major ports.

Table 10.1 Spilt of Containers by Port

Year	Chattogram	Mongla	Payra	Moheshkhali	Total
2015-20	98%	2%	0%	0%	100%
2021-25	78%	2%	20%	0%	100%
2026-30	58%	2%	30%	10%	100%
2031-35	30%	2%	35%	33%	100%
2036-40	30%	2%	34%	34%	100%
2041-45	30%	2%	32%	36%	100%

Note:

1. No change after 2045
2. Chattogram includes existing Chattogram port and Patenga and Bay Terminal
3. Moheshkhali (and Matarbari) replace the formerly mooted Sonadia Deep Sea Port

Source: Feasibility Study Report of Component 6 of Technical Assistance for Dhaka-Chittagong-Cox's Bazar Rail Project Preparatory Facility, ADB 2020

As indicated by the projection, Matarbari Port would take a share of 36% of total container volume by 2041, surpassing Chittagong Port. Assuming railway carries 50% of the containers, the year-based container demand projection for Matarbari Port Access Railway is estimated, as shown below.

Table 10.2 Container Imports and Exports for Matarbari Port Access Railway

Year	Ton, M		Laden TEU, M			Empty TEU, M			Total TEU, M			Train/d (each way)	
	Import	Export	Import	Export	Total	Import	Export	Total	Import	Export	Total	Single Stack	Double Stack
2021	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-	-	-	-	-	-
2026	2.63	1.31	0.19	0.22	0.41	0.04	0.01	0.05	0.23	0.23	0.46	3.4	1.8
2027	1.8	0.9	0.13	0.15	0.28	0.03	0.01	0.04	0.16	0.16	0.32	4.8	2.5
2028	2.9	1.4	0.21	0.24	0.45	0.05	0.01	0.06	0.25	0.25	0.51	7.6	3.9
2029	4.0	2.0	0.29	0.34	0.63	0.07	0.02	0.09	0.36	0.36	0.72	10.8	5.5
2030	5.2	2.6	0.37	0.44	0.82	0.09	0.02	0.12	0.47	0.47	0.94	14.0	7.1
2031	12.14	6.21	0.87	1.04	1.91	0.23	0.06	0.29	1.10	1.10	2.19	16.4	8.3
2032	12.87	6.62	0.92	1.11	2.03	0.25	0.06	0.31	1.17	1.17	2.34	17.5	8.9
2033	13.64	7.06	0.98	1.18	2.16	0.27	0.07	0.34	1.25	1.25	2.49	18.6	9.5
2034	14.46	7.52	1.04	1.26	2.29	0.29	0.07	0.36	1.33	1.33	2.66	19.8	10.1
2035	15.33	8.02	1.10	1.34	2.44	0.32	0.08	0.39	1.42	1.42	2.83	21.1	10.8
2036	16.69	8.76	1.20	1.47	2.66	0.35	0.08	0.43	1.55	1.55	3.09	23.1	11.8
2037	17.64	9.28	1.26	1.55	2.82	0.38	0.09	0.46	1.64	1.64	3.28	24.5	12.5
2038	18.65	9.84	1.34	1.65	2.98	0.40	0.09	0.49	1.74	1.74	3.48	25.9	13.2
2039	19.71	10.43	1.41	1.75	3.16	0.43	0.10	0.53	1.84	1.84	3.69	27.5	14.0
2040	20.83	11.05	1.49	1.85	3.34	0.46	0.10	0.56	1.95	1.95	3.91	29.1	14.9
2041	23.05	12.23	1.65	2.05	3.70	0.51	0.11	0.62	2.16	2.16	4.32	32.3	16.4

Note: TEU (twenty-foot equivalent unit)

Source: Feasibility Study Report of Component 6 of Technical Assistance for Dhaka-Chittagong-Cox's Bazar Rail Project Preparatory Facility, ADB 2020

#### 10.3.4 Improvement on Demand Forecast for MIDI MP

The improvement on traffic projection methodology is necessary in the formulation of MP. Port Access Road and Rail are to support the freight transportation of the port. Port container demand projection is the basis for the traffic projection for Port Access Road and Rail. The Survey Team identified the discrepancy on port container projection assumption during the review of road and rail traffic demand, as listed in the table below. The consistency of the assumption on demand projection for sectors and different transportation modes is expected.

Table 10.3 Discrepancy on Assumption on Port Container Projection

Source	Share of Projected of Matarbari Port Container Volume in 2026	Share of Projected of Matarbari Port Container Volume in 2041
Page 32, Feasibility Study Report of Component 6, Technical Assistance for Dhaka-Chittagong-Cox's Bazar Rail Project Preparatory Facility, ADB, 2020	10%	36%
Page 3-34, Preparatory Survey on the Matarbari Port Development in People's Republic of Bangladesh, JICA, 2018	15%	25%
Railway Master Plan 2019 (Part -1), Ministry of Railway, 2019	N/A*	N/A

\* Note: There was no projection for Matarbari Port, but instead, the projection for Sonadia Port (located at the south of Moheshkhali Island) is provided, which is used in the ADB Feasibility Study.

Source: JST

In addition, in terms of the share of different modes for the container traffic from Matarbari Port, the assumptions are not consistent between studies. JICA's Preparatory Survey on Matarbari Port Development Project considers land transport which will share 90% of the volume and water transport will share 10% of it while the share of Railway is not considered. However, ADB's study assumes rail takes 50% of the total container volume. The consistency and coordination of transport volume among different transport modes should be addressed in the formulation of MP.

### 10.3.5 Demand Supply Gap

The container demand will increase substantially for Matarbari Port. The huge demand not only challenges the capacity of the access railway itself, but also the capacity of associated infrastructures. According to the Feasibility Study Report of Component 6, Technical Assistance for Dhaka-Chittagong-Cox's Bazar Rail Project Preparatory Facility (ADB, 2020), the Port Access Railway reaches its capacity in 2040 if containers are single-stacked (in 2056 if containers are double-stacked)<sup>3</sup>. Giving the projected demand increase, the Chittagong-Cox's Bazar line reaches capacity in 2035 if containers are single-stacked (in 2042 if containers are double-stacked). The limited capacity of Chittagong-Cox's Bazar line might be a bottleneck of traffic of the national and international corridor. To exploit the available capacity of the port access railway, the double tracking can be planned in near future. In addition, the capacity of port cargo terminals, the gauge conversion operation capacity, and associated ICD (Inland Container Depot) should be addressed in a coordinated way in the MIDI MP.

## 10.4 Ongoing Railway Project

Dohazari to Cox's Bazar Railway Project is under construction. It is the Single Line Dual Gauge Railway Track from Dohazari to Cox's Bazar via Ramu (about 103.5 km). BR has completed the Detailed Design under the support from ADB. As of December 2021, 12km has been constructed. The construction period is planned as 2.5 years and BR expects to finish it by 2023 (at earliest). However, the completion may be postponed due to the delay of land acquisition.

The main line will have nine stations: Dohazari, Satkania, Lohagara, Habang, Chakoria, Dullhazara, Islamabad,

<sup>3</sup> TEU per train: Single Stack, 91.8; Double Stack 180.0

Ramu and Cox’s Bazar, with the total length of around 100km, as shown in the project map.

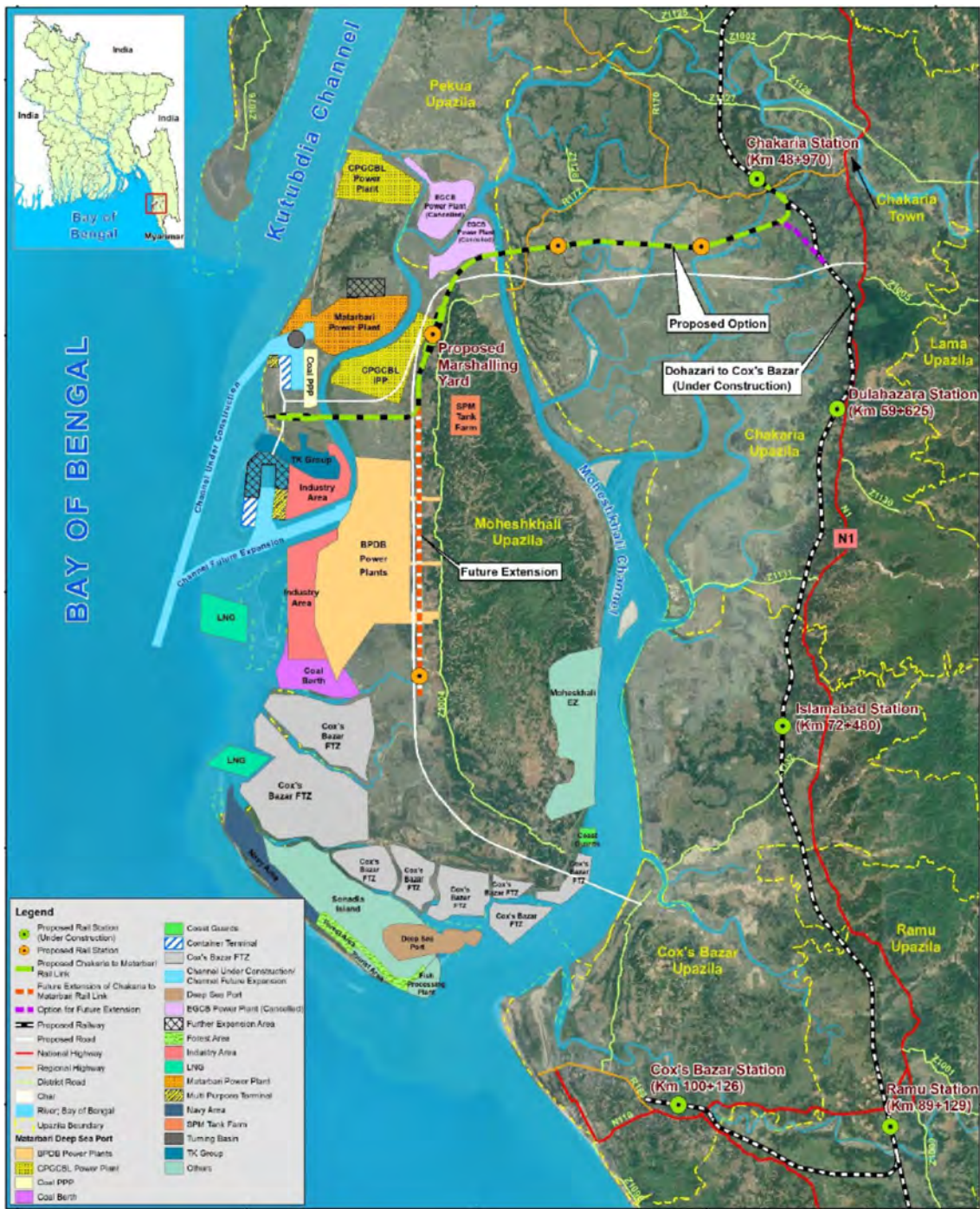


Source: Bangladesh: South Asia Subregional Economic Cooperation Chittagong-Cox's Bazar Railway Project, Annual Report (July 2020 - December 2020), ADB 2021

Figure 10.5 Map of Dohazari to Cox’s Bazar Railway Project

### 10.5 Planned Railway Project

Matarbari Port Access Railway connects Matarbari Port with the Chittagong-Cox’s Bazar Railway at the Chakaria Station. Map of the project is shown below.



Source: Detailed Design Report of Dhaka-Chittagong-Cox's Bazar Rail Project Preparatory Facility, ADB 2020

Figure 10.6 Map of Port Access Railway Project

Bangladesh Railway is in charge of the project. According to the interview, DD is done, and the construction work will start next year. However, there is the financial issue as revealed by MoR during the interview which may delay the construction work.

Technical details of the project are as follows:

- Single line DC rail link
- Construction of new railway building, stations, marshalling yard, bridge and culverts
- Land required: 915.53 acre

- Track km: 59.65
- Route km: 27.46
- Length for segments

Segments	Length (km)
Chakaria to Marshalling Yard	20.750 km
Marshalling Yard – Moheshkhali Passenger Terminal	11.450 km
Marshalling Yard – Deep Sea Port (Not approved yet)	6.7 km

- Total cost (expected): 1824.05 Million USD (including land acquisition)

In addition, Development of Inland container depots (ICD) is also planned. New inland container depots (ICD) near Dhirasram is under Feasibility Study. BR is currently investing in the construction of a new ICD at Dhirasram including ancillary works and a new rail link with the ICD from Pubail and Dhirasram railway stations including access for private sector investments. When this proposed ICD is completed, it will be possible to run high-capacity, high-speed, broad-gauge container trains, thus will increase the terminal capacity for containerized traffic.

## 10.6 Consideration on Broad-scope Long-term Development of MIDI by 2041

Current demand projection for the Port Access Railway considers the development of Deep Sea Port at the national level. By 2041, the development of multiple sectors within MIDI area and the connection of MIDI with international transport network would create additional demand for the Port Access Railway.

For example, within MIDI area, the imports of power station coal could conceivably be transported elsewhere. Power plant ash might be used as a cement extender or as fill. There will be ample opportunity for disposal as fill in the immediate vicinity, given the very low-lying terrain. High embankments and building platforms are needed to meet the needs of developments planned at Matarbari. All such development activities within MIDI area would require the freight transportation by railway. In addition, a high population growth rate is anticipated with the development of the region, and the increase of passenger transportation demand is expected. Initially, buses would meet passenger demand. Buses are more frequent than trains but passenger trains with highly subsidized fares would attract passengers even for such short trips. The additional freight and passenger demand should be considered in the formulation of MIDI MP.

## 10.7 Recommendations and Issues of SDP

### 10.7.1 Lack of Funding May Cause Project Delay

Huge investment is needed for railway infrastructure development. Over the past, Bangladesh Railway has been depending on a mix of financing resources, including MDBs and private investors, as the fund from the organization itself is not sufficient to support the development. This is true for Matarbari Port Access Railway. According to the interview with MoR, the BR is still searching for donor agencies in order to implementing the project. The port access road to this area is expected to open from 2026. If the funding of the railway project is not secured, considering the long construction period need for railway construction, it would be difficult to finish the work within 2026 and it will go beyond. Therefore, the MIDI project as whole would be delayed. The BR representative in the interview admitted this issue and mentioned that security of fund for the project

will be prioritized.

#### 10.7.2 Improvement on Coordination Mechanism

MIDI is an integrated development project which needs involvement of various ministries, divisions, and departments. It is of great necessity to coordinate among them to smoothly realize the integrated development including private stakeholders. To make all of them work effectively, a strong coordination body should be appointed. MIDI-CC is taking an essential role in promoting the work. Coordination meetings are held by the Coordination Committee and more technical discussions are conducted by each party, or among parties. It would be important to add a Proactive Mechanism on top of current coordination mechanism, so that each ministry or organization is not waiting for orders from the top level, but instead thinking ahead and taking actions in advance.

## Chapter 11 Urban Development Sector

### 11.1 Current Progress on Infrastructure Development across MIDI Area

#### 11.1.1 Current Regional Population Size and Distribution

In projecting future population growth for the MIDI area which includes the urban and rural municipalities of Chakaria, Moheshkhali and Cox's Bazar, the SDP for urban development sector (hereafter, SDP-LGD) set the base year at 2011, with the recorded population size at 1,254,765 persons. The distribution of this population across the MIDI area is indicated as follows.

Table 11.1 Regional Population in 2011 (Actual)

	Paurashava or Upazila	Population in Year 2011
Chakaria	Paurashava (Urban Area)	72,669
	Upazila (Rural Area)	401,796
	Total	474,465
Moheshkhali	Paurashava (Urban Area)	167,477
	Upazila (Rural Area)	56,045
	Other Urban Area	235,560
	Total	459,082
Cox's Bazar	Paurashava (Urban Area)	27,321
	Upazila (Rural Area)	293,897
	Total	321,218
Gross Total		1,254,765

Source: Updating Master Plan of Chakaria Paurashava (2020)

#### 11.1.2 Current Progress on Urban Infrastructure Development

##### (1) Chakaria Paurashava

The current conditions (2011) for water provision, sewage treatment, and power connection at households in Chakaria Paurashava are as follows.

Table 11.2 Water Provision at Households in Chakaria Paurashava (2011)

Number of Households	Tap (%)	Tube Well (%)	Others (%)
13,065	6.00	90.50	3.50

Source: Updating Master Plan of Chakaria Paurashava (2020)

Table 11.3 Sewage Treatment at Households in Chakaria Paurashava (2011)

Number of Households	Sanitary (Water-Sealed) (%)	Sanitary (Non Water-Sealed) (%)	Non-Sanitary (%)	None
13,065	24.70	49.60	23.20	2.50

Source: Updating Master Plan of Chakaria Paurashava (2020)

Table 11.4 Power Connection at Households in Chakaria Paurashava (2011)

Number of Households	Households with Power Connection (%)
13,065	64.10

Source: Updating Master Plan of Chakaria Paurashava (2020)



**(2) Moheshkhali Paurashava**

The current conditions (2011) for water provision, sewage treatment, and power connection at households in Moheshkhali Paurashava are as follows.

**Table 11.5 Water Provision at Households in Moheshkhali Paurashava (2011)**

Number of Households	Tap (%)	Tube Well (%)	Others (%)
5,057	2.00	84.00	14.00

Source: Updating Master Plan of Moheshkhali Paurashava (2020)

**Table 11.6 Sewage Treatment at Households in Moheshkhali Paurashava (2011)**

Number of Households	Sanitary (Water-Sealed) (%)	Sanitary (Non Water-Sealed) (%)	Non-Sanitary (%)	None
5,057	20.80	46.60	29.00	3.60

Source: Updating Master Plan of Moheshkhali Paurashava (2020)

**Table 11.7 Power Connection at Households in Moheshkhali Paurashava**

Number of Households	Households with Power Connection (%)
5,057	47.70

Source: Updating Master Plan of Moheshkhali Paurashava (2020)

The current service levels (2011) in water provision, sewage treatment, and power connection at households in Chakaria and Moheshkhali Upazilas are not recorded in the existing documents researched, but it can be assumed that comparatively lower levels of infrastructure development have been achieved in the rural areas of the MIDI area.

## **11.2 Positioning of MIDI within the National Development**

### **11.2.1 Relationship between National Planning and SDP-LGD**

#### **(1) PP2041**

PP2041, as the highest development policy document in Bangladesh, aims to achieve the following two overarching goals for the nation: 1) to achieve a Developed Nation status by 2041; and 2) to eliminate absolute poverty. Recognizing the correlation between economic growth and urbanization in developing societies, the PP2041 sets out the following objectives in relation to the urban development sector:

- Formation of an urban economy with 80% of national population living in cities
- Creation of quality urban environment where the wealth of nature and the high urban functions are balanced in equilibrium
- Elimination of absolute poverty and slum formation in urban realm
- Development of advanced infrastructure and strong base for service industries in order to elevate the quality of urban services
- Establishment of quality city administration that are democratic and financially sustainable

In transitioning into such urban economy, the implementation of national development policy is designed to take maximum advantage of Bangladesh's working-age population bonus, and to be carried out in two stages.

The first stage focuses on the structural reform to achieve expansion of employment opportunities in the manufacturing sector and to transition people from the informal sectors into the formal economic activities. The second stage is aimed to achieve substantial improvements in employment conditions, worker productivity, and quality of industrial economic output.

SDP-LGD, as a guiding document for urban development sector across the MIDI area, is designed to promote urbanization and to expand urban employment sectors in this historically under-developed part of the country. It is a regional development plan, with MIDI project as the primary economic driver, to promote socioeconomic improvements and to eliminate poverty through development of advanced urban infrastructure and quality residential supply.

## (2) 8th Five Year Plan July 2020-June 2025

The 8th Five Year Plan July 2020-June 2025 (hereafter “8FYP”) is currently in effect as the first of four Five-Year Plans to achieve the stated national goals in PP2041. In promoting urbanization across the nation, the 8FYP prioritizes on public investment in the quality-of-life sectors, such as water provision, sewage treatment, sanitary infrastructure, and residential provision. In doing so, the decentralization of administrative authority to the regions is aimed. For this purpose, an increased share of public works program is to be funded by the municipalities’ own resources, requiring efforts to strengthen local tax revenue, to sufficiently collect user fees for urban services provided, and to promote private-sector investment.

Furthermore, aiming to achieve the sustainability goals, the following six core themes are listed.

- Normalization of healthcare, employment, household income and economic activities to pre-COVID levels through rapid recovery from Covid-19 pandemic
- Acceleration of GDP expansion, job creation, productivity improvements and elimination of poverty
- Promotion of wholesome economic development that benefits all, and placement of sufficient social support programs for the disadvantaged
- Urban resilience against natural disasters and climate change, sustainable resource development and usage, and proper management of rapid urbanization process
- Strengthening of administrative capacity for guiding and facilitating economic development
- Achieving SDG targets on course to becoming a Developed Country

SDP-LGD describes the regional planning approach based on the six themes listed above, and focuses on water provision, sewage, sanitary infrastructure, and residential provision as four priority sectors for public investment.

### 11.2.2 Roles of SDP-LGD in Promoting MIDI

SDP-LGD defines the three fields of public works projects in which LGD shall undertake a leading responsibility in promoting the MIDI.

- Transportation Development such as Roadway and Railway in order to make functional linkages between the newly developed MIDI centers and the existing urban centers and rural nodes in the surrounding areas
- Residential Development in Existing Urban Centers and Suburban Townships in order to incrementally

absorb increased working and resident population

- Integrated Development of Urban and Rural Areas in order to promote economic development as a region as a whole

SDP-LGD spells out the implementation plan for the regional development works under LGD's responsibility across MIDI area, which includes all of the urban and rural areas of Chakaria, Moheshkhali and Cox's Bazar.

### **11.2.3 Scope of LGD's Responsibilities**

Local Government Division (hereafter "LGD") under the Ministry of Local Government, Rural Development & Co-operatives (hereafter "MoLGRDC") is mandated to guide and facilitate the planning, budgetary application and approval, and implementation of public works projects by the local municipalities across the nation. Both Urban Development Branch and Urban Development 2 Branch within LGD are responsible for the Paurashava (urban municipalities) such as Chakaria and Moheshkhali, whereas the Upazila Branch is responsible for the rural areas of Chakaria and Moheshkhali upazilas. Paurashava and Upazila are each separate and individual local municipality.

Regarding the roadway development in 'a' above, excluding the national expressways and regional arteries, a network of Upazila Roads, Union Roads, and Local Roads will come under the management responsibility of LGD. Across the MIDI area, with existing Dhaka-Cox's Bazar National Road 1 (N1) and a newly constructed accessway to the Matarbari Port Area as the trunk corridor, a network of feeder road is designed to optimize traffic flow and access. In SDP-LGD, these numerous roadway development projects are serial-numbered and prioritized into short-term, medium-term and long-term projects as per predetermined criteria.

Regarding the residential and infrastructure development in 'b' above, the implementation body will vary depending on the future jurisdiction over the planned township. Firstly, the new townships within the municipal boundaries of Chakaria and Moheshkhali paurashavas are to be incorporated into the respective urban municipality when completed, thus the role of MIDI implementation body in the development of these townships will be minimal. In this case, either LGD or the respective paurashava will be funded to acquire land from the landowners<sup>1</sup>, and take charge of implementing public works projects for land preparation, land adjustment, and installation of urban infrastructure.

Secondly, the planned large townships, to be located adjacent to General Economic Zones (hereafter "GEZ") outside of Chakaria and Moheshkhali paurashavas, will be independent of the existing urban municipalities when completed, thus the role of MIDI implementation body in the development of these GEZ townships will be pronounced. In this case, MIDI implementation body will lead the land acquisition process, and take charge of implementing public works projects for land preparation, land adjustment, and installation of urban infrastructure. According to a hearing with an LGD director<sup>2</sup>, the GEZ townships can be potentially developed and managed by a MIDI-funded and special-purposed area management public company, with a similar set of powers and duties to those of municipalities. This arrangement is indicative of the close relationship between the township development and management on the one hand, and the sustained development of MIDI projects

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<sup>1</sup> In land acquisition process, District Deputy Commissioner, as the keeper of land registration record across the nation, take on the role of facilitating the fair and legal transfer of land title to the government. In the target region, DDC of the Cox's Bazar District will be responsible for the decision on compensating the land owners by the government.

<sup>2</sup> Hearing Conducted on November 16<sup>th</sup>, 2021 in Dhaka.

on the other hand.

Furthermore, the residential and commercial development in the townships is expected to be driven by the private-sector investment.

On the new township development projects, SDP-LGD sets order of priority and a sequence of phased development plans based on a set of predetermined criteria. The degree to which LGD gets involved in the township development projects will depend on the funding source of a given project. As described in other chapters, there are two types of development funds from the central government to the municipalities. Annual Development Program (hereafter “ADP”) is categorized into ADP Block Grant, distributed annually based on the target municipality’s population size, tax revenue, governing capacity and other predetermined criteria, and Development Project Proposal (DPP), given to select municipal public works projects. The former is distributed directly from the central government to the municipality, whereas distribution of the later is to be screened by LGD. Specifically, for a municipal public works project to be applied for central funding through ADP-DPP, LGED (Local Government Engineering Department), a technical arm of LGD, will guide, support and put together an application package for the client municipality. Upon funding approval by the central government, the selected project is to be managed by the LGD in its implementation.

### **11.3 Demand Projection for Urban Development Sector**

#### **11.3.1 Regional Population Projections by LGD and Chakaria / Moheshkhali Paurashavas**

##### **(1) Summary of LGD Projection Model**

SDP-LGD (Chapter 2) projects the future regional population of Chakaria, Moheshkhali and Cox’s Bazar, - each with paurashava (urban municipality) and upazila (rural municipality), in total six local municipalities - by categorizing growth into a) Natural Population Growth and b) Social Population Growth (that resulting directly from MIDI).

In projecting the natural population growth number, the recorded regional population number in 2011 of 1,254,765 persons is used as a baseline. The natural population growth rates are calculated for the urban and rural parts of Chakaria, Moheshkhali and Cox’s Bazar respectively (Footnotes 3,4,5 below), whereupon population increase of approximately 940,000 persons are projected by year 2041, a 75% increase since 2011 (See Table 11.8 upper rows). Here, the natural population growth rate is described to have been derived from national, divisional, and paurashava figures, and are in proximity of 2011 figures for the respective administrative area. This projection is judged to be reliable as a conservative estimation, as based on the actual recorded figures in 2011. The UN’s World Population Prospects, however, indicates population growth models for Bangladesh, with the peak population achieved around 2040 for the low model, and around 2060 for the medium model. If the more conservative model is taken, it can be assumed that the rate of population growth will be gradually suppressed even prior to the maturation of MIDI project at 2041. In particular, the MIDI area will likely experience the following two socioeconomic transition in which the braking effect on the population growth is likely, with the actual population increase to be significantly less than 940,000.

- As educational and income levels of the female population rise in MIDI area, delayed marriage and fewer child-bearing become the social norm, resulting in suppression of birth rate curve.

- As urbanization progresses in MIDI area, shrinkage of primary sector activities is expected. It is likely that some portion of people leaving the agricultural sector cannot be fully absorbed into the urban economic activities around MIDI and related service industries. Therefore, a certain percentage of working-age population will leave for other regions or overseas in search of employment opportunities.

In a hearing session with an LGD director, it was opined that the MIDI area has been historically under-developed and has had socioeconomic tendency for a higher birth rate than more developed regions in the country. From a macro perspective, however, the LGD shared an understanding that a degree of suppression in population growth rate is most likely toward 2041, and that revisiting the projection models in the SDP-LGD will be necessary in the process of compiling a MIDI MP.

On the other hand, the socially induced population growth resulting directly from MIDI is projected to number 75,000. The geographic distribution of this population is modeled as follows: Chakaria and its suburbs, with its existing and direct connectivity to the national highway and railway networks, will see population growth in the short term (before 2026), while Moheshkhali, with future regional connection by access roads and railways to Moheshkhali Island, will see a longer-term population growth pattern up until 2041 (See Table 11.8 lower rows). Cox's Bazar, located on the opposite shore on the mouth of the Moheshkhali Channel, is considered to be situated outside of commuting sphere unless a long-span bridge is to link across the shores. Thus, the MIDI-related population growth in the city shows zero. The necessity of this bridge project is briefly mentioned in the SDP-LGD, but a concrete planning and budget commitment are not presented in the document.

Table 11.8 Population Growth Projection across MIDI Area and Surrounding Region by SDP-LGD

Population Growth Projection	Location	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Natural Population Growth	Chakaria Upazila/Paurashava	80,532	316,674 <sup>3</sup>	
	Moheshkhali Upazila/Paurashava	46,942	176,417 <sup>4</sup>	
	Cox's Bazar Upazila/Paurashava	62,944	258,832 <sup>5</sup>	
	<b>TOTAL</b>	<b>190,418</b>	<b>751,923</b>	<b>942,341</b>
Population Growth due to MIDI	Chakaria Upazila/Paurashava	35,100	20,642	
	Moheshkhali Upazila/Paurashava	0	19,258	
	Cox's Bazar Upazila/Paurashava	0	0	
	<b>TOTAL</b>	<b>35,100</b>	<b>39,900</b>	<b>75,000</b>
<b>Total</b>		<b>225,518</b>	<b>791,823</b>	<b>1,017,341</b>

Source: Sector Development Plan of LGD for MIDI Area (LGED)

The potentially problematic points by this projection models are indicated in the next section.

## (2) Potential Shortcomings with LGD's Projection Model

The socially induced population growth of 75,000 persons projected by LGED is defined as those resulting directly from MIDI. As such, it shall be logically based on the estimated employment number in each area of the MIDI plan (i.e. projected labor demand). In analyzing SDP-EGD, however, the figure of 75,000 persons is

<sup>3</sup>Chakaria's natural population growth rates in urban area at 3.78%, rural area at 2.25% (by LGED)

<sup>4</sup>Moheshkhali's natural population growth rates in urban area at 2.23%, rural area at 2.24% (by LGED)

<sup>5</sup>Cox's Bazar's natural population growth rates in urban area at 6.93%, rural area at 3.98% (by LGED)

apparently derived from JICA Land Use Study (described later), where it is listed as an estimated resident number that can be absorbed by densification of Chakaria and Moheshkhali urban areas. As such, this population projection is based on the planned residential supply figure (See Table 11.15 upper rows, yellow). Such methodology of projecting the future population size is problematic and risks a miscalculation because of the following two reasons.

Firstly, in Bangladesh and other developing societies, the unskilled labor (low-income demographics) tends to rush into a region with surplus labor opportunities from the surrounding regions, whereby the inflation of local residential market and the unrestricted growth of informal communities (“Slums”) will result. Meanwhile, such undersupply of proper residential opportunity does not function as a brake on more people rushing in in search of job opportunities. This is because many laborers leave their families at home, opting to live and work as a migrant worker under severe living conditions, prioritizing remission to their families at home than seeking proper residential conditions. The migrant workers will live in dormitories in packed conditions, and opt to live in slums if even the dormitories are unavailable. Such low-income laborers prioritize job opportunity over proper living conditions, and will not interact with a formal residential market if pushed out by price. Thus, the residential supply will not serve as a limitation on the population growth in the lower strata of society. The uncertainty on the size of unskilled labor among the MIDI-related employment enhances the risk of such miscalculation.

Secondly, in separating the natural population growth and the socially-induced population growth, and by overly focusing the future residential provision on the later in demerit to the former, there is a high risk of distorted regional residential market in the coming years. In particular, when considering that the natural population growth number is projected to be 12.5 times that of the socially-induced growth number, it is deemed important to understand in detail the demographics of the existing regional population, and to make an accurate projection of the absorbing capacity by the expansion and densification at the existing villages and urban municipalities that does not depend on the large-scale township development. Regarding these “natural absorption” by the existing villages and cities, some analysis can be made from the SDP and from the results of the recent JICA studies.

On the on-going characteristics of village expansion and densification, the “Land Use Change” analysis (Satellite image analysis of land use shift between 2010 and 2020) in SDP-LGD (Chapter 2) can be a source of educated guess. In the image analysis of the multiple selected hotspots, the land use shift from agricultural to residential or commercial uses is shown to be accelerating yearly, and the expansion of residential areas is occurring by way of densification within the village boundary rather than by dispersion at the fringes. This phenomenon can be conjectured with high confidence as resulting from the local condition whereby the near-sea-level elevation and regular submersion at high tide led to building villages on mounds, thus confining the residential expansion within such artificial high ground. This form of densification at the villages, however, has a physical limitation in terms of absorbing a significant portion of the 940,000 persons projected as a result of the natural population growth.

On the on-going characteristics of urban expansion and densification at the existing paurashavas, as shrinkage in the primary sector is to be anticipated, the rapid transfer of younger workers into the manufacturing and service industries will progress, and the urban expansion and densification will accelerate. If a half of the

projected natural population growth (470,000 people) is to flow into the cities in MIDI area, this will equal to the medium-sized cities to be formed by itself. It is highly unlikely that the expansion and the densification of the existing cities alone is able to absorb the growth of this magnitude.

As indicated above, the proper preparation for accommodating 940,000 persons by natural population growth is a structural challenge that will require region-wide administrative leadership guided by carefully formulated regional development plans. As such, the natural population growth not directly resulting from MIDI cannot be excluded from the comprehensive residential development planning and strategy.

### 11.3.2 Population Projection by Chakaria Paurashava Master Plan

The actual population for Chakaria Paurashava in 2011 shows age distribution as follows. Of the total population number of 72,669 persons, the schooling age group is 41%, the working age group is 54%, and retired age group is 4.9% (See Table 11.9).

Table 11.9 Age Distribution for Population in Chakaria Paurashava in 2011

Year	Age group 0-14		Age group 15-59		Age group 60+		Total Population	Dependency Ratio
	Number	%	Number	%	Number	%		
2011	29,794	41.00	39,314	54.10	3,561	4.90	72,669	84.84%

Source: Updating Master Plan of Chakaria Paurashava (2020), BBS 2011

Taking the 2011 population record of 72,669 persons as a base point, to which the average value of the natural population growth rates (3.78%) from the nine wards of Chakaria Paurashava is multiplied, the total number of residents are projected to reach 242,898 persons by 2041. Adding to this number the MIDI-induced population growth projection, the total number of residents in Chakaria Paurashava in 2041 is estimated to be just below 300,000 persons (See Table 11.10).

It is judged that keeping a continuous 3.78%-rise in population annually up to 2041 is difficult to realize as the above-mentioned macro suppressors will come into effect toward the later years.

Table 11.10 Population Projection in Chakaria Paurashava

	2020	2026	2031	2036	2041
Projected Population	102,333	129,909	159,359	196,354	242,898
Increased Population Due to MIDI		→35,100			→55,742
Total Increased Population=		<b>165,009</b>			<b>298,640</b>

Source: Updating Master Plan of Chakaria Paurashava (2020) (Red Cell : Corrected)

The logical methodology behind setting the MIDI-induced population growth as 55,742 persons (35,100 persons by 2026, 20,642 persons by 2041) is not sufficiently clarified in the SDP-LGD. Furthermore, the original SDP showed 20,642 in the red cell of the table below as the population growth number since 2026, but it is this Study Team's understanding that this value should show a cumulative number up to the year 2041. We corrected this number as  $35,100+20,642=55,742$  persons.

### 11.3.3 Population Projection by Moheshkhali Paurashava Master Plan

The actual population for Moheshkhali Paurashava in 2011 shows age distribution as follows. Of the total population number of 27,321 persons, the schooling age group is 38%, the working age group is 56%, and retired age group is 6% (See Table 11.11).

Table 11.11 Population by Age in Moheshkhali Paurashava (2011 Recorded)

Year	Age group 0-14		Age group 15-59		Age group 60+		Total Population	Dependency Ratio
	Number	%	Number	%	Number	%		
2011	10436	38.20	15272	55.90	1612	5.90	27321	78.89%

Source: Updating Master Plan of Moheshkhali Paurashava (2020)

Taking the 2011 population record of 27,321 persons as a base point, to which the average value of the natural population growth rates (2.23%) from the nine wards of Chakaria Paurashava is multiplied, the total number of residents are projected to reach 52,995 persons by 2041. Adding to this number the MIDI-induced population growth projection, the total number of residents in Moheshkhali Paurashava in 2041 is estimated to be just below 72,000 persons (See Table 11.12). The logical methodology behind setting the MIDI-induced population growth as 19,258 persons is not sufficiently clarified in the SDP-LGD.

Furthermore, it is judged that keeping a continuous 2.23%-rise in population annually up to 2041 is difficult to realize as the above-mentioned macro suppressors will come into effect toward the later years.

Table 11.12 Population Projection for Moheshkhali Paurashava

	2021	2026	2031	2041
Projected Population	34,073	38,051	42,494	52,995
Increased Population Due to MIDI				19,258
Total Increased Population=				<b>72,253</b>

Source: Updating Master Plan of Moheshkhali Paurashava (2020)

### 11.3.4 Regional Population Projection by JICA

#### (1) Summary of JICA Projection Model

JICA's *Land Use Plan for Moheshkhali-Matarbari Region* (2019, hereafter "JICA Land Use Study") projects the future regional population number resulting from MIDI-related growth by basing the model on estimated number of employees within each of the planned employment area. The number of workers and their family members employed across the Matarbari Port area, Seaborne Economic Zone and General Economic Zone are projected to be 111,500 persons (2041). Adding to this number will be people employed in the related service industries and their family members at 12,300 persons, bringing the total regional population projection to 123,800 persons by 2041. The study does not explain the logical basis behind this projection in sufficient detail for this analysis, but the basing the projection model on the estimated employee number indicates that this is a comparatively more reliable model.

Table 11.13 Projection of Employee Numbers by Area in MIDI as per 2019 JICA Land Use Study

	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Matarbari Port Area	8,000	19,800	27,800
Seaborne EZ	17,400	18,200	35,600
General EZ	14,700	33,400	48,100
Total	<b>40,100</b>	<b>71,400</b>	<b>111,500</b>

Source: Land Use Plan for Moheshkhali-Matarbari (JICA, 2019)

#### (2) Necessity of Upgrading JICA Projection Model

This 2019 JICA projection figure, however, need to be updated as per the government announcements in 2021 regarding the major revisions to MIDI development policy. Specifically, a number of coal-fire powerplant



projects has been terminated, to be replaced by LNG-based powerplants, which will require adjustments to the projected employee numbers at each facility as the project plans become clarified. In Bangladesh, where the low-laying river delta occupies the majority of the national territory, the risk awareness of the climate change is elevated into the political sphere, resulting in significant shift in the makeup of the national energy policy. This trajectory is most likely to lead to significant revision of the planning on the energy-related infrastructure across MIDI.

Furthermore, the share of employment categories and pay levels (e.g. management, engineers, office workers, skilled laborers, unskilled laborers, etc.) are not known, as such the current population projection model is not sufficiently categorized into residential needs by different demographics of the future population.

### **11.3.5 Environmental Risks Associated with Under-Estimating Regional Population**

The environmental risks in underestimating the regional population are thought to be adversely affected by the specific topographical characteristics of MIDI area. The majority parts of this coastal area lies within 0~3 meters above sea level, and is susceptible to inundation at high tide. The existing villages and buildings are built on artificial mounding and/or with elevated floors as per historical experience of repeat flooding. On the other hand, the irregular slums create high risk of submerged and destroyed communities, as well as flooded sewer channels, contaminated water supply, overflow of debris and wastes into rivers and sea, and other repeat and wide-area environmental and sanitary problems. In particular, the official and unofficial Rohingya refugee camps have been established across the region around Cox's Bazar, and at such locations the occasions of heavy rain have resulted in severe flooding and landslides with loss of lives in the recent years.<sup>6</sup> Thus, the poor and the socially disadvantaged are disproportionately susceptible to downward spiral in the deterioration of quality of life in this water-logged region, and preventive regulatory measures are extremely important to address this issue for the long run.

In summary, the accurate understanding of the proportion of unskilled and lower-income laborers and their families are necessary.

### **11.3.6 Proposed Revisions to the Future Regional Population Projection**

Considering the aforementioned factors, this study proposes the population projection model for the MIDI area to be compiled as follows using available datasets.

- Regarding the natural population growth projection, SDP-LGD model using actual growth rate is selected as reliable
- Regarding the socially induced population growth projection (as direct result of MIDI), JICA model using estimated employee number is selected as reliable

According to this model (See Table 11.14), the total population growth number projected across Chakaria, Moheshkhali and Cox's Bazar Paurashava in 2041 is approximately 1.06 million above 2011 baseline number, at around 2.3 million persons.

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<sup>6</sup> <https://www.unhcr.org/news/stories/2021/7/6103c43c4/floods-bring-new-misery-rohingya-refugees-bangladesh-camps.html>

Table 11.14 Proposed Population Projection Model

Population Growth Projection	Location	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Natural Population Growth	Chakaria Upazila	80,532	316,674	
	Moheshkhali Upazila	46,942	176,417	
	Cox's Bazar Upazila	62,944	258,832	
	SUBTOTAL	190,418	751,923	<b>942,341</b>
Population Growth due to MIDI	Matarbari Port Area	8,000	19,800	27,800
	Seaborne EZ	17,400	18,200	35,600
	General EZ	14,700	33,400	48,100
	SUBTOTAL	40,100	71,400	111,500
	Related Service Sector			12,300
	SUBTOTAL			<b>123,800</b>
Total Population Growth				<b>1,066,141</b>

Source : Compiled from SDP-LGD and Past JICA Studies by Study Team

#### 11.4 Current Progress on Residential and Urban Infrastructure Development

In the hearing with an LGD director, it was confirmed that the land acquisition process for the township development within both Chakaria and Moheshkhali paurashavas has not been initiated. Furthermore, land acquisition for the large suburban townships adjacent to GEZ is understood to be incomplete at this time. Therefore, it is assumed that on-ground works have not commenced.

#### 11.5 Infrastructure Projects in Planning and Current Progress

##### 11.5.1 Planning for Residential Provision by LGD and Chakaria / Moheshkhali Paurashavas

###### (1) Summary of Residential Planning in SDP-LGD

SDP-LGD (Chapter 3) separates the residential development projects into phases, with short term being up to 2026, medium term up to 2031, and long term up to 2041, and categorizes into the following three approaches for the project implementation.

- Company housing within the Matarbari Port area (Developed by tenant companies) 8a)
- Densification by infill development projects of Chakaria and Moheshkhali paurashava (Developed by private-sector developers) (b)
- Township projects near newly established EZ's (Developed by PPP scheme) ©

SDP-LGD (Chapter 2) quotes the residential planning figures by JICA Land Use Study to indicate the phased residential development strategy (See Table 11.15).

Table 11.15 Planned Distribution of Residential Program across MIDI and Surrounding Areas

	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Chakaria and Moheshkhali	35,100	39,900	75,000
Company Housing	5,000	10,800	15,800
Townships	0	33,000	33,000
Total	<b>40,100</b>	<b>83,700</b>	<b>123,800</b>

Source : Land Use Plan for Moheshkhali-Matarbari Region (JICA, 2019)

##### Development Planning for Paurashava Townships (a)

In the Table 11.15, "Chakaria and Moheshkhali" represents planned new residential development areas within the boundaries of respective paurashavas. The total residential provision in such in-city townships, according

to JICA Land Use Study, is 75,000 residents. On the other hand, as indicated in Chapter 3 of SDP-LGD, Paurashava Master Plans by Chakaria and Moheshkhali show 101,415 planned residents in total at five new residential areas within Chakaria and four new areas within Moheshkhali (See Table 10.12).

Accordingly, there is a discrepancy of 26,500 persons for the in-city residential provision between Chapters 2 and 3 of SDP-LGD. This study assumes that total of 101,415 residents at nine new townships in the two paurashava, as per respective municipal master plans, to be the correct planned number.

**Table 11.16 Planned Residential Provision in Chakaria and Moheshkhali Master Plans (2020)**

	Single-Family Housing (Persons)	Multi-Family Housing (Persons)	TOTAL(Persons)
Chakaria Paurashava MP	4,796	65,713	70,509
Moheshkhali Paurashava MP	2,927	27,979	30,906
<b>Total</b>	<b>7,723</b>	<b>93,692</b>	<b>101,415</b>

Source: Sector Development Plan of LGD for MIDI Area (LGED), Chakaria and Moheshkhali MPs (2020)

#### Residential Planning for Company Housing within MIDI Areas (b)

In the Table 11.15, “Company Housing” represents the employee dormitory facilities to be developed by individual tenant company at the MIDI industrial area and is planned for 5,000 residents in total. These company housings are to temporarily accommodate expat employees and domestic facility workers at the initial stage of the MIDI development, to be gradually replaced by the more permanent housing development projects in the existing paurashavas and new townships. The use of company housing is expected to shift as the housing development accelerate elsewhere in the surrounding area.

#### Development Planning for Suburban Townships (c)

In the Table 11.15, “Township Development” represents the new and singular township development area for the executives, located adjacent to the new GEZ in the suburb of Chakaria. This large suburban township is to absorb 33,000 residents between the years of 2027 and 2041. Additionally, Chapter 3 of SDP-LGD lists another new township in the planning by JICA’s SCRDP study, in the suburb of Moheshkhali to absorb 28,248 residents. In summary, the total planned residential provision in the two townships in the suburb of Chakaria and Moheshkhali is 61,248 residents.

#### (2) Summary of Residential Development Planning in the Chakaria Master Plan

In Part B: Urban Area Plan, Chapter 10: Land Use Plan, the residential development planning for the 9 wards is distributed as shown in Table 11.17, and is based on the following assumptions.

- Standard population density is set at 200 families / Acre (81 families / Hectare)
- Average family size is 5.35 persons / Family

**Table 11.17 Projection of Residential Unit Number by Ward in Chakaria Paurashava**

Ward No	Area (sq.km.)	Density/ sq.km.	Projected Housing Requirements					
			2021		2026		2041	
			Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units
Ward 1	2.77	2,697	11,684	2,184	14,612	2,731	28,579	5,342
Ward 2	0.84	9,113	10,727	2,005	12,697	2,373	21,061	3,937
Ward 3	1.16	7,086	8,114	1,517	8,062	1,507	7,907	1,478

Ward No	Area (sq.km.)	Density/ sq.km.	Projected Housing Requirements					
			2021		2026		2041	
			Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units
Ward 4	0.80	9,863	13,580	2,538	17,817	3,330	40,232	7,520
Ward 5	2.50	3,180	9,901	1,851	11,050	2,065	15,360	2,871
Ward 6	1.29	6,241	13,045	2,438	16,604	3,104	34,245	6,401
Ward 7	1.90	4,472	14,314	2,676	18,578	3,473	40,620	7,593
Ward 8	1.99	5,240	15,345	2,868	18,616	3,480	33,237	6,213
Ward 9	2.13	3,056	9,717	1,816	11,873	2,219	21,657	4,048
SubTotal/ Avg.	<b>15.38</b>	<b>5,661</b>	<b>106,427</b>	<b>19,893</b>	<b>129,909</b>	<b>24,282</b>	<b>242,898</b>	<b>45,402</b>
Increased population due to MIDI					35,100	6,561	55,742	10,419
Total/ Avg.	<b>15.38</b>	<b>5,661</b>	<b>106,427</b>	<b>19,893</b>	<b>165,009</b>	<b>30,843</b>	<b>298,640</b>	<b>55,821</b>

Source : Updating Master Plan of Chakaria Paurashava (2020) (Red Cell : Corrected)

Regarding the new township development, excluding the Township No.4 situated in Ward No.3, all other planned township plans have secured a respective greenfield of adequate size on which to develop (See Table 11.18). Of these, a single site is targeted for implementation as a subproject in JICA's SCRDP, and land preparation, as well as infrastructure development for drainage, access roadways, water provision, and power lines are to be implemented. On the other hand, residential, commercial, and civic facilities development, as well as water provision and power distribution are outside of the scope of SCRDP. <sup>7</sup>

Table 11.18 Summary of Township Development Planning in Chakaria MP

Sl. No.	Land Use Proposal Detail	Housing Type	Name	Area (Acres)	Density (Population/ Acres)	Population Accommodation
1	Private Residential	Multi Story Housing	PR-01	62.26	200	12,451
2	Private Residential	Multi Story Housing	PR-02	89.38	200	17,875
3	Private Residential	Multi Story Housing	PR-03	28.26	200	5,653
4	Private Residential	Single Housing	PR-04	95.92	50	4,796
5	Private Residential	Multi Story Housing	PR-05	148.67	200	29,734
Total				<b>424.48</b>	<b>166</b>	<b>70,509</b>

Source: Updating Master Plan of Chakaria Paurashava (2020)

### (3) Shortcomings on Residential Planning in Chakaria Master Plan

Regarding the population projection within the boundaries of Chakaria paurashava, it is deemed unlikely that an annual 3.78%-rise in population is continued up to 2041, as the above-mentioned macro suppressors will come into effect toward the later years.

Furthermore, population projection of 30,000-increase is shown for Chakaria paurashava up to 2041, whereas the residential provision during the same duration reaches only 70,000, leaving 23,000 undersupplied. This is another indication that the population projection model is inflated.

Furthermore, 94.27% of residential dwellings in the target area is single-story, of which 52.94% is classified "Kutchha" or of temporary construction made of timber, sheet metal and other inadequate materials. This type of informal building indicates the low average income level of the area's resident families, resulting from the

<sup>7</sup> JICA, November 2021

general lack of industries in MIDI area. In order to improve the quality of dwellings to a more permanent “Pucca”, or of reinforced concrete and bricks, the average income of the area families need to be elevated as a whole through a comprehensive economic development scheme.

#### (4) Summary of Residential Development Planning in Moheshkhali Master Plan

In Part B: Urban Area Plan, Chapter 10: Land Use Plan, the residential development planning for the 9 wards is distributed as shown in Table 11.19, and is based on the following assumptions.

- Standard population density is set at 200 families / Acre (81 families / Hectare)
- Average family size is 5.35 persons / Family

Table 11.19 Projection of Residential Unit Number by Ward in Moheshkhali Paurashava

Ward No	Area (sq.km.)	Density/ sq.km.	Projected Housing Requirements					
			2021		2026		2041	
			Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units	Pop <sup>n</sup>	Dwelling Units
Ward 1	0.65	3814	2958	549	3396	630	4885	906
Ward 2	0.31	9877	3733	693	4268	792	5922	1099
Ward 3	1.04	4452	5614	1042	6442	1195	9348	1734
Ward 4	0.56	4716	3196	593	3553	659	4649	863
Ward 5	3.02	1305	4702	872	5396	1001	7675	1424
Ward 6	0.29	9703	3348	621	3814	708	5171	959
Ward 7	0.24	8525	2505	465	2816	522	3711	688
Ward 8	0.72	4314	3828	710	4398	816	6291	1167
Ward 9	0.80	3254	3163	587	3609	670	5136	953
Increased population due to MIDI							<b>19,258</b>	<b>3573</b>
Total/Avg.		5551	33047	6131	37692	6993	<b>72046</b>	<b>13367</b>

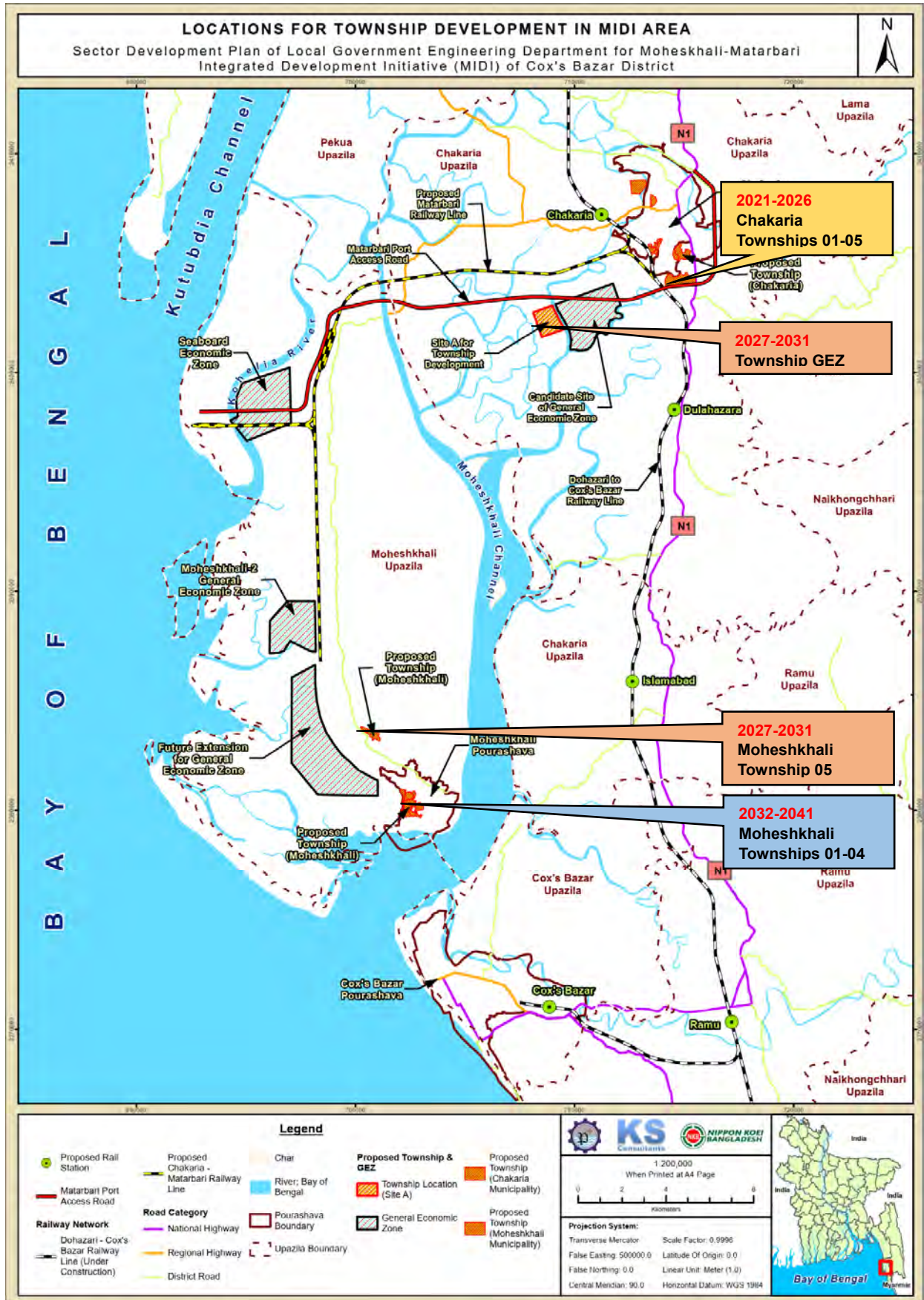
Source: Updating Master Plan of Moheshkhali Paurashava (2020)

Regarding the new township development, all planned township plans have secured a respective greenfield of adequate size within the nine wards (See Table 11.20). Of these, two sites are targeted for subproject implementation in JICA’s SCRDP, and land preparation, as well as infrastructure development for drainage, access roadways, water provision, and power lines are to be implemented. On the other hand, residential, commercial, and civic facilities development, as well as water provision and power distribution are outside of the scope of SCRDP.

Table 11.20 Summary of Township Development Planning in Moheshkhali MP

Sl. No.	Land Use Proposal Detail	Housing Type	Name	Area (Acres)	Density (Population/ Acres)	Population Accommodation
1	Private Residential	Single Housing	PR-01	58.55	50	2,927
3	Private Residential	Multi Story Housing	PR-02	25.13	200	5,025
4	Private Residential	Multi Story Housing	PR-03	58.01	200	11,603
5	Private Residential	Multi Story Housing	PR-04	56.75	200	11,351
Total				198.44	156	30,906

Source: Updating Master Plan of Moheshkhali Paurashava (2020)



Source: Sector Development Plan of LGD for MIDI Area (LGED)

Figure 11.1 Phased Development Planning of Townships by SDP-LGD

**(5) Shortcomings in Residential Planning on Moheshkhali Paurashava Master Plan**

It is deemed unlikely that a continuous 2.23%-rise in population up to 2041 can be maintained in Chakaria paurashava. An over-estimation shall be adjusted.

Furthermore, population projection of 72,000-increase is shown for Moheshkhali paurashava up to 2041, whereas the residential provision during the same duration reaches only 30,000. This is another indication that the population projection model is inflated.

**(6) Residential Planning Proposal Combining JICA Land Use Study, SCRDP, and Two Paurashava Master Plans**

Summarizing all of the aforementioned residential development plans, the in-city townships at Chakaria and Moheshkhali, company housing at Matarbari port area, and suburban townships near planned GEZ in total will absorb approximately 179,000 residents (See Table 11.21).

Table 11.21 Total Residential Provision at MIDI Area and Surrounding Area (Planned)

	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Chakaria and Moheshkhali	7,723	93,692	101,415
Company Housing	5,000	10,800	15,800
Township Development	0	61,248	61,248
<b>Total</b>	<b>12,723</b>	<b>165,740</b>	<b>178,463</b>

Source: Recalculated as per SDP-LGD and recent JICA studies by this study group

**11.5.2 Infrastructure Development Planning by LGD and Chakaria / Moheshkhali Paurashavas**

SDP-LGD (Chapter 4) categorizes infrastructure projects in MIDI area (including land preparation work for townships) into those in Chakaria Upazila and Moheshkhali Upazila, which are further bundled into “Packages” as per geographic and functional proximities for ease of bidding and contractual management and project implementation. Each package, however, includes short term (up to 2026), medium term (up to 2031), and long term (up to 2041) projects, combining multiple sectors such as land preparation and infrastructure development at townships, development of bazar (commercial centers), transportation hubs, union roads, village roads, and other urban infrastructure. Each package also includes short term to long term projects, making their completion cycle at around 20 year-span. Thus these packages are not a contractual unit but a management unit of long term projects.

The planned infrastructure public works within the city boundaries of Chakaria and Moheshkhali are listed in the respective Paurashava Master Plans (described later). SDP-LGD, therefore, only lists the planned projects within the two rural upazilas.

**(1) Summary of Development Projects in Chakaria Upazila by SDP-LGD**

Overview of the infrastructure development project packages in Chakaria (See Table 11.22~Table 11.25) indicates that development of five new townships within the municipal boundary are designated short term projects (up to 2026), while the one adjacent to General Economic Zone in the suburb is designated medium term (up to 2031) project. Bazar development projects are designated short to medium term, indicating the planning intent to strengthen urban services in parallel to the increase in population size.

Table 11.22 Chakaria Upazila's Infrastructure Development Project Package 01 (SDP-LGD#01)

Project Name	Qty.	Unit	Phase	Type
Preparation of Township (3) at Chakaria PS	28.26	Acre	Short Term	Township
Preparation of Township (4) at Chakaria PS	95.92	Acre	Short Term	Township
Ghanashyam Bazar (GC)	-	-	Short Term	Bazar
Harbang Bazar (RM)	-	-	Medium Term	Bazar
Bethua Bazar (RM)	-	-	Short Term	Bazar
Lakharchar Bazar (RM)	-	-	Medium Term	Bazar
Shaharbil Bazar (RM)	-	-	Short Term	Bazar
BM Char UP - Konakhali- Demushia UP Road	7.82	km	Short Term	Union Road
Kaiyerbill UP Office - Betua Bazar Road	2.55	km	Long Term	Union Road
Purba Bara Bheola UP - Samshu miar Bazar Road	2.51	km	Long Term	Union Road
Shaharbil UP Office - Betua Bazar Road	4.45	km	Short Term	Union Road
Lakharchar Jahir Para Road	1.00	km	Medium Term	Village Road
Lokharchoar RHD Road - Bar Aulianoagor Road	2.80	km	Medium Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.23 Chakaria Upazila's Infrastructure Development Project Package 02 (SDP-LGD#02)

Project Name	Qty.	Unit	Phase	Type
Preparation of Township (1) at Chakaria PS	62.26	Acre	Short Term	Township
Preparation of Township (2) at Chakaria PS	89.38	Acre	Short Term	Township
Preparation of Township (5) at Chakaria PS	148.67	Acre	Short Term	Township
Manikpur Bazar (GC)	-	-	Long term	Bazar
Magh Bazar (RM)	-	-	Medium Term	Bazar
Chiringa UP Office - Chrindeep- Sagirshakata-Malumgat Road	8.00	km	Medium Term	Union Road
Chiringa UP - Chhararkul - Fashiakhali UP Road	3.32	km	Medium Term	Union Road
Bamubill Chhari UP - Fadukhola - Nandirbill Road	6.00	km	Long Term	Union Road
Bamubill Chari UP - Khrestan Missionery - Lama Bazar Road	3.00	km	Long Term	Union Road
Chiringa Buri Pukur UNR Road - Caralia Embankment-Charandeeep UNR Connecting Road	2.00	km	Medium Term	Village Road
West Buri Pukur Abdul Jabbar Road - Hatila Para Charan Deep Road	3.00	km	Long Term	Village Road
Bamu Bilchhari Nandirbill (Shoalok rastarmatha - Fadukhola Bazar) Road	4.00	km	Long Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.24 Chakaria Upazila's Infrastructure Development Project Package 03 (SDP-LGD#03)

Project Name	Qty.	Unit	Phase	Type
Preparation of Township (Site 1) adjacent to GEZ	120.00	ha	Medium Term	Township
Dulahazara Bazar (GC)	-	-	Long Term	Bazar
Malum Ghat (RM)	-	-	Medium Term	Ghat
Khutakhali GC - Eidgor GC (Chakaria Portion)	15.72	km	Long Term	Upazila Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.25 Chakaria Upazila's Infrastructure Development Project Package 04 (SDP-LGD#04)

Project Name	Qty.	Unit	Phase	Type
Construction of Truck Terminal near Badarkhali Bazar	-	-	Medium Term	Truck



Project Name	Qty.	Unit	Phase	Type
				Terminal
Badarkhali Bazar (GC)	-	-	Short Term	Bazar
Ilisha Bazar (RM)	-	-	Short Term	Bazar
Chauarfari Bazar (RM)	-	-	Short Term	Bazar
Rampur Bazar - Purba Bara Bheola UP Office Road	3.30	km	Short Term	Union Road
Badarkhali RHD to Betua Bazar Connecting (Shahid Akbar Road) Road	1.75	km	Short Term	Village Road
Rampur Jalaisha Road	5.00	km	Short Term	Village Road
Badar khali (RHD) - to Khal Khaca Para Road	2.20	km	Short Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

## (2) Potential Shortcomings in Current Development Project Planning on Chakaria Upazila

In review of the above-listed project packages, it is noted that important public works projects for strengthening the overall quality of life, such as educational and healthcare facilities, parks, sewage, waste disposal, etc. are missing from the listing on SDP-LGD. Of these apparently missing public works projects, the ones within the municipal boundaries are listed in the Ward Action Plan (hereafter WAP) of the respective Paurashava MPs. In the rural upazila outside the city boundaries, however, the development planning in these sectors are woefully insufficient at this point, to be a point of concern to adequately accommodate the expected population increase in the coming years.

## (3) Summary of Urban Infrastructure Development Planning in Chakaria Paurashava MP

The Chakaria MP lists the urban infrastructure development plan in Ward Action Plan (WAP), where public works projects on infrastructure and civic facilities are listed by sector, project ID, type, quantity, location, and implementation phase. The details on funding, however, are missing in the relevant WAP. The listed projects include the following sectors and items.

Table 11.26 Urban Infrastructure and Facilities Development Plan in Chakaria Paurashava MP

<b>ROADWAY AND BRIDGES</b> <ul style="list-style-type: none"> <li>• Highway / Freeway</li> <li>• Arterial</li> <li>• Collector</li> <li>• Bridge</li> </ul>	<b>PUBLIC SERVICES</b> <ul style="list-style-type: none"> <li>• Ward Complex</li> <li>• Police Box / Outpost</li> <li>• Hospital</li> <li>• Public Library</li> </ul>
<b>DRAINAGE</b> <ul style="list-style-type: none"> <li>• Primary Drain</li> <li>• Secondary Drain</li> <li>• Tertiary Drain</li> </ul>	<b>EDUCATIONAL</b> <ul style="list-style-type: none"> <li>• College</li> <li>• High School with College</li> <li>• Primary with High School</li> <li>• Nursery / Kindergarten</li> </ul>
<b>SOLID WASTE DISPOSAL</b> <ul style="list-style-type: none"> <li>• Solid Waste Landfill Station</li> <li>• Secondary Waste Transfer Station</li> <li>• Dustbin</li> </ul>	<b>MARKET</b> <ul style="list-style-type: none"> <li>• Neighborhood Market</li> <li>• Super Market</li> </ul>
<b>PORTABLE WATER</b> <ul style="list-style-type: none"> <li>• Water Pump Station</li> <li>• Water Treatment Plant / Overhead Tank</li> </ul>	<b>ENTERTAINMENT AND RECREATION</b> <ul style="list-style-type: none"> <li>• Cinema Complex / Theater</li> <li>• Stadium / Sports Complex</li> <li>• Central Park</li> <li>• Amusement Park</li> <li>• Botanical Garden</li> <li>• Neighborhood Park</li> <li>• Play Field / Playground</li> </ul>

<b>TRANSPORTATION</b> <ul style="list-style-type: none"> <li>• Bus / Truck Terminal</li> <li>• City Bus Terminal</li> </ul>	<b>RELIGION</b> <ul style="list-style-type: none"> <li>• Eidgah</li> <li>• Graveyard</li> <li>• Cremation Place</li> </ul>
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Source: Summarized by Study Team from Updating Master Plan of Chakaria Paurashava (2020)

#### (4) Shortcomings on Urban Infrastructure Development Planning in Chakaria Paurashava MP

As noted above, the WAP does not include planning consideration on sewage treatment facilities. Planning on sewage infrastructure will necessitate coordination between LGD and environmental management authorities. Furthermore, it is unclear whether these listed projects are individually applied for ADP-DPP funding approval prior to implementation, are to utilize the annual ADP Block Grant to the municipalities, or to be funded by the municipalities' own resources. Additionally, the selection criteria, priority order, and quantifiable project objectives are not clearly described.

#### (5) Summary of Development Projects in Moheshkhali Upazila by SDP-LGD

Overview of the infrastructure development project packages in Moheshkhali (See Table 11.27~Table 11.30) indicates that development of a suburban township project is designated medium term (up to 2031), while five new townships within the municipal boundary are designated long term projects (up to 2041). This phasing order matches the overall regional development strategy to prioritize Chakaria and the surrounding area as a gateway linking to existing national roadways and railways, and extend gradually toward Moheshkhali as the new access roads and railways reach across the Moheshkhali island. On the other hand, the bazars in Moheshkhali are to be developed prior to the townships within the short to medium terms.

Table 11.27 Moheshkhali Upazila's Infrastructure Development Project Package 05  
(SDP-LGD#05)

Project Name	Qty.	Unit	Phase	Type
Matarbari Natun Bazar (GC)	-	-	Short Term	-
Matarbari Puran Bazar (RM)	-	-	Short Term	-
Matarbari Mogdail Bazar (RM)	-	-	Short Term	-
Rajghat Bazar (RM)	-	-	Short Term	-
Uttarnalbila-Matarbari GC Connecting Road (Upto Ghat)	6.18	km	Short Term	Upazila Road
Matarbari-Dhalghat Road Vai Mogdail Bazar	11.68	km	Short Term	Union Road
Matarbari High School to Satghar Road	0.50	km	Short Term	Village Road
Matarbari-Maijpara-Sea Beach Embankment road	0.51	km	Short Term	Village Road
Matarbari Khandrabil WAPDA Embk.- Uttara Sikdarpara Tal,aghirpara Road	3.70	km	Medium Term	Village Road
Hospital-Matarbari Road	1.20	km	Short Term	Village Road
Dakhin Mogdail Pangakhali Road	1.50	km	Long term	Village Road
Matarbari Puranbazar to Maizpara Road	1.00	km	Medium Term	Village Road
Mogdail para to Sadder Para Road	1.30	km	Medium Term	Village Road
Bandi Sikerdapara to Wapda Embankment Road	1.00	km	Medium Term	Village Road
Fulzanmora to East Mairpara Road	1.00	km	Short Term	Village Road
Shapmara Dail Shelter Road	0.98	km	Medium Term	Village Road
Mogdali bazar- Wapda Emb. Road	2.33	km	Medium Term	Village Road
Matarbari Sikderpara-Maizpara road	3.00	km	Short Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.28 Moheshkhali Upazila's Infrastructure Development Project Package 06  
(SDP-LGD#06)

Project Name	Qty.	Unit	Phase	Type
Development of Township (5) adjacent to Moheshkhali PS	80.71	Acre	Medium Term	-
Sairar Dail Bazar	-	-	Medium Term	-
Mohoriaghona bazar	-	-	Short Term	-
Suturia Bazar	-	-	Medium Term	-
Shammapardail Bazar	-	-	Long Term	-
Banjamura-Ghona road	1.35	km	Medium Term	Village Road
Mohurighona-Dhalghata Road	1.20	km	Medium Term	Village Road
Nasir Mohammad Road	1.50	km	Short Term	Village Road
Panditer Dail Road	1.00	km	Long Term	Village Road
Middle Sairar dail Road	0.75	km	Long Term	Village Road
Sairar dali- Muksud Ahamed Road	0.51	km	Long Term	Village Road
Sairadali - Durul Sunnah Madrasha Road	0.60	km	Long Term	Village Road
Sairadali Primary School Road	0.45	km	Long Term	Village Road
Sapmaradali Wapda Road	0.50	km	Medium Term	Village Road
Muhurighona Launchghat Road	0.70	km	Medium Term	Village Road
Dhalghata Monhazipara Road	0.57	km	Medium Term	Village Road
Mahorighanah Bazar - Wapda Emb. Road	0.70	km	Medium Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.29 Moheshkhali Upazila's Infrastructure Development Project Package 07 (SDP-LGD#07)

Project Name	Qty.	Unit	Phase	Type
Shaplapur Bazar (GC)	-	-	Long Term	-
Yunuskhali Bazar (RM)	-	-	Medium Term	-
Time Bazar (RM)	-	-	Long Term	-
Kalarmarchara-Dhalghat Road	4.50	km	Long Term	Union Road
Bamdi Sikder para to Stemerghat Road	1.00	km	Long Term	Village Road
Old Stemar Ghat Road	1.00	km	Long Term	Village Road
Shaplapur Launch Ghat Road	1.00	km	Long Term	Village Road
Panirchara to Baroghar para Road	1.80	km	Long Term	Village Road
Keromtali Adhyamura para Road	2.00	km	Long Term	Village Road
Jhapua Bazar-Ghat Road	2.10	km	Long Term	Village Road
Jhapua Madrasha-Dhulur Baper bari Road	2.00	km	Long Term	Village Road

Source: Sector Development Plan of LGD for MIDI Area (LGED)

Table 11.30 Moheshkhali Upazila's Infrastructure Development Project Package 08 (SDP-LGD#08)

Project Name	Qty.	Unit	Phase	Type
Development of Township (1) at Moheshkhali PS	58.55	Acre	Long Term	-
Development of Township (2) at Moheshkhali PS	25.13	Acre	Long Term	-
Development of Township (3) at Moheshkhali PS	58.01	Acre	Long Term	-
Development of Township (4) at Moheshkhali PS	56.75	Acre	Long Term	-
Bara Moheshkhali Natun Bazar (GC)	-	-	Short Term	-
Gorakghata-Ghatibanga Sonadia Road	12.82	km	Medium Term	Union Road
Sharaitala road	1.90	km	Medium Term	Village Road-B

Source: Sector Development Plan of LGD for MIDI Area (LGED)

(6) Shortcomings in Current Development Project Planning on Moheshkhali Upazila

As pointed out in the review of Chakaria’s project packages, the public works designed to strengthen education, healthcare, parks and open spaces, urban drainage, waste disposal and other significant urban infrastructure are entirely missing from the SDP-LGD. If these projects are not even listed, the risk is increased that the time-consuming preparation tasks such as establishing project implementation body and securing project budget allocation are postponed or even foregone. Such delay will lead to infrastructure development not keeping pace with the accelerated population growth, causing failure of urban services.

(7) Summary of Urban Infrastructure Development Planning on Moheshkhali MP

Moheshkhali MP also lists the planned urban infrastructure development projects in Ward Action Plan (WAP), where public works on infrastructure and civic facilities are listed by Project ID, Type, Quantity, Location, and Phasing, but sans estimated project costs and fund sources. The listed projects include the following sectors.

Table 11.31 Urban Infrastructure Development Plan in Moheshkhali Paurashava MP

<p>ROADWAY AND BRIDGES</p> <ul style="list-style-type: none"> <li>• Highways / Freeways</li> <li>• Arterials</li> <li>• Collectors</li> <li>• Access Road</li> <li>• Embankment Roads</li> </ul>	<p>PUBLIC SERVICES</p> <ul style="list-style-type: none"> <li>• Ward Complexes</li> <li>• Police Box / Outpost</li> <li>• Hospital</li> <li>• Public Library</li> <li>• Post Office</li> </ul>
<p>DRAINAGE</p> <ul style="list-style-type: none"> <li>• Primary Drains</li> <li>• Secondary Drains</li> <li>• Tertiary Drains</li> </ul>	<p>EDUCATIONAL</p> <ul style="list-style-type: none"> <li>• College</li> <li>• High School with College</li> <li>• Vocational Training Institute</li> <li>• Primary with High School</li> <li>• Nursery / Kindergarten</li> </ul>
<p>SOLID WASTE DISPOSAL</p> <ul style="list-style-type: none"> <li>• Solid Waste Landfill Stations</li> <li>• Secondary Waste Transfer Station</li> <li>• Dustbins</li> </ul>	<p>MARKET</p> <ul style="list-style-type: none"> <li>• Wholesale Market</li> <li>• Neighborhood Market</li> <li>• Super Market</li> </ul>
<p>PORTABLE WATER</p> <ul style="list-style-type: none"> <li>• Water Supply Junction</li> <li>• Water Supply Pump</li> <li>• Water Treatment Plant / Overhead Tank</li> </ul>	<p>ENTERTAINMENT AND RECREATION</p> <ul style="list-style-type: none"> <li>• Cinema Complex / Theater</li> <li>• Stadium / Sports Complex</li> <li>• Central Park</li> <li>• Amusement Park</li> <li>• Botanical Garden</li> <li>• Neighborhood Park</li> <li>• Play Field / Playground</li> </ul>
<p>TRANSPORTATION</p> <ul style="list-style-type: none"> <li>• Bus / Truck Terminal</li> <li>• City Bus Terminal</li> </ul>	<p>RELIGION</p> <ul style="list-style-type: none"> <li>• Eidgah</li> <li>• Central Graveyard</li> <li>• Cremation Place</li> </ul>

Source: Summarized by JST from Updating Master Plan of Moheshkhali Paurashava (2020)

(8) Shortcomings on Urban Infrastructure Development Planning in Moheshkhali Paurashava MP

As in Chakaria Paurashava MP, the development projects for urban infrastructure within the Moheshkhali city boundary are listed by sector in the **Ward Action Plan (WAP)** of the Moheshkhali Paurashava MP, but sans projects’ estimated cost and the funding sources. Additionally, the selection criteria, priority order, and quantifiable project objectives are not clearly described.

### **11.5.3 Regarding Cox's Bazar District Development Plan (DDP)**

#### **(1) Background for DPP**

Cox's Bazar District, which includes Chakaria and Moheshkhali Upazilas, has historically been one of the under-developed regions within Bangladesh, and the socioeconomic indicators for the most categories are positioned below the national average points. With the total population of approximately 3.2 million, MIDI area is particularly vulnerable to natural disasters resulting from precarious environmental factors. These include riverine flooding events that are partially caused by severe deforestation in the upstream region, as well as area inundation and landslide events caused by intensified rainfalls, all of which are resulting in loss of lives in the recent years. Furthermore, since 2017, the in-migration of Rohingya refugees has accelerated<sup>8</sup>, resulting in elevated risks for the host region on multiple fronts.

In order to address the ongoing risks, the Government of Bangladesh, with assistance from the United Nations Development Programme (UNDP), has formulated the Joint Response Plan (JRP) on an annual basis, outlining the policies and action plans for resettlement and social assistance of the refugee population, as well as annual action plans for improving the quality of life across the host region. Stimulated by the forward motion and progress around the JRP, the Government of Bangladesh and Cox's Bazar District had since moved to formulate a more comprehensive regional development plan, and in 2019, with assistance from the UPDP, the process to prepare the District Development Plan (DDP) has commenced.

#### **(2) DDP's Approach and Summary**

Whereas JRP had thus far focused on selecting short term priorities and funneling limited resources and funds to solving problems directly linked to the influx of Rohingya refugees, DDP is geared toward comprehensive regional development, whereby medium to long term investments are injected across multiple sectors. Thus, JRP and DDP are positioned for different timeframes, objective and desired effects. In formulating the Cox's Bazar DDP, a bottom-up planning approach based on public participation and a top-down approach based on upstream national and district planning are combined, whereby Phase 1 aims to address the priority issues and problems perceived by the regional residents, while Phase 2 carries forth the long term national and regional development agenda by promoting a more comprehensive set of strategic development projects.

In Phase 1, aiming to implement effective and speedy remedies for the most urgent problems identified by the regional residents themselves, formulation of the first-year project pipeline was facilitated through a series of participative public workshops and by incorporating the project lists at Upazia and Union level. These bottom-up project lists are then compared with current conditions assessment by sector, by which a proper set of priority project packages are formulated for channeling public investment.

In Phase 2, the process for formulating the project list involves using the prioritized sector development agenda in the 8th Five Year Plan as the conceptual basis, while current conditions and progress were assessed by sector, and the project lists at Upazia and Union level were also incorporated. By this hybrid approach, a five-year development plan is to be formulated for medium term facilitation of comprehensive and multi-faceted

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<sup>8</sup> Of the 3.2 million regional population, the number of Rohingya refugees reaches 0.9 Million, accounting for 28% of the total regional population (2019).

development project.

The Cox's Bazar DDP lists the priority projects for Phase 1 by Upazila across MIDI area. The prioritized development sectors include: (1) Telecommunication and Infrastructure, (2) Education, (3) Disaster Prevention, (4) Social Protection, Vocational Training, and Microfinancing.

As described above, the public investment projects listed in DDP are characterized by their focus on the comprehensive regional development approach, as compared to the listed projects in SDP which are geared toward strengthening MIDI area and the surrounding area as an economic and industrial node. Listed below are the priority projects in Chakaria Upazila, Moheshkhali Upazila, and Cox's Bazar as selected in the Phase 1 of DDP.

Table 11.32 Priority Projects for Chakaria Upazila as Listed for Phase 1 of Cox's Bazar DDP

5-Chakoria Upazila					5-Chakoria Upazila				
Chakaria Year 1 Projects	Sector Classification	Cost (BDT) (in Million)	Community Priority?	Chakaria Year 1 Projects	Sector Classification	Cost (BDT) (in Million)	Community Priority?		
<b>Sector: Communication and Infrastructure</b>									
Rural Infrastructure Renovation & Maintenance and Employment Programme for the Ultra Poor	Communication & Infrastructure	117.60 M	YES	Interest Free Micro Finance (Rural Social Service-RSS)- 01. Interest free micro financing for improving the socio-economic development of rural poor people in the current financial year (rural maternal center-10,00,000/- + interest free micro credit for the financial year (2018-19) 6,50,000/- with total - 95,00,000/- tk total 95,07,227/- tk. As a revolving fund 95,00,000/- tk has been distributed among the poor.	Economic Development	01.00 M	NO		
Construction of bridge up to 15 meters in length on rural roads	Communication & Infrastructure	25.39 M	NO	MicroFunding - If it is possible to bring 20 co-operatives of this Upazila under micro credit coverage, it will generate employment of 100 unemployed boys and girls every financial year.	Economic Development	20.00 M	NO		
Construction of road by HBB	Communication & Infrastructure	21.65 M	NO	Training- 200 unemployed youth boys/girls and students received training from Digital ISL and Skill Development Training Center which is organized by Chakoria Social Service Office.	Economic Development	00.30 M	NO		
250m Bridge (PC/RCC Girder)	Communication & Infrastructure	150.00 M	NO	Training of farmers	Economic Development	00.76 M	NO		
Culvert 50m (New and Maintenance)	Communication & Infrastructure	10.00 M	NO	Awareness meeting with fishermen	Economic Development	00.57 M	NO		
Road 20km (BC, HBB, RCC)	Communication & Infrastructure	150.00 M	YES	Implementation of the fishery law	Economic Development	00.38 M	NO		
<b>Sector: EDUCATION</b>									
New building of the Primary School-10	Education	120.00 M	NO	Formalin test of fish	Economic Development	00.06 M	NO		
Primary school cum cyclone shelter 1-10 (MDSP)	Education	400.00 M	YES	Establish fish disease testing lab	Economic Development	00.50 M	NO		
Primary school boundary wall-15(PEDP-4)	Education	55.00 M	NO	Establishment of demonstration farm	Economic Development	00.95 M	NO		
Teachers training using ICT	Education	09.60 M	NO	Skill development of growers, unemployed youth ( boys and girls) and 'destitute rural women' through training on livestock, poultry, turkey, broiler, hair rearing in order to produce safe animal protein (milk, egg and meat) and promote expansion and development of dairy industry.	Economic Development	00.70 M	NO		
Installation of Tube well, deep tube well	Education	02.00 M	NO	Offering day long training to 90 co-operative members of Chakaria UCC Ltd. on various trades (Poultry farming, fisheries/ shrimp farming, cattle rearing vegetable production at homestead (03 batches)	Economic Development	00.05 M	NO		
School decoration/making attractive	Education	00.14 M	NO	1. Offer training to 150 (5 people per co-operative) members of 30 co-operatives of Chakoriya upazila on various trade (fisheries, poultry farming, cattle fattening) 2.The training period is 5 days	Economic Development	00.22 M	NO		
SMC/ Local Motivation	Education	02.33 M	NO	<b>Sector: Environment &amp; Forests</b>					
<b>Sector: Disaster Management</b>									
Construction of multipurpose cyclone shelter	Disaster Management	40.46 M	YES	Vermicompost Facility	Environment & Forestation	00.65 M	NO		
Construction of cyclone-resistant house	Disaster Management	03.10 M	YES	Nursery Installation ( 1 lakh seedlings)	Environment & Forestation	01.00 M	NO		
<b>Sector: Social Safety Net (Food)</b>									
Corrugated iron sheet and cash payment for house construction	Social Safety Net & Food Security	00.58 M	YES	Gardening / Plantation over 100 Hectare	Environment & Forestation	05.50 M	NO		
Distribution of VGF Rice	Social Safety Net & Food Security	11.46 M	YES	Development of shelter for wildlife over 50 Ha	Environment & Forestation	03.75 M	NO		
Distribution of G.R Rice	Social Safety Net & Food Security	10.54 M	YES	Resolution of conflict (People and wildlife) (elephant) - IEC / Motivation	Environment & Forestation	00.15 M	NO		
Distribution of G.R Cash	Social Safety Net & Food Security	00.22 M	YES	<b>Sector: Employment / Skill Development / Micro Finance</b>					
Provide food assistance to registered fishermen	Social Safety Net & Food Security	00.77 M	YES	LCS (Road Maintenance)- 11 workers and 1 supervisor	Economic Development	00.90 M	NO		
<b>Sector: Employment / Skill Development / Micro Finance</b>									
LCS (Road Maintenance)- 11 workers and 1 supervisor	Economic Development	00.90 M	NO	Under the Social Safety Net Programme - To improve the quality of life of the rural poor through micro credit programs	Economic Development	01.00 M	NO		
Under the Social Safety Net Programme - To improve the quality of life of the rural poor through micro credit programs	Economic Development	01.00 M	NO	01. Provide interest free micro- credit for poultry, livestock, small business, fisheries, agriculture, more specifically vegetable farming.	Economic Development	06.00 M	NO		
01. Provide interest free micro- credit for poultry, livestock, small business, fisheries, agriculture, more specifically vegetable farming.	Economic Development	06.00 M	NO	Micro Financing - Providing 01 year-long micro credit to 300 members of the cooperatives and other projects under Chakaria UCC Ltd. on various activities(Farming, cattle rearing & cattle fattening)	Economic Development	06.00 M	NO		

5-Chakoria Upazila

Chakaria Year 1 Projects	Sector Classification	Cost (BDT) (In Million)	Community Priority?
Eviction of illegal establishment over 20 Ha	Environment & Forestation	02.00 M	NO
<b>Sector: Agriculture</b>			
Purchase of 190 nos. Knapsac and Sprayers	Agriculture	00.51 M	YES
Dhoincha cultivation / green manure/fertilizer (Fertility Protection of Land) including seed, land preparation, etc.	Agriculture	00.44 M	YES
<b>Sector: Health</b>			
1. (A) Target: Construction of 100 bed hospital infrastructure	Health	247.01 M	YES
2. (B) Target – Increase of hospital bed use rate. Activities: Recruitment of nurses, cleaners, care giver, security personnel, word boy.	Health	01.50 M	NO
3. (A) Target: Providing uninterrupted/intensive service to at least 100 patients in the emergency department	Health	04.00 M	NO
<b>Sector: Water &amp; Sanitation</b>			
1) Installation of total 400 technology-friendly water sources at schools, market places and stations (20 sources per union)	WaSH	33.00 M	YES
1)Construction of 2000 standard family latrines	WaSH	140.00 M	YES
2)Construction of 200 community latrines	WaSH	100.00 M	YES
3)Construction of 10 public toilets	WaSH	80.00 M	YES
<b>Sector: Land</b>			
Distribution of agricultural khas land to 48 landless families	Others		NO
Rehabilitation in the Ashrayan (Shelter) project for 30 families	Others	00.80 M	NO
Land Office	Others	07.00 M	NO
<b>Sector: Others</b>			
Upazila Parishad complex building and hall room-01	Others	83.90 M	NO
Union Parishad building-2	Others	35.00 M	NO
Collection of shares and savings from the 2000 cooperative members of different cooperatives and other projects under Chakaria UCC Limited	Others	01.00 M	NO
<b>Total</b>		<b>1901.23 M</b>	

Source: District Development Plan for Cox’s Bazar – Phase 1 (2019)

Table 11.33 Priority Projects for Chakaria Upazila as Listed for Phase 1 of Cox’s Bazar DDP

2-Moheshkhali Upazila

Moheshkhali Year 1 Projects	Sector Classification	Cost (BDT) (In Million)	Community Priority?
<b>Sector: Communication and Infrastructure</b>			
50-meter bridge (PC Girder) (RakhainPara-Adinnath Mondir road)	Communication & Infrastructure	50.00 M	YES
13(New and maintenance) Gorokghata-various chainage of Janatabazar road	Communication & Infrastructure	10.00 M	YES
1.Uttamalbila-Materbari GC Connecting road (Uptoghat) Maintenance.(code: 422492002) 2.Lalmohammad Sikderpara road via Ashrayon project by HBB.(code:422493001) 3.Zagiraghona-Fakiraghona road by BC (code:422494001) 4.Kalamarchara-Dhalghat road by RCC (code:422493004) 5. Hoanok RHD-Hariarchara-Shaplapurroad by BC (code: 422493006) 6.Zagiraghona-Fakiraghona road by BC (code: 422494001) 7.Kutubjome Ideal high school road (code: 422495117) 8.Morughona road (code: 422495056)	Communication & Infrastructure	200.00 M	YES
Construction of 4 bridge/calvert at Matarbari and Kalamarchara union	Communication & Infrastructure	03.00 M	YES
Construction of 3-kilometer HBB project at Matarbari and Kalamarchara union	Communication & Infrastructure	15.00 M	YES
Construction of 5-kilometer soil road at Matarbari and Kalamarchara union	Communication & Infrastructure	02.50 M	YES
Construction of 2 kilometer concrete road at Matarbari and Kalamarchara union	Communication & Infrastructure	05.00 M	YES
Construction of Upazila Parisad-01	Communication & Infrastructure	85.00 M	NO
Construction of Hoanok union parisad	Communication & Infrastructure	35.00 M	NO
<b>Sector: Education</b>			
Construction of 9 new building in primary schools (PEDP-3)	Education	108.00 M	NO
Construction of 10 primary school cum cyclone shelter (MDSF)	Education	400.00 M	NO
Construction of 8 boundary wall at primary school (PEDP-3)	Education	25.00 M	NO
a) Ensure biometric attendance system for teachers in all educational institutions. b) One day one word for all students c) Installation of white board	Education	02.00 M	YES
Fruits and medicinal tree plantation in all educational institutions	Education	05.00 M	NO
Distribution of free uniform, shoes and education materials to poor and meritorious students in all academic institutions	Education	05.00 M	NO
<b>Sector: Health and WASH</b>			
Set up of boundary wall at Dhalghata union health and family welfare center and construction of boundary by barbed wire fence	Health	05.00 M	NO
Increase of present family planning service recipient rate at Moheshkhali upazila from 81% to 82%	Health	02.00 M	YES
Motivate women to take ANC, PNC and PPPF service over mobile phone from family welfare center	Health	05.00 M	YES

2-Moheshkhali Upazila

Moheshkhali Year 1 Projects	Sector Classification	Cost (BDT) (In Million)	Community Priority?
Provide education on personal cleanliness and reproductive health in high school and madrasa once in every six months	Health	01.00 M	YES
To launch 'child doctor' activities	Health	05.00 M	NO
Recruitment of manpower in health complex	Health		YES
Develop 500 water source	WaSH	80.00 M	YES
Construction of two in pit latrine along with 800 biofield septic. Courtyard meeting to increase awareness among people about sanitation at union level(2 union)	WaSH	78.00 M	YES
Construction of 100% sanitation at various places in Materbari and Dhalghata union	WaSH	02.00 M	YES
<b>Sector: Social Safety Net (Food)</b>			
Publicity to build public awareness on safe food and consumer rights act	Social Safety Net & Food Security	01.00 M	YES
a) Provide various allowances to 17249 people b) Financial assistance to 300 patients through social service-activities of hospital c) Provide monthly stipends to 293 students under physically challenged education scholarship d) Provide 200 taka every day among 6270 ultra poor people under EGPP programme e) Distribution of 20kg rice per head among 51,366 people under VGF program	Social Safety Net & Food Security	175.00 M	YES
100 bundle=30,00,000/-	Social Safety Net & Food Security	75.00 M	YES
Assistive device (for special students with needs)	Social Safety Net & Food Security	05.00 M	YES
Collection of rice locally (200.00 metric tons) to reduce government food transport cost	Social Safety Net & Food Security		NO
<b>Sector: Environment/DRR/DRM/Land</b>			
Each lab includes a) Digital display board b) Rain gauge c) Temperature measuring device	Environment & Forestation	05.00 M	NO
Plantation of 50 trees in every educational institution	Environment & Forestation	00.05 M	YES
Union land office(Shaplapur)	Others	03.50 M	NO
Union land office (Chorokghata)	Others	03.50 M	NO
a) Provide modern land management technical training to the employees to develop their skill b) Enrichment of land office by providing modern equipment c) Launching of e-mutation	Others	05.00 M	NO
Construction of 557 houses for those who has land but no house	Others	55.70 M	NO
a) Construction of cyclone shelter at: 1. Matarbari Rajghat Rashidia Hasmotba Sunni Daktil Madrasa 2. West Nalbila High School 3. Hoanok multipurpose high school	Disaster Management	75.00 M	YES
b) Construction of disaster tolerant houses	Disaster Management	04.40 M	YES
Renovation of cyclone shelters	Disaster Management		YES

2-Moheshkhali Upazila			
Moheshkhali Year 1 Projects	Sector Classification	Cost (BDT) (in Million)	Community Priority?
2 Ashron/shelter project-2	Disaster Management	-11.00 M	YES
<b>Sector: Livelihood/Skills Development</b>			
Construction of shopping mall at Rakhine village/palli for marketing and development of cottage industry	Economic Development	05.00 M	NO
a) ICT training will be provided among 300 people b) Training on sewing machine will be provided among 200 people c) Training about beautification will be provided among 80 people d) Training about livestock management will be provided among 340 people	Economic Development	02.00 M	NO
Recruitment of 33 worker and 1 supervisor	Economic Development	02.20 M	NO
a) Creation of job opportunity for 280 people by microfinance program b) Creation of job opportunity for 1000 people in running development projects	Economic Development	15.00 M	NO
Provide teaching using digital method in 10 schools	Economic Development	05.00 M	NO
Construction of two technical/computer training center in Dhalghata union digital center	Economic Development	01.00 M	NO
<b>Sector: Energy Infrastructure</b>			
100 percent electricity will be provided to every house in this upazila by next year	Communication & Infrastructure		NO
<b>Sector: Tourism</b>			
Mass publicity about Moheshkhali's famous attraction places/running development projects	Others	05.00 M	YES
Construction of one Eco park and resort at Shaplapur-Kalarmarchara area	Others	-01.00 M	YES
<b>Sector: Agriculture/Fisheries/Land</b>			
Sub Assistant Agriculture Officer of relevant block will collect data from farmers about their crop cultivation through field visit	Agriculture	00.05 M	YES
a) Provide training to fishermen	Agriculture	03.80 M	NO
b) Formalin test for fishes	Agriculture	01.00 M	NO
<b>Sector: Sports and Culture (Law &amp; Order)</b>			
To start one public library in this upazila	Others	05.00 M	NO
Renovation of one play ground in each unionb) Inter union football tournament c) Inter union cricket tournament	Others	02.00 M	NO
a) Inter primary school sports and cultural competition b) Debate competition in all educational institutions c) Sports and cultural competition(for teachers)	Others	05.00 M	NO
<b>Total</b>		<b>1558.50 M</b>	

Source: District Development Plan for Cox's Bazar – Phase 1 (2019)

## 11.6 Infrastructure Development to be Considered for 2041

As described previously, the project lists in the SDP-LGD do not include public investment in strengthening education, healthcare, parks, sewage treatment, solid waste disposal, and other essential urban infrastructure and services. Furthermore, the Ward Action Plan (WAP) on the Master Plans for Chakaria and Moheshkhali Paurashavas do not specify project cost estimation and funding sources for the public works projects in the above sectors. Neither are the project selection criteria, priority order, and service level objectives indicated.

In particular, there is no planning for sewage treatment facilities anywhere in the WAP. The development planning for the final sewage treatment facilities will require extensive coordination with planning efforts in the other infrastructure sectors, and it is deemed necessary for SDP-LGD to facilitate this sector's planning and implementation in an integrated manner as follows.

- Development of sewage treatment facilities shall be in steps with the pace of MIDI-driven regional population increase and residential development, in the right locations at the right times.
- Considering that sewage networks are to be installed within the roadway right-of-way for the most part, the integration and coordination between the planning and implementation of sewage infrastructure on one hand, and Upazila roads, Union roads, and Local roads on the other hand is necessary.
- Phased and implementable sewage infrastructure development plans are to be formulated and executed, starting with installment of effective septic tanks for all households is to be prioritized for the short term, followed in the medium to long term by gradual upgrading to piped and combined storm water and sewage networks, and ultimately to be separated networks of stormwater drainage and sewage systems.



Inquiring about the lack of planning for the sewage treatment infrastructure in the SDP-LGD to an LGD director in a hearing, the following challenges were shared with the Study Team.

- Currently, all households within the MIDI area utilize individually installed septic tanks. Substandard septic tanks and untreated release to the watercourses and soil are the causes of significant environmental deterioration.
- On paper, the local municipalities assume responsibility for developing, operating and maintaining the sewage-related infrastructure and facilities within the boundaries. Practically, however, the technical difficulties and financial burden of the sewage treatment constitute too big a challenge for the municipalities to take on, and thus the public works in this sector remain woefully delayed across the nation.

In the MIDI-managed township developments, advanced sewage system and sewage treatment facilities are necessary to ensure quality living environment. Thus, the aforementioned township management company is one of the possible ways to develop and manage the townships.

As described, considering the population growth, urban densification, and increased output per capita because of economic growth, at a minimum, adequate development of waste treatment centers and sewage treatment centers are thought to be absolute necessities.

## **11.7 Other Potential Challenges in Urban Development Sector**

### **11.7.1 Outstanding Issues toward Formulation of MIDI MP**

In general overview of these project packages above, the short-term priority for the regional development is to strengthen the roadway network and townships around Chakaria to form a strong regional gateway. This is followed in the medium and long terms by gradual extension of infrastructure network and urban living spaces toward Matarbari, then to Moheshkhali, in steps with the extension of new access roadway and railway across Moheshkhali Island (See Map 10.1).

The development challenges can be identified as follows, to be addressed and resolved in the MP.

Firstly, urban resilience against high tide and inundation must be achieved through adaptive spatial planning and smart urban and infrastructure design, based on far-sighted vision and multi-pronged tactics for the region's population to live, work, and produce in harmony with high water.

Secondly, integrated live-work communities and transit-oriented development shall be formed in steps with ongoing expansion of roadway and railway networks, with strategic distribution of urban functions to minimize traffic congestion.

Thirdly, planning on educational and healthcare facilities, parks and open spaces, sewage and waste disposal, and other urban infrastructure shall be incorporated into the MP in order to ensure formation of a highly livable urban area.

Fourthly, all planned development projects shall be incorporated into a comprehensive Land Use Plan, so that inter-sectoral understanding and coordination of proper development scale and allocation can be facilitated.

### **11.7.2 City-Building Strategy to Accommodate a Diversified Population**

As the development across the MIDI area progresses, the employment number at the port, powerplants and EZs will swell as capacities at the respective sector expands in proportion. The demographic classification of the area employees, however, will not be uniform. In particular, where many foreign companies participate in the operation and management of port facilities, powerplants and EZs, a large number of foreign managers and engineers, as well as domestic high-income earners, will be residing in the region alongside unskilled laborers from across Bangladesh. The strategy for community-building and the design of urban spaces must accommodate the conflicting needs of such culturally and socioeconomically diverse demographics.

### **11.8 Issues Requiring Inter-Sectoral Coordination for Multi-Faceted Regional Development**

#### **(1) Necessity for Strategy against Tidal Inundation**

The MIDI area is situated in the coastal low-laying topography. As such, the majority area is just 0~3 meters above sea level and is susceptible to recurrent inundation at high tide across wide area. Utilizing this land characteristics to good use, MIDI area has been a host to rice-growing, salt-making and aquaculture practices. In pursuing extensive urban development in such land in the coming years, traditional water management practices and cutting-edge civil engineering methods need to be cleverly combined and utilized. The existing buildings show elevated floor construction using ground level as parking spaces, and villages are located on artificial mounds, offering practical clues to design urban spaces that work with the high water rather than fight against it. The similar practices of living with high water can be found across the globe in examples old and new. Wa-Ju (encircled levee around village) along Kiso and Nara Rivers in Japan, water management practices around Tainan Region of Taiwan, canals in Veneto Region of Northern Italy are a few examples. In these regions, the traditional knowhow and the unique man-made landscape have come to bestow a sense of place and unique identity, in turn offering significant asset in the tourism economy.

#### **(2) Scale of Embankment Works for Township Development**

Among all of the township development projects currently under planning, the embankment work to raise elevation above inundation level is deemed to be necessary only for the 120-hectare township project (proposed by JICA Land Use Study) adjacent to GEZ at the southwest suburb of Chakaria paurashava. Without the use of accurate topographic information, it is roughly estimated using Google Earth that elevation around the existing Chakaria paurashava is around 10~11 meters above sea level, whereas the elevation around the planned township site is around 2~3 meters, thus likely requiring 7~8 meters of embankment. Therefore,  $1,200,000\text{m}^2 \times 7.5\text{m} = 9,000,000\text{m}^3$  of embankment volume is a preliminary estimate with current information. On the other hand, another 33-hectare township project (proposed by JICA SCRDP Study) adjacent to GEZ at the northwest suburb of Moheshkhali paurashava is, as per rough estimate using Google Earth, to be located on the high ground without the need for embankment. The remaining townships are to be located within the existing urban areas, thus likely not requiring additional embankment.

As a general rule, the surplus population that cannot be absorbed into the planned townships are to be distributed across the inland high ground outside of the coastal inundation area.

(3) Current Practice and New Potential for Tidal Levees

On Matarbari Island, Bangladesh Water Development Board (hereafter “BWDB”) has planned a network of tidal walls (Polder No. 70). Inquiring about these tidal wall projects to an LGD director, it was confirmed that the purpose of this infrastructure is primarily for agricultural irrigation, and not for the protection of MIDI-related infrastructure from tidal surges. In the future, however, the best solutions in terms of cost performance and practicality are to be sought in the process of formulating the development master plan for this inundation-prone region, in which strategy for utilizing island-encircling tidal walls, levees encircling individual development projects, in combination with embankments shall be offered. Furthermore, potential for multi-purpose tidal infrastructure development can be explored utilizing the extensively embanked port access road as the main trunk of a series of community-encircling levees.

Thus, it is deemed necessary to enhance inter-agency coordination among the implementing ministries/divisions, but the existing practice indicates that there are no functioning coordination effort to align planning and implementation of public works projects by BWDB, LGD and MIDI-Cell, among others. Going forward, more collaborative organizational structure and process shall be forged for effective facilitation of a comprehensive regional development approach.

## Chapter 12 Industrial and Economic Zone Development

### 12.1 Existing EZs in the MIDI Area

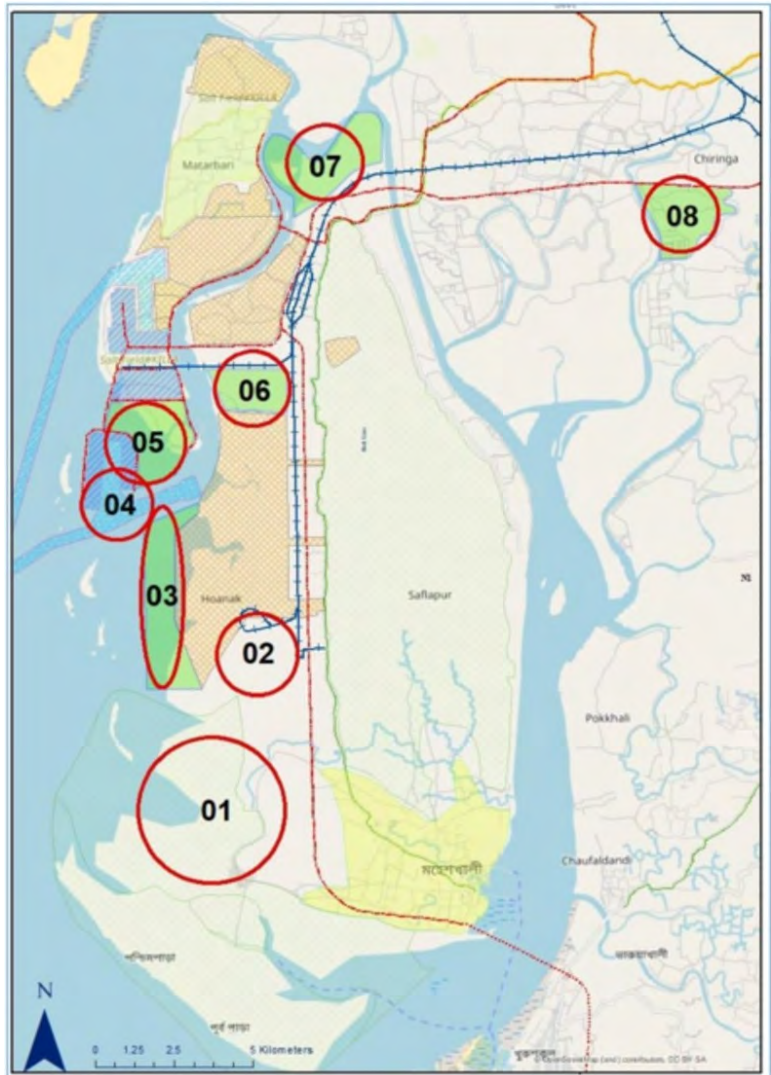
#### 12.1.1 Current EZ Plan

BEZA compiled the Industrial and Economic Zone Sector Development Plan (SDP) in January 2021. It states that EZ in the coastal area will attract heavy and chemical industries such as petrochemicals, steel, and shipbuilding and that in the hinterland, fast-growing industries, including industries for domestic demand, such as automobiles and motorcycles, in addition to export industries such as the garment industry. Developing coastal areas in the early phase of EZ development and gradually advancing toward the inland areas while effectively utilizing the hinterland can be viewed as maximizing the potential of Matarbari Port, which has a large capacity and room for expansion.

To reflect this idea and promote the industry, EZ is planned in the MIDI area, and candidate sites (hereafter described as EZ1 to 8 in accordance with the SDP) are selected. The location of each EZ candidate site is shown in Figure 12.1.

In evaluating the priorities of the industrial location, the status of the land, transport, access to electricity, gas, water supply, and various amenities, and ease of securing workers were considered. This resulted in the prioritization of Phase 1 (2021-2025) for EZ5, EZ7 and EZ8, Phase 2 (2026-2030) for EZ4 and EZ6, and Phase 3 (2031-2035) for EZ1 to 3. EZ3 to 5 are classified as coastal EZs, EZ2 and EZ6 to EZ8 as hinterland EZs, and EZ1 plans to install recreational facilities, accommodations, restaurants, etc., as locations for eco-friendly activities.

Table 12.1 shows the area, development cost, and development phase outlined in the EZ plan.



Source: Industrial and Economic Zone Sector Development Plan

Figure 12.1 EZ Candidate Location

Table 12.1 Area and Development Costs of Each EZ Candidate Site

EZ Site Number	Area name	Types of EZ development	Area (acres)	Development costs (Millions of Taka)	Development Phase (Priority)
1	Upper Sonadia	Eco-Park	12,612	37,980	Phase 3
2	Amavosyakhali	Hinterland, general	1,406	8,454	Phase 3
3	North Amavosyakhali	Industries associated with ports	1,557	11,164	Phase 3
4	South Dhalghata	Logistics (West) Free Zone in Port Stage 2 (East)	1,723	12,905	Phase 2
5	Dhalghata	Coastal area	1,240	9,131	Phase 1
6	Kalamarchara	Hinterland, general	758	5,735	Phase 2
7	Uttar Nalbila	Hinterland, general	1,543	10,493	Phase 1
8	Chakaria	Hinterland	1,112	8,288	Phase 1
Total			21,951	104,150	

NOTE: Development costs do not include land acquisition costs and resettlement compensation-related costs.

Source: Industrial and Economic Zone Sector Development Plan

### 12.1.2 Current Progrss of EZ Development

EZs, considered in the 2019 JICA Land Use Plan, are in four locations: Sonadia Eco-Tourism Park, Moheshkhali EZ, Moheshkhali EZ2, and Moheshkhali EZ3, each of which is taken over as an EZ1, EZ3, EZ7, EZ8 of the SDP. On the other hand, the "Oil Refinery & Petrochemical Project" project in the 2019 JICA Land Use Plan has been reorganized as EZ5 in the SDP. EZ2, EZ4, and EZ6 of the SDP are the newly addressed EZs in the SDP.

Site	Area name	Relationship with the 2019 Land Use Development Survey
1	Upper Sonadia	In the 2019 survey, it is listed on the project list as a Sonadia Eco-Tourism Park Project.
2	Amavosyakhali	No description in the 2019 survey was added in SDP.
3	North Amavosyakhali	In the 2019 survey, it is listed on the project list as a Moheshkhali EZ.
4	South Dhalghata	No description in the 2019 survey was added in SDP.
5	Dhalghata	In the 2019 survey, it is listed on the project list as a Oil Refinery & Petrochemical Project. SDP is EZ5.
6	Kalamarchara	No description in the 2019 survey was added in SDP.
7	Uttar Nalbila	In the 2019 survey, it is listed on the project list as a Moheshkhali EZ2.
8	Chakaria	In the 2019 survey, it is listed on the project list as a Moheshkhali EZ3.

## 12.2 Positioning of MIDI Development in Nationwide Sector Development

### 12.2.1 Industrial Policy in Bangladesh

Major governmental agencies involved in industrial development in Bangladesh include the Ministry of Industry, the Ministry of Commerce, BEZA, and the Bangladesh Export Processing Zone Authority (BEPZA). However, the roles of these agencies are vertical. No industrial policy that is coordinated among these agencies and has the strategic planning necessary to build the country's competitive advantage in the international market has been formulated. The 2019 land-use plan and the SDP also did not consider the positioning of MIDI in industrial policies in Bangladesh.

Perspective Plan of Bangladesh 2021-2041 (hereafter described as PP 2041), published in March 2020 and is

stated as a superior plan in the SDP, sets a primary goal for the development of Bangladesh, a low- and middle-income country, into a high-income nation by 2031 and becoming a member of the developed countries in the 2040s. To achieve this, in terms of industrial policy, it has been pointed out that the diversification of exports, domestic production of core industries, and upgrading of the industrial structure will be the pillars and that hardware and soft infrastructure will be enhanced. The PP 2041 also recommends the factors for the success of the garment industry should be analyzed, and the findings can be applied to export industries other than the garment industry.

### 12.2.2 Industrial Policy 2016 and Export Policy 2018-20

To further accelerate the pace of industrialization that has contributed to the high growth of Bangladesh to date, the Industrial Policy 2016 outlines the general direction of industrial promotion measures. This outline centers on job creation in comprehensive and sustainable growth, women's advancement into the industry, and internationalization. In particular, the development of micro, small and medium enterprises is cited as a significant area, and the importance of the Special Economic Zone and foreign direct investment is touched on while the government takes up the development policy by stepping into the provision of credit.

The Export Policy 2018-20 emphasizes the importance of diversification and sophistication of export industries. In addition to increasing the added value of the garment industry, 12 sectors, such as pharmaceuticals and plastics, should be developed with the highest priority. The policy also highlights the necessity for special development support in 19 sectors, including jute, electrical products, and toys, as sectors that need to enhance their domestic production bases to promote exports.

The Import Policy Order released by the Ministry of Commerce states the principle of import rules. Unlike the export policies published by the Ministry of Commerce, there is no description regarding the direction of import policies in general.

Based on the national industrial policy 2016, for promoting the industry of MIDI, the export industry will be diversified and advanced without hindering the survival and development of existing industrial bases and the growth of competitive existing industries represented by RMG. It is important to form a new industrial hub in MIDI should follow this basic direction. At the same time, it is important to explore the possibility of the 12 industrial sectors shown in Export Policy 2018-2021 to be located in MIDI, and to focus on attracting these industrial sectors.

### 12.2.3 Attracting Industrial Investment in MIDI

As mentioned above, BEZA does not currently have an industrial development plan or a plan to attract investment within the MIDI area.

Matarbari Port is the only deepwater port in Bangladesh. As far as the current state of EZ5 development is concerned, from the viewpoint of attracting industrial investment, it is considered that the primary focus will be to attract heavy and chemical industries to coastal areas centering on the Matarbari Port. Therefore, it is expected that petrochemical industries based on petroleum refining will first be expanded in the MIDI area. Bangladesh currently imports much of its petrochemical products. In the PP 2041, the goal is to increase the current 1.5 million tons of petroleum refining capacity to 19.5 million tons by 2031 to cover almost all domestic

consumption. Developing SPPL in EZ5 is in line with this governmental policy and is planned to start from petroleum refining to ethylene manufacturing. Therefore, the petrochemical-related industry, ranging from many derivative products to plastics, is expected to be concentrated as the starting point.

The Ministry of Commerce also wants to make use of the coastal area. In addition to petrochemical-related products, it wants to start producing ammonia, ethanol, and other products. In the future, it is expected that chemical-related industries will be accumulated, and production of urea is also expected along with the ammonia plant.

However, the Bangladesh government has not published a comprehensive heavy chemical industry development plan other than enhancing oil refining capacity described in the PP 2041. It is necessary to clarify (or if not considered yet, will consider) how many heavy and chemical industry clusters the Government of Bangladesh is planning nationwide and in the MIDI area in the future.

On the other hand, the SDP also cites industry sub-sectors other than petrochemicals, plastics, and chemicals as candidates for expansion into MIDI areas, as shown in Table 12.2. These are consistent with the policies outlined in Industrial Policy 2016 and Export Policy 2018-20 and cover almost all potential growth industries.

Table 12.2 Industry Sub-sectors That are Candidates for Expansion into the MIDI Area

Waterfront	Hinterland
Petrochemicals & Plastics	Textiles and garment
Chemicals	Leather and shoes
Cement	Automobiles
Fertilizer	Bicycles, motorcycles
Iron and steel	Home appliances and electrical appliances
Non-ferrous	Light industrial goods
Shipbuilding	Agricultural processed products
Ship dismantling	Information & Communications
Warehouse logistics	Pharmaceutical API

Source: Industrial and Economic Zone Sector Development Plan

However, some candidates for the industries presented here, such as information & communications and pharmaceutical API, are considered difficult given the MIDI area's location. In addition, the existing and new plants of the manufacturing industries for domestic consumption, such as motorcycles and home appliances, are now located near Dhaka, suggesting that their expansion to the MIDI area should be considered a medium- to long-term possibility. Furthermore, the MIDI area is not necessarily a region with an abundant labor force compared to other areas in Bangladesh, but the selection of industries for expansion in MIDI areas has not been made after considering whether the labor-intensive attraction is possible. As a result of these factors, it is worth considering that the candidates for new industries in the SDP should be taken as references. In Chapter 13, we discuss the types of industries that can be cited as candidates for expansion based on the characteristics of a location in the MIDI area.

### 12.3 EZ Demand Forecast

The SDP anticipates the investment of the heavy and chemical industry in the coastal EZs and the import substitution industry in the hinterland EZs. However, the SDP does not provide demand forecasts for

investment in EZs. On the other hand, the SDP calculates the economic impact of MIDI.

If efficient operations, transport infrastructure, and competitive logistics services are provided appropriately and on time, and if these potentials are realized, the SDP assumes that 600,000 jobs will be created directly by 2041. Based on this assumption, it is estimated that about 20% of Bangladesh's total value of industrial production will occur in the MIDI area.<sup>1</sup>

As mentioned earlier, under the SDP, based on EZ's direct employment of 600,000 people, total employment of 900,000 people, foreign direct investment of \$20.2 billion, and cumulative export earnings of \$42.5 billion are expected. This cumulative amount of foreign direct investment is approximately eight times the amount of foreign direct investment in Bangladesh as a whole in 2019.

#### **12.4 Ongoing EZ and Its Progress**

Of the eight EZs presented in the SDP, BEZA has begun to obtain EZ1, EZ4, and EZ5 lands. Among them, only EZ5 is currently under construction.

According to a hearing from BEZA, the total area of EZ5 is 1,240 acres. In 2018, 510 acres are allocated to Super Petrochemical Limited (SPPL)<sup>2</sup>, and construction of petroleum refining, petrochemical, LPG plants, etc., is planned. According to BEZA, under a 50-year leasing contract, all the infrastructure in the site, including banking and levees, is constructed at the cost of SPPL. BEZA is responsible for developing infrastructure up to the site, including electricity, gas, and roads. Previously, a JV with SK Gas was established, but it has already been dissolved, and only SPPL is currently under the lease contract.

The SDP stated that BEZA approached investors such as REB Station, DRS Gas, Siam Gas, and AWCA for the remaining land (730 acres). According to an interview with BEZA, however, there has been no contract signed at this time.

EZ5 does not have an overall development plan or investment attraction plan for development other than the development site of SPPL. BEZA basically envisions private-sector-led development for EZ development, and it seems that BEZA does not have any plan to develop individual EZs at this moment. For this reason, investors interested in EZ5 development should come to the BEZA offices in Dhaka to begin the process. In other words, investors who are interested in the announced EZ5 come to BEZA in Dhaka to start discussions regarding investment to EZs in MIDI.

Currently, SPPL is under construction with 20 local staff members in the site and 10 staff members in Dhaka office. Looking at the progress of SPPL construction, out of 510 acres, oil refining and land reclamation work up to 8 m of 210 acres of LPG plant has been completed, and on-site infrastructure development is underway. Construction of an oil tank is scheduled to begin in 2022. On the other hand, BEZA will be in charge of power and gas connection to EZ5, and transmission line connecting to EZ5 from the Matarbari substation. BEZA has

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<sup>1</sup> According to the 2019 JICA Survey, the number of workers in MIDI is expected to be around 60,000. On the other hand, BEPZA is aiming to employ 500,000 people in EZ (1,150 acres) which is being developed in Mirsarai. As there is a gap in the forecast of the employment population, the estimate of the SDP which assumes 600,000 persons is used here.

<sup>2</sup> A petroleum refinery firm began operation based on Chittagong in 2010, and it manufactures petrochemicals such as toluene and xylene in addition to gasoline and diesel based on naphtha. The major shareholders is Mohammad Abul Kalam, one of the founders of TK Group.



submitted a DPP of construction of the transmission line. For natural gas, BEZA will build a 12km gas pipeline to connect with the existing GTCL gas supply network. SPP will submit an estimate of construction costs to GTCL, which will be reviewed by GDLT and feedback to BEZA.

## **12.5 EZs in the Plan and Its Progress**

### **12.5.1 Expropriation of Land**

Only three sites of EZ1, EZ4, and EZ5 have already been started land acquisition by BEZA.

### **12.5.2 Development Priorities**

Hearings to BEZA indicate that the EZ candidate sites shown in the SDP and their development priorities have changed significantly. EZ1, EZ4, and EZ5, in which BEZA owns the land, are the preferred development candidates. The development involving BEZA in the MIDI area is currently only EZ5, so EZ1 and EZ4 are not started land acquisition yet. For other EZs that have not acquired land, BEZA is currently expected to be invested by the private sector if the development potential of EZs in MIDI is increased by the development of EZ1, 4, and 5 for which BEZA prepares the land. It is a reason to lower the priority of development by the government and to promote development of private investors/organizations who can involve the EZ development from land acquisition.

### **12.5.3 Future Development Outlook (Consideration by the JICA Survey Team)**

Based on the ongoing development of EZ5 and the existing social infrastructures in the Matarbari area, the survey team assumes that the development of the MIDI area will begin in the coastal area, and that the development of the hinterland will begin afterward. In addition, since MIDI is far from big cities, enterprises that would first expand into the hinterland are thought to be centered on export industries, such as the garment industry (see Chapter 13 for the industries that are expected to grow). Enterprises considering investing in the hinterland are expected to closely monitor the operational status of Matarbari Port, the operation of enterprises in the coastal area, and the status of social infrastructure development.

Therefore, in MIDI, it is considered that in the short term, the attraction of heavy chemical industries, mainly petrochemical industries, to coastal areas will be crucial. In the mid- to long-term, once Matarbari Port is opened and enterprises have expanded into coastal areas, it will be necessary to start developing EZs in the hinterland, in particular, EZ7 and EZ8, which are suggested in the SDP. This requires a budgetary measure derived from land acquisition. The timing of the development of EZ4 and EZ6 will depend on the opening of the Matarbari Port Stage 2. The development of EZ1, EZ2, and EZ3 will be after the investment to EZ4 and EZ6 has been planned.

## **12.6 Relationship between Progress of Other Infrastructures and EZ Development**

### **12.6.1 Development of Access Road**

The SDP has indicated that access roads from Matarbari Port and National Road No. 1 are the most critical infrastructure in Phase 1. However, the implementation of the 4.2 km access road from the end of the power

generation plant to connect the under-construction road of EZ5 has not yet been determined. Regarding the access roads, if limited to SPPL investments, it is not necessarily an essential infrastructure because it procures raw materials and transports goods through the sea. However, since project-construction-related employees are now forced to visit the site by boat, SPPL hopes to construct an access road as soon as possible to reduce operating costs. Construction of the access road is one of BEZA's obligations in developing EZ5, and it is also essential to attract more investments to EZ5 other than SPP. Accordingly, BEZA needs to secure funding and start construction as soon as possible.

#### 12.6.2 Electricity and Gas Supply

To construct full-scale plants such as petroleum refineries by 2022, the construction of electric power and gas-supply lines is an urgent issue, and all of these will need to be constructed by BEZA. A connection line from the Matarbari sub-station is required for electricity, and BEZA has already submitted a Development Project Proposal (DPP). For gas, a 12-kilometer pipeline connected to the existing Gas Transmission Company Limited (GTCL) network is required. SPPL has already submitted the necessary information to GTCL, based on which BEZA needs to create a DPP and file an application to Planning Commission. Incidentally, if the gas was supplied, it would be possible to replace the current diesel power generation with gas power generation. It is desired that the gas be constructed with higher priority.

#### 12.6.3 Urban Development

As detailed in Chapter 11, there is a Township Development Plan in Chakaria and Moheshkhali. The plan is to have new occupancies of 70,000 persons in Chakaria and 31,000 persons in Moheshkhali. However, the examination does not seem sufficient for urban infrastructure, urban amenity development, housing quality, and services for managerial staff, engineers, and skilled human resources. In the future preparation stage of MIDI MP, it is desirable to thoroughly examine the issues from the perspectives of education and vocational training.

#### 12.6.4 Water Supply

Other infrastructures for which BEZA is responsible for development include water supply. At present, the water supply to EZ5's SPPL is planned to be taken care of by SPPL itself by drawing groundwater. However, BEZA is not obligated to develop the infrastructure, depending on the enterprises attracted to the rest of EZ5. It is unclear whether or not the water demand can be covered by the use of groundwater alone, as water demand will increase dramatically, for example, if water-intensive industries such as the steel and textile industries are considered. The options of water supply will also need to be examined.

Furthermore, it is considered essential to examine the necessary amount of water supply to other EZs and reflect it in reviewing the supply and demand of water resources.

#### 12.6.5 Finance

The SDP raises four financing methods available to BEZA: (1) funding provided by the Government of Bangladesh to BEZA; (2) ODA; (3) Tied loans from foreign governments; and (4) private funding. The SDP

presents two development scenarios as methods for financing EZ development. If the first two financing methods ((1) and (2)) are chosen, the development of the EZ will take two years longer than the case in which the latter two financing methods ((3) and (4)) are chosen.

## **12.7 Others- Making SPPL Investment As a Successful Example.**

In reality, SPPL investment to EZ5 is being made on a timeline that will meet the completion of Matarbari Port. The success or failure of this investment is key to subsequent investment in the rest of EZ5 and, in other words, the success or failure of attracting investment to the MIDI area. Therefore, the SPPL project must indeed become a successful example. To this end, BEZA will need to ensure that it will start operation in time for the 2025-2026 targets set by SPPL's petroleum refining facilities.

## **12.8 Issues to Coordinate with Other Sectors**

### **12.8.1 Land Use**

BEZA does not plan to acquire land for the EZs that currently have not acure land. For the land use of MIDI area, MIDI-Cell and MDA will examine. In March 2019, the Prime Minister approved the land use plan. There is no overlapping in terms of land use with other sectors in EZs at present. Currently, Ministry of Industry considers that the entire coastal area, including EZ7 in the SDP should be used as a site for heavy and chemical industries. Based on the changes on requirements and conditions on land use as well as new considerations like the Ministry of Industry after the approval, it is necessary to formulate a comprehensive land use plan and set a grand design for the MIDI area.

### **12.8.2 Project Implementation Timeline**

For example, EZ4 is expected to be developed in the period of 2026-2030 in SDP, whichi is located near to the Matarbari Port Second Stage Development. The development timing is inconsistent because the Matarbari Port Second Stage Development whichi is expected to start operation at 2041. The main reasons for this discrepancy would be the lack of MIDI MP available for sharing among concerned implementing minisries/divisions and the inability of MIDI-Cell to sufficiently allocate personnel needed to promote coordination among implementing ministries/divisions. Accordingly, in developing the MIDI MP, it is also essential that coordination discussions are held between sectors on the timing of the development of various infrastructures.

## **12.9 Planning Issues of EZ Development in MIDI MP**

The SDP prioritizes the eight EZs as candidate and summarizes each EZ's basic infrastructure construction costs, including the costs required for raising land by bank construction and banking. Unfortunately, among these eight candidates, only EZ5 is under development at present, and only SPPL's construction of oil refining facility is existing investment in the industrial and EZ development at present. No specific attraction plan for investment for the rest of EZ5 has been provided yet. For the other seven EZs, although there is a development timing, a feasible plan has not yet been developed yet either.

In addition, eight candidate EZs, each of which is divided into coastal EZs and hinterland EZs with the list of candidate industries along priority industry in Bangladesh. However, it does no well reflect each industry's

situation and the MIDI area's characteristics (see Chapter 13). It also does not mention strategies for attracting candidate industries.

Based on the above, it is recommended that the following be revised or added to MIDI MP industrial sectors, particularly when developing the EZ-Plan.

1. Details of development of EZ5 which is mainly construction oil refining facilities in SPPL at this stage. The operation of petroleum refining facilities is the first step in industrial development in the MIDI area. If there are delays, it is essential to analyze the causes, respond to them, and reflect them in MIDI MP.
2. The impact on the Bangladesh economy of constructing a petroleum refining plant in SPPL and the following construction of a petrochemical plant. It is recommended that the ethylene plant construction following the petroleum refining facilities is a stepping board for MIDI and shows its progress and prospects for investment in ethylene derivative products expected to be constructed in adjacent areas.
3. Approach to BEZA of new investors in EZ5. It is necessary to describe the structure of BEZA to attract investment and assess whether it is enough to promote the development of the MIDI area. Reflect organizational, operational problems, and countermeasures in MIDI MP when the issues are identified in the implementation structure of BEZA.
4. Perceived development time of EZ1 & EZ4 and development entity. If development starts more than ten years ahead, it is recommended to present a development vision rather than a concrete plan.
5. For the five EZs that BEZA does not own, if they remain candidates, it is essential to present development visions of each EZ, in addition to MIDI MP and industrial development plans, which is a part of the MP, to attract investors.

## Chapter 13 Industrial Development Sector

### 13.1 Current Status of Industrial Policy

#### 13.1.1 History of Industrial Development

##### (1) Early Days of Industrial Development

Bangladesh, which became independent from Pakistan in 1971, had little basis for manufacturing and was an agricultural country, as was the case in many other developing countries, as evidenced by the fact that jute was the major export. This situation did not change significantly. In the early 1990s, a project to produce urea based on domestically produced natural gas and earn foreign currency through its export began in Chattogram.

On the other hand, the manufacturing and export of the garment industry, backed by the active investment of private companies and the government's export promotion policies, became a significant driver of economic growth from the late 1990s, transforming Bangladesh from a low-income country into a middle-income country. The development of the garment industry, which now accounts for more than eighty percent of export revenue, was initiated by partnerships with Korean Daewoo. Multi-Fiber Arrangement issued in 1974 introduced a quota system for textile exports to developed countries. However, Daewoo, almost exhausted its quota, formed a business alliance in 1978 with Desh Company, a Bangladesh garment manufacturer, focusing on Bangladesh's unused slots and cheap labor force. With the latest sewing machine brought to Bangladesh, more than 100 engineers were trained in South Korea, and many of these trainees became entrepreneurs who began garment businesses in Bangladesh.

##### (2) The 1980s: Establishment of Export Processing Zones

The Bangladesh government clearly announced an export-led economic growth strategy during this period. In 1980, the Bangladesh Special Export Processing Zone Authority (BEPZA) was established to provide land to exporting enterprises by establishing EZs. The goal of BEPZA was to simplify complicated export and import procedures, and give preferential tax treatment to exporting enterprises. Currently, the Special Export Processing Zone counts eight locations in Bangladesh and provides valuable operating areas to export companies, including the garment sector.

At the time of the emergence of the garment industry, the industry (especially the ready-made-garment, RMG) relied on imports for almost all of its materials, and BEPZA introduced a bonded warehousing system to exempt customs duties on the import of materials for the garment industry. In Bangladesh, where high customs duties were the norm, the garment industry exported competitive price products in the European and U.S. markets. The technique was to leverage its low-cost labor while not imposing a burden on the procurement of materials, thereby providing a significant boost to the growth of the garment industry. 2010s: Production of domestic consumer goods from export promotion

During the 2010s, to become a middle-income country, the government's industrial policy was weighted toward promoting exports to fostering companies that produce domestic consumer goods. In 2011, the Bangladesh Special Economic Zone Agency (BEZA) was established, and the provision of investment areas by the

government to manufacturing industries, not limited to those for export-oriented, began. At the same time, BEPZA's legislative reform, which had previously been limited to providing land/services to exporting enterprises for 30 years, enabled the provision of special economic zones similar to those in BEZA and the construction of special economic zones in Mirsarai began in 2018.

### (3) Current Status of Industrial Policy

In the last two decades, domestic production targeting domestic consumption, such as food, household goods, and electrical goods, has been promoted, creating several large local corporate groups. In the future, production of home appliances by local enterprises will be further promoted. In contrast, production of motorcycles will increase among durable consumer goods, and production of automobiles is expected to start. HONDA began producing motorcycles in Bangladesh at the end of 2018, but it was the so-called knockdown system, and domestic motorcycle production of components has not been materialized yet. Mitsubishi Motors began considering the production of semi-knock-down passenger cars. Still, it is cautious about the timing of investment as up to 90% of its 40,000 vehicles sold annually are currently accounted for by the import and sale of used vehicles. The Ministry of Industry released a strategic document for the development of the automobile industry, but there is no longer a provision to prohibit the import of used vehicles within five years, which was in the draft stage. In addition, it is recognized among related parties that incentives for automobile investment remained unclear and receded more than in the draft stage.

### (4) Petroleum Industry

Petroleum refining facilities in Bangladesh have an annual production capacity of only 1.5 million tons by Eastern Refinery, which is unchanged from the time of independence. In the past decade, there has been a plan to expand the capacity to 4.5 million tons/year, but it is still in the planning stage. Eastern Refinery is a 100% subsidiary of Bangladesh Petroleum Corporation (BPC), which is under the umbrella of the Ministry of Power, Energy, and Mineral Resources. The current consumption of petroleum-related products in Bangladesh is 6 million tons, and BPC imports a total of 6 million tons of petroleum products annually, including 1.6 million tons of crude oil. PP 2041 aims to increase this oil refining capacity to 19.5 million tons per annum in 2031. If this goal is achieved, domestic petroleum product production will meet the whole domestic demand.

Table 13.1 Oil Refining Capacity Growth Targets

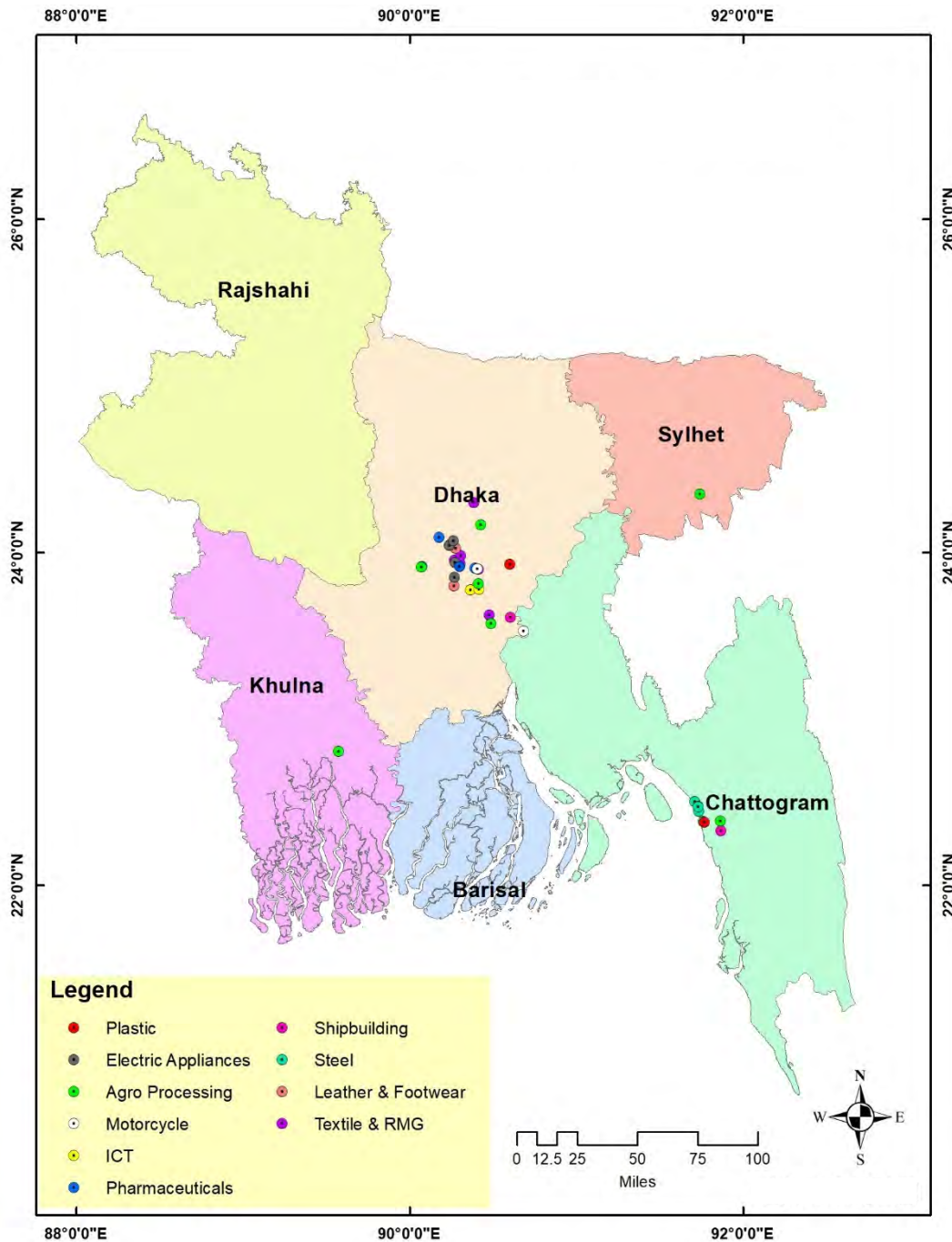
	2019	2021	2031	2041
Petroleum refining capacity (million tons)	1.5	1.5	19.5	19.5

Source: Perspectives Plan of Bangladesh 2021-2041

Currently, naphtha from Eastern Refinery is devoted to gasoline production by SPPL. Petrochemical plants do not exist in Bangladesh, and most petrochemical products are imported. SPPL is constructing a petroleum refinery in the the MIDI area and is planning to build an ethylene plant afterward. If a series of SPPL projects were to begin operations, refined petroleum and petrochemical products would be produced internally earlier than PP 2041 anticipated.

### 13.1.2 Industrial Location in Bangladesh

Bangladesh's economic activity is centered in Dhaka, accounting for about 40% of the total. Chattogram, the marine trade center, accounts for 10%, and these two regions account for half of Bangladesh. Figure 13.1 plots the location of the activities of the top companies in the ten major Bangladesh sub-sectors: textile and RMG, agro-processing, leather and footwear, plastic, steel, shipbuilding, motorcycle, electrical appliances, pharmaceuticals, and ICT, based on the information obtained from Website of the respective companies. This shows that the location of manufacturing activities is concentrated in Dhaka and Chattogram more than the degree of economic activity.



Source: JST

Figure 13.1 Industry Location in Bangladesh

Below, we look at the location of the ten sectors.

**Textile and RMG:** Using all imported materials, the garment industry, which exported all of its RMG to Europe and the U.S., began with Chattogram. With their success, they started to be located in Dhaka, where there are plenty of workers, and the garment industry is mostly located in the suburbs of these two cities. It is an industry that drives economic growth in Bangladesh, which accounts for 80% of Bangladeshi exports and contributes 16% of GDP.

**Agro-processing:** The agriculture and fishery processing industry accounts for around 8% of the manufacturing sector and is about 1.7% of GDP. Most enterprises are micro, small or medium-sized enterprises located throughout Bangladesh. Having been designated as one of the government's export promotion industries, it has grown from just over \$100 million in 2009, which accounted for less than 1% of exports, to nearly 3% of exports in excess of \$1 billion in the past 12 years or so. The main export items are dried fruit, frozen fish and shrimp, tea, and spices. Tea is concentrated in Sylhet, and processed marine products are concentrated in Khulna. Even though exports are increasing, the leading market for agro-processing is overwhelmingly the domestic market, and large-scale companies, including beverages, are located near Dhaka.

**Leather and footwear:** Bangladesh exports 60% of leather products produced domestically, and until the garment industry emerged, it had been a valuable sector for Bangladesh to acquire foreign currencies. However, there has been no marked increase in exports like the one attained by the agro-processing industry in the past ten years. The exports are around \$1 billion, which is about the same as the agro-processing industry's. The history of manufacturing leather products is old, and it is centered on cities with large consumption of animals such as cattle. It is concentrated in areas where economic activities have been conducted even from the old days. In Dhaka, it is Hazaribagh of Old Dhaka. The area is small, and due to environmental contamination issues peculiar to the tanning industry, the transfer to the leather industrial park of Savar, north of Dhaka, is being attempted. Many SMEs still conduct the manufacturing of leather products and shoes.

In recent years, there have been advances in sports shoes, such as Puma, focusing on cheap labor in Bangladesh, and their locations are mainly in the suburbs of Dhaka, as in the garment industry.

**Plastics:** Plastics are used everywhere as containers and packaging materials, including household goods, toys, and PET bottles. In 2018, the Bangladesh domestic market was expected to be worth around \$2 billion, achieving 20% growth. Although the direct export of plastic products such as toys is still small at around \$100 million, the export value of plastics when plastics used for accessories for the garment are included is expected to be as high as \$1 billion. A major plastics manufacturer, RFL, is located 40 kilometers northeast of Dhaka, Kaliganj, and GSL Export is located in Chattogram. Bangladesh covers about 20% of the materials of plastics with recycled plastics, but all the remainder is imported.

**Steel:** The steel industry in Bangladesh produces steel bars using scrap iron as raw material, and they are used to construct infrastructures such as buildings and bridges. The leading BSRM and its followers, ARM, and KSRM, are all operating near Chattogram. This is because of the historical background of the easy availability of scrap iron for raw materials. It is challenging to foresee significant changes to its location in the future. BSRM has a plan of expansion at Mirsarai located about 50km northwest of Chattogram.

**Shipbuilding:** Shipbuilding began at Chattogram Port, and many shipbuilding companies, including the significant shipbuilding enterprise Western Marine, operate there. Like Western Marine, Ananda, which builds



ships for export, operates in a suburban Narayanganji in Dhaka. Chattogram and Narayanganji are central to shipbuilding. The export of ships has been around \$200 million, but the shipbuilding industry development measures announced by the Ministry of Industry in 2020 set an ambitious target of increasing this to \$4 billion by 2025.

**Motorcycle:** Bangladesh sold more than 600,000 motorcycles, more than triple the number in 2010. During this period, local manufacturers in Bangladesh, such as Runner and Walton, have begun producing and replacing imported motorcycles. Honda, which imported Hero Honda motorcycles from India, started operations in the Abdul Monem economic zone, 50 kilometers southeast of Dhaka, in late 2018. Some manufacturers have begun exporting like Runner, but the manufacturing of motorcycles in Bangladesh is mainly for domestic demand. Imported products are still used in 70% of domestic motorcycle production. It is a common view that motorcycle part makers will enter Bangladesh after at least 1 million motorcycles have been sold. The location of motorcycle manufacturers for domestic consumption is in Dhaka, and even if the production of motorcycle parts begins, the location will be in the vicinity of the motorcycle manufacturers.

**Electric Appliances:** An investment bank under United Commercial Bank in Bangladesh has announced that the market for home appliances such as televisions, refrigerators, and washing machines will triple in the past decade to \$2.4 billion and grow to \$10 billion by 2030. In early 2000, only a few companies, such as Singer Bangladesh, manufactured home appliances. Against this market expansion, many local companies, including Walton, a leader, Jamuna, Minister, and Vision, are now manufacturing home appliances. Its products also span a wide range of manufacturing, including air conditioners, microwave ovens, and various kitchen equipment. Walton and other manufacturers are already exporting, but both are expanding their operations in anticipation of growing domestic consumption. The factory is located near Dhaka.

**Pharmaceuticals:** The pharmaceutical industry meets 97% of domestic consumption and is currently worth \$3 billion in sales. Dublin-based Research and Markets expects that it will double by 2025, making it a promising knowledge-based, growth-oriented industry for Bangladesh. Exports are still small at \$170 million, but they have an export track record in 150 countries, mainly generics. However, over 90% of the active pharmaceutical ingredient (API) used as raw materials for pharmaceuticals are imported from China, India, etc. The API accounts for about 50% of the cost of generic drugs. Therefore, the pharmaceutical industry is aiming to produce the API domestically. To promote the domestic production of API, the government has developed API Industrial Park in Munshiganj, 40 kilometers from Dhaka to the south. About 50 companies such as Square, Beximco, and Incepta have decided to move into the area. Knowledge-based industries are usually located near major cities. In particular, the pharmaceutical industry, where licensing is essential, is situated near Dhaka.

**ICT:** Information and telecommunications companies are permitted in the suburbs of Chittagong. However, with pharmaceuticals, the location of the ICT industry is expected to be concentrated in Dhaka. While it is difficult to gauge industry size, in 2017 Everest Group Research, a major U.S. research firm, announced that the market at the time was estimated to be worth around \$1 billion and that it would grow five-fold by 2025.

## 13.2 Conditions of Industrial Location in MIDI

### 13.2.1 Advantages of MIDI

With the only deepwater port in Bangladesh, MIDI can offer a large industrial site for investment, which is the most significant benefit of MIDI's location.

In addition, the MIDI area is an area where infrastructure development can be expected as a base for BIG-B agreed upon between the Government of Bangladesh and the Government of Japan.

### 13.2.2 Constraints of MIDI

On the other hand, the following can be pointed out as constraints in the MIDI area.

#### (1) Transportation and Logistics Costs and Time

Transportation and logistics costs and time are constraints, with 400 kilometers from Dhaka and 100 kilometers from Chittagong, far from the cities.

#### (2) Existing Industrial Infrastructure

In 2011, the population of Cox's Bazar, where Moheshkhali and Chakaria are located, was 2.3 million in the census (Table 13.2). Chakaria, about 20 kilometers east of Matarbari Port and along National Road No. 1, is the entrance to Moheshkhali, with a population of around 470,000, but it appears to have limited urban functions. From there, a small village is scattered up to Matarbari Port. According to the 2019 JICA's Study on Land Use Planning in the Moheshkhali-Matarbari Area, the population is estimated to increase by 111,000 by 2041 in the MIDI area. Even if this is added, the population will be limited to more than 2.4 million.

Table 13.2 Population in Cox's Bazar Area

Area	Population
Moheshikari	321,218
Cox's Bazar Sadar	459,082
Chakaria	474,465
Total	2,289,990

Source: 2011 Population Census

Table 13.3 Number of Economic Activity

Sector	Number of Economic Entity	Number of Employment
Wholesale and Retail	24,986	64,515
Hotel and Restaurant	3,807	17,640
Manufacturing	2,099	11,193
Total	40,086	127,272

Source: 2011 Population Census

In terms of industrial composition, the region is predominantly agricultural. According to statistics, only a little more than 5% of the population is involved in commercial and industrial activities (Table 13.3). As a result, urban services such as urban infrastructure, finance, education, and healthcare are limited. The living environment and urban services that satisfy managers, engineers, skilled workers, and others essential to attracting companies become crucial to developing industries in the MIDI area.

(3) Securing Water Resources

Regarding not only industrial development in MIDI but also any developments in MIDI area, the availability of sufficient water resources should be considered. SDP for water resource development is not submitted. In the 2019 JICA Land Use Plan, there is an analysis on water demand of MIDI<sup>1</sup>, but there is no analysis regarding water resources. MIDI area is located in low wetlands facing the Gulf of Bengal, and water resources are primarily limited from the Matamfri River, rainwater, and groundwater. Currently, with the support of JICA, survey on water resources development for the entire southern Chattogram region, namely “Data Collection Survey of Water Resource Development in the southern Chattogram Region in the People’s Republic of Bangladesh”, is being conducted. In this survey, water resource development for MIDI is considered optimal use of Matamfri River, rainwater, and groundwater.

### 13.3 Industrial policy

#### 13.3.1 PP 2041

According to PP 2041, Bangladesh aims to grow to a high-middle-income country by 2031 and become a high-income country by the 2040s. In this process, Bangladesh intends to implement its industrial policy by (1) RMG will continue to grow without losing its competitiveness; (2) diversifying its exporting companies; (3) upgrading its industries, including exporting companies; (4) promoting the domestic production of domestically consumed materials and durable consumption materials; and (5) promoting the domestic production of heavy and chemical products which currently rely heavily on imports.

Bangladesh is the second-largest exporter of garments after China. While there is a tailwind in that the production will shift from China to Bangladesh due to the emergence of China risk, the most favored nation treatment of taxes in export destinations enjoyed so far will be lost in graduating from LDCs. Under these circumstances, the garment industry will work to increase the added value of its products and further promote the domestic production of materials. As the garment industry will continue to support Bangladesh's growth, the government has placed primary emphasis on policies that do not hinder the industry's competitiveness.

The present structure where the garment industry occupies over 80% of the export is a high risk, and the diversification of the export industry is made to be a policy target. First, to take advantage of its strength of a cheap and abundant labor force, there have been efforts to increase exports of, say, footwear and leather products, electrical appliances, pharmaceuticals, ceramics, ships, and agro-processed products. Attempts are being made to use the successful experience of the garment industry.

Low-cost, abundant labor is a strength that applies to low- and middle-income countries. Beyond high middle-income countries, a shift to knowledge-based manufacturing is necessary. In this regard, the Government of Bangladesh recognizes that corporate management in response to the DX, a major current trend, is being promoted to existing export industries while striving to foster the human resources required of knowledge-based industries.

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<sup>1</sup> Water usage of 178,500 m<sup>3</sup>/day is estimated.

### 13.3.2 Policies of Relevant Ministries

The jurisdiction of petroleum products and petrochemical products is the Ministry of Power, Energy, and Mineral Resources, the development of manufacturing industries with existing facilities is the Ministry of Industry, and the jurisdiction of imports is the Ministry of Commerce. The Ministry of Industry has announced policies for fostering several industries, such as the "Policy for fostering the motorcycle industry" in 2018, the "Policy for fostering the plastics industry" in 2020, and the "Policy for fostering the automobile industry" in 2021. These industries are expected to grow in the future, They are mainly qualitative, and there is no detailed analysis of the current conditions and development policies of the industries covered. In addition, it does not seem that the Ministry of Power, Energy, and Mineral Resources has ever announced policies for developing the petroleum refining and petrochemical industries.

### 13.3.3 JICA's Industry-related Projects

#### (1) Bangladesh Special Economic Zone (BSEZ)

To support Bangladesh's industrial policies, JICA is supporting the development of economic zones (1,000 acres) namely Bangladesh Special Economic Zone (BSEZ) in Araihaazar which is located 40 kilometers east of Dhaka. This is a loan aid project as same as the coal-fired power plant project and Matarbari port development project in MIDI area. Land preparation and infrastructure development in surrounding area are carried out with a Japan's official loan . The BSEZ was established in December 2019 as a joint venture between Sumitomo Corporation (76%) and BEZA (24%). The company completed the construction of banking and levees in 2021 and began sales in early 2022 to start operations at the end of 2022. Located about an hour's drive from the center of Dhaka, investments to meet Dhaka's rapidly growing domestic consumption and other urban areas are expected, in addition to exporting companies.

#### (2) Investment Promotion and Industrial Competitiveness Enhancement Project

JICA is promoting the Investment Promotion and Industrial Competitiveness Enhancement Project for 60 months from April 2017. The organizations involved in the cooperation are the Prime Minister's Office, BIDA, BEZA, the Ministry of Industry, the Bangladesh Industrial Technical Assistance Center, and the Small and Medium Enterprise Foundation. The contents of the support are shown below.

- Promotion of policy coordination related to investment promotion and industrial promotion,
- Formulation and implementation of policies for dealing with environmental impediments to business,
- Develop a portal site for investors and strengthen support services for investment promotion,
- Strengthening the capacities of BIDA staff,
- Promoting collaboration between local enterprises and foreign enterprises,
- Strengthening OSS Functions in EZ,
- Strengthening the capacities of BEZA staff,
- Support for reviewing laws and systems related to EZ development,
- Formulation of action plans for the promotion of the light engineering industry and the plastics industry, and
- Establish systems and strengthen functions to provide Business Development Services to the above two industries.

(3) Other Infrastructure Development

In addition, the Dhaka Urban Transport Development Project (MRT) and the Support for Dhaka International Airport Expansion are implemented to improve urban functions essential for economic growth, which is the underpinning of industrial development. The 17-kilometer MRT1 line linking the Central Dhakka Station, Kamlapur Station, and the airport will reduce the time from 140 minutes by bus to 24 minutes. Over the past decade, JICA's loan aid to Bangladesh has amounted to nearly ¥1.7 trillion.

### 13.4 MIDI's Roles in Industrial Development

#### 13.4.1 Roles of Industries Located in MIDI

The MIDI area's attractiveness is the vast area suitable for development and the existence of Bangladesh's only deepwater port. On the other hand, the constraint is that they are far from consuming areas such as Dhaka and Chattogram. In terms of investing in the MIDI area, SPPL is constructing a petroleum refining facility to commence operations at the time of the opening of Matarbari Port. After that, it is planned to build the first ethylene plant in Bangladesh. If this progresses as planned, the petrochemical complex will be the first in Bangladesh to operate in the MIDI area. The MIDI area will play a role of a heavy and chemical industry base supplying one of the primary industrial materials that have so far relied on imports.

In this way, the roles of MIDI in industrial development are to become bases for new industries that contribute to the diversification and sophistication of export industries without hindering the continued development of existing industrial bases other than MIDI and the growth of existing competitive industries represented by RMG. At the same time, they will become bases for the development of downstream industries in the petrochemical and heavy and chemical industries, which have already begun to be developed. Taking this into account and keeping in mind the distribution of existing domestic industries, we analyze and sort out the industry sub-sectors that are candidates for investment below.

#### 13.4.2 Assessment of the Potential of Location of Priority Industries in MIDI

(1) Petrochemicals

MIDI, which has a large coastal industrial area centered on Matarbari Port, is an appropriate location for developing the heavy and chemical industry, which Bangladesh intends to promote in the future. Super Petrochemical is already constructing a petroleum refining plant in EZ5<sup>2</sup>, and its operation is expected to begin in the MIDI area earlier than PP 2041 anticipates. It is the ethylene center that is planned to be constructed following this. This will be Bangladesh's first ethylene plant, and domestic ethylene production is expected to begin. Using this as raw material, investment in derivatives such as polyethylene and styrene monomers is expected. In this respect, Super Petrochemical is expected to act as an anchor company in the MIDI area.

(2) Garment and Textiles

Industries that import raw materials and then process and export finished goods are suitable for investment in

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<sup>2</sup> In order to proceed smoothly with this construction, a connection from the construction site to the gas/power network is required, and BEZA is obligated to perform the construction.

MIDI areas with a deepwater port. Amid rising labor costs in Dhaka, if labor is cheap and abundant in the MIDI area, it is worth fully considering investing in the suburbs of Matarbari Port. If electricity and water are available, the textile industry's investment will be close to the garment industry. However, there are some cases in Mirsarai EZ where water supply capacity issues have emerged after development. Therefore, measures need to be devised to prevent water supply from becoming a problem in the development of the MIDI area.

(3) Chemicals

The Ministry of Commerce is seeking to produce chemical materials such as ammonia and ethanol domestically, which rely on imports in whole quantities. Although there are no specific investment plans at present, there is a good possibility that chemical products will be conducted in the MIDI area based on joint ventures with foreign companies. Since Bangladesh currently relies on about 70% of urea on imports, it will be planned to construct urea production plants in MIDI areas. In addition, many chemical manufacturers, primarily in Europe, have already established operations in Bangladesh to supply the chemicals necessary for the textile industry. If the concentration of garment and textile industries proceeds in the MIDI area, chemical manufacturers providing chemical materials may also invest.

(4) Automotive Industry

Motor vehicle production of knockdown and semi-knockdown is well considered along with the economic growth of Bangladesh. In the future, new vehicle making is still preliminary because the policy to foster the motor vehicle industry published by the Ministry of Industry forwarded a ban on imported used cars, accounting for 90% of the annual number of motor vehicles sold. In light of this current situation, the concentration of the automobile industry and clusters of related industries are expected to be long-term initiatives over the next decade or more according to the experience in Thailand. On this assumption, it is also appropriate to consider the start of local production of steel required for the automobile industry in the medium to long term.

For MIDI, the automobile industry can be an anchor industry in MIDI, and if realized, a large derivative investment is expected. Therefore, to avoid settling into a similar conclusion over the next 20 years, it is necessary to formulate a fostering plan for the automobile industry that is acceptable to domestic and overseas automobile investors together with considering further import policy on used vehicles.

(5) Motorcycles

In Bangladesh, the domestic production of motorcycles has been considerably advanced in the past ten years. In the future, it is expected that the expansion of parts manufacturers into Bangladesh will begin when domestic sales reach around 1 million. However, the production of motorcycles is targeted at the domestic market, and the location of motorcycles and their component factories is expected to be favorable in the suburbs of Dhaka, which is a large consumption area. The motorcycle industry will likely begin operations in the MIDI area after the emergence of companies that have developed strategies targeting the export market. Based on interviews, it cannot be said that such manufacturers are likely to appear in Bangladesh for the time being. Therefore, it seems appropriate to consider this as a medium- to long-term potential.

(6) Shipbuilding

In Bangladesh, the shipbuilding sector is already internationally competitive industry, and exports have begun mainly of small vessels since 2008. All of the steel materials for shipbuilding are imported, and this situation is expected to continue in the future. Therefore, the MIDI area is attractive for the shipbuilding industry for export. The location of the shipbuilding industry does not need to be near Matarbari Port, and it is possible with locations facing the sea or river. Shipbuilding companies have many engineers who have acquired skills in Singapore and other countries, so to attract shipbuilding companies to MIDI areas, it will be essential to be able to provide the lifestyles and living environments acceptable to those engineers.

(7) Steel Industry

The supply of steel materials to the automobile and shipbuilding industries has not started yet, and the conventional steel production to meet the demand for housing and civil engineering construction is expected to expand in the next 20 years. Currently, 80% of domestic steel production raw materials are imported scraps, and this import is expected to increase significantly in the future. So from the convenience of accessing scrap iron imports, it is possible to expand into the MIDI area. However, steel companies operating near Chattogram are already planning to expand into Mirsarai EZ, located around 50km north of Chattogram, to meet growing domestic demand. Attracting the steel industry to the MIDI area, 100 kilometers south of Chattogram, may require the provision of residential environments that satisfy engineers. Besides, the provision of incentives is essential for land-use costs, transportation costs, and others, compared to Mirsarai to make it attractive to expand into the MIDI area.

In the steel product processing industry, the rolling coil center for building materials, which is a joint venture between Japanese and local steel companies, started operations in Mirsarai in April 2022.

(8) Leather Goods, Footwear, and Sports Goods

It is common for beef leather to be produced in large consuming areas such as Dhaka, and it is unlikely that leather goods and leather shoes will be manufactured in the MIDI area.

On the other hand, many foreign brands, including Puma, already produce sporting shoes made from rubber and chemical materials in Bangladesh for export. These brands are total sports goods manufacturers that include shoes and sportswear. It was not easy to obtain chemical fibers as it relied on imports, so China and Vietnam have outperformed Bangladesh. For sports goods, importing raw materials and processing and exporting them is the same as for the garment industry. The excellent access to Matarbari Port will be the most significant advantage. When SPPL's petrochemical projects progress, chemical fiber production should also begin in the neighborhood, and the benefits will be added. Thus, the expansion of sports shoes and apparel into the hinterland of the MIDI area is promising. Again, for sports goods manufacturers to decide to invest, it is a significant premise that a living environment can be secured so factory supervisors can live.

(9) Plastics

Bangladesh relies heavily on imports for its plastic raw materials, so there is the potential for companies targeting foreign markets, such as toy manufacturers, to expand into the MIDI area. Currently, many of the

exports of plastics products are exported through garment accessories and packaging. It is also likely that plastics manufacturers will expand into the MIDI area as the garment and textile industries grow into MIDI. When the ethylene plant in Super Petrochemical starts operation, the domestic production of plastics materials will also begin, so advancing into the MIDI area will be attractive from the viewpoint of accessing raw materials.

(10) Agro-processing Products

MIDI area does not produce commodity crops such as Sylhet tea that lead to direct exports, and the size of fisheries is not as large as that of Khulna. There seems to be no base in the MIDI area for processing local products and linking them to exports. Agriculture and fishery processing will be targeting urban populations, which are becoming increasingly sophisticated. Therefore, it is unlikely that the MIDI area will become an investment destination for the agriculture and fishery processing industry.

(11) Electric Appliances

Similar to motorcycles, Bangladesh's production of consumer electronics in recent years has been centered on domestic market, and its factories are in Dhaka's suburbs. Even if a consumer electronics manufacturer targeting foreign markets emerges, it is highly likely that this will be carried out by expanding its existing plant near Dhaka, and it is considered that investing in the MIDI area cannot be anticipated.

(12) Cement

Bangladesh is a cement producer, and domestic manufacturers supply cement for domestic consumption. Still, except for two companies in Sylhet, Chattak, and LafargeHocim, it produces cement by importing the whole amount of clinker. Cement plants are located in the estuaries of rivers near the main consumption sites, and in the case of Chattogram, they accumulate production facilities in the estuaries of the Karnapri River. The production of low-margin and bulky cement products is close to the consumption market. However, it is entirely conceivable that cement plants will be invested in the MIDI area during its development process.

In the production of cement, there is a possibility that clinker generated from the coal-fired power plants in Matarbari can be used as a raw material. In that case, it will be used after checking the content of heavy metals in the imported coal.

(13) Pharmaceuticals and ICT

In the SDP, the active pharmaceutical ingredient (API) and information and communication industries are cited as potential industries for advancing into the MIDI hinterland. Still, both are industries based on knowledge. Knowledge-based industries are founded on higher education institutions and urban living and are centered on cities such as Dhaka and their vicinity. Pharmaceuticals will be located near Dhaka, even in manufacturing API, given the necessity of permits. As for the information/communications industry, most are currently located in Dhaka, and the companies use internet lines from Dhaka to provide services nationwide. Therefore, it is unlikely that the industry will invest in the MIDI area.



### 13.4.3 Roles of EZs in Developing MIDI Area

EZs offer an important site for investment in the MIDI areas. In particular, the development of EZ5 will affect the future of the entire area. It is predicted that the opening of Matarbari Port and corporate activities, including petroleum refining facilities in SPPL, will attract internal and external attention in the future. If the Matarbari Port functions become accepted, some export companies will be interested in expanding into the MIDI area. However, no developer is responsible for the entire EZ development in the development of EZ5. BEZA is responsible for constructing infrastructure outside the EZ, but all the infrastructure within the EZ is to be developed by investors. In the SPPL case, it took almost three years for reclamation up to 8 meters above sea level and bank protection, and it constructed its jetty to transport heavy machinery required for the construction. At present, future investors will have to deal with reclamation and bank protection independently, and the burden will be enormous. Therefore, it isn't easy to invest in the area other than the investors who can assume reclamation and bank protection for themselves, as in the case of SPPL.

Unlike investors with financial resources such as SPPL, many investors will consider investment only if all infrastructures are in the EZs, including developing intra-area infrastructures. In light of this, it is crucial to promptly move forward with the construction of a 4.2-kilometer access road from the end of the power plant access road to EZ5, which is a duty of the government. In addition, the development of this EZ will require a developer who can manage the entire EZ development. In doing so, it is considered that EZ8, in the neighborhood of Chakaria, is an appropriate location for developing infrastructures and seeking investors.

EZ1 and EZ4 are the ones where BEZA owns land in addition to EZ5. It will be a realistic view that EZ1 will be developed only after the Moheshkhali north-south vertical road has been opened. EZ4 is expected to be developed in the timing of operations at Matarbari Port Phase II, which is currently scheduled for 2041.

### 13.5 An Assumtin of MIDI Industrial Development Scenario

In the SDP, the scenario is drawn up in a way that the heavy and chemical industry in the coastal area, the export industry, and the domestic demand industry in the hinterland are growing simultaneously, and thereby MIDI area is developed. However, the government does not take a strategic and proactive policy approach to strengthen its industrial competitiveness. It also assumes development through the unique actions of investors interested in investing in the area and does not have industrial policies that strongly incorporate policy decisions.

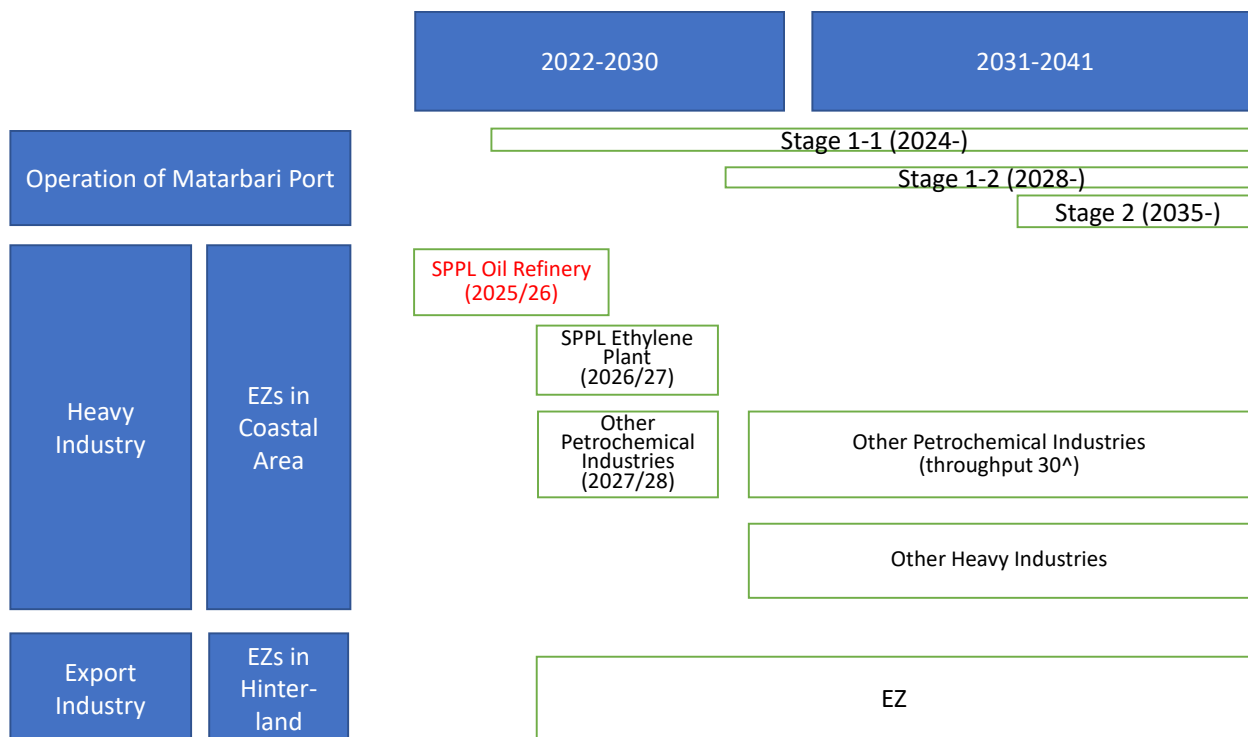


Figure 13.2 Scenario of MDI Industrial Development (Hypothesis)

Based on the current status of industrial policies and the recent on-site inspections and interviews with relevant organizations, it is unlikely that MIDI areas will be developed as the scenario depicted in the SDP. Looking at the future of development in this area in line with the actual situation that is already underway, we think it is essential to realize the following scenarios (Figure 13.2) strategically.

Assuming the opening of Matarbari Port in 2025-26, EZ5's SPPL petroleum refining facility expects to start operation at approximately the same time. This is the first non-logistics and energy-related project in the MIDI area, and it will be the only manufacturing-related project operation for the time being. At this point, there is no EZ development in the hinterland. Construction of the ethylene plant will begin before the operation of the oil refining facility, and operations of the ethylene plant will start in 2027-28. To match this, producing derivatives of various petrochemicals using ethylene materials begins near ethylene plants.

When a petrochemical plant complex is planned and launched, EZ development targeting export industries are expected to be found in the suburbs of Chakaria, e.g., in EZ8 of the SDP. To coincide with this, EZ workers' plans for housing, hospitals, schools, etc., will be launched in Chakaria.

The development of the second hinterland EZ along the National Highway No. 1 or the access road from Chakaria to Matarbari Port will begin when the investment attraction of the EZ on the hinterland is almost in sight. This is also targeted at the export industry.

When SPPL refineries begin to operate, investment in the rest of EZ5 will occur. This is also a heavy chemical industry. The heavy and chemical industry investment is not limited to EZ5, and the investment in the coastal area MIDI allows to use in the land use planning will also be considered. In the second half of the 2030s, the development of Matarbari Port Phase II will begin. In line with the timing of the opening of the port in 2041, the development of the heavy and chemical industries will be extended nearby the Matarbari Port Phase II.

The above shows a reasonably certain scenario until SPPL constructs an ethylene plant. However, since land acquisition and development entities have not been decided and its development is closely related to the development of social infrastructures in the MIDI area, it will be important to coordinate timelines with other sectors when preparing MIDI MP.

### **13.6 Challenges in Industrial Development in MIDI Area**

#### **(1) Clarification of the Position of the Petroleum Industry in MIDI**

MIDI area is an appropriate location for the heavy and chemical industry with Matarbari Port, the only deepwater port in Bangladesh. MIDI MP must first answer whether the petroleum refining facilities currently under construction and the ethylene facilities planned by SPPL will be adequate for Bangladesh to grow into a developed country in the future. In addition, it should present what heavy and chemical industries other than SPPL projects should be developed in the MIDI area. The good location of the heavy and chemical industry is limited in Bangladesh.

A series of plans, from petroleum refining to constructing petrochemical plants, require information on many supporting industries that use the products as raw materials and intermediate products. But relevant organizations and jurisdictions have been divided in Bangladesh. In drafting plans, ministries and agencies need to share basic information with other supervisory ministries and agencies. However, Bangladesh today does not have a system for collecting and publishing statistical data that can share the necessary information. Therefore, when preparing MIDI MP, it is desirable to examine the basic orientation in collaboration with relevant organizations and MIDI-Cell.

#### **(2) Clarification of the Positioning of Heavy and Chemical Industries in MIDI**

It is desirable to show how much weight MIDI area will have in the heavy and chemical industry in MIDI MP. It requires long-term energy forecasts and essential materials for Bangladesh as a whole. Besides, government policies on the extent to which the heavy and chemical industry intends to be internalized are also crucial. This is important to attract foreign investment in this sector.

#### **(3) Issues on Industrial Promotion by Sector in MIDI**

In 13.2.4 of this chapter, potential priority industrial sectors in Bangladesh is examined. Measures to attract these priority sectors to EZ will be the subject of the industrial promotion of MIDI MP.

##### **Petroleum**

Using ethylene produced by SPPL as raw material, it is expected that various ethylene derivative products such as polyethylene, polyvinyl chloride, ethylene glycol, and styrene monomer will start production within MIDI. Since it is necessary to promote technology transfer from overseas in order to manufacture derivative products including ethylene, support measures for the formation of JVs between domestic and foreign companies are required, in addition to the government policies mentioned above.

##### **Chemical**

First of all, it is necessary to look at the future demand for urea in Bangladesh and show as a clear policy how

much of it will be produced in the country. Based on this, the scale and location of ammonia and urea plants that can be operated in the MIDI area is considered, based on the production volume of SPPL. Regarding chemical fibers, in relation to the garment industry, it is necessary to consider what kind of chemical fiber production can be internalized at the beginning stage of the operation of the ethylene plant.

#### Garment and textile

The garment and textile industry are required to coexist with the existing concentration industries in Dhaka. Since the MIDI area has an advantage in terms of distribution costs, the key issue to attract the garment and textile industry is how much labor can be recruited from the MIDI area and its neighboring areas at a reasonable wage level.

#### Shipbuilding

Since the shipbuilding industry is mainly for export purposes, the MIDI area with Matabari Port is considered to have high location potential. Currently, many shipbuilding companies are located in Chattogram. When considering the promotion of the shipbuilding industry into MIDI area, it is necessary to consider promoting the industry in connection with those in Chattogram, where many shipbuilding factories are currently located.

#### Steel

The steel industry is concentrated in Chattogram and some major steel companies go to Mirsarai. The location of these steel companies needs to be considered from a long-term perspective. When considering the promotion of the steel industry into MIDI area, it is necessary to consider promotion directly with clarifying the relationship with that in Chattogram, where many steel factories are currently located.

#### Leather, Footwear and Sport Goods

It is a key to consider how much materials used for sports leather, footwear and sports goods can be procured from companies operating in the MIDI area. It is necessary to consider the promotion scenario of this sector with relevant industries as a kind of industry cluster.

#### Plastic

It is a key to consider how much plastic products used for accessories and toys can be procured from companies operating in the MIDI area like leather, leather shoes, and sports goods. It is necessary to consider the promotion scenario of plastic sector with relevant industries as a kind of industry cluster.

#### Cement

Since the potential of a cement factory to respond to the demand in the MIDI region is recognized in the short and medium term, cement demand in the MIDI area is to be examined.

#### (4) Living Environment with Sufficient Urban Service and Amenity

As mentioned in Chapter 12, sufficient living environment and urban service and amenity is indispensable for ensuring human resources such as managers, engineers, and skilled workers. It is one of important key issues for attracting industries to MIDI area. Accordingly, in MIDI MP, it is important to discuss with related sectors the necessary/sufficient level of urban services and amenities from the viewpoint of industrial promotion, including the viewpoints of education and vocational training.

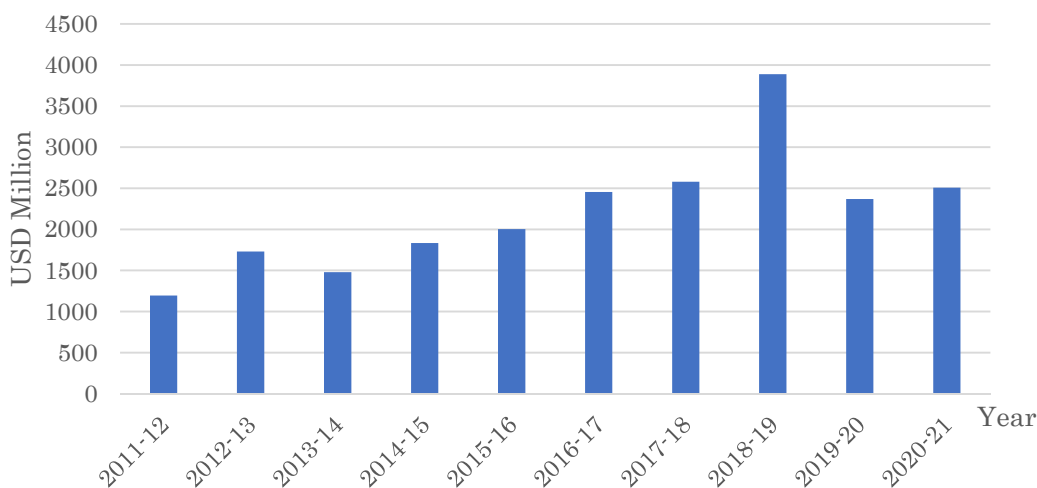
(5) Issues on Industrial Promotion by Sector in MIDI

The MIDI area, the only deepwater port in Bangladesh and the backdoor for extensive development is considered a suitable location for the heavy and chemical industry first, and the construction of petroleum refining facilities is already underway. The development of the petrochemical industry derived from petroleum refining is a sector that is expected to be developed in the future for Bangladesh, but it has not been clarified which ministry/agency is in charge of the industry at present. Relevant ministries and agencies include the Ministry of Power, Energy, and Mineral Resources, the Ministry of Industry, and the Ministry of Commerce. However, no ministry has yet to take leadership and create a vision for the future. If this continues, MIDI development will require, at a minimum, a MIDI-Cell or a new implementation structure (MDA) to take leadership in coordinating with relevant ministries/divisions.

### 13.7 Foreign Direct Investment

#### 13.7.1 Current Situation of Foreign Direct Investment in Bangladesh

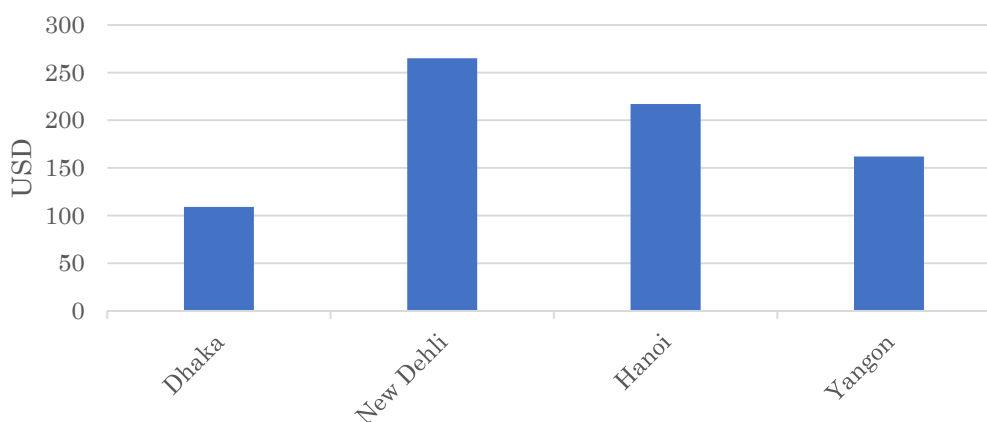
Foreign direct investment in Bangladesh has doubled over the past decade from \$1.2 billion in FY2012 to \$2.5 billion in FY2021. This is evident in Bangladesh's growing interest as a direct investment destination for foreign enterprises.



Source: Bangladesh Central Bank

Figure 13.3 Foreign Direct Investment in Bangladesh<sup>131</sup>

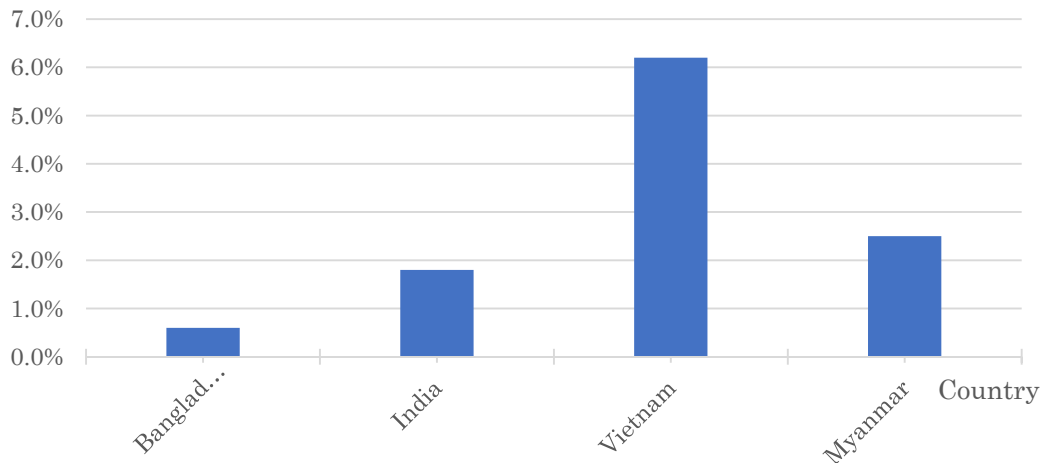
This increase in foreign direct investment has so far been due to the overwhelmingly lower labor costs compared to other regions. According to the 2019 JETRO Survey, the average monthly wage of Dhaka is \$109, half of Hanoi and more than 50% lower than Yangon. Focusing on this inexpensive workforce, most foreign investments targeted the export industry like the garment industry. However, in the same timeframe as Bangladesh joined the middle-income countries, direct investment has come to be seen in anticipation of domestic demand growth, as in the case of motorcycle production by Honda.



Source: 2019 JETRO Survey

Figure 13.4 Monthly Salary Comparison

Despite this comparative advantage in labor wages, foreign direct investment in Bangladesh remains inferior to other countries. Foreign direct investment in Viet Nam accounts for more than 6% of GDP, while Bangladesh accounts for less than 1%. The background is thought to be the special circumstances in Bangladesh, such as Bangladesh joined a middle-income country in 2015, and still, it has not been able to dispel the image of the poorest country to date, and also inefficient investment procedures that would force companies considering a direct investment to hesitate to implement them, as well as the unanticipated increase in costs associated with these procedures.



Source: World Development Indicators World Bank 2020

Figure 13.5 Ratio of Foreign Direct Investment to GDP

In addition to inefficient procedures, there is a logistics problem in Bangladesh. It is not an exaggeration to say that the logistics problem related to imports and exports is the problem of Chittagong Port. Chittagong Port, which accounts for more than ninety percent of international maritime trade, is limited in capacity to respond to high economic growth and may require nearly a week for cargo clearance. Several capacity-building projects are underway to improve this situation, but the expansion is limited partly because the port is located along the Carnapli River. Complementing this, Matarbari Port is expected to replace in the future. Matarbari Port is the only deepwater port in Bangladesh that can call large vessels and can introduce efficient port operations.

### 13.7.2 Measures to Promote Foreign Investment in Bangladesh

Bangladesh has the Bangladesh Investment and Development Authority (BIDA), which has a system to promote foreign investment throughout the country. In addition, BEPZA and BEZA have established a special zone to serve as a location for foreign investment, and it has a system that allows foreign investors to apply various investment promotion measures. When investment incentives in Bangladesh are compared with those in other countries<sup>3</sup>, the lease term of the Special Zones is 50 years, which is inferior to that of the Special Economic Zones in India but about the same as in Southeast Asia. The exemption period for corporate taxes

<sup>3</sup> The following descriptions are based on comparisons with India and Southeast Asian countries (Thailand, Indonesia, Vietnam, Cambodia, the Philippines, and Myanmar) stated in JICA "Final Report: Project for Special Economic Zone Development Survey and Improving BEZA Capacity in Bangladesh" (2017).

for developers is 10 years, which is a more preferential treatment than in Southeast Asian countries. On the other hand, the tax exemption system for all corporate taxes will be discontinued in three years, but this is the shortest compared to Southeast Asia and India. Import tariffs applicable to export processing industries are about the same as those of other countries, and dividends can be repatriated 100% without tax, which seems attractive to investors. Thus, it can be said that standard investment promotion measures have already been in place in Bangladesh. Bangladesh must operate such foreign direct investment measures as promised and simplify and improve the efficiency of the procedures that are not explicitly defined. Currently, JICA is providing BEZA support for the effective operation of one-stop services, and the World Bank is providing similar support to the Bangladesh Agency for Investment and Development.

As for the current investment incentives in Bangladesh, business income, dividends, and tax exemption on stock sales will be applied to EZ developers for 10 years. Import, registration, stamp duty, etc. of capital goods are tax exempt. Additionally, the original 10-year exemption to distribution, stock sells, and royalty payments is applied for investing in EZ. At the same time, the target amount for the business income tax is gradually lowered from the full income in the first year to the second in the 10th year to apply the tax exemption. Dividends and revenue from the sales of assets are allowed to be transferred in foreign countries, and EXPAT is permitted to receive up to 75% of its revenues, subject to an initial three-year tax exemption of 5% of its revenues. In this way, various investment incentives have already been prepared in Bangladesh.

### 13.7.3 Investment Promotion Measures in the MIDI Area

#### (1) Success in the SPPL Project

Foreign direct investment is of particular importance to MIDI. Many heavy and chemical industries, including petrochemicals that are targeted to invest in the coastal areas of MIDI, are those that had not previously been produced domestically.

Most importantly, Matarbari Port should be opened on schedule to promote MIDI development, and import and export operations should be started there. The actual operation of SPPL's oil refining facilities, which are scheduled to start operations at the same time, is a significant premise for investment promotion to provide credibility and peace of mind to potential domestic and foreign investors.

#### (2) The Efficiency of the Matarbari Port

Suppose transportation and logistics services at Matarbari Port can demonstrate advantages over Chittagong Port in terms of efficiency, timeliness, and cost. In that case, it will significantly contribute to attracting investment of the export industries to the hinterland in the MIDI area.

### 13.7.4 Challenges to Promote Investment in MIDI

#### (1) Strengthen Information Dissemination of MIDI and SPPL Project

One of the challenges of MIDI is that it is not much known of its importance of MIDI, whether internal or external. In particular, as noted in the foreign investment promotion measures, potential domestic and foreign investors are closely watching whether SPPL's oil refineries, the first private investment in MIDI, can operate



as planned. In addition to supporting SPPL in its businesses, it is crucial to disseminate this information actively.

(2) Strengthening Institutional Set-up for Industrial Promotion and Investment Promotion

The coastal area of MIDI is an appropriate location for heavy and chemical industries in Bangladesh, but there has been no organization to integrate and promote it. In establishing Matarbari Development Authority, which is currently under consideration, it is desirable to strengthen the structure for industrial promotion and investment promotion, including this new organization and related organizations, and consider the scheme for implementing the project.

(3) Efficient Operation and Service of Matarbari Port

As mentioned earlier, the operation and services of Matarbari Port is a crucial factors for enterprises expanding into MIDI, so it is essential to specifically present the content of these measures to attract foreign direct investment.

## Chapter 14 Preparation for MIDI MP

### 14.1 Consideration of the Roles and Positioning of MIDI MPs and SDP

#### 14.1.1 Current SDP

The current SDPs have been prepared and submitted by seven implementing ministries/divisions: PD, ENRD, MoS, MoRTB, MoR, BEZA, and LGED. The SDP, consisting of a development plan indicating the basic policy, demand forecast, master plan, priority projects, and environmental and social considerations, is the plan to describe the projects to be implemented as MIDI under the jurisdiction of each implementing ministry/division.

#### 14.1.2 Differences between Current SDP and Sector Plan in MIDI MP

MIDI is a core large-scale complex development to realize BIG-B. The MIDI MP will be the comprehensive regional development master plan encompassing the development of 3 major hubs of power and energy, port and industry, and developing supporting infrastructure. MIDI MP will need to be rationalized in the context of the higher-level development policies and plans, and development timeline, and formulated along the development of BIG-B as overall plan of MIDI, which includes development policies, development scenarios, and phasing development plans for the MIDI area. In the current SDP, there is not enough comprehensive discussion as one sector beyond the jurisdiction between ministries/divisions and as sector development that has broken down from the overall development plan of MIDI. When MIDI MP is prepared, the sector plan in MIDI MP should be paid special attention on the followings.

- The current SDPs have not been developed following the development policy, development scenarios, and phasing development plan of the overall development plan of MIDI. The sector plan in MIDI MP will be developed along the development policies, development scenarios, and phasing development plans of the overall development plan of MIDI.
- The implementing ministries/divisions prepare the current SDPs within their jurisdiction. Therefore, the SDP does not include issues that must be discussed beyond its authority. For example, no discussions have been held to promote the attraction of industries to MIDI and investment promotion measures in the Industrial and Economic Zone Development SDP prepared by BEZA because industrial development policy and investment promotion are under the jurisdiction of MoC and MoI. Moreover, the road SDP and the railway SDP have no discussions on the overall modal share of inter-city transportation between the MIDI area and Dhaka/Chattogram. Accordingly, the projects are not well rationalized based on such an overall transport development concept. The sector plan in the MIDI MP will be discussed across the jurisdiction among implementing ministries/divisions needed.
- The current SDP lists up projects that should be done in MIDI from the viewpoint of sector development. The sector plan in MIDI MP should list up the projects needed to achieve and consistent with the overall development plan of MIDI as a core of BIG-B.

#### 14.1.3 Overall Development Plan and Sector Plan in MIDI MP

Based on these considerations, the roles and content of the overall development plan of MIDI and sector plan

in MIDI MP are considered.

MIDI MP does not a plan accumulating a sector plan. It is a plan to develop a comprehensive program focusing on economic infrastructure development in MIDI area, with the roles and functions justified in relation to the formation of the core area of BIG-B and higher-level national policies and plans like PP 2041. The sector plan is set as part of the MIDI MP, aiming to discuss sector development policy, projects, and implementation plans that align with the development scenario and phasing development plan of overall development plan of MIDI in the sector.

Plan	Overall Development Plan of MIDI	Sector Plan in MIDI MP
Position	<ul style="list-style-type: none"> <li>Development policy/philosophy consistent with higher-level policies and plans in Bangladesh</li> <li>Development as a core area of BIG-B</li> <li>Comprehensive development plan mainly for power and energy, logistics, and industrial hub with supporting infrastructures in MIDI area.</li> </ul>	<ul style="list-style-type: none"> <li>Sector-specific development plan which is broken done the overall development plan of MIDI</li> <li>Implementation plan of projects in the sector</li> <li>Part of MIDI MP</li> </ul>
Role	<ul style="list-style-type: none"> <li>Overall development policies, development scenarios/phasing development plan etc. of MIDI</li> </ul>	<ul style="list-style-type: none"> <li>Sector development policy and sector development scenario/ phasing development plan consistent with the overall development plan of MIDI</li> <li>Formation of MIDI projects</li> <li>Implementation plan of MIDI projects in the sector</li> </ul>
Major Contents	<ul style="list-style-type: none"> <li>Overall development policy for MIDI</li> <li>Development scenario, phasing development plan</li> <li>Spatial development plan (including land use plan)</li> </ul>	<ul style="list-style-type: none"> <li>Sector development policy</li> <li>Sector development scenario, phasing development plan</li> <li>Implementation plans of the MIDI projects (implementing body, schedule, funding schemes, etc.)</li> </ul>

#### 14.1.4 Sector Concepts in MIDI MP

As mentioned earlier, the MIDI MP includes sector plans. However, it is not prepared for each implementing ministry/division like the current SDP. Plan beyond the jurisdiction between implementing ministries/divisions is necessary. The sector in the MIDI MP is defined as follows.

"Sectors" of MIDI MP  
 A group (cluster) should be discussed in specific areas such as infrastructure and industry, rather than under the jurisdiction of ministries/divisions.

In line with the above definition, the appropriate sector should be selected in the MIDI MP. For example, the following sectors might be considered.

(Example) Power Sector: Generation, transmission

Energy sector: Procurement, storage tanks, and transportation of energy sources such as oil and gas

Port sector: Development of port facilities, operation, and management of port facilities, logistics

Transport sector: Inter-city transportation, road, railway and regional transportation

Industrial development: Industrial policies, investment promotion, EZ development in MIDI

Urban and regional development: housing, sewage, and wastewater, waste, power supply, communications

Water resources: Water resource development, water supply

Environment and disaster prevention: Environmental management and disaster prevention planning

## **14.2 Considerations on MIDI MP**

### **14.2.1 Analysis of Similar Regional Development Master Plans**

The structure and sector of MIDI MP are examined based on the analysis of similar regional development plans.

Table 4.1 shows examples of regional development plans that JICA has implemented. There are significant differences in the sectors selected, depending upon objectives, characteristics of country/region, social-economic conditions, and historical context.

From the viewpoint of obtaining hints on the direction of the MIDI MP, similar regional plans are reviewed from the following three points:

- Approach to achieve the goals of the master plan
- Structure of the master plan
- The sectors covered in the master plan

Table 14.1 Analysis of Regional Development Plans 141

Project Name	Background and Objectives of Development	Geographical Characteristics, Locations, and Special Circumstances (Disasters, Environment, etc.)	Sector
Data Collection Survey on the Regional Comprehensive Development in Mongolia	Based on the "Mongolia Sustainable Development Vision 2030." To alleviate concentration in Ulaanbaatar City, it is necessary for the medium to long term to revitalize the economy and form a sustainable society in rural areas, which are the source of population outflow. The comprehensive regional development plan is based on the spatial development concept of economic corridors between potential growth areas in Ulaanbaatar's northern, southern and eastern regions.	Northern: Agro-pastoral areas (Darhan and Erdenet) Southern: Mining areas (Sainshand and Darranzadgad) East: Choibalsan Ulaanbaatar metropolitan area and growing cities	Industrial promotion and tourism Regional development Urban and industrial infrastructure Transport system Agriculture and pasture (dairy, agriculture, and processing, livestock improvement) Mining and related industries Economic and market analysis Development of tourism resources and products Spatial and land use plan
Data Collection Survey on Development of New Ulaanbaatar International Airport Surrounding Area in Mongolia	The Government of Mongolia formulated the new airport satellite urban master plan in 2009. Using the advantages of location of the areas near to the new airports, regional development depending potential of logistics centers and free economic zones are taken into account. Basic infrastructure development, including electricity, water supply, sewerage, and waste treatment, are included in the master plan.	Around New Ulaanbaatar International Airport (satellite city)	Airport development Urban development plan around airports Logistics Free economic zone development Public-Private Partnerships/Investment promotion Basic infrastructure (electricity, communications, etc.) Basic infrastructure (water supply and sewerage, waste, etc.)
Project for Formulation of Comprehensive Development Plan for Bhutan 2030	Population migration from rural areas to urban areas in the country's eastern and southern regions is a serious issue. In rural areas, young workers decrease, and problems like the expansion of idle cultivated land and the shortage of leaders for public services currently emerge. Since Bhutan has fewer industry sectors besides agriculture, there is not enough employment in urban areas. Young unemployment has become a social problem. To solve the various issues associated with such population migration and regional disparities, comprehensive development plans at the national level should be formulated for balanced development between rural and urban areas.	All of Bhutan	Land use Industrial development Rural Development Planning/Depopulation Measures Facility Location Planning (Urban Functions/Major Public Facilities) Transport network development Environmental and Social Considerations Disaster Prevention and Climate Change Strategic Environment Assessment Organizational System/Legal System

The Data Collection Survey for Strengthening Framework of Operation and Implementation of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative

<p>Project for the Formulation of Southern Central Regional Plan in Bhutan</p>	<p>Comprehensive Development Plan for Bhutan 2030 Project was implemented to promote balanced development between rural and urban areas in the country, and the National Comprehensive Development Plan 2030 (CNDP2030) was formulated in 2019. Along this nation-wide development plan, a regional development master plan for Sarpang Prefecture, which has the potential to be an economic, social, and commercial hub with a border gate with India, located in the Central and Southern Region of Bhutan, is developed.</p>	<p>Sarpang, Chirang, and Siem Reang provinces (South-central India, border side) Sarpang Province is the fifth most populous province in the country.</p>	<p>Industrial development Spatial planning and land use Site development Social services Disaster risk management Environmental and social considerations Capacity building and organizational improvement plan for development project</p>
<p>Data Collection Survey on Economic Development of the Southern Region in Lao P.D.R</p>	<p>A comprehensive development plan aims to realize economic and infrastructure development by fully utilizing the advantage of the potential of the southern region of Laos. The regional development plan focuses on formulating economic development strategy based on the relationship between urban and rural areas in the region and proposes potential projects along the strategy.</p>	<p>Southern Laos (five provinces of Savannakhet, Sarawan, Sekong, Changsapak, and Attapu) Abundant land resources at Bolvens Plateau This area has a development potential along the East-West Corridor (National Road No. 9), which is positioned as the significant economic corridor of the Greater Mekong Area (GMS)</p>	<p>Industrial activity Rural economy Local development Minority enlightenment Human resource development Logistics and Transportation Resource development</p>
<p>Data Collection Survey on Regional Development in Luang Prabang, Lao P.D.R</p>	<p>Luang Prabang, one of the most prominent tourist cities in Laos and registered as a World Heritage site, is a core city in the northern part of the country and is expected to spread its economic impacts to the surrounding areas by implementing regional development through the promotion of tourism industry. However, tourism related infrastructure such as roads, waste treatment, water supply, and sewerage is insufficient in Luang Prabang. In addition, there is no appropriate maintenance of buildings within the World Heritage Area. In these circumstances, the regional development plan based on tourism and tourism-related infrastructure is formulated to realize improvement of the urban environment and sustainable regional development centering on tourism promotion.</p>	<p>Tourist areas, including UNESCO World Heritage Area, and neighboring areas important for regional development in Luang Prabang Prefecture like mountainous areas, tourist spots</p>	<p>Core infrastructure: roads, water supply, sewage treatment, solid waste Tourism Infrastructure: Tourism information center, walkway, toilets, etc. Tourism sector development Regional economic development (plan to generate more benefits of tourism development in the regional economy)</p>

<p>Project for the Integrated Regional Development Plan to Support Ethnic Minorities in the South-East, Myanmar</p>	<p>Employment for returnees displaced across the Thai border is indispensable for the Karen State with developing industries to become a source of employment. In addition, the plan is formulated as a medium- to long-term comprehensive regional development plan to support the return and settlement of refugees in the southeastern region.</p>	<p>Karen State, Mon State (Southeast region in Myanmar, Thai border region) (Plains + mountainous areas) Support for ethnic minorities Return of refugees and internally displaced persons</p>	<p>Return/Consolidation Plan (urban/rural) Community development Promotion of border trade and local industries Logistics infrastructure network Natural resource management Agricultural development Basin management Social development Land use Vocational training Environmental and social considerations</p>
<p>The Data Collection Survey for the Development Program in Tanintharyi Region, Myanmar</p>	<p>The Myanmar government promotes developing SEZs to industrialize the country by introducing foreign investments such as Thilawa, Dawei, and Chao Pyu SEZ planning. In this regard, the Tanintharyi region, where Dawei is located, emphasizes balanced and sustainable development, including industrial development, job creation, and improvement of the quality of life of local residents. Reflecting these issues, the regional development plan for the Tanintharyi region, including the Dawei SEZ plan and a deep-sea port plan, is taken into account.</p>	<p>Tanintharyi region Dawei Prefecture (Approximately 680km southeast of Yangon, facing the Andaman Sea to the west and at the south end of the region, the head is in contact with the Thai border)</p>	<p>Urban and regional development SEZ development Industrial development (agriculture, fisheries, tourism) Energy and power supply Transport (roads and railways) Water supply and drainage, solid waste, and disaster prevention Environmental and social considerations Community development Logistics development Port plan (development and operation) Coastal protection</p>
<p>Data Collection Survey on Ba Ria-Vung Tau Province Environment-friendly Industrial Accumulation and Logistics Hub Strategy, Viet Nam</p>	<p>The project revises industrial policies to take advantage of the location characteristics of Ba Ria Vung Tau Province and examine and propose a specific project for the future.</p>	<p>Ba Ria Vung Tau Province (Located on the southern coastline of Ho Chi Minh City)</p>	<p>Regional development Investment climate improvement Pollution control and environmental policy Logistics policies and transport infrastructure Industrial promotion policy</p>
<p>Technical Support to the Formulation of Subic Bay Regional Development Master Plan, Philippines</p>	<p>To promote the overall development and industry of the Subic Bay area, the direction of industrial development is examined, and further effective use of existing ports and highways in the region is also studied.</p>	<p>Areas with the former U.S. Force Subic bases have development potential using airports and ports.</p>	<p>Regional development Industrial promotion/Investment promotion Port development Road network development Disaster prevention The ship navigation and safety Airport utilization Environmental and social considerations</p>

<p>Project on Integrated Regional Development Planning of the Southern Region, Sri Lanka</p>	<p>Although the southern region in Sri Lanka is a region that has been behind in development, the port of Galle and its potential to lead regional development have been considered in recent years. To achieve this development potential well, the southern region's comprehensive regional development plan is formulated to promote economic growth, diversify the local economy, and increase employment opportunities based on the best use of the Port of Galle.</p>	<p>Southern Sri Lanka. (16 counties in Galle, 14 counties in Matata, 11 counties in Hambantota), parts of Sabaragamuwa (2 counties in Ratnapura), southern Upa (6 counties in Moneragala), and southern Eastern Province (1 county in Ampara)</p>	<p>Port development Transportation SEZ development Regional economy Environment and society Social development</p>
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Source: JST



## 14.2.2 Approaching to Achieve the Goals of MIDI MP

### (1) Two Approaches to Regional Development Plan

The goal of regional development is to further the economic growth of the target areas. Although a regional development master plan is structured on a custom basis depending on differences in region, times and problems faced, the regional master plan has two typical approaches to achieve the goals: 1) an approach to comprehensively developing a specific area/region, and 2) an approach to focusing on the development of industries/infrastructures that serve as regional “driving force”<sup>1</sup>.

“The approach to comprehensively develop a specific area/region” focuses on the region as a whole and comprehensively plans in a balanced manner, including industrial development, infrastructure development, and social development for the region's socio-economic growth. Similar projects include Data Collection Survey on the Regional Comprehensive Development in Mongolia, Project for the Formulation of Southern Central Regional Plan in Bhutan, and Data Collection Survey on Economic Development of the Southern Region in Lao People’s Democratic Republic, etc.

On the other hand, “the approach focusing on the development of industries and infrastructure that will serve as regional driving force” is a master plan specializing in narrowing down the industries and infrastructure sectors that should be focused on and formulating a regional development plan based on the focused sectors. Similar projects include Data Collection Survey on Development of New Ulaanbaatar International Airport Surrounding Area in Mongolia, Data Collection Survey on Regional Development in Luang Prabang, Lao P.D.R and The Data Collection Survey for the Development Program in Tanintharyi Region, Myanmar, etc.

The characteristics of the regional plans for the above two categories are shown in Table 14.2 below. Table 14.2 Characteristics of Regional Development Plans by Category

Type of Approach	Characteristics	Major Sectors in Master Plan	Similar Regional Development Master Plan
Approach to develop a specific region comprehensively	A master plan to comprehensively develop endured and potential industries, related infrastructure, society, and environment to achieve overall socio-economic growth of the region.	Wide coverage of key economic sectors in the region (agriculture, industry, services, tourism, etc.) Widespread coverage of infrastructure Includes social sector, environmental considerations, etc., depending on local uniqueness.	Data Collection Survey on the Regional Comprehensive Development in Mongolia Project for the Formulation of Southern Central Regional Plan in Bhutan Data Collection Survey on Economic Development of the Southern Region in Lao People’s Democratic Republic Project for the Integrated Regional Development Plan to Support Ethnic Minorities in the South-East, Myanmar Project on Integrated Regional Development Planning of the Southern Region, Sri Lanka
An approach focusing on the development of industries and infrastructure that	A master plan to focus on the leading/potential industries /infrastructure that have the potential to essentially affect regional	Formulates plans focusing on specific promising industrial sectors that have the potential to vastly affect regional structure based on regional	Data Collection Survey on Development of New Ulaanbaatar International Airport Surrounding Area in Mongolia Data Collection Survey on Regional

<sup>1</sup> This is a concept indicating a sort of power to bring about the growth and change of local economies and society. For example, it might be a regional game changer to change SWOT of a region, such as a leading industry in the region or large-scale infrastructural developments.

will serve as the regional driving force	structure. The plan, then includes related sectors.	characteristics and development potential, etc. Develop a plan for supporting infrastructure Include supporting sectors depending on local characteristics such as environment, social development sectors	Development in Luang Prabang, Lao P.D.R The Data Collection Survey for the Development Program in Tanintharyi Region, Myanmar Data collection survey on Ba Ria-Vung Tau province environment-friendly industrial accumulation and logistics hub strategy, Viet Nam Technical Support to the Formulation of Subic Bay Regional Development Master Plan, Philippines
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Table 14.2 Characteristics of Regional Development Plans by Category

Type of Approach	Characteristics	Major Sectors in Master Plan	Similar Regional Development Master Plan
Approach to develop a specific region comprehensively	A master plan to comprehensively develop endured and potential industries, related infrastructure, society, and environment to achieve overall socio-economic growth of the region.	Wide coverage of key economic sectors in the region (agriculture, industry, services, tourism, etc.) Widespread coverage of infrastructure Includes social sector, environmental considerations, etc., depending on local uniqueness.	Data Collection Survey on the Regional Comprehensive Development in Mongolia Project for the Formulation of Southern Central Regional Plan in Bhutan Data Collection Survey on Economic Development of the Southern Region in Lao People's Democratic Republic Project for the Integrated Regional Development Plan to Support Ethnic Minorities in the South-East, Myanmar Project on Integrated Regional Development Planning of the Southern Region, Sri Lanka
An approach focusing on the development of industries and infrastructure that will serve as the regional driving force	A master plan to focus on the leading/potential industries /infrastructure that have the potential to essentially affect regional structure. The plan, then includes related sectors.	Formulates plans focusing on specific promising industrial sectors that have the potential to vastly affect regional structure based on regional characteristics and development potential, etc. Develop a plan for supporting infrastructure Include supporting sectors depending on local characteristics such as environment, social development sectors	Data Collection Survey on Development of New Ulaanbaatar International Airport Surrounding Area in Mongolia Data Collection Survey on Regional Development in Luang Prabang, Lao P.D.R The Data Collection Survey for the Development Program in Tanintharyi Region, Myanmar Data collection survey on Ba Ria-Vung Tau province environment-friendly industrial accumulation and logistics hub strategy, Viet Nam Technical Support to the Formulation of Subic Bay Regional Development Master Plan, Philippines

Source: JST

(2) Proposed Approach to Be Considered for MIDI MP

MIDI is a national development that promotes integrated infrastructure development in BIG-B, forms a power, logistics, and industrial hub nationwide, and is expected to drive the overall development of Bangladesh. And, as the Chairperson of MIDI CC stated in the 9<sup>th</sup> MIDI Coordinating Commission (2020.8.4) importance of a “survey for the availability of sweet water in the locality, use of local springs, preservation of rainwater,

maintaining biodiversity, preservation of the forest, afforestation, and taking rehabilitation & training programs for displaced people in the MIDI area” as directives of Hon’ble Prime Minister, environmental conservation as well as social consideration and local benefits would be vital for MIDI MP.

Accordingly, to ensure MIDI development, the MIDI MP should adopt an “Approach focusing on the development of industries and infrastructure that will serve as regional driving force” and focus on creating a power and energy hub, logistics hub, and industrial hub as a regional driving force and providing supporting infrastructure. In addition, from the viewpoint of regional resilience, it is desirable for the MIDI MP to include the disaster prevention and environmental sectors.

In the medium-to-long term, the MIDI MP will be periodically revised/updated, reflecting the progress of MIDI and the economic and social conditions of the MIDI area. At that time, it is increasingly essential to incorporate plans for developing local industries in MIDI and surrounding areas, creating new jobs, and the ripple effects of MIDI to the surrounding economies and societies to respond to the directives above.

### 14.2.3 Structure of MIDI MP

The regional development master plan is, in general, divided into 2 parts: "overall development plan” and “sector plan.” All similar regional development plans shown in Table 14.1 follow this style. The overall development plan discusses development goals, development vision of the whole region, development scenario, stage development etc. On the other hand, the sector plan describes sector-specific development targets, scenarios, and project implementation plans.

The MIDI MP may follow the same structure of similar regional development plans because:

- Overall development policy, including development vision, development scenarios, and phasing development plans for the MIDI region as a whole, can indicate the direction of sector development to sustain consistency between overall policy and sector development plan in particular implementation timeline of the projects.
- Higher-level policies/plans, such as PP 2041, the 8<sup>th</sup> Five-Year Plan, and Bangladesh district development plans, have been formulated similarly.

With reference to the composition of similar regional development master plans and PP 2041 and the eighth five-year plan, the composition of the MIDI MP can be proposed as follows.

Table 14.3 Proposed Structure of MIDI MP142

	Item	Major Contents (proposed)
Overall Development Plan	Current status of MIDI	<ul style="list-style-type: none"> <li>• Current status of MIDI area</li> <li>• Current status of project implementation implemented as a MIDI</li> </ul>
	MIDI Development Philosophy	<ul style="list-style-type: none"> <li>• It is consistent with the policies of Bangladesh and the direction of the higher-level plans like PP 2041, 8th FYP and BIG-B and other vital policies like poverty, SDGs, environmental (global warming and climate change), resilience, and zero emissions. It clarifies the roles and missions expected to be taken in developing MIDI from them.</li> <li>• In line with the above, MIDI's holistic development vision is considered.</li> </ul>
	MIDI Development	<ul style="list-style-type: none"> <li>• For power and energy, ports, and industrial development, the roles of</li> </ul>

	Framework	<p>MIDI in the nationwide balance of supply and demand are clarified quantitatively.</p> <ul style="list-style-type: none"> <li>Development indicators such as the population, number of workers, and land area are formulated to be the basis of supporting infrastructure plans in the MIDI area.</li> </ul>
	Development Scenario/ Phasing Development Plan	<ul style="list-style-type: none"> <li>MIDI development scenario (how to develop MIDI) is considered.</li> <li>Based on it, a plan to function all projects in the MIDI area by phase well is considered.</li> </ul>
	Spatial Development Plan (regional structure and land use)	<ul style="list-style-type: none"> <li>The regional spatial structure of MIDI is considered. It also creates a phased spatial development scenario corresponding to the phase plan.</li> <li>The land use plan is reviewed (and revised if necessary) along with the spatial structure plan and projects. Land use plans by stage will also be prepared.</li> </ul>
Sector Plan	Sector Development Policy	<ul style="list-style-type: none"> <li>SDP clarifies how to develop the sector as a part of MIDI, following the roles and missions of overall MIDI</li> <li>Sector plan also clarifies the roles of MIDI in the context of nationwide sector development</li> <li>Based on the above, a sector development vision is considered.</li> </ul>
	Sector Development Goals (Development Indicators)	<ul style="list-style-type: none"> <li>Sector development goals (development indicators) are formulated per the framework of MIDI. For example, target amounts of power generation, energy storage, and port cargo by target year, EZ developed area by target year, etc.</li> <li>Targets for water supply, sewerage, waste disposal, and inter-city logistics are considered based on population, the number of employment, port cargo volume, etc.</li> </ul>
	Sector Development Scenario and Phasing Development Plan	<ul style="list-style-type: none"> <li>Development scenario (how to proceed with sector development) to achieve sector development policy is considered.</li> <li>Based on it, a phasing development plan is considered.</li> </ul>
	Project Implementation Plan	<ul style="list-style-type: none"> <li>Projects along the sector development policy is identified.</li> <li>Risk analysis of project implementation is considered.</li> <li>The project implementing body is considered.</li> <li>Project construction, operation, and financing scheme are considered.</li> <li>The project implementation schedule is considered along the development scenario and phasing plan.</li> </ul>

Source: JST

#### 14.2.4 Sector Considerations in MIDI MP

##### (1) Examples of Sector Plans for Similar Regional Development

In the previous section, it is proposed to adopt the approach focusing on the driving force sectors for the MIDI MP. The examples of regional development master plans, which are categorized in this approach in Table 14.1, show that this type of regional development plan is well balanced with 1) the sectors that can be the driving force for regional development, 2) the infrastructure/related industry sectors that support them, and 3) the support sector including environmental and social considerations to ensure their sustainability (Table 14.4).

Currently, SDPs in MIDI are prepared and submitted only in the seven sectors: power, energy, port, industrial

and economic zone development, road, railway, and urban development. However, considering the examples of regional development master plans and the characteristics of the MIDI area, it might be necessary to consider more sectors for MIDI MP.

Table 14.4 Examples of Sectors in Regional Development Plans Focusing on Developing Specific Driving Forces<sup>143</sup>

Purpose and Target	Sectors of the regional development driving force	Infrastructure/Related Sectors Supporting the Driving Force	Support Sectors to Ensure Sustainability (including Environmental and Social Considerations)
Data Collection Survey on Development of New Ulaanbaatar International Airport Surrounding Area in Mongolia	Airport Development Urban Development for Areas around Airports	Logistics Free Economic Area Development Basic infrastructure (power supply, communications, etc.) Basic infrastructure (water supply and sewerage, waste, etc.)	Public-Private Partnerships/Investment Promotion Environmental and Social Considerations
Data Collection Survey on Regional Development in Luang Prabang, Lao P.D.R	Tourism Sector Development	Tourism Infrastructure: tourism information centers, walkways, toilets, etc. Core Infrastructure: roads, water supply, sewage treatment, solid water	Regional Economic Development (Benefits of Tourism Development to the Regional Economic) Environmental and Social Considerations
The Data Collection Survey for the Development Program in Tanintharyi Region, Myanmar	Industrial Park Development Port development and operation	Logistics plan Urban and Regional Development Industrial development (agriculture, fishery, tourism) Energy and power supply Transport (Roads and Railways) Water Supply and Drainage, Solid Waste, and Disaster Prevention	Environmental and Social Considerations Community Development Coastal Protection Investment Promotion
Data collection survey on Ba Ria-Vung Tau province environment-friendly industrial accumulation and logistics hub strategy, Viet Nam	Investment Climate Improvement Logistics	Regional Development Infrastructure Development Industrial Development	Pollution Control Environmental Policy
Technical Support to the Formulation of Subic Bay Regional Development Master Plan, Philippines	Regional development Industrial/Investment Promotion Port Development	Road Development Disaster Prevention	Ship Navigation and Safety Airport Utilization Environmental and Social Considerations

Source: JST

## (2) Sectors of Similar Regional Development

As mentioned in (14.2.2(2)), MIDI MP creates a regional development plan that focuses on the sectors to be the driving force of MIDI, the infrastructure/related industry sectors that support the driving force, and the support sectors to ensure their sustainability that may include environmental, disaster prevention and social considerations etc. in the short term. In the medium-to-long term, during the revision/update of the MIDI MP,

the plan will incorporate the viewpoints of "local interests and sustainable development" in light of the progress of MIDI and the economic and social conditions of the MIDI area.

Based on the above, Table 14.5 shows the sectors to be considered in the MIDI MP.

Table 14.5 Proposed Sectors to be Covered in MIDI MP

Field	Sector	Short term	Medium-to long-term	Necessity of Sector
Driving Force Sectors	Power and Energy	Yes	Yes	Implementation of BIG-B Importance as a power and energy hub in Bangladesh
	Port and Logistics	Yes	Yes	Implementation of BIG-B Importance as the only deep-sea port in Bangladesh Importance of logistics as key business to formulate logistics hub with Matarbari port and to promote more use of Matarbari port
	Industrial Development	Yes	Yes	Implementation of BIG-B Importance to establish EZs which is a core of industrial hub
Infrastructure and related sectors supporting the activities of the driving force	Land Transport (modal share of transport, road, railway, regional transport in MIDI)	Yes	Yes	Importance as an efficient transport system between MIDI and Dhaka/Chattogram for port and industrial development in MIDI Importance of efficient passenger and freight transport in the MIDI area
	Urban and Housing (Township)	Yes	Yes	Importance for provision of residence to MIDI employees Provision of urban services and amenities to secure high-quality employment
	Water Resource Development	Yes	Yes	Importance of Secure water supply to industries and residents
	Water and Sewage, Solid Waste	Yes	Yes	Importance for adequate water supply within MIDI area and environmentally conscious sewage and drainage and waste treatment
	Tourism		Yes	Importance to activate the local economy by promoting eco-tourism using tourism resources (especially beaches and mangrove forests)
	Agricultural and Fishery Industries		Yes	Importance of expanding direct benefits to agricultural and fishery workers by linking to MIDI and tourism
	Human Resource Development		Yes	Importance to revitalize regional economics by increasing local jobs as MIDI progresses, such as industrial development and provision of urban services.
	Airport		Yes	Importance to promote industries by improving the convenience of the MIDI area
Sectors to ensure	Environment	Yes		Importance to improve sustainability

sustainability of MIDI				through environmental conservation and measures against global warming
	Disaster Prevention	Yes	Yes	Importance of enhancing regional resilience from disasters (cyclones and flooding) by constructing polder and land reclamation
	Social Development		Yes	Importance to respond to international agendas such as poverty, income disparities, gender disparities, etc.

Source: JST

### 14.3 Development Indicators for MIDI MP

#### 14.3.1 Role of Development Indicators

The development indicators for the MIDI MP may have the following three roles:

- Share Bangladesh's socio-economic perspectives, which are the basis for sector demand forecasts. This ensures consistency between the MIDI MP and the higher-level policies/plans of Bangladesh and unifies the assumptions for demand analysis among sectors in the MIDI MP.
- Unify the preconditions for demand forecasts for supporting infrastructures by sharing economic forecasts and future populations in the MIDI area. It will also ensure sector-wide consistency in the schedule of project implementation among the sectors
- Share the land required for the projects in each sector, based on the demand analysis of each sector. It also contributes to the review of land use plans by phase.

#### 14.3.2 Proposed Development Indicators

The following is a draft index (Table 14.6) and an example of indicators obtained at present (Table 14.6).

Table 14.6 Proposed Development Indicators for MIDI MP144

Purpose	Bangladesh Nationwide	MIDI Area	Current Potential Data Sources	Items that need to be reviewed at the time of MIDI MP
Socio-economics (nationwide)	Economic growth		PP 2041	
	Population	Population	Population Projection of Bangladesh	
		Number of employees (or social increase/decrease of the population)	Population Projection of Bangladesh 2019 JICA Land-use Survey	
	Nationwide power demand	Supply volume of MIDI	Revised PSMP2016	Reflection of the update of the national power supply-demand analyses by IEPMP.
	Nationwide energy demand	Import and storage volume of MIDI	Revised PSMP2016	Reflection of the update of the national energy supply-demand analyses by IEPMP.

The Data Collection Survey for Strengthening Framework of Operation and Implementation of the Moheshkhali-Matarbari Integrated Infrastructure Development Initiative

	Cargo volume at ports nationwide (containers)	Cargo volume (Containers) at Matarbari Port	CPA internal materials	
	Private investment value (FDI)	Private investment value (FDI) in MIDI	Bangladesh Bank	
		Investment value into EZs (FDI) in MIDI	No existing data	Estimation based on the relation between area and investment value of other EZs in Bangladesh
		Number of companies in MIDI	No existing data	Estimation based on the relation between area and number of companies of other EZs in Bangladesh
Demand for support infrastructure in MIDI		Generation and concentration of cargo in MIDI	No existing data	Estimation of cargo generation at Matarbari Port and MIDI
		Water demand volume	Unit amount (water demand per person) in Urban Development SDP	Reflection of confirmation of water supply-demand at power plants, ports, and EZs (currently plans to use groundwater)
		Sewerage volume	Unit amount (sewerage per person) in Urban Development SDP	
		Solid waste volume	Unit amount (waste per person) in Urban Development SDP	Reflection of confirmation of waste disposal at power plants, ports, and EZs (currently plans to dispose of by themselves)
Area of land required in each sector in MIDI		Power and energy Port EZ Urban areas and township		Reflecting on the review of the development timeline during the MIDI MP

Source: JST



Table 14.7 Indicators for Developing a MIDI MP (Temporary Setting)145

Category	Indicator	Unit	2026	2031	2036	2041	Source	Necessity of Revise at MIDI MP
Nationwide Socio-economy	Population	million persons	180.2	190	198.9	206.5	Midum Projection Popuation Projection of Bangladesh	
	Enconico Growth	%	9%	9%	9.9%	9.9%	Perspective Plan 2021-2041	
	Power Demand	MW	29,130	42,651	59,480	77,540	Revisiting PSMP 2016	○
	Petroleum Demand	million metric ton			19.8	24	Energy SDP	○
	Gas Demand	MMSCFD	4,275	4,836		5,868	Energy SDP	○
	Cargo Volume of Ports (Container)	thousand TEUs	4,608	6,547	8,083	10,263	Calculated based on CPA data	
	Cargo Volume of Ports (LNG)	mmcf	1,183	2,071	2,705	4,030	Calculated based on CPA data	
Indicators of MIDI	Cargo Volume of Ports (Others)	thousand TEUs	54.9	78.9	111.7	152.9	Calculated based on CPA data	
	Population	Persons	190,418	441,059	691,700	942,341	Urban Develoent SDP	
	In-migration	Persons	40,100	68,000	95,900	123,800	2019 JICA Land Use Survey	
	Power Genration at MIDI	MW	1,200	8,145	13,890	18,410	Estimate based on land develoment	○
	Cargo Volume of Matarbari Port (Container)	thousand TEUs	599	851	2,009	2,551	Calculated based on data from Port SDP	
	Cargo Volume of Matarbari Port (LNG)	mmcf	1,183	2,071	2,705	4,030	Calculated based on data from Port SDP	
	Cargo Volume of Matarbari Port (Others)	thousand TEUs	30.5	53.5	80.1	110.3	Calculated based on data from Port SDP	
	Emplyment	Thousand Persons				600	IEZ-SDP	○
Demand for Supporting Infrastructure	Accumulated FDI	Million USD	4,441	7,239			IEZ-SDP	○
	Water Supply	1000m <sup>3</sup> /day	23	53	83	113	Unit is culculated based on Urban Development SDP (page 55) Power plants, port and EZs use groundwater and treat drainage and waste by themselves.	○
	Drainage	1000m <sup>3</sup> /day	3	4	6	8		○
Solid Waste	kg/day	5,713	13,232	20,751	28,270	○		
Land Required by Each Sector	Power	ha	95	1,655	1,314	765	Power SDP	○
	Port	ha	0	167	337	0	Interview by JICA survey team	○
	EZ	ha	1,558	992	1,185	0	IEZ-SDP	○
	Urban Expansion	ha	172		40	40	Urban Development SDP	○
	Township	ha	0	152	0	0	Urban Development SDP	○

Source: JST

#### 14.4 Risk Analysis

Considering project risks of MIDI, it can be roughly divided into two types such as 1) project risk during the planning and construction period and 2) project risk after the construction.

Based on the experience of project implementation of MIDI, the issues that arise during the planning and construction period of MIDI projects are mainly 1) delay in securing financial arrangements, including difficulty in securing investors, 2) delay in resettlement and land acquisitions, as well as 3) delays in the project schedule caused mainly from many coordination matters with other projects that simultaneously implements in MIDI area.

On the other hand, the risk after the construction of the MIDI project is that operations will not be adequate because other project and some support infrastructures have not been completed.

In the MIDI MP, it is essential to reflect the experience of MIDI project implementation so far to the project implementation organization, structure, and schedule. In addition, to ensure smooth operations during the completion of the project. To ensure smooth operation after the project is completed, it is also essential for the

MIDI MP to consider a scheme to identify anticipate risk in advance from other projects that can be bottlenecks from the project planning stage and to monitor the progress of those projects in relation to the project.

Table 14.8 Project Challenges and Risks by Sector<sup>146</sup>

	Risk during Planning and Construction	Risk during Operations
Power	Review of power plants in MIDI by reviewing the power demand, overall policy on power supply in IEPMP, Review of business due to change of fuels at coal-fired power plants Securing landfill materials for raising the ground level	Delay in operation of power plants caused from delay in construction of LNG terminal (impact on securing fuel) Delay in operation of power plants caused from delay in the dredging for expansion of the water area (most recently, Stage 1 Phase 2) (impact on securing fuel)
Energy	Review of power plants in MIDI by reviewing the energy demand, overall policy on energy storage and supply in IEPMP, Securing sufficient quay length for the LNG and LPG terminals Securing landfill materials for raising the ground level (coastal area)	Influence on time of starting energy import caused from delay in the dredging for expansion of the water area (most recently, Stage 1 Phase 2)
Port	Impact of the change in the necessary quay length of the LNG terminal on the size of the inland water area (slip) in Phase 2. Securing landfill materials for raising the ground level	Securing water resources for water supply (from Phase 2) Impact on port freight transportation by the timing of development of transport networks (roads, railroads, ICDs, etc.), and strongly on port competitiveness.
Industrial and Economic Zone Development	Securing developers (investors) Securing embankment materials for raising the ground level Securing landfill materials for increasing the ground level	Delay in the operation of port, roads, and railway Delay in obtaining power supply and water supply to EZ Delay in Urban Development Delay in attracting companies in EZs Securing workers and qualified human resources
Road	Securing landfill materials for raising the ground level	No significant risk
Railway	Securing landfill materials for raising the ground level	No significant risk
Urban Development	Impacts of change of water flow during flooding caused by the construction of dikes and landfill Securing landfill materials for raising the ground level	Delay in developing road/railway and feeder road networks Delay in securing water weight and supplying water
Water Resources	Impacts of location and size of reservoir(s) to the nearby project area and surrounding environment and land use	No significant risk
Disaster Prevention	Coordination in height and coverage between dike and landfill	No significant risk
Environment	Delay in the EIA process	No significant risk

Note : The common issues such as delays in securing financial arrangements, securing investors, resettlement, and land acquisition are excluded in the table.

Source: JST

#### **14.5 Coordination Needed among Implementing Ministries/Divisions in MIDI MP**

As the current MIDI CC instructs coordination matters to the relevant implementing ministries/divisions, it is a viable option for the MIDI MP to include the information on coordination matters among the implementing ministries/divisions, which may largely contribute in smoother coordination among related ministries/divisions. It seems effective to plan the risk avoidance/mitigation of MIDI projects in advance from the viewpoint of the effectiveness and efficiency of MIDI MP implementation. As an example, the potential matters to be coordinated among the implementation ministries/divisions are shown in Table 14.9.

Table 14.9 Matters to Be Discussed/Coordinated among Sectors

	Power Div.	Energy Energy Div.	Port MoS, CPA	Industrial/ EZ Dev. BEZA, BPPZA, BIDA, MoC, MoI	Road HRD	Railway MoR, BR	Urban Development (township) LDG	Water Resources Development MoWR	Drainage and sewerage LGD, DoE	Solid Waste Management LGD, DoE	Disaster Prevention MoWR, MoDMR	Environment DoE	Land Acquisition DC
Power Power Div.		Schedule and location of LNG terminal			ROW of Power line (if necessary)	ROW of Power line (if necessary)		Future water demand at power plants (if necessary)	Future waste treatment plans	Waste generation and treatment plan	Natural disasters prevention plan Evacuation plans	Acquisition of ECC Monitoring of ambient noise and air quality Confirmation of medium-term long-term impacts on surrounding ecosystems such to Sonadia ECA	
Energy Energy Div.			Necessary quay length for LN/LPG terminals		ROW of pipeline (if necessary)	ROW of pipeline (if necessary)		ROW of pipeline (if necessary)	ROW of pipeline (if necessary)		Natural disasters prevention plan Evacuation plan	Acquisition of ECC Monitoring of ambient noise and air quality	
Port MoS CPA				Progress of the first phase of Matarbari Port Securing the water-front areas for coastal industries	Progress of port access road and highway	Progress of Port Access Railway, container terminals, IDC development	Number of employments at port	Future water demand (if necessary)	Future sewage and drainage volume and plan (if necessary)	Waste volume from port and ships and disposal method	Safety management of LNG and LPG carriers Natural disasters prevention plan Evacuation plan	Acquisition of ECC Monitoring of ambient noise and air quality Confirmation of medium-term long-term impacts on surrounding ecosystems such to Sonadia ECA	Progress of land acquisition Process of budgeting
Industry EZA BPPZA BIDA					Progress of access road and trans-Moheshkhali	Progress of port access railway and station near to EZ7	Number of employments at EZs Housing	Future water demand at EZs	Future sewerage and drainage volume	Future waste volume demand at EZs	Natural disasters prevention plan Evacuation	Acquisition of ECC Monitoring of ambient noise	Progress of land acquisition Process of

MoC						supply to meet income level			demand at EZs		plan	and air quality	budgeting
MoI											Confirmation of medium-term impacts on surrounding ecosystems such to Sonadia ECA	Progress of land acquisition Process of budgeting	
Road HRD						Road development in line with phases of housing development	Check and coordination of route, alignment, channel clearance height Connection stations with road				Availability of roads and use of evacuation routes at the time of natural disaster.	Acquisition of ECC for new power plants. Monitoring of ambient noise and air quality	Progress of land acquisition Process of budgeting
Railway MoS CPA						Study of commuter routes based on regional TOD policies					Availability of railway and use of evacuation routes at the time of natural disaster.	Acquisition of ECC for new power plants. Monitoring of ambient noise and air quality	Progress of land acquisition Process of budgeting
Urban Development LDG								Future water demand based on the future population	Future sewage and drainage volume in line with housing development phases	Future waste volume in line with housing development phases	Dike and landfill in line with housing development phases	Acquisition of ECC	Progress of land acquisition Process of budgeting
Water Resources Development MoWR										Location of waste disposal site and reservoir(s)		Acquisition of ECC	Progress of land acquisition Process of budgeting
Sewerage, Drainage LDG, MoE												Acquisition of ECC	Progress of land acquisition Process of budgeting
Solid Waste Management												Acquisition of ECC	Progress of land acquisition Process of budgeting

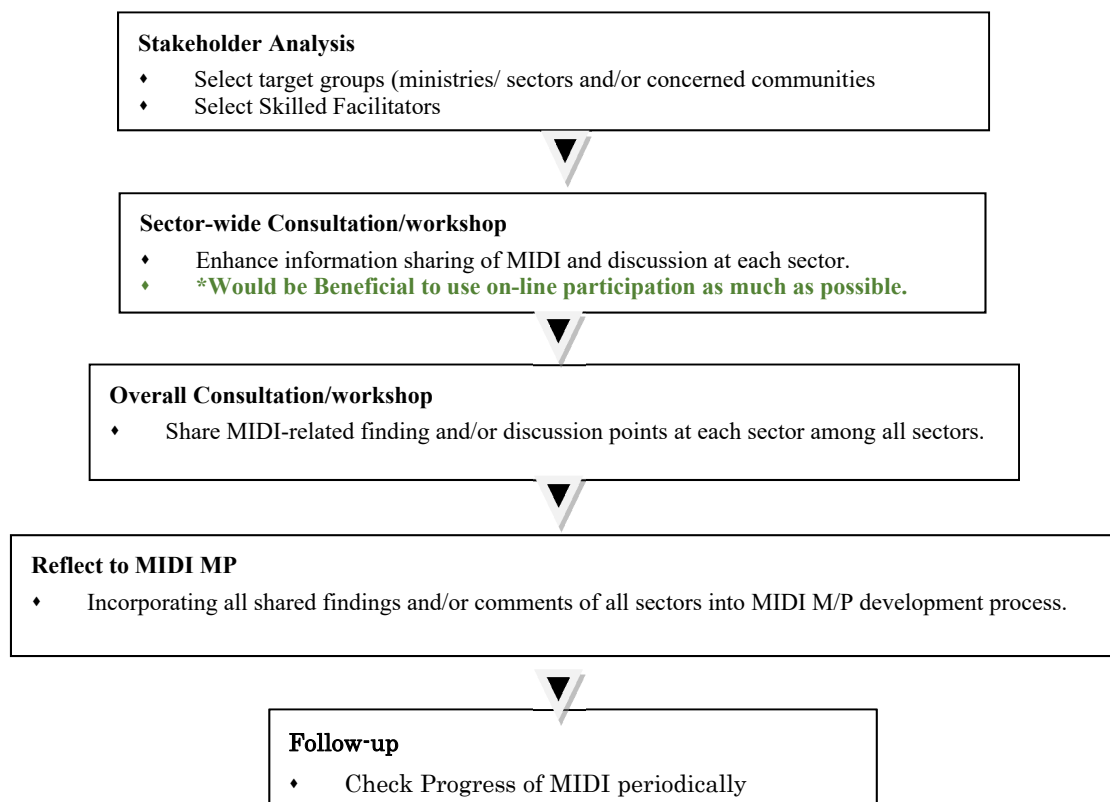


## 14.6 Public Consultation

Generally, the public consultation shall be conducted at several different timings to make a consensus on the project. It is achieved by interacting with policymakers and the general public through appropriate information disclosure and public education. Key governmental bodies and private organizations of concern to be invited within this MIDI-related public consultation shall be selected. It is noted that more key agencies/organizations would be identified as this MIDI proceeds. So, the identification and involvement process of relevant ministries/ divisions/organizations/groups must be flexible.

To establish a comprehensive public consultation process that would cover relevant ministries/ divisions/organizations/groups and individuals of private sectors, implementation of a two-steps public consultation scheme, consisting of (i) group-wide public consultation and (ii) overall public consultation (see figure below) would be useful to obtain possible feedback of MIDI, and it can achieve broad consensus among various stakeholders. Well-talented facilitators are essential to achieving a successful public consultation.

This public consultation process shall be initiated early in the master plan development process. Based on the results of the stakeholder analysis, an implementation framework (e.g., schedule, total number of consultations, relevant agenda, and others) for the public consultation is to be developed. Using this framework, relevant feedback on the master plan of concern shall be collected, analyzed, and then incorporated into the MIDI MP, if necessary. Besides, it is essential to revise the contents of the master plan considering the monitoring results and changes in the surrounding environment.



Source: JST

Figure 14.1 Schematic Diagram of Public Consultation Process

## 14.7 Considerations on Supports for MIDI MP

### 14.7.1 Japan's Potential Support for MIDI MP

#### (1) Objectives

To effectively formulate a MIDI MP by MIDI-Cell, the support should be made with the following two objectives:

- Formation of MIDI MP that can share among MIDI CC, MIDI-Cell, and implementing ministries /divisions and holistically implement MIDI.
- Capacity development of MIDI-Cell and implementing ministries/division in terms of implementation of MIDI MP.

#### (2) Expected Outputs and Activities

To achieve the above objectives, the following three outputs are expected to be achieved.

Table 14.10 Outputs and Activities 147

Output	Activities
Output 1: The MIDI MP is formulated.	<ul style="list-style-type: none"> <li>• Support MIDI Cell to make action plan for formulating make action plan to MIDI MP</li> <li>• Support to strengthen the organization of MIDI-Cell for preparing MIDI MP</li> <li>• Support to establish a structure and organization for discussing and preparing the sector plans of MIDI MP</li> <li>• Support to formulate a MIDI MP with MIDI-Cell.</li> </ul>
Output 2: The MIDI MP is approved.	<ul style="list-style-type: none"> <li>• Support Approval process of MIDI MP at higher -level (currently not fixed)</li> <li>• Support to raise awareness of the MIDI MP among implementing ministries/divisions and public</li> </ul>
Output 3: MIDI MP gets on the right track for implementation.	<ul style="list-style-type: none"> <li>• Support to finalize MIDI implementation framework and MIDI operation policy and procedure which give roles of overall MIDI implementation system including implementation of MIDI MP</li> <li>• Support to approve them at MIDI CC</li> <li>• Support to implement and monitor MIDI projects in accordance with them</li> <li>• Support to revise/ update MIDI MP</li> </ul>

Source: JST

#### (3) Inputs for support

Propose the dispatch of a chief advisor and a team of experts as inputs to achieve the above objectives.

Table 14.11 Outputs and Activities of Our Assistance148

Output	Input from the Japanese side	Input from the Bangladesh side
Output 1: The MIDI MP is created.	Chief advisor Team of Master Plan Preparation Expert Team (Team Leader, Regional Economy, Land Use, Power and Energy, Port, Industrial Development and Investment Promotion, Urban Development, Transport and Logistics, Roads, Railways, Water, Sewerage,	Project Director Project Manager Counterpart staffs



	Waste and Environment, Disaster Prevention) Japanese resource persons	
Output 2: MIDI MP is approved.	Chief advisor Team of experts in preparing master plans	
Output 3: The implementation of MIDI MP gets on track.	Chief advisor	

Source: JST

#### 14.7.2 Japan's Potential Resources for Advising MIDI MP

Japan has similar regional development experiences to MIDI and can advise on preparing MIDI MP and its implementation based on the similar experiences. In particular, the project experiences analyzed in Chapter 2 as similar projects have many implications for the MIDI MP and implementation structure and scheme of MIDI. The following are potential resources in Japan:

Table 14.12 Potential Resources in Japan<sup>149</sup>

	Related Organization	Resources (Reference)	Remarks
Kashima Development	Ibaraki Prefecture., Location Promotion Department	Kashima City Hall Policy Planning Section records the history of Kashima development, and the city is the core area of Kashima Development.  Joyo Industrial Research Institute (Research Institute of Joyo Bank)	
New Industrial City	Economic Planning Agency (later transferred to the National Land Agency and the Cabinet Office)  Prefectures with designated cities: Hokkaido, Aomori, Akita, Miyagi, Fukushima, Niigata, Toyama, Nagano, Tottori/Shimane, Okayama, Tokushima, Ehime, Oita, Miyazaki, Kumamoto, Fukuoka, Saga	No central organization remains institutionally. The Ministry of Land, Infrastructure, and Policy of the Ministry of Land, Infrastructure, and Transport if there are remaining human resources. Since the prefecture was in charge of actual planning practices, it is possible that information can also be obtained in the prefecture.  Examples of success include the Mizushima district in Okayama Prefecture (referred to as the outstanding success of a new industrial city), Toyama and Takaoka in Toyama Prefecture (mainly supported by the Department of Engineering of the Tokyo University), and the Kashima district in Ibaraki Prefecture (governor's initiative, designation as special industrial development district).	The New Industrial Urban Construction Law was abolished in 2001.
Okinawa Development	Okinawa Development Agency (an external bureau (agency) of the Prime Minister's Office. Currently, the Okinawa Development Bureau is under the Cabinet Office)  Okinawa General Office (local offices) are local branch offices of the Cabinet Office.  Okinawa Development Finance	OBs of the organizations mentioned in the left column  Stakeholders of the Okinawa Development Finance Corporation	The Okinawa Development Agency is in charge of planning and comprehensive coordination. The ministries, agencies, and prefectures are in charge of implementing the project.

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	Corporation		
Hokkaido Development	<p>Hokkaido Development Agency (an external bureau of the Prime Minister's Office. Currently the Hokkaido Development Bureau of the Border Province)</p> <p>Hokkaido Development Bureau (established in Hokkaido as an active organization of the Ministry of Transport, Ministry of Construction, and Ministry of Agriculture, Forestry, and Forestry; now a local branch office of this Ministry)</p>	OB of the organization mentioned in the left column.	<p>The Hokkaido Development Agency is in charge of activities from planning to project implementation.</p> <p>However, the project will be conducted with demarcation among Hokkaido Development Agency, Hokkaido, and other ministries and agencies.</p>

Source: JST

## Chapter 15 Suggestion for MIDI MP

### 15.1 Water Resources Development, Tap Water, Sewage, and Waste Sector

#### 15.1.1 Water Resources Development and Water Supply

##### (1) Current Status

Matarbari-Moheshkhali Island (MIDI area included) has no water supply facilities nor adequate water sources. Local community people obtain the drinking water and carry out agricultural work, using either groundwater or rainfall during the rainy season. According to the "2019 JICA Land Use Survey," the water supply conditions in the areas surrounding MIDI are described as follows:

Table 15.1 Local Water Supply Status

County name	Water supply status
Cox's Bazar	Water is withdrawn from wells and supplied to central areas of the city and tourist hotel areas. Only about 1000 of approximately 18,000 households have access to water supply services. The volume of water supplied is 1400 m <sup>3</sup> per day. There are 10 wells, 8 of which are in operation. In areas where water is unavailable, shallow pumps are placed to collect water independently. For industrial water in and around the city, each developer supplies water from groundwater. Currently, treatment plants are planned to purify the surface water of the Bakkhali River and 40-km pipes.
Chakaria	Two wells and 4 km of water pipes have already been installed, and an additional 4 km of water pipes are planned to be installed. Individual-managed wells and the Matamhuli River are the primary water sources in districts without water supply services.
Moheshkhali	Wells are in place to implement small-scale water supply services.

Source: Preparatory Study Report on the Preparatory Survey of the Port of Matarbari Development Project in the People's Republic of Bangladesh (supplementary edition) "Survey on the Formulation of Land Use Plans in the Moheshkhali-Matarbari Region" (2019)

No specific consultation has been conducted between MIDI-Cell and relevant agencies on ensuring the water resources required for MIDI promotion. In the Matarbari-Moheshkhali area, a water resource development plan utilizing rainwater storage has been drafted by water resource conservation, but it is only intended for the existing Moheshkhali city area and does not consider various projects planned in MIDI.

##### (2) Administrative Framework

Key water resource and water-related administration agencies within Bangladesh are the Ministry of Water Resources (Ministry of Water Resources: MoWR) and the Local Government Division (LGD).

Table 15.2 Relevant Regulatory Agencies

Administrative body	Areas in charge of water resources
MoWR	Basin water planning; water resource development; broad-area water planning and construction
LGD	Simple water facility planning and construction at the community level

Source: JST

##### (3) Plan Review

###### Higher-level plan

Bangladesh's water resources development planning is based on Delta Plan 2100. Water resource development and water supply improvement are high priorities as national targets, and related topics such as the sanitation

sewage treatment management are also reflected in the Delta Plan 2100. Key superior plans are summarized as follows:<sup>1</sup>

**Table 15.3 Superior Plans for the Water Resources and Water Supplies**

Name	Content
National Water Development Policies (National Water Policy: NWPo, 1999)	NWPo policies have been developed to smoothly coordinate and control all activities related to the water sector. The guidelines have been developed for agriculture, fisheries, industry, scaffolding, environmental, basin development, water rights and distribution, public and private investment, water resource development, and sanitation. With particular emphasis on water resource development and its rational use, the Organization for Water Resource Development Programme (Water Resources Planning Organization: WARPO) coordinates with relevant agencies through the National Commission on Water Resources (National Water Resources Council: NWRC). NWPo has developed a developmental strategy for promoting the National Water Control Master Plan (National Water Management Plan: NWMP), as described below.
National Water Control Master Plan (National Water Management Plan: NWMP, 2004).	NWMP is a more practical and sustained water management plan based on NWPo content above. It has developed a framework for Bangladesh's water resource development/management and water-related services. Monitoring is conducted in three phases: short-term (2000-05), medium-term (2006-10), and long-term (2011-25), and the content is updated every five years.

Source: JST

#### Plans of the ministry of water and resources

MoWR is the key central governmental body in developing water resources within Bangladesh and is preparing for a 5-year plan based on the Delta Plan 2100 while reflecting requests from local agencies. The table below shows 292 projects conducted by MoWR in 2020 (including 120 projects for river management (dredging, ridge reinforcement, ensuring continuity with the floodplain and others), 19 projects for land creation and development, 43 projects for comprehensive water resource development, 29 projects for irrigation (new establishment and restoration of old facilities), 21 projects for climate change adaptation and restoration of ecosystems, 22 projects for restoration of coastal areas, 17 projects for restoration of lowland and wetland, and 21 other projects). All water resource conservation projects, including these projects, are monitored annually. Progress from the short-term (8 years), medium-term (15 years), and long-term (25 years), as well as the Delta Plan 2100 Investment Plan (DELTA-IP), are checked.

**Table 15.4 List of MIDI Area - Related Water Resources Implementation Project in 2020**

SI	Project Name	Priority (Term-wise)			BDP-IP
		Short (8 yrs)	Medium (15 yrs)	Long (25 yrs)	
<b>A River Management Project (Dredging, Bank Protection, Connectivity with Floodplain)</b>					
25	Dredging of Major River System		✓		
31	Riverbank Protection from erosion of Sangu and Matamuhuri River	✓	✓		
33	Protection and Development of Cox's Bazar Sea Beach	✓			
36	Construction of Super Dyke along the Coast of Mirsarai, Chattogram to Cox's Bazar	✓	✓		
37	Detail study for char removal and increasing navigability of estuaries of Feni River, Sandwip channel, Moheshkhali channel & Kutubdia channel	✓			
39	Study on Tidal River Management		✓		✓
62	Dredging and bank protection of Matamuhuri River	✓			
<b>B Land Reclamation and Development Projects</b>					
	N/A				
<b>C Integrated Development Project</b>					
152	Sectoral development plan in Moheshkhali Matarbari Area.	✓			
156	Development Study on formulating Master Plan for Promoting Integrated Water and Natural Resource Management and improving Disaster Resilience in the Greater Chittagong area	✓			

<sup>1</sup> The long-term domestic development plan was promulgated in June 2018 under the leadership of the General Economic Bureau of the Planning and Coordination Committee of the Ministry of Planning (GED). The target year is 2100.

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164	Improvement of Drainage System and Water Logging Mitigation of Chittagong Cantonment & Adjacent Area	✓			
174	Program for Implementation of Rationalized Water-Related Interventions in Chittagong Coastal Plain Basin	✓	✓		✓
<b>D Irrigation Project (New &amp; Rehabilitation)</b>					
186	Irrigation Projects in Eastern hill		✓		
187	Karnafuli Irrigation Project (Halda & Ishamati Unit)	✓			
200	Rehabilitation of Karnafuli Irrigation Project (Halda unit, part-1) in Fatikchari & Hathazari Upazila under Chittagong District	✓			
205	Irrigation through construction of Hydraulic Elevated Dam in Maynee River (80m) of Dighinala Upazila under Khagrachori district and Sreemai Khal in Patiya upazila under Chittagong district.	✓			
208	Flood Control, Drainage, and Irrigation Project at Patiya Upazila of Chattogram district	✓			
<b>E Climate Change Adaptation and Ecosystem Restoration Project</b>					
219	Revitalization of Sangu and Matamuhuri rivers and establishment of connectivity with tributaries/ distributaries	✓			
220	Detail study for conservation of aquatic animals and biodiversity in the Moheshkhali Channel	✓			
<b>F Rehabilitation of Coastal Polders</b>					
235	Improvement of Polder 65 in Cox's Bazar district		✓		
236	Rehabilitation and climate-proofing polders in the coastal area	✓	✓	✓	
237	Rehabilitation of Polder 66 Cox's Bazar district		✓		
238	Integrated Study for the Long-term Solution of Coastal areas	✓			✓
239	Disaster Risk Reduction Enhancement Project	✓			
240	Sustainable improvement of coastal polders		✓		
241	Safety of coastal infrastructure against cyclones and cyclonic storm surge		✓		
242	Coastal Embankment Improvement Project (II)	✓			
243	Improvement of Water Management Infrastructure of Damaged Polders under Chittagong-Cox's Bazar District Project	✓			
246	Rehabilitation of polder 73/1 & 73/2 in Hatiya upazila under Noakhali district damaged by occurred cyclone/high tide due to climate change in different times	✓			
248	Super dyke Construction Project at Gohira of Anowara under Chittagong District in connection with Bangladesh Economic zone (EZ)	✓			
<b>G Haor Rehabilitation Projects</b>					
255	Flood Management in Haor Areas	✓	✓	✓	
256	Village Protection against Wave Action in Haor Area and Improved Water Management in Haor Basins	✓	✓		
257	River Dredging and Development of Settlement in Haor Areas	✓	✓	✓	
258	Development of Early Warning System for Flash Flood I Prone Areas in Haor and Dissemination to Community Level	✓	✓		
259	Monitoring of Rivers in Haor Area	✓	✓	✓	
260	Expansion of irrigation through the utilization of surface water by double lifting in haor area	✓	✓		
261	Minor Irrigation by low lift pumps Project.	✓	✓		
262	Investigation and expansion of ground water irrigation	✓	✓		
263	Development and Construction of Innovative Fish pass/Fish Friendly Structures	✓	✓		
264	Elevated Village Platforms for the Haor Areas	✓	✓		✓
265	Sustainable Haor Wetland/Rivers and Fish Habitat Management		✓	✓	
268	Ecosystem habitat preservation program for plants, wildlife, fisheries, and migratory birds	✓	✓		✓
269	Sustainable Haor Wetland/Rivers and Fish Habitat Management		✓		✓
270	Management of Commercially Important Wetland Ecosystem		✓		✓
271	Construction of causeway for improvement of drainage and convenience of navigation at haor area	✓			
<b>H Other Projects</b>					
288	Construction, reconstruction, renovation, and repair of Chittagong, Rangamati, Bandarban, and Cox's Bazar BWDB office, colony, and other infrastructures	✓			

Note, BDP-IP; Bangladesh Delta Plan Investment Plan

Extracted from the list of activities conducted in 2020 by the Ministry of Water Resources (in total, 292 cases)

Source: website of Ministry of Water Resources, GoB, <https://mowr.gov.bd/>

### JICA-financed water resource and watershed management sector studies

Currently, the JICA-financed “Data Collection Survey on the Formulation of Water Resources for the Southern Chattogram Region” (hereinafter referred to as JICA Water Resource Development Survey) is being implemented for the MP development of future water supply-demand across the southern Chattogram Region. The progress of the "JICA Water Resource Development Survey" is summarized below.<sup>2</sup>

- Four districts in Chattogram Division are targeted. This survey will be completed around August 2022, and its interim report was prepared in January 2022. Parameters and indices summarized within the "JICA Land Use Study" are currently under review and are likely to be changed.
- There are many wells within the study area, and the groundwater pumping records are summarized based on interview results. Since no pumping meter is installed in the wells, paying attention to the accuracy of recorded figures is necessary.
- From the viewpoint of the regional water balance, the potential availability of the rainwater is high, but there is no rainfall during the dry season. So it is crucial to figure out how to utilize the rainwater collected during the rainy season throughout the year.
- Water demand in the MIDI area is calculated based on the "JICA Land Use Study" mentioned above. The future water supply system for the MIDI area shall be considered within the regional water supply demands of four districts of the southern Chattogram District.
- The success of the regional water resources development in the southern Chattogram Region depends on collecting whole rainwater during the rainy season and using those collected rainwater during the dry season. To make this idea feasible, large-scale water storage facilities are required. It is reasonable to use the surface water within the short term while seeking other water resource development options in the long term.
- Water supply to the MIDI area is currently under consideration, considering several options, such as using river water of the Matamuhuli River or delivering from dams located within the Chattogram Hill Area.
- As of February 2020, it is recognized that 17 wells exist within MIDI area, and those well provide the water for the household use therein. The JICA Water Resources Development Survey conducted water quality tests for 104 wells. It was found that values for arsenic exceeded the WHO Guideline value in Chakaria but were below Bangladesh's national drinking water quality standard value.
- Groundwater use is not feasible in the future because of the current overuse status of groundwater therein.

Followings are the progress of regional water resources development plans for the area of concern (Matarbari-Moheshkhali Region included), summarized within the interim report mentioned above.

#### Preliminary evaluation of water resources development potential

Within this preliminary study, water resources potential, water demand, and water balance are studied as follows,

##### **■ Water resources potential (surface water)**

Based on the hydrograph records, the drought year with the return period of 5 (five) years of the Matamuhuli River

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<sup>2</sup> "Data Collection Survey of Water Resource Development in the southern Chattogram Region in the People's Republic of Bangladesh" is scheduled to be completed around August 2022. The above information was obtained in December 2021.

is 1992. The volume of a basin-wide water resources potential is estimated by extrapolating the flow rate recorded at Lama gauging station and the basin catchment area of Lama station (the basin catchment area = 1,201km<sup>2</sup>) to the entire basin (the entire catchment area of the basin = 2,511km<sup>2</sup>).

#### ■ Water Demand

Water demand for the base flow, the irrigation, the household, and the industrial uses are evaluated as follows:

##### Water Demand Point and Area

Base flow of the Matamuhuli River (Lama Gauging Station) (Note that this point is located on the upstream side of a water-demanding area, not likely to have a tidal effect on the Bay of Bengal.)

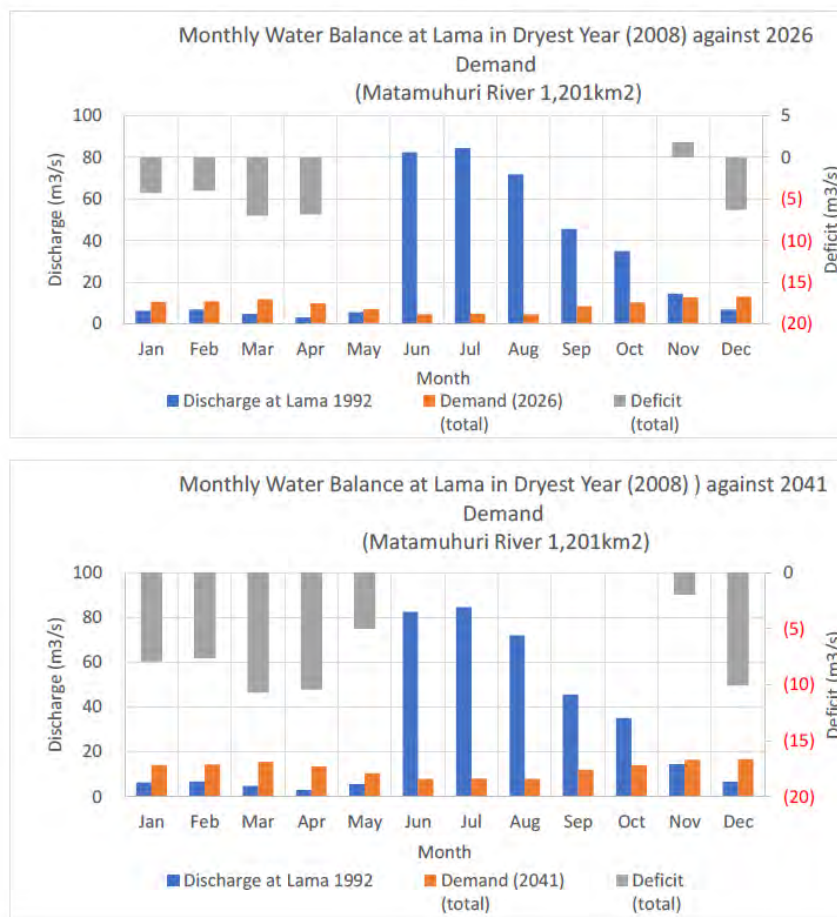
- Irrigation: Irrigation Area of the Matamuhuli River Basin
- Household Use: Moheshkhali, Pekua, Chakaria, and Kutubdia (located within the Matamuhuli River Basin)
- Industrial Use: Moheshkhali Industrial Park

##### Water Demand

Peak monthly water demands of 9.06 m<sup>3</sup>/s and 12.62 occur in December in the Year 2016 (the short-term development plan) and the Year 2041 (middle and long-term development plans), respectively.

##### Water Balance

The figure below shows a monthly-based time variation of the water resources potential (surface water), the water demand, and the resultant water balance for the Targeted Years, 2026 and 2041. Water shortages of 7.0 m<sup>3</sup>/s and 10.7 m<sup>3</sup>/s occurred in March within the short-term and middle/long-term development plans, respectively.



Source: Interim Report of JICA Water Resources Development Study (2022)

Figure 15.1 Monthly Time Variation of Water Balance in Years 2026 and 2041

Based on those preliminary evaluation results, relevant regional water development studies are conducted within JICA Water Resources Development Study.

(4) Towards MIDI MP Formulation

Future Water Supply Demand for MIDI

Table 15.5 summarizes the future water supply-demand within the southern Chattogram region, including the MIDI area. The water supply-demand is divided into two, i.e., (i) the household water (e.g., MIDI-related new residents + workers) and (ii) the industrial water (e.g., the water required for industrial activities in different sectors).

The port sector consists of phases, i.e., Phase 1 and Phase 2. Within Phase 1, the water use value of 850 m<sup>3</sup>/day is obtained (mainly for supplies for vessels. In Phase 1, two (2) berths will be constructed, and three berths for Phase 2 (1,275 m<sup>3</sup>/day water use)). Since the port sector projects plan to use groundwater for the cleaning harbor facilities, it is not accounted for here. Cleaning of container ships, break bulk carrier ships, and dry bulk carrier ships is to be carried out by attached special equipment.

Coal-fired power plants (e.g., Matarbari Phase 1 and 2) of the power sector plan is supposed to produce freshwater by desalinating the seawater. Therefore, this is not accounted in here (1,550 m<sup>3</sup>/h of seawater is to be pumped in via 1,150 m<sup>3</sup>/h of pre-treatment and 2-step treatment, 240 m<sup>3</sup>/h will be delivered for the power



plant, and 47 m<sup>3</sup>/h will be used for the drinking-purpose). The power plant using LNG (energy sector) does not consume water for its operation, so its water use is not accounted for here.

In "JICA Land Use Study," the future water supply demand of EZs is estimated based on the number of employees (see column "water supply-demand by sector" in Table 15.5). The outline of the future industry composition for each EZ has been determined, but relevant DD level studies have not been yet.

This survey reviews the population projections, including the MIDI project, and proposes an optimized population projection model (see "Urban Development Sector" in Chapter 10 of this survey). Based on this review result, the regional future water demand was calculated using the water-use parameter (0.12 m<sup>3</sup>/day/person) used in the "JICA Land Use Study." Those values are summarized within the column entitled "Upazila and MIDI water supply-demand" in Table 15.5.

Table 15.5 Future Water Supply Demand in Moheshkhali-Matarbari Area

Item	Location	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Utilities demand by MIDI sector (m <sup>3</sup> /day) (industrial water + drinking water for workers)	Harbor	0	0	0
	Electric power	0	0	0
	Energy	0	0	0
	Coastal EZ	49,400	90,800	140,200
	General EZ	7,400	30,900	38,300
	Subtotal	55,950	120,525	176,375
Demand (m <sup>3</sup> /day) of water supply for Upazila and MIDI (household water for residents)	Chakaria	9,664	38,001	47,665
	Moheschkhali	5,633	21,170	26,803
	Cox's Bazar	7,553	31,060	38,613
	MIDI housing	4,812	10,044	14,856
	Subtotal	27,662	100,275	127,937
Total		83,612	220,700	304,312

Source: Report of Preparatory Survey Report of the Matarbari Port Construction Project in the People's Republic of Bangladesh (supplemental) "Survey on the Land Use Planning in the Moheshkhali-Matarbari Region" (2019)" and personal communications within this survey team

#### MIDI-related Water Resource Development Policy

The table below summarizes the policy for ensuring water resources cover MIDI-related future water supply demand, outlined in Table 15.5. As MIDI progresses, detailed industrial activities for some sectors, such as EZs, will be more specific, and the associated variation in the water demand is anticipated. In response to MIDI water demand, JICA Water Resource Development Survey assumes the use of the surface water from the Matamuhuli River in the short term (as of December 2021). As each project feature will be more specific, multiple water resource options such as the use of rainwater will be considered within the medium/long term.

Table 15.6 MIDI-related Water Resource Development Policy

Sector		Industrial water	Household water	Remarks
Power/energy	Power plant	Seawater desalination	Seawater desalination	A large amount of fresh water from seawater is planned to be manufactured in the coal-fired power plant project.
	LNG	None		
Port		Groundwater use	Surface water of the Matamuhuli River	The possibility of freshwater supplies from the power plant for drinking water required within the port, EZ, and neighboring urban sectors (planned townships in southern Moheshkhali Island) should be investigated.
EZ	Critical sea area	Details of each EZ industrial activity have not been determined, so it has not been		
	Interior			

		determined. <sup>3</sup>	
City	Township	None	Use of surface water of Matamuhuli River (short-term) and use of surface water of Matamuhuli River and rainwater use (long-term options) are possible options for ensuring drinking water resources.
	Urban areas	None	
	Village	None	

Source: Prepared based on interviews with the survey team of JICA Water Resource Development Survey, conducted in December 2021, and personal communication within this survey team.

### Issues on MIDI-related Water Resources and Water Supply Planning

To meet the water supply demands outlined in Table 15.5, adequate water resources and water supply plans shall be developed simultaneously.

### Water Resources Development

- Upon considering the water resources development of the southern Chattogram region (MIDI included), the availability of the rainwater is not negligible given its regional water balance properties. Since there is no rainfall during the dry season, it becomes essential to stably utilize rainwater stored during the rainy season throughout the year. Therefore, the construction of large rainwater storage facilities is required.
- When the geographical properties of MIDI are considered, it is likely to use the surface water of the Matamuhuli River in the short term. As development progresses, fluctuations in water demand are expected. If this increases, it is essential to consider other water resource development options within the medium/long term. Since the current groundwater use in Bangladesh (the southern Chattogram Region included) is heavily exploited, it is important to seek out other options, such as the regular use of the rainwater.
- In the coal-fired power plant project, an enormous amount of fresh water is to be manufactured through the desalinization of seawater. It is essential to study the supply potential of these freshwaters to adjacent sectors such as the port, coastal EZs, and townships in southern Moheshkhali Island (because they are located far from the Matamuhuli River).
- It is also noted that upon considering the ceiling of water supply volume, the development of relevant water-use saving and/or conservation measures would be necessary considering economic aspects of entire water storage volume and water supply facilities.

### Water Supply

- As MIDI progresses, the population growth due to the construction of a new township is also expected. In the future, it is necessary to revise the water demand, summarized in Table 15.5, based on a more precise number of households (population) while updating the entire water supply plans such as the water treatment plants, pipeline system, and securing a suitable water resource.
- Also, the construction of relevant water treatment plants will be prioritized to meet future water demand. It is necessary to formulate a treatment plan for the sludge to be generated during the operation of a water treatment plant (note: this sludge is classified as industrial waste in Japan).
- The water distribution plan shall cover the middle and upstream sites of the Matamuhuli River to the southern part of the Moheshkhali Island. Since MIDI is located in the cyclone-prone area, it is

<sup>3</sup> As of August 2021, the investees and business outlines of each EZ have been decided.

important to consider contingency plans when a cyclone hits therein.

- Within the supply study of the freshwater to be manufactured by coal-fired power projects to neighboring sectors (port, coastal EZ, and townships located in southern Moheshkhali), it is important to consider a local distribution plan with power plants as the starting point.

#### M/P Development Framework

MIDI-related water resources and water supply M/P development framework are listed below.

- MoWR is responsible for both water resources and water supply M/P development.
- There are several JICA-financed surveys within the southern Chattogram Region, such as JICA Water Resource Development Survey mentioned above and other JICA-financed river basin management projects in that possible water resource development plan within the Matamuhuli River Basin is to be considered. The future water supply of the MIDI area must be formulated based on the findings and study results of these ongoing surveys.

### 15.1.2 Wastes

#### (1) Current Status

##### General Waste

There is no complete public waste collection and disposal system within Matarbari-Moheshkhali Island (MIDI area included), and waste is collected by the private companies in some areas therein. It is noted that primary and secondary waste collection services are conducted periodically within several communities of the Moheshkhali Urban Area<sup>4</sup> (JICA, 2021). No specific discussion regarding MIDI's general waste treatment policies has been conducted between MIDI-Cell and relevant agencies.

A CDM-pilot project is underway by the Department of the Environment at Mithachori, Ramu of Cox's Bazar, to treat household waste. In this project, an effective compost production scheme from the general waste has been experimented. In addition, a final disposal site for general household waste (UGIIP-3) is being constructed in Cox's Bazar.<sup>5</sup>

According to JICA Land Use Survey, the areal waste management situation around MIDI is summarized as follows:

**Table 15.7 General Waste Treatment Status**

County name	General waste treatment status
Cox's Bazar	Cox's Bazar City is responsible for waste management within the city. The city owns three trucks, four vans, eleven push carts, and twenty-five hand trolleys to collect and transport waste (all trucks are out of order). After collecting waste from various parts of the city, those wastes are delivered to a waste disposal site adjacent to Kostori Ghat. Cox's Bazar City does not have appropriate treatment facilities for hazardous and medical waste.
Chakaria	Chakaria City is responsible for waste management within the city. The city owns trucks and vans to collect waste. There is no designated waste disposal site, and the collected waste is dumped to lowland public or private lands.
Moheshkhali	Moheshkhali City owns four push carts, four trolleys, and two trucks and periodically conducts primary and secondary waste collections. In some communities, general wastes are collected by private waste collectors at expense.

<sup>4</sup> Final Report of "Preparatory Survey of Southern Chattogram Regional Development (JICA, 2022)"

<sup>5</sup>Project to Improve Urban Management Infrastructure (Urban Governance and Infrastructure Improvement Project:UGIIP). LGED is the main agency.

Source: Report of Preparatory Survey Report of the Matarbari Port Construction Project in the People's Republic of Bangladesh (supplemental) "Survey on the Land Use Planning in the Moheshkhali-Matarbari Region (2019)" and Final Report of "Preparatory Survey of Southern Chattogram Regional Development (JICA, 2022)".

Several EZs and industrial parks, constructed recently tend to have their treatment facilities for the industrial waste, general waste, wastewater, and sewage-related disposal facilities within their properties.

**Industrial Waste**

There is no industrial waste disposal system around the Moheshkhali/Matarbari area. No specific discussion on industrial waste treatment policies related to MIDI has been conducted between MIDI-Cell and relevant agencies. The Environment Conservation Rules (1997: ECR97), described later, required all factory owners to treat industrial waste generated during their operation phases properly.

So, when industrial wastes are generated from plants, those wastes shall be transported to appropriate, nearby industrial waste disposal sites and treatment facilities. There are several industrial waste disposal sites close to the MIDI area, such as FLAGSHIP DHAKA CETP (BDs) LTDs (FDCs), Dhaka Tannery Industrial Estate Wastage Treatment Plant Company Ltd. (DTIEWTPCL, and PRISM Bangladesh Foundation for Medical Waste near Dhaka.

(2) Administrative Framework

Key agencies of waste treatment related administration within Bangladesh are the Department of Environment (DoE) and LGD. After the waste treatment plants are constructed, those operations are handed over to local governments.

Table 15.8 Relevant Regulatory Agencies

Administrative body	Areas in charge of waste
DoE	Formulate a national plan for waste treatment, waste reduction, and recycling. Approval of environmental clearance certificate (ECC) for waste disposal site plans, environmental inspection, and monitoring during the operation phase.
LGD	Planning and construction of final disposal sites for the city and community

Source: JST

(3) Plan Review

**Superior Plan**

The importance of sanitary management, such as the waste and the sewage treatment, is stressed in "Delta Plan 2100". Based on Environment Conservation Act (1995: ECA95) and ECR97 mentioned above, the following related legislation and guidelines have been developed for Bangladesh's waste and sewage treatment.

- National 3R strategy for waste management.
- Hazardous waste and shipwreck waste Management rules-2011
- Medical waste (Management and processing) rules-2002
- Fecal sludge management guidelines.
- Draft laws: Waste (E-waste) management rules for electrical and electronics products-2019.
- Others.

As a general rule, all factory and plant owners that are expected to generate waste during their operation phases shall properly treat all waste and sewage. ECR97 stipulates relevant rules, as shown in the table below.

Table 15.9 Regulations on Waste and Sewage Treatment

Schedule	Title of Schedule
Schedule-9	Standards for Sewage Discharge
Schedule-10	Standards for Waste from Industrial Units or Projects waste
Schedule-11	Standards for Gaseous Emission from Industries or Projects
Schedule-12	Standards for Sector-wise Industrial Effluent or Emission

Source: Prepared by survey team based on ECR97

ECA95 also stipulates relevant reporting procedures to the DoE when development projects of concerns are likely to cause or have already caused any pollution, such as water pollution and noise (Section 8 of ECA95). ECR97 also stipulates that DoE officials check the adequacy of the project's waste and sewage treatment during the construction and operation phases (Rule-6). It also stipulates notifying the project owners of collecting waste and sewage samples in advance. Recently, many EZs have their sewage treatment plants and waste disposal sites on their sites. The environmental tests such as water quality and air quality are conducted about every three months. If it is found that the situation is worse and more serious, the monitoring frequency would be denser, as well as releasing the name of the project owners via public media will be taken.

### Plans of LGED

Since 2003, LGED has implemented the Urban Management Infrastructure Improvement Project (Urban Governance and Infrastructure Improvement Project: UGIIP) with mainly ADB-supported assistance (see table below).

Table 15.10 List of Urban Governance and Infrastructure Improvement Project (UGIIP)

	Implementation period	Budget	Project Overview
UGIIP-1	2003 ~2010	\$87.23 million (\$65.10 from ADB; \$22.13 from GoB and related local governments)	33 Poursabha (local city)
UGIIP-2	2009 ~2015	\$167.5 million (\$87.0 million from ADB, \$36.1 million from KfW, \$4.7 million from GIZ, \$31.7 million from GoB, and \$8.0 million from relevant local governments and beneficiary organizations)	Fifty-one Pol Shaba (rural city) is targeted.
UGIIP-3	2014 ~2021	The 2014 estimate is \$236.0 million (\$40.0 million from ADB-125.0 million, OPEC Fund, \$68.9 million from GoB, and \$2.1 million from relevant local governments). Budget was increased in 2017, and the published data of LGRD in 2021 showed 4046.17 Crore, 1 Crone =1 x 10 <sup>7</sup> (estimated at ¥55,115,713,889: September 2021 exchange rate, 1 BTK = ¥1.36217).	Initially targeted at 30 Poursabha (local city) After budget increase, 36 potentials are covered.

Source: Prepared by a survey team based on ADB, BAN: Third Urban Governance and Infrastructure Improvement (Sector) Project-Additional Financing Cox's Bazar Solid Waste Management (2017)

Currently, a final disposal site for the general waste is constructed by UGIIP-3 in Cox's Bazar City (project title: Cox's Bazar Solid Waste Management). The following table summarizes each sub-project included in this waste treatment plan.

Table 15.11 Outline of Cox's Bazar Final Disposal Plan

No.	Scheme/Subproject
Solid waste-first stage	
1	Construction of landfill with Fecal Sludge treatment facility and leachate treatment at South Mitachori with internal roads and boundary wall
2	5 demountable trucks with containers (40 containers 2.5 m <sup>3</sup> size)
3	Construction of 3 Transfer Stations (without ramps)
4	60 improved rickshaw vans for primary collection of waste with bins for collection
5	2 vacuum trucks (1.5 m <sup>3</sup> size) and other equipment
6	1 backhoe loader (1 m <sup>3</sup> bucket and 0.35 m <sup>3</sup> excavator)

7	Capacity building and awareness raising
8	Hospital waste management facility at South Mitachori landfill site
Solid waste –second stage	
1	Construction of landfill with Fecal Sludge treatment facility and leachate treatment at South Mitachori with internal roads and boundary wall
2	5 demountable trucks with containers (40 containers 2.5 m3 size)
3	Construction of 3 Transfer Stations (without ramps)
4	60 improved rickshaw vans for primary collection of waste with bins for collection
5	2 vacuum trucks (1.5 m3 size) and other equipment
6	1 backhoe loader (1 m3 bucket and 0.35 m3 excavator)
7	Capacity building and awareness raising
8	Hospital waste management facility at South Mitachori landfill site
Solid waste – third stage	
1	Construction of landfill with leachate treatment at SM Para with internal roads and boundary wall
2	1 backhoe loader (1 m3 bucket and 0.35 m3 excavator)
3	Acquisition of additional land at SM Para landfill site 3 acres
4	Capacity building and awareness raising

Source: Prepared by a survey team based on ADB, BAN: Third Urban Governance and Infrastructure Improvement (Sector) Project-Additional Financing Cox’s Bazar Solid Waste Management (2017)



Source: ADB, BAN: Third Urban Governance and Infrastructure Improvement (Sector) Project-Additional Financing Cox’s Bazar Solid Waste Management, 2017

Figure 15.2 Planned Final Disposal Site for Cox’s Bazar (South Mithachori)



Source: ADB, BAN: Third Urban Governance and Infrastructure Improvement (Sector) Project-Additional Financing Cox's Bazar Solid Waste Management, 2017

Figure 15.3 Planned Final Disposal Site for Cox's Bazar

(4) Toward MIDI MP Formulation

Future MIDI-related Waste Generation

Table 15.12 summarizes the estimated amounts of future wastes generated within the southern Chattogram region (MIDI area included). The amount of waste generated is divided into the general waste (generated by social activities of MIDI-related new residents and workers) and the industrial waste (i.e., waste generated from industrial activities in various sectors). The power and energy sector, such as the coal-fired thermal power plant, is not included in this MIDI-related waste generation tabulation because power plants are planning to store industrial wastes such as coal ash within their premises. In the port sector, no waste treatment facility is to be established therein. Specific quantities and types of waste are undetermined, but its waste treatment policy uses nearby waste treatment facilities during their operation phase. In "JICA Land Use Survey," the amount of waste is estimated based on the number of employees (estimates) for EZs (see "Waste by MIDI sector" column in Table 15.12).

This survey reviews the population projections, including the MIDI project, and proposes an optimized population projection model (see "Urban Development Sector" in Chapter 10 of this survey). Based on this review result, the regional future waste generation was calculated using the waste-generation parameter (0.03 kg/day/person) used in the "JICA Land Use Survey." Those values are summarized within the column entitled "Upazila and MIDI waste generation" in Table 15.12.

Table 15.12 Future Waste Generation in Moheshkhali-Matarbari Area

Item	Location	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Amount of Waste (kg/day) by MIDI sector	Port	(undetermined)	(undetermined)	0
	Power	0	0	0
	Energy	0	0	0

	Coastal EZ	158,900	600,000	758,900
	General EZ	19,200	88,600	107,800
	Subtotal	178,100	688,600	866,700
Amount of waste (kg/day) of Upazila and MIDI	Chakaria	2,416	9,500	11,916
	Moheshkhali	1,408	5,293	6,701
	Cox's Bazar	1,888	7,765	96,53
	MIDI Housing	1,203	2,511	3,714
	Subtotal	6,915	25,069	31,984
Total		185,015	713,669	898,684

Source: Report of Preparatory Survey Report of the Matarbari Port Construction Project in the People's Republic of Bangladesh (supplemental) "Survey on the Land Use Planning in the Moheshkhali-Matarbari Region" (2019)" and personal communications within this survey team

### MIDI-related Waste Treatment Policy

The table below summarizes the policy for waste treatment to cover MIDI-related future waste generation, summarized in Table 15.12. As MIDI progresses, detailed industrial activities for some sectors, such as EZs, will be more specific, and the associated variation in the waste generation is anticipated.

Within MIDI operation, general waste disposal sites and industrial waste disposal sites are necessary. Upon considering features of waste disposal sites, those facilities shall be located inside the MIDI area while keeping some distance from the existing residential area.

Table 15.13 MIDI-related Policies for Waste Treatment

Sector		Industrial waste	General waste
Power and energy	Power plant	<ul style="list-style-type: none"> <li>Ash is planned to be stored within its site.</li> <li>Dredged soil resulting from port dredging is to be stored within the site of the power plant.</li> <li>In the future, a mixture of ash and dredged soil will be placed within the ash dump site (mixing ratio = 1:1).</li> </ul>	<ul style="list-style-type: none"> <li>In the short term, waste treatment at nearby facilities shall be considered. In the medium and long term, final disposal facilities shall be established on sites away from existing residential areas, and general waste collected from each sector will be dumped therein.</li> </ul>
	LNG		
Port			
EZ	Critical sea area	<ul style="list-style-type: none"> <li>Individual industrial activity details have not been determined, so it has not been determined.</li> <li>In the short term, the use of industrial waste facilities near Dhaka or disposal sites placed within neighboring EZs is considered.</li> <li>In the medium-to-long term, final disposal facilities are established on sites away from existing residential areas, and industrial wastes collected from each sector is dumped therein.</li> </ul>	
	Interior		
City	Township	None	
	Urban areas	None	
	Village	None	

Source: JST

### Issues on MIDI-related Waste Treatment Planning

Appropriate plans of the final waste disposal site and the waste collection shall be developed for the safe treatment of general waste, summarized in Table 15.12.

- As MIDI progresses, more detailed contents of facility planning in each sector such as power and energy, port, and EZs, equipment/material delivery schedule, operation schedule of plant facilities, number of employees, and number of residents at each township will be summarized. Based on that information, the more accurate amount and the type of industrial/general waste to be generated shall



be revised punctually.

- Based on those revised findings, the construction plan of a new industrial/general waste disposal site within the MIDI area and a delivery plan to nearby industrial/general waste disposal sites shall be considered. When planning a new disposal site within the MIDI area, it is essential to locate those facilities sufficiently distant from neighboring communities.
- It is important to study the spreading patterns of the soot, smoke, odor, dust, and the treated water expected to be generated during the operation phase while evaluating quantitatively relevant impacts and risks of the pollutant spreading. Based on those simulation results, an appropriate environmental management plan (mitigation measures and monitoring program) shall be developed.
- In the vicinity of the MIDI area, several important ecosystems and national parks, such as Sonadia Island ECAs are located. Local community people also make a living using natural resources such as fisheries and forest products. In addition, there is vast mangrove vegetation along the surrounding coastal area, and those mangrove vegetations play an essential role from the viewpoint of the wave break. When the construction of industrial/general waste treatment facilities is considered, it is necessary to evaluate direct, indirect, cumulative, and combined impacts on these protected areas.
- Within the construction of new industrial/general waste disposal site, it is also important to establish good relationships with the surrounding community. It is essential to achieve a smooth consensus on the construction of the new waste disposal site through extensive public involvement and information disclosure process, inviting surrounding community people and stakeholders from the early stages of the MIDI development process.

#### MP Development Framework

MIDI-related waste treatment MP development frameworks are listed below.

- DoE is responsible for MIDI-related industrial/general waste treatment M/P.
- As mentioned earlier, several important ecosystems and national parks around MIDI area such as Sonadia Island ECA, exist. Vast vegetation of mangrove forests is observed along the surrounding coastal area. It is important to take comprehensive environmental considerations to conserve those important ecosystems in the waste treatment facilities' planning process.

### 15.1.3 Wastewater and Sewage Treatment

#### (1) Current Status

There is no public wastewater and sewage treatment system on Matarbari Moheshkhali Island (MIDI area included). Several residents set up septic tanks for their sewage treatments. No specific discussion regarding MIDI's effluent and sewerage treatment policies has been conducted between MIDI-Cell and relevant agencies.

In Cox's Bazar, no sewage treatment plant is present, but septic tanks are set up in hotels, offices, and households therein. The sewerage treatment issues associated with the inflow of Rohingya refugees have become very serious, and UNHCR supports the construction of the sewerage treatment plant. According to JICA Land Use Survey, the effluent and sewage management around the MIDI area is summarized as follows:

Table 15.14 Wastewater and Sewage Treatment Status

County name	Status of wastewater and sewage treatment
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Cox's Bazar	Three types of drainage channels are located within the city, i.e., large, medium, and small. Large and medium-sized channels are non-paved 6m-wide and 2- 3m wide, respectively, and small ones are mainly concrete gutters of about 0.3 to 0.5 m. large drainage point is located near Cox's Bazar Airports, but its drainage is hampered during the high tide periods. The city has a drainage M/P, but there is no plan to install a pump station among them. Septic tanks are installed in some households and offices, and sludge collected from septic tanks is used as compost and fertilizer. When it is difficult to use, those sludges are dumped to a waste disposal site, 6km away from the city.
Chakaria	There are also three types of drainage channels in the city: large, medium, and small, each of which is a non-paved drainage channel, a stone-made drainage channel with a width of about 1m, and a gutter. All drains are discharged into the Matamuhuli River, and people dump waste into drains, and no useful counter measures have been taken so far. Septic tanks are also installed in households and offices, and sludge collected from septic tanks is used as compost and fertilizer. When it is challenging to utilize, sludge is dumped to a waste disposal site, 3km from the city.
Moheshkhali	No wastewater and sewage treatment facilities are established.

Source: JST

As mentioned above, several EZs and industrial parks, constructed recently, tend to have their own treatment facilities of the industrial waste, general waste, wastewater and sewage-related disposal facilities within their properties. In BSCIC industrial park, wastewater treatment plants (effluent treatment plant: ETPs) have been established on its site.

## (2) Administrative Framework

DoE and LGD are the main agencies responsible for the wastewater and sewage treatment sectors. After completion of the sewage treatment plant, those operations are handed over to local governments.

Table 15.15 Regulatory Agencies Related to Wastewater and Sewage Treatment

Administrative body	Areas in charge of wastewater and sewage treatment
DoE	Formulation of a national plan for local and coastal environmental conservation. Approval of environmental clearance certificate (ECC) for sewerage treatment plans, its environmental inspection and monitoring during operation phase.
LGD	Planning and construction of sewage treatment plants in cities and/or communities

Source: JST

## (3) Plan Review

### Superior Plan

As mentioned above, the sanitary management such as the waste and the sewage treatment is related to water resource management. More detailed descriptions of sewerage-related superior plan is summarized within "15.1.2 Wastes, (3) Plan Reviews" of this report.

### Plans of LGED

As mentioned above, Cox's Bazar's sewerage treatment plant was built in refugee camps with UNHCR support (total budget = US\$ 400,000), enabling to treat sewerage of 150,000 people (40 m<sup>3</sup> daily). However, the inflow to refugee camps around Cox's Bazar is increasing, and the current treatment system can't catch up with this situation.



Source: <https://www.unhcr.org/news/briefing/2019/2/5c540fe74/worlds-biggest-refugee-settlement-gets-biggest-waste-facility.html>

Figure 15.4 UNHCR Assisted Construction of Cox's Bazar Waste Treatment Plant

(4) Toward MIDI MP Formulation

Future MIDI-related Sewage Generation

Table 15.16 summarizes the estimated amounts of future sewerage, to be generated within the southern Chattogram region (MIDI area included). The amount of sewerage generated is divided into the general sewerage (to be generated by social activities of MIDI-related new residents and workers) and the industrial sewerage (i.e., effluents generated from industrial activities in various sectors). It is noted that the rainwater is not included.

Regarding the port and the power sector, wastewater treatment plants are scheduled to be constructed on each site. So, it is not included within the valuation of total of sewage generation. It is generally assumed that ship cleaning is not done at any commercial ports, and that the cleaning of container, breakbulk, and dry bulk vessels are to be conducted with proper equipment attached within each vessel. Tanker cleaning services can be provided at several designated locations worldwide (only in Singapore in Asia). Since little water is expected to be used in LNG power generation, the amount of industrial wastewater, to be generated therein is also set as "0". In "JICA Land Use Survey", the amount of sewerage is estimated based on the number of employees (estimates) for EZs (see "Sewerage Volume by MIDI sector waste" column in Table 15.16).

This survey reviews the population projections, including MIDI project, and proposes an optimized population projection model (see "Urban Development Sector" in Chapter 10 of this survey). Based on this review result, the regional future sewerage waste generation were calculated using the sewerage-generation parameter (0.0656 m<sup>3</sup>/day/person) used in "JICA Land Use Survey". Those values are summarized within the column, entitled "Upazila and MIDI sewerage volume" of Table 15.16.

Table 15.16 Future Sewage Outbreaks in Moheshkhali-Matarbari Area

Item	Location	Short Term (~2026)	Medium to Long Term (2027~2041)	TOTAL
Sewage Volume by MIDI Sector (m <sup>3</sup> per	Port	0	0	0
	Power	0	0	0

Day)	Energy	0	0	0
	Coastal EZ	45,300	84,300	129,600
	General EZ	7,200	29,200	36,400
	Subtotal	52,500	113,500	266,000
Sewage volume (m <sup>3</sup> per day) of Upazira and MIDI	Chakaria	52,83	20,774	26,057
	Moheshkhali	3,079	11,573	14,652
	Cox's Bazar	4,129	16,979	21,108
	MIDI Housing	2,631	5,491	8,122
	Subtotal	15,122	54,817	69,939
Total		67,632	168,317	335,939

Source: Report of Preparatory Survey Report of the Matarbari Port Construction Project in the People's Republic of Bangladesh (supplemental) "Survey on the Land Use Planning in the Moheshkhali-Matarbari Region" (2019)" and personal communications within this survey team

### MIDI-related Sewage Treatment Policy

The table below summarizes the policy for sewerage treatment to cover MIDI-related future waste generation, summarized in Table 15.16. In the current law, each business owner shall install a proper wastewater treatment plant and/or equipment within the facility, and after proper treatment, it can be discharged. In the case of MIDI, the release destination is the Bay of Bengal. As for general sewage, generated from residential houses, septic tanks are installed at each house and office, and a treated water is discharged into nearby rivers, tributaries and others at present.

As MIDI progresses, detailed industrial activities for some sectors, such as EZs, will be more specific, and the associated variation in the sewerage generation is anticipated. It is anticipated that the amount of general sewage, to be generated, will also change due to the clarification of the scale of the population inflow, associated with it. For the general sewage, if the number of individual septic tanks increases, it would be better that sewage treatment facilities shall be planned within MIDI area in terms of the efficient sewage treatment. In order to respond to MIDI industrial/general sewage treatment, it is crucial to establish relevant sewage treatment plants on sites.

**Table 15.17 MIDI-related Sewage Treatment Policies**

Sector		Industrial wastewater	General sewage
Power energy	Power plant	<ul style="list-style-type: none"> <li>Long-term port dredged soil storage is anticipated on the site, and a relevant treatment plant is to be installed for wastewater treatment.</li> </ul>	<ul style="list-style-type: none"> <li>In the short term, treatment by separate septic tanks is considered. In the medium-to long-term, sewage treatment facilities shall be established on sites, away from residential areas, and general sewage collected from each sector is to be treated therein.</li> </ul>
	LNG		
Port			
EZ	Coastal Area	<ul style="list-style-type: none"> <li>Details of specific industrial activity have not been determined, so it has not been determined. Effluent treatment at each factory is necessary.</li> <li>In the short term, the use of industrial effluent treatment facilities near Dhaka or treatment plants placed within the neighboring EZ will be considered.</li> <li>In the medium-to long-term, final treatment facilities shall be established on sites, away from residential areas, and industrial sewage collected from each industry sector is to be treated.</li> </ul>	
	Inland		
City	Township		None

	Urban areas	None	
	Village	None	

Source: JST

Issues on MIDI-related Sewage Treatment Planning

Appropriate sewage treatment plans shall be developed for the safe treatment of industrial/general sewage as summarized in Table 15.16.

- As MIDI progresses, more detailed contents of facility planning in each sector such as power and energy, port, and EZs, equipment/material delivery schedule, operation schedule of plant facilities, number of employees, and number of residents at each township will be summarized. Based on that information, the more accurate amount and the industrial/public wastewater to be generated shall be revised punctually.
- Based on those revised findings, the construction plan of a new industrial/general wastewater treatment site within the MIDI area and a delivery plan to nearby industrial/general wastewater disposal sites shall be considered. When planning new treatment sites within the MIDI area, it is essential to locate those facilities sufficiently distant from existing neighboring communities.
- It is important to study the spreading patterns of the odor, dust, and treated water expected to be generated during the operation phase while evaluating quantitatively relevant impacts and risks of the pollutant spreading. Based on those simulation results, an appropriate environmental management plan (mitigation measures and monitoring program) shall be developed.
- In the vicinity of the MIDI area, there are several important ecosystems and national parks, such as Sonadia Island ECAs. Local community people also make a living using natural resources such as fisheries and forest products. In addition, there is vast mangrove vegetation along the surrounding coastal area, and those mangrove vegetations play an essential role from the viewpoint of the wave break. When the constructions of industrial/general wastewater treatment facilities are considered, it is vital to evaluate direct, indirect, cumulative, and combined impacts on these protected areas. In particular, it is important to develop a medium-to-long-term sewage treatment plan from the viewpoint of the total pollutant loading on the entire Bay of Bengal, which is the final destination of all discharged treated water.<sup>6</sup>
- In planning new industrial/general wastewater treatment site construction, it is also important to establish good relationships with the surrounding community. It is essential to achieve a smooth consensus on the construction of the new wastewater treatment site through extensive public involvement and information disclosure process, inviting surrounding community people and stakeholders from the early stages of the MIDI development process.

MP Development Framework

MIDI-related wastewater treatment M/P development frameworks are listed below.

- DoE is responsible for MIDI-related industrial/general wastewater treatment M/P.

<sup>6</sup> Although the standards for the quality of released water at individual facilities are legal, if the number of households and offices increases, the total amount of pollutants discharging into the entire Bay of Bengal, their final destination, may exceed the decomposition capability, and then, may cause environmental problems such as the eutrophication.

As mentioned earlier, several important ecosystems and national parks around MIDI area such as Sonadia Island ECA, exist. Vast vegetation of mangrove forests is observed along the surrounding coastal area. It is important to take comprehensive environmental considerations to conserve those important ecosystems in wastewater treatment facilities' planning process.

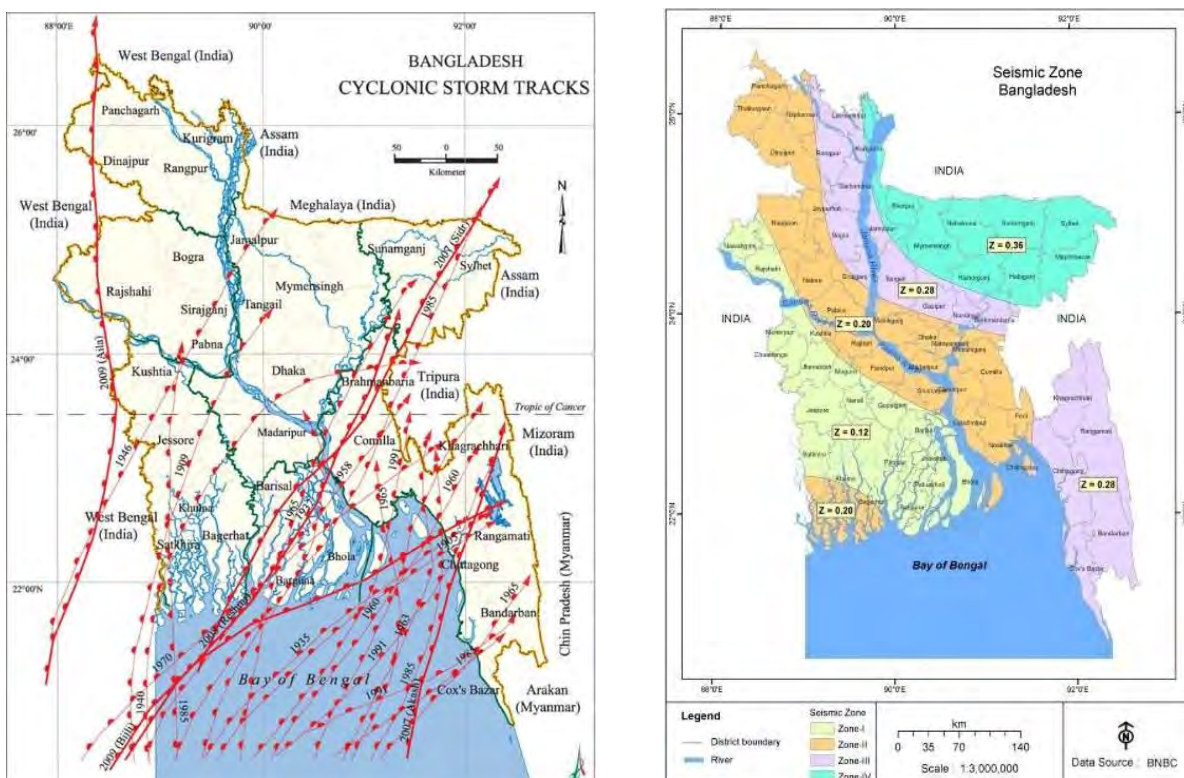
## 15.2 Disaster Prevention

### 15.2.1 Past Natural Disasters Records

MIDI area is a cyclone-prone region. Recently, Roano (May 2016), Mora (May 2017), Fani (May 2019), Bulbul (November 2019), and Amphan (May 2020) have caused severe disasters in the coastal areas (see the left panel of Figure 15.4). The National Plan for Disaster Management (NPDM) has been formulated and approved as the medium-term 5-Year Plan. Within NPDM 2016-2020, several disasters caused by cyclones mentioned above occurred, resulting in losses of 0.8-1.1 % of GDPs.

Dykes in western Matarbari were destroyed by the Cyclone Yaas along the coastal area of the Bay of Bengal, and the inundation with about 1-m depth occurred. The inundation due to the high tide occurred in 1991 and 1997 in Moheshkhali City in southern Moheshkhali Island, but there has been no specific high tide damage since then.

Floods in 2020 affected 36 % of the country's land (mainly northern, northeastern, and southeastern). In the hilly region of Chattogram, injuries due to landslides and lightning strikes have also been reported. In the city of Chakaria, urban flooding frequently occurs once every several years during every rainy season, especially in the vicinity of the hilly area located in the northern part of the city, where the effluent such as flood rush occurs. There were also many earthquakes, and the Magnitude 5.1 Moheshkhali Earthquake was reported in the vicinity of the MIDI area on July 22, 1999 (see the right panel of Figure 15.4).



Source: GoPRB, NPDM (2021-2025).

Figure 15.5 Cyclone and Earthquake Risk in Bangladesh

### 15.2.2 Responsible Organization

In Bangladesh, key governmental authorities related to disaster prevention are the Ministry of Disaster Management and Relief (MoDMR), MoWR, and LGDs.

Table 15.18 Relevant Regulatory Agencies

Administrative body	Areas in charge of disaster prevention
MoDMR	Originally, responsible for post-cyclone-related disaster emergency assistance. Recently, MoDMR has focused on soft-approach such as early warning by informing predictive information of cyclones and floods, as well as recovery and rehabilitation after disasters.
MoWR	Construction and maintenance of disaster prevention facilities such as polder management, river dyke maintenance, dredging, and levees
LGD	Small-scale cyclone shelter construction at communities

Source: JST

### 15.2.3 Disaster Prevention Program in MIDI Area

MoWR plans the Polder Embankment Project and Super Dike Impolder 17 in Moheshkhali (hereafter referred to as “super-dyke”) for the coastal area of the Matarbari-Moheshkhali area. MoWR also has a dredging project for the Matamuhuli River, river dyke improvement, and a plan for super-dyke construction in the Cox’s Bazar coastline. These projects are formulated based on the Delta Plan 2100.

The figure below shows the super-dyke planning location map around the MIDI area. Bangladesh Water Development Board (BWDB), MoWR, is the agency responsible for this super dyke project (dyke height = 6.5 m, dyke’s top elevation = 10.0 El.m, and dyke top width = 9.8 m). No super dyke is to be constructed where the height-raising is to be carried out.

Note: all coastal polder areas in Bangladesh have their own ID numbers, and the MIDI area is located within “Polder No. 70”.

Source: The cross-section of the super dike is developed based on interviews with study team members of the JICA-financed “Data Collection Survey for Disaster Prevention Sector in the People’s Republic of Bangladesh.”

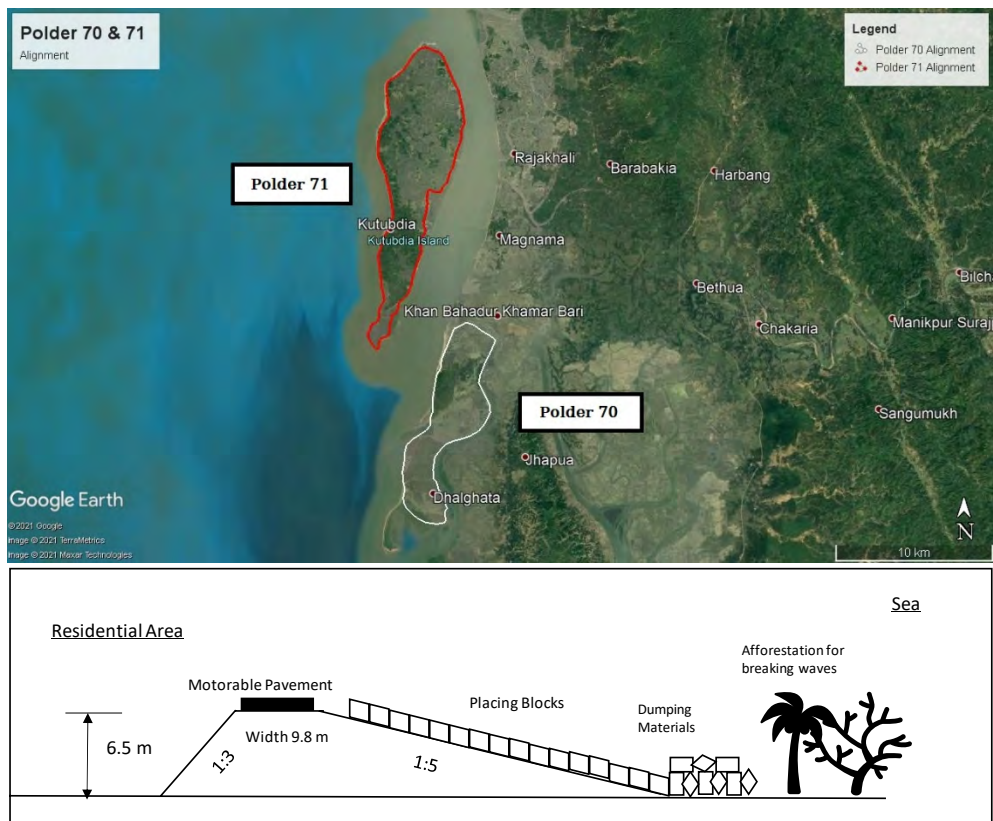


Figure 15.6 Super-Dyke Project around MIDI Area

It is found that mangrove vegetation in coastal areas plays a vital role as a breaking wave, as confirmed in the JICA National Disaster Prevention Survey. The table below summarizes ongoing JICA-financed disaster prevention-related projects conducted in the southern region of the Chattogram Region.

Table 15.19 JICA Financed Disaster Prevention-Related Activities in the Southern Chattogram Region

Project name	Contents
Disaster Prevention Sector Data Collection Survey	To collect and confirm the current status of the disaster prevention sector in Bangladesh and to collect and confirm information for the development of support policies. Collect and confirm basic information for the objectives of: ① arranging the current status of the disaster prevention sector and selecting prioritized support areas; ② developing a concept for short-term (approximately 3 years) and ③ considering support policies for the disaster prevention sector with a view to the long-term (approximately 10 years).
Project to Strengthen the Ability to Formulate and Implement Local Disaster Prevention Plans	On-going at Chakaria Cox's Bazar. C/P organization is the Department of Disaster Management (DDM) in MoDMR. The hazard map and disaster potential map around the targeted area will be prepared to support the formulation of local disaster preparedness plans at the plan of Upazila. The region of Matarbari-Moheshkhali are not covered with the scope.
Project to Strengthen the Capacity for Planning and Establish Technical Adaptation Cycles for Comprehensive River Management	To continuously improve and maximize the effectiveness of river-related disaster preparedness measures, support for the establishment of technological adaptation cycles for planning, construction, monitoring, and feedback, as well as how to control and manage streams that will serve as a fundamental technique for sustained river management are to be carried out in line with BDP2100. It covers the Jamuna River, the Padma River basin (large river), and the Matamhuli, Karnahuri, and Sangu Rivers basins (medium and small rapid rivers in the Chattogram region) in the Chattogram District. The Matamuhuli River basin management plan will also cover water control and water-use plans.

Source: JST

### 15.2.4 Plan Review

In Bangladesh, the National Plan for Disaster Management (NPDM) has been approved as a five-year medium-



term plan, with the most recent NPDM 2021-2025. They are mainly developed based on the three plans summarized below.

**Table 15.20 Related Superior Plans**

Name	Content
PP 2041	While progressing with the development efforts, the Perspective Plans of the GoB (the Vision 2021 and the Vision 2041) also focus on integrating environment and climate change considerations in the growth strategy. Specifically, the plan includes strategies to reduce vulnerability and build resilience through formulating and implementing various plans and programs in line with the Delta Plan 2100.
Eighth (8th) Five Year Plan.	The government's multi-year work plan of the government like the Eighth (8th) Five Year Plan, reflects the essence of the international disaster drivers and other instruments. The long-term plan is translated into the sectoral plans to take care of the sectoral issues that are impacted by the disaster in one way or rather.
Bangladesh Delta Plan (BDPs) 2100.	The Delta Plan is the country's long-term plan that encompasses the GoB's vision for the developed country by 2041. According to BDP 2100, the country is divided into six hydrological regions called 'Hotspots,' and the risks of the regions are determined accordingly. The disaster-prone districts of the country are grouped and classified as per the hotspots. The hotspots are i) Flood-prone River and Estuaries, ii) Cyclone-prone Coastal area, iii) Drought-prone Barind area, iv) Flash Flood-prone Haor area, v) Landslide-prone Hilly area, and vi) Water Logging and Earthquake-prone Urban area.

Source: Prepared by JST based on Delta Plan 2100 (2018)

Based on lessons obtained from previous planning, NPDM2021-2025 positions the post-disaster rapid recovery and rehabilitation as the most crucial issue and reducing the risk of damage, to be achieved by strengthening disaster prevention measures. The important areas for future disaster risk reduction are listed below.

Priority Issues in NPDM2021-2025

- Policy Shift to "Build Back Better (BBB)" Recovery Approach
- Importance in Disaster Risk Governance and Institutional Enhancement
- Data Management and Information System towards Disaster Risk Reduction (DRR)
- More Investment in Resilient Infrastructures for Disaster Risk Reduction
- Put Importance "No One Left Behind" Policy and Implement Psycho-Social Care in DRR
- Strengthen Regional and International Cooperation

The following 4 areas are an important issue to promote regional resilience for natural disasters.

**Table 15.21 Four Areas for Enhanced Resilience**

Sector	Activities to be prioritized
Disaster risk reduction	Activities related to mainstreaming DRR into national and local plans, hazard analysis & risk profiling, early warning, etc.
Disaster preparedness	Activities related to ensuring – people are prepared and responses will be carried out efficiently and effectively
Humanitarian/Emergency response	Activities that help restore lives and livelihoods and basic infrastructure, early recovery
Rehabilitation, reconstruction and recovery	Activities related to long-term recovery – build back better (BBB)

Source: GoPRB, NPDM (2021-2025), compiled by the survey team.

NPDM2021-2025 complies with Council Regulation 2019 and the Asian Regional Plan for Disaster Risk Reduction (ARPDPR). ARPDPR was developed based on four prioritized topics discussed within the Sendai Framework for Disaster Risk Reduction (SFDRR). Bangladesh has suffered numerous disasters, but GDP

growth is still maintained under such circumstances, and further developments are needed toward a Sustainable Development Goal (SDG). The vision of NPDM 2021-2025 is "winning resilience against all odds" and introduced the following 12 indicators to achieve them:

- Reduction of the number of deaths, missing persons, and directly affected people to 4,000 per 100,000 population by 2025.
- Reduction of damaged land to 100,000 acres.
- The number of disaster affected households within 250,000 acres.
- The direct economic loss inflicted by disasters as a proportion of GDP has to stand at a maximum 0.7% in 2014.
- Total damage and loss resulting from disasters should be brought down to 100,000 million BDT.
- In the past, a target was set to construct 5,000 shelters in the coastal districts, and two thousand additional shelter centers should be built.
- Flood related structural infrastructures like embankments should be designed to provide adequate storm surge protection.
- Proper maintenance of polders/embankments.
- Increase in urban volunteers and coastal volunteers by 100,000.
- Replicate the design of resilient houses in other disaster-prone regions in the country.
- Food silos in every house for food grain storage.
- Provision of safety equipment to volunteers in every ward

The following matters are also focused on pursuing further the basic philosophy of the Sendai Disaster Management Framework, which forms the basis of NPDM 2021-2025.

- Promoting policy coherence among DRM and development in-country;
- Making disaster risk reduction a development practice to achieve resilient public investment and the SDGs;
- Encouraging private sector engagement towards risk sensitive investments;
- Building capacity and leadership to implement NPDM 2021-2025 at the national and local levels.

#### 15.2.5 Plan of MoWR

The table below summarizes the breakdown of Super Dyke-related projects (project name: Construction of Super Dyke at Polder No 70 in MIDI area of Moheshkhali Upazilla of Cox's Bazar district) for sustainable development of water resource management). The project is to be implemented from July 2021 to June 2024. The total budget is 389,295.00 Lakh TAKA.

Table 15.22 Breakdown of the Super Dyke at Polder No. 70

SI No.	Name of Component	Unit	Unit Rate	Quantity	Estimated Cost
1	Computer & Accessories (Brand Desktop-3 Nos, Laptop- 3 Nos, Scanner-1 No & Printer- 3 Nos)	Nos.	-	10	6.00
2	Vehicle (Pajero Sports Jeep- 1 No & Double Cabin Pick-up – 1 No)	Nos.	-	2	165.00
3	Motorcycle- 4 Nos.	Nos.	-	4	12.00
4	Speed Boat (1 No, Double Engine, AC)	Nos.	-	1	100.00
5	Engineering & Other Equipment (Level Machine 3 Nos, Total Station- 1No, GPS – 2 Nos, Eco-sounder -1 Nos & R.T.K. – 1 Set)	Nos.	-	8	100.00

6	Office Equipment (Photocopier & Others)	Nos.	-	2	3.00
7	Furniture	L.S.	-	1 Item	50.00
8	Tree Plantation (Biological Protection)	L.S.	-	1 Item	300.00
9	Building (Construction of Maintenance office & Laboratory at Dhalghata & Banglow for Super-indenting Engineer at Cox's Bazar; Rehabilitation of Cox's's Bazar Rest House, Badarkhali Office and Badarkhali Residential Building)	L.S.	-	1 Item	2,000.00
10	Construction f Super Dyke with Slope Protection	Km.	16,039.15	17.75	284,695.00
11	Construction of Motorable Pavement	Km.	642.25	17.75	11,400.00
12	Construction of Regulator with the removal of existing Expired and Non-functioning Regulators. (3 Vent- 11 Nos, 2 Vent- 3 Nos)	Nos.	-	14	28,698.00
13	Re-excavation of Khal inside Polder-70 (15 Nos)	Km.	50.00	19.22	961.00
14	Re-excavation of Kohelia River, Matarbari Channel & Nunachori Khal to increase Navigability)	Km.	720.25	27.65	19,915.00
15	Excavation of Pond for Rainwater Harvesting.	Nos.	641.00	2	1,282.00
16	Land Reclamation	Acre	60.11	325.00	19,537.00
17	Rehabilitation of landless people (150 Houses) and construction of Cyclone Shelters (2 Nos)	Nos.	-	152.00	2,170.00
18	Land Acquisition	Ha.	222.40	50.00	11,120.00
19	Emergency repair costs during construction	L.S.	-	-	4,000.00
20	Other buildings and installations (eviction of illegal structures located on canals/ embankments and beautification)	L.S.	-	1 Item	100.00

Source: Adopted from MoWR website and <https://mowr.gov.bd> by Survey Team

#### 15.2.6 Status of MIDI-related Disaster Prevention Measures

The table below summarizes the MIDI sector's current status of disaster preparedness. As mentioned above, F/S surveys on Polder 70 programs, including super dyke are being conducted. This super dyke plan sets the dyke crest height to 10.0 El.m, and the construction policy is not to install dyke in the area where the height raising is to be carried out. In MIDI, land-forming planning is ongoing for each sector, and coordination with development planning for each sector is crucial.

Table 15.23 Status of MIDI Related Disaster Prevention Measures

Sector/Business Segment	Height Raising	Dyke and dredging
Power & Energy/ Power Plants	<ul style="list-style-type: none"> <li>7.5 m height raising for individual critical facilities</li> <li>The remaining soil generated during construction will be used for future construction purposes.</li> <li>In the future, a mixture of ash and dredged soil will be stored in an ash dump site (mixing ratio 1:1).</li> <li>If dredged soil can be used for ground-raising operations in areas surrounding MIDI, no dyke would be required, and project costs can be reduced.</li> </ul>	<ul style="list-style-type: none"> <li>Super-ridge Polder 70 planning is ongoing. BWDB is the main agency.</li> <li>Dyke height = 6.5 m, Dyke crest height = 10.0 El.m, dyke crest width = 9.8 m, and no dyke is installed in the area where the height raising is to be carried out.</li> </ul>
Power & Energy/LNG	<ul style="list-style-type: none"> <li>7.5 m elevation for each project</li> </ul>	Same as above
Port facilities	<ul style="list-style-type: none"> <li>Currently, ports are being constructed in line with the development of the Matarbari Coal-fired Thermal Power Project.</li> <li>Stage 1: 5.5 m</li> <li>Stage 2: 7.0 m</li> </ul>	Same as above
EZ/Coastal Area	5.5 m elevation raising of the 200 acres in the petroleum refinery plant plan finished.	Not included in Polder 70
EZ/Inland	Unknown Given the frequent occurrence of urban flooding in the upstream city of Chakaria, measures such as elevation	<ul style="list-style-type: none"> <li>Not included in Polder 70</li> <li>Matamuhuli River dredging plan present</li> </ul>

	raising is required because the project site is located close to the river branch of the Matamuhuli River.	<ul style="list-style-type: none"> <li>• Matamuhulri River Dyke Repair Plan present</li> </ul>
Transportation/roads	5.5 m elevation raising. Numerical simulation was carried out using past flood records. Based on the results, the rationale for 5.5-m elevation raising was calculated.	N/A
Transportation/Railway	5.5 m elevation raising. The rationale is in accordance with the roads (mentioned above).	N/A
Household/Urban Area	Several townships are planned, two of which are in the vicinity of Moheshkhali City (elevated by 7.5 m), and others in Chakaria City. Since urban flooding frequently occurs in Chakaria City, prevention measures such as elevation raising are required.	<ul style="list-style-type: none"> <li>• Planned townships are not included in Polder 70</li> <li>• Matamuhuli River dredging plan present</li> <li>• Matamuhuli River Dyke Improvement Plan Present</li> </ul>
Home/colony	No elevation raising plan	<ul style="list-style-type: none"> <li>• Some settlements near Matarbari are located inside the super dyke of Polder 70.</li> <li>• Matamuhuli River dredging plan present</li> <li>• Matamuhuli River Dyke Improvement Plan Present</li> </ul>

Source: JST

### 15.2.7 Toward MIDI MP Formulation

MoWR, MoDMR, and LGD are responsible for the M/P development regarding MIDI-related disaster prevention. Issues for each sector to be addressed from the viewpoint of disaster prevention for MP development are summarized in the table below.

Table 15.24 MIDI-related Disaster Prevention Policy

Sector	Points of Attention
Power & Energy/ Power Plants	The area is covered by the Super Dyke Project. 7.5-m height raising for several critical facilities is to be conducted. The future ground level may change due to the possibility of using construction remnant soil. Coordinate with the Ministry of Water Resources based on the final construction and layout plan.
Power & Energy/ LNG Terminals	In Matarbari Harbor, highly flammable LNG and LPG vessels are planned to be harboring, and relevant safety management shall also be considered.
Port facilities	Same as above
EZ/Coastal Area	Not included in the Super Dyke Plan. Severe cyclone and high tide damage were not reported in the adjacent Moheshkhali city except in 1991. To make effective use of a breaking wave function of mangrove forest, it is important to implement afforestation within a medium-to long-term range.
EZ/Inland	Not included in the Super Dyke Plan. Because of the frequent occurrence of urban flooding in the upstream city of Chakaria, need to coordinate with the MoWR about the river dyke improvement as well as height raising.
Transportation/roads	Need coordination with MoDMR about the use of roads (e.g., emergency evacuation of the surrounding community) in the event of a disaster
Transportation/Railway	Same as above
Household/Urban Area	Multiple townships are proposed. However, it is not included in the Super Dyke Plan. For those in the vicinity of Moheshkhali city, severe cyclone- and storm surge-related damages have not been reported so far (except in 1991). In order to make effective use of the coastal mangrove forests, it is important to implement afforestation within a medium-to-long-term range. Regarding the planned site in the vicinity of Chakaria City, it is necessary to coordinate with the MoWR, such as rehabilitation of nearby river dykes, because there are possible risks such as urban flooding in Chakaria City, and flooding of the Matamuhuli River.
Home/colony	The community around Matarbari is located within the super dyke plan. Still, it is essential

	to consider proper maintenance and management of dyke in conjunction with medium-to-long-term afforestation of surrounding tidal mangrove forests. Coordinating tidal forest management with the MoWR and the Department of Forest is necessary.
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Source: JST

MIDI-related issues within the disaster prevention MP development are listed below.

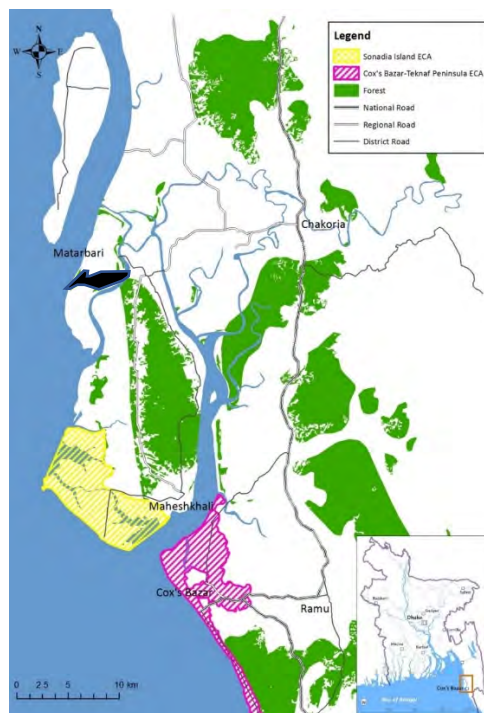
- In the vicinity of the MIDI area, there are several important ecosystems and national parks, such as Sonadia Island ECAs. Local community people also make a living using natural resources such as fisheries and forest products. In addition, there is vast mangrove vegetation along the surrounding coastal area, and those mangrove vegetations play an important role from the viewpoint of the wave break. It is also important to remember that any direct, indirect, cumulative, and combined impacts on these tidal forest areas shall be avoided or reduced.
- MIDI districts are not included in JICA-financed Community Disaster Prevention Program mentioned above. Therefore, it is essential to develop a hazard map for the MIDI area based on the results of the regional disaster prevention plans and to develop a comprehensive regional disaster prevention plan that would combine both hard and soft aspects.
- Considering that the MIDI area is cyclone-prone and existing dyke have been partially destroyed, it is also essential to develop evacuation plans for MIDI areas/surrounding communities just in case of emergency.
- It is essential to link with surrounding communities to implement MIDI-related regional disaster preparedness programs effectively. So, constructive information disclosure and public involvement with surrounding communities are recommended from the early stages of the MIDI development process.

### 15.3 Environmental Management

#### 15.3.1 Current status

(1) Establishment of Protected Areas, etc.

In Bangladesh, natural conservation (such as national parks, natural reserves, and Ramsar wetlands) and areas designated for the protection of cultural heritages are classified by legislation. Figure 15.6 shows the important ecosystems in Cox's Bazar and nearby provinces (MIDI area included). Sonadia Island ECA is a protected area close to the MIDI area.



Source: Report of Data Collection Survey of southern Chattogram Region, Bangladesh (JICA, 2014)

Figure 15.7 Protected Areas Located around Cox's Bazar

(2) General Environmental and Social Considerations for Large-Scale Infrastructure Services

Current Status

- The Environmental Administration in Bangladesh is the Ministry of Environment, Forest and Climate Change (MoEFCC), and the environmental approval of any developmental projects is carried out by the Department of Environment (DoE), MoEFCC.
- In Bangladesh, the basic principles of environmental conservation, including the EIA system, have been advocated in ECA95 (later revised in 2000 and 2002 in 2010). ECR97 summarizes the environmental conservation measures based on this ECA95. Based on the project features (four environmental categories such as Green, Orange A, B, and Red), a relevant environmental impact assessment survey (IEE/EIA) is required for each environmental category.
- Environmental monitoring is mentioned in the Environmental Monitoring Guidelines of the DoE, and environmental standards are included in the ECR97.

Challenges

- Although environmental monitoring is mentioned, there are no specific rules, and monitoring and monitoring reports have been prepared based on the guidelines of assistance organizations such as ADBs. And, the submission status of the environmental monitoring report of JICA-financed projects is not good. In other words, it can be said that the support of certain capacity development programs would be necessary.

(3) Land Take for Large-scale Infrastructure Development Projects

i) Current status

- In Bangladesh, the Acquisition and Requisition of Immovable Property Ordinance, 1982

(ARIPO:1982 enacted, revised in 1993 and 1994) comprehensively covers all land take issues. This ordinance specifies that land, agricultural products, and other properties affected by the development activities shall be compensated. Appropriate compensation is conducted by Land Acquisition Officer, using the compensation rate based on the market prices. Land acquisition for public works is conducted based on the Acquisition and Requisition of Immovable Property Act (2017).

- In the compensation process mentioned above, the person without a proper land title is not covered. Besides, no livelihood restoration program nor compensation scheme related to the land acquisition, exists, and no support for the resettlement exists.

ii) Challenges

- In Bangladesh, all land acquisition processes for public purposes (MIDI projects included) take time, provide a detailed explanation, and negotiate with landowners. Recently, unnecessary interruptions by property estate companies tend to cause prolonged negotiations of relevant land take process to hike the compensation price. Eventually, this would lead to the potential risk for the smooth implementation of MIDI projects. To avoid this case, it would be effective to obtain the lands required for the public projects before the official declaration (e.g., cut-off day). It is noted that relevant data collection and analyses are summarized in Chapters 2 and 3.

### 15.3.2 Environmental Management Law for Large-Scale Development Project

(1) System and Organization of Environmental and Social Considerations

Legislation and policies related to environmental and social considerations in Bangladesh are shown in the following table.

Table 15.25 Legislation and Policies Related to Environmental and Social Considerations

Classification	Laws and Policies	An Overview
<b>Constitution</b>		
1	The Constitution of the People's Republic of Bangladesh, 1972.	In Part 2, Article 18 A, efforts should be made to conserve and improve natural resources, biodiversity, wetlands, forests, and wildlife for the current and future public.
<b>Environmental policies</b>		
1	The National Environmental Policy, 1992, 2013, 2018.	Seventeen major environmental challenges and 12 targets are included. Presenting 271 action plans in 23 sectors. It was revised in 2018 based on various issues such as disasters, climate change, resources, etc., and the main policies are as follows: <ul style="list-style-type: none"> <li>• Ensure sustainable development by reducing the impact on the natural environment</li> <li>• In view of the future, development activities are considered to be part of environmental protection.</li> <li>• Use natural resources based on scientific studies</li> <li>• Use of natural resources considers environmental impacts and risks.</li> <li>• National Development Planning Considers the Economic Value of Ecosystems and Natural Resources</li> <li>• Promote sustainable use of renewable resources</li> <li>• Addressing the long-term challenges of poverty reduction and food security through the conservation of biodiversity</li> </ul>
2	National Environment Management Plan, 1995	It illustrates the environmental challenges and actions to be taken for each sector for 12 sectors, including the water area. Workshops were held to reflect the opinions of NGOs and residents.

Environmental conservation and environmental impact assessment		
1	Environmental Conservation Act: ECA, 1995, 2010	Basic Law on Environmental Conservation in Our Country. It is stipulated that no plant establishment or operation can be carried out without the Environment Permit (Environmental Clearance Certificate: ECC) issued by DoE.
2	Environmental Conservation Rules: ECR, 1997, 2002	Environmental impact assessment, ECC acquisition process, and environmental standards (air, water quality, noise, foul odor) and emission standards (exhaust gas, wastewater, waste) are specified.
3	EIA Guidelines for Industries, 1997	EIA-based methods defined in ECA95 and ECR are explained.
Pollution control measures		
1	Environment Pollution Control Ordinance, 1977	In addition to preventing pollution in air, water, soil, etc., it also prevents pollution in a wide range of environments, including adverse effects on lifestyles and plants.
2	The Environmental Court Act, 2000, 2010	To ensure the implementation of the Environment Conservation Law and Environmental Conservation Regulations, a Court is established to conduct criminal trials involving the Environmental Pollution Commission.
Natural environment		
1	Bangladesh Biodiversity Act, 2017.	Regulations on biodiversity conservation, the sustainable use of resources and biota, and the fair and equitable distribution of the benefits obtained.
2	Ecologically Critical Areas Management Rules, 2016	It is defined for ECA supervision and consists of the National Committee (composed of 20 members including the Chair, two researchers, and two NGOs), District Committee (composed of 26 members including the sub-governor of the region and seven community representatives), Upazila Committee (Upazila level administrative officials and 21 members including five community representatives). Where development activities occur within the ECA, District Committee regularly monitors the project site to supervise whether the agreed environmental mitigation measures and measures are being properly implemented and to instruct Upazila Committee on the supervision of the ECA.
3	Conservation and Security Act 1974, 2012	Regulations on wildlife protection.
4	The Vehicle Act, 1927 and the Motor Vehicles Ordinance, 1983	Requirements for automobile exhaust gas, noise, and road and traffic safety.
5	Water Supply and Sanitation Act, 1996	Regulations on water source management and suburban sanitary management.
6	The Protection and Conservation of Fish Act, 1950	Provisions for the protection of fisheries in government-owned waters.
7	The Ground Water Management Ordinance 1985	Regulations for groundwater management and permission for tube (piped) wells.
8	The Forest Act, 1927	Regulations on forest conservation and conservation.
9	The Private Forests Ordinance Act, 1959	Provision for protection of private forests and afforestation of wildland.
10	The Embankment and Drainage Act, 1952	Regulations on protection of ridges and drainage facilities.
11	The Antiquities Act, 1968	Regulations on the conservation of cultural legacy, historical monuments, and reserves.
12	Bangladesh Labour Law, 2006	Provisions for ensuring the rights, comfortable working environment and safety of workers.
Acquisition of land for use and migration of inhabitants		
1	The Acquisition and Requisition of Immovable Property Act, 1982, 2017	The former Order on Acquisition and Expropriation of Real Estate (The Acquisition and Requisition of Immovable Property Ordinance, 1982) was revised as a law. The procedure for acquiring land and assets incidental to the land has been established, and compensation for land compensation and damage associated with the acquisition has been improved.

Source: Profile on Environmental and Social Considerations in Bangladesh (JICA, 2012)



(2) Site Permission (SC) and Environmental Licensing (ECC) Application Process

According to ECA95, all developmental projects need to have location permission (Site Clearance: SC) and environmental permission (Environmental Clearance Certificate: ECC), to be issued by DoE. However, if a developmental project is planned within the ECA, an application shall be submitted to MoEFCC instead of DoE. ECC application flow is shown in the figure below.

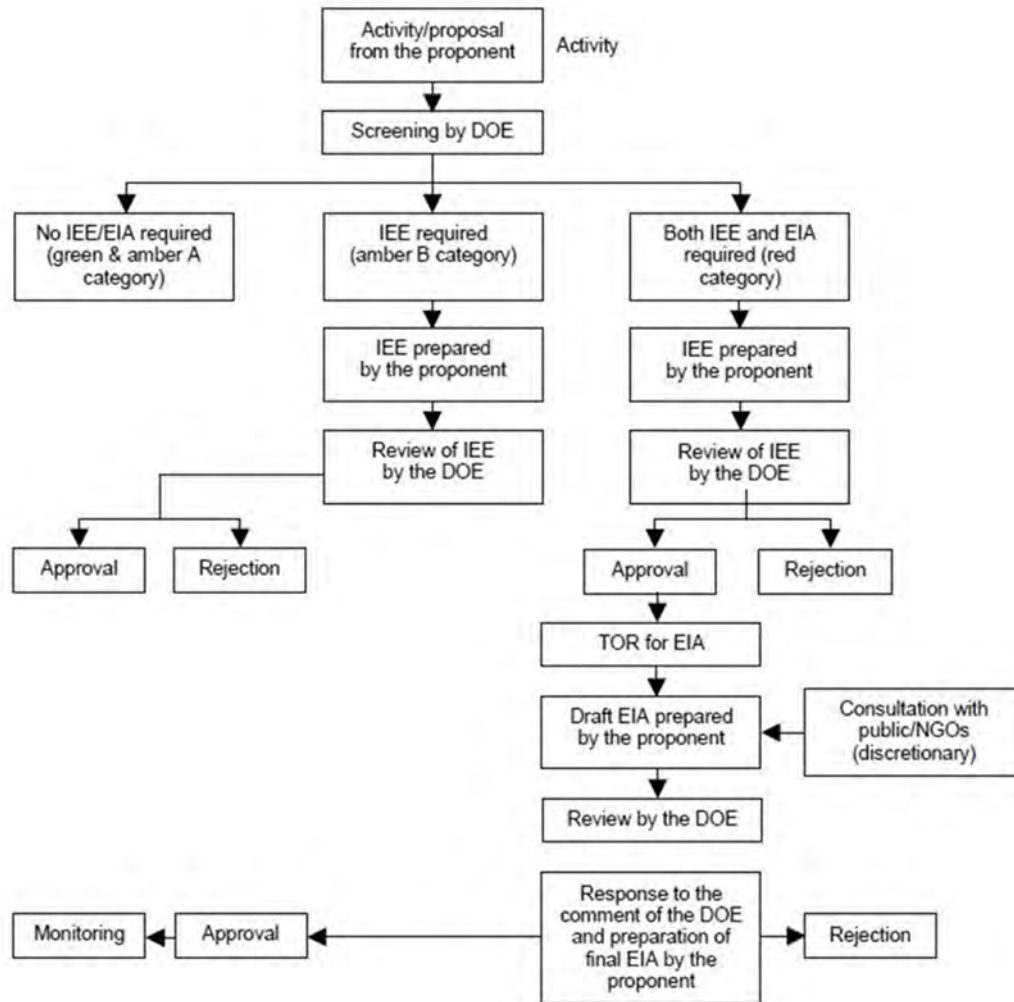


Figure 15.8 Flow for Obtaining Environmental Permission (ECC)

Key points in the SC and ECC acquisition process are listed below.

- ECR97 of SCs and ECCs project rules classifies the targeted operations into four categories, green (Green), orange A (Amber A), orange B (Amber B), and red (Red), according to the magnitude of the assumed environmental impacts.
- Among them, those classified as Green and Orange A can obtain ECC by submitting a synopsis and a document indicating no objection to the local government.
- The project classified as orange A shall apply for ECC after obtaining the SC.
- In operations classified as orange B, developing IEEs and Environmental Management Plan (EMP) is required.

In the project classified as the red category, the preparation of EIA is necessary for addition to IEE and EMP. After completing the IEE report, the project proponent shall apply for and obtain approval of SC to DoE using

the specified format. Within 60 days after the SC application, a site permit will be issued to the project proponent with comments on the EIA investigation plan (i.e., EIA-TOR).

### 15.3.3 Toward MIDI MP Formulation

MIDI-related issues from the perspective of environmental and social safeguards are listed below.

- In the vicinity of the MIDI area, there are several important ecosystems and national parks such as Sonadia Island ECAs. Local community people also make a living using natural resources such as fisheries and forest products. In addition, there are vast mangrove vegetation along the surrounding coastal area, and those mangrove vegetations play an important role from the viewpoint of the wave break. It is also important to keep in mind that any direct, indirect, cumulative, and combined impacts on these protected areas shall be avoided or reduced.
- Participatory strategic environmental assessments (SEAs) would be good tool to encourage constructive public involvement, and eventually will lead to a smooth, strong project consensus. It is noted that there is no law on SEA in Bangladesh. Currently, MoEFCC is conducting a pilot survey to enact relevant legislation.

## 15.4 Tourism Sector

### 15.4.1 Current Situation of Tourism Sector in MIDI Area

#### (1) Tourism Infrastructure

As of February 2022, the Sector Development Plan (SDP) of the MIDI area tourism sector has not been formulated. However, the Industrial and Economic Zones Sector Development Plan (IEZ-SDP) has a Sonadia Eco-Tourism Park (SE-TP) project, which develops a tourism park within the EZ Site 01 in Sonadia Island.

BEZA has acquired the 17,369.58 acres of land for EZ Site 01, and 909.04 out of EZ Site 01 land will be allocated for SE-TP.

According to BEZA (as of 14 September 2021), the Planning Division of BEZA has formulated a master plan of SE-TP, but a feasibility study and environmental and social impact assessment ordered to a consulting company has not been finished; therefore, the master plan has not been finalized yet, and the development of SE-TP has not started yet.

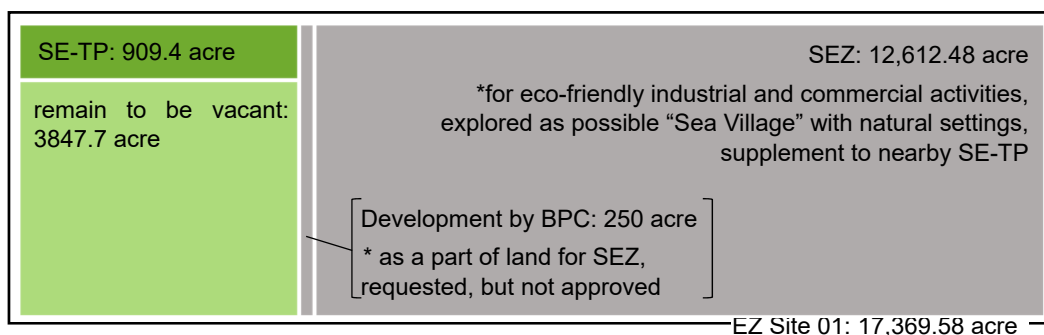


Figure 15.9 Land Allocation of EZ Site 01

3847.7 acres of land within EZ Site 01, the south part of SE-TP, will remain vacant and reserved for a future possible expansion of SE-TP.

The remaining 12,612.48 acres of EZ Site 01 land will be developed as SEZ for eco-friendly industrial and commercial activities.

Within the part of the remaining land for SEZ, Bangladesh Parjatan Corporation (BPC), an organization under the Ministry of Civil Aviation and Tourism (MOCAT) submitted BEZA a proposal for tourism development of 250 acres of land; however, the proposal has not been approved due to the unfinalized SE-TP master plan. The proposal submitted by BPC includes establishment of tourism facilities as indicated in the following table.

Table 15.26 Tourism Development Proposal by BPC at EZ Site 01

Tourist Establishments	Amount of Land Required	Tourist Establishments	Amount of Land Required
<b>Short-term</b>			
Infrastructure Development	not specified	* i.e. approach road, electricity, water and sanitation land scraping	
<b>Mid-term</b>			
5-Star Standard Hotel	15 acres	Car-Parking	10 acres
3-star Standard Hotel	10 acres	Amusement Park	25 acres
Convention Hall	5 acres	Food Court, Restaurant & Coffee Shop	5 acres
Craft Market	25 acres	Lifeguard	5 acres
Night Club	5 acres	Tourist Police Camp	5 acres
Watch Tower	5 acres	Picnic Shed	15 acres
Swimming Pool	2 acres	Green Zone Area	not specified
Indoor-Outdoor Games	10 acres		
<b>Long-term</b>			
Cable Car	2 acres	Aquarium	5 acres
Water Villa, Cottage & Beach Villa	20 acres	Golf Course (18 hole)	80 acres
<b>Not specified term</b>			
Helipad	1 acre		
<b>Total Land Required</b>			<b>250 acres</b>

Source: Bangladesh Parjatan Corporation PTS Division Proposed Format of Sector Development Plan Moheshkhali, Matarbari Area

## (2) Supply and Service

The well-recognized tourism resources in Moheshkhali are listed below<sup>7</sup>:

Adinath Temple	The Hindu temple was built on the top of Mainak hillock and dedicated for the God Siva. In the Bengali month of Falgun (11 <sup>th</sup> month, springtime), millions of Hindu devotees (domestic and international) come for the fair.
Buddist Temple at Boro Rakhain Para	The colorful Buddhist temple at Rakhain village is located close to the Adinath Temple.
Beach of Sonadia	The Beach of Sonadia island. Various shellfish live at the west, and windowpane oysters live at the north. In winter, various kind of birds migrate. The island is the biggest dry fish production of the country, and, especially during winter, fishermen dry fish at the beach.
Community-based Tourism	MOCAT regards village tourism as a resource which tourists can experience the local tradition, diversity, crafts, seafood, etc.

However, currently, Moheshkhali is a day-trip spot from Cox's Bazar and has almost no accommodations. In Cox's Bazar, BPC owns two hotels and two motels, which have 195 bedrooms in total.

## (3) Relevant Organizations

The organizations related to the tourism sector in MIDI area are listed below:

- Ministry of Civil Aviation and Tourism (MOCAT)

<sup>7</sup> Based on the interview with MOCAT (September 2021) and the website of Bangladesh Tourism Board (<https://beautifulbangladesh.gov.bd/loc/chattogram>).

Related to the tourism sector, in order to make Bangladesh an attractive destination with diversified tourism products and improved service, MOCAT is responsible for tourism-related legislation, registration of travel agencies, classification of hotels, etc. MOCAT is in charge of coordination with the other line ministries on tourism-related matters. Regarding budgeting, MOCAT is partly responsible for budget allocation for tourism-related activities; however, the Ministry of Finance directly allocates budgets to relevant organizations.

- Bangladesh Parjatan Corporation (BPC)

Under MOCAT, BPC was established as the National Tourism Organization in 1972 by President Act 143 and commenced its function in 1973. The vision of BPC is to develop Bangladesh as an exotic tourism destination. As the implementing organization of policies formulated by MOCAT, BPC has missions listed below:

- i) Develop BPC as an organization of excellence with adequate authority and capacity to regulate/ facilitate the tourism industry in Bangladesh;
- ii) Develop and maintain international standard tourism products and ancillary facilities;
- iii) Involve government and encourage the private sector in developing physical infrastructure i.e., road, rail, air, and waterway for easy accessibility;
- iv) Ensure security and safety of the tourists;
- v) Take the initiative to simplify visa and immigration formalities for tourists;
- vi) Encourage the pro-poor tourism industry for their economic betterment and empowerment;
- vii) Develop ecotourism based on nature and ethnic culture;
- viii) Enhance the balance of payment, create employment opportunities, alleviate poverty and create social harmony through tourism activities;
- ix) Enhance marketing of tourism products at home and abroad;
- x) Develop human resources in the tourism sector;
- xi) Build a robust public-private partnership in the tourism industry;
- xii) Promote and maintain close cooperation with regional and international counterparts of the industry; and
- xiii) Handover the commercial units to the private.

- Bangladesh Tourism Board (BTB)

Under MOCAT, BTB was established in 2010 by Tourism Act and facilitated tourism industry development to make Bangladesh one of the major tourist destinations in South Asia. It is responsible for the following affairs:

- i) Formulate policies for tourism development, make recommendations, and assist in the implementation of existing tourism policies;
- ii) Provide advice or guidance to those concerned in the implementation of plans adopted for the overall development of the industry;
- iii) Identify, conserve, develop and raise public awareness of tourist attractions;
- iv) Implement responsible tourism by arranging the participation of government, private sector,

- local people, local administrations, NGOs, women’s organizations, and media;
- v) Establish liaison of tourism organizations of Bangladesh with foreign agencies
  - vi) Coordinate with various government agencies on issues of mutual interest, including facilitating and securing the arrival and stay of tourists in Bangladesh;
  - vii) Ensure the participation of the disabled;
  - viii) Protect women’s rights and ensure their participation in the tourism industry;
  - ix) Support tourism-related facilities development and maintain regular coordination between government and non-government organizations on marketing at home and abroad;
  - x) Control the quality of tourism service;
  - xi) Take appropriate measures for research international market monitoring and analysis for the development of the tourism industry
  - xii) Provide necessary direction to support start-ups in the tourism related industry; and
  - xiii) Organize and promote all fairs related to tourism and provide direction for publishing activities.

The demarcation among MOCAT, BPC and BTB is determined as follows:

Table 15.27 Demarcation among MOCAT, BPC and BTB

Medium-Term Strategic Objectives	Activities	Demarcation
Safe and secure aviation system	Upgrading Hazrat Shahjalal International Airport	MOCAT
	Construction of Civil Aviation Authority’s Head Office	
	Development of Cox’s Bazar Airport	
	Infrastructural development of the existing airports and construction of a new international airport	
Expansion of tourism	Identifying potential tourist spots scattered over different places of the country and modernizing and expanding existing ones	BPC
	Involving local government institutions in tourism activities	
	Creating infrastructure and improving management of the tourism industry through Public-Private Partnership (PPP) arrangements	
	Producing documentary films on Bangladesh Tourism & publicising tourism events	
	Maintaining tourism-related training courses and establishing 4 more tourist training centres	
	Participating in tourism fairs organized home and abroad and arranged related programmes	BTB
	Capacity building in tourism sector	

Source : The Eighth Five Year Plan July 2020 – June 2025

· Cox’s Bazar Development Authority (CoxDA)

CoxDA is an authority established in 2016 by the Cox’s Bazar Development Authority Act under the Ministry of Housing and Public Works, which was placed under the control of Cox’s Bazar District in 2018. It is responsible for planned infrastructure and urban development, aiming to develop Cox’s Bazar District as a sustainable, modern, and developed tourism city. (For the detail, refer to Chapter 2)

## 15.4.2 Demand and Supply

### (1) Future Demand (2026, 2031, 2036, 2041)

BTB has started formulating the national Tourism Master Plan, and the draft prepared by a consulting firm will be ready around March 2023. The master plan is expected to show the roadmap for nation-wide tourism sector for the next 25 years and the direction of tourism sector development phase by phase. The master plan will target 10 million tourists and 8 billion USD tourism income by 2040. To achieve this, MOCAT assumes the development of accommodations with sum of 500,000 bedrooms.<sup>8</sup>

Simultaneously, CoxDA is working, based on the Prime Minister's instruction, on formulation of Cox's Bazar Development Master Plan.

Speaking of SE-TP, as mentioned above, its master plan is under preparation by BEZA as a feasibility study, and environmental and social impact assessments are ongoing.

Hence, the future demand is not clarified either at national-, district-, or spot-level (as of February 2022).

### (2) Balance of Tourists Estimates and Tourism Facilities

As described above, master plans are under formulation; accordingly, future demand is not yet well estimated, and plans on developing accommodations and tourism facilities to meet the demand are not formulated either.

In the report of "Preparation of Development Plan of Cox's Bazar Town and Sea Beach up to Taknef" prepared for the Urban Development Directorate, Ministry of Housing and Public Works in 2011, it is estimated that the number of tourists will reach 15 million by 2030. Based on this estimation, the number of tourists per hotel will increase from 98 persons (in 2010) to 221 persons (in 2030), which indicates a shortage of accommodations.

Besides the master plans under preparation for the tourism demand in the Adinath Temple area, BTB allocated the budget of 5 million BDT to develop basic amenities and facilities.

## 15.4.3 Toward MIDI MP Formulation

### (1) Challenges in Planning

#### Upstream Plans

National Tourism Policy was formulated in 2010; accordingly, the eighth Five Year Plan (8FYP) recognizes tourism as a significant source of export earnings, which creates demand of domestic goods and services and thereby contributes to the total employment and GDP of the economy. However, as mentioned above, Tourism Master Plan and Cox's Bazar Development Master Plan, which includes MIDI area, are yet under formulation. BTB is also preparing a Community-Based Tourism Policy and Eco-Tourism Policy. Tourism sector development in MIDI MP should be consistent with those upstream plans under preparation. Especially, MIDI MP is preferable to coordinate with Cox's Bazar Development Master Plan in terms of area-wide tourism development, which is explained in the next item.

8FYP recognizes that Bangladesh is blessed with natural beauty, ranging from mountains to rivers to beaches

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<sup>8</sup> Based on the interview with MOCAT (September 2021).

to bio-diversity, and boasts the longest natural beach in the world in Cox's Bazar<sup>9</sup>; however, it evaluates that the tourism industry is far from thriving. It is because that, in the data of the World Travel & Tourism Council (WTTC) in 2019, tourism in Bangladesh accounted for 3% of GDP, 2.9% of total employment, and 0.7% of total exports; and those performances are far from that of China, India, Malaysia, and Thailand.

In addition, according to WTTC data in 2020, due to COVID-19, the performance is worsened to 1.7% of GDP, 2.3% of total employment, and 0.3% of total exports.<sup>10</sup> This is a worldwide trend; however, aiming to revitalize the tourism industry in the with-COVID-19 period and the post-COVID-19 period, more than 75 countries acquired WTTC Safe Travel certification and followed Safe Travel Protocol. Bangladesh is not included in these 75 countries as of February 2022; countermeasure for COVID-19 needs to be considered to meet international standards in providing tourism products and services.

#### Area-wide Tourism Development

SE-TP is preferable to be valued as one spot in Cox's Bazar tourism destination (area). It is because the gateway to MIDI area, which SE-TP locates, is Cox's Bazar Airport and Cox's Bazar city, and its beach is one of the most well-known tourism resources in the country. Bangladesh is focusing on eco-tourism development in various regions, which may enable SE-TP by itself to attract a certain number of tourists. However, considering that tourists generally come via Cox's Bazar, it is more effective to utilize the famous tourist attraction that Cox's Bazar beach and the surrounding area have. Moreover, Moheshkhali has various tourism resources introduced above. Accordingly, to create tourism trails collaborating with those resources could result in an increase in tourist expense by extension of their stay, the increase in the number of tourists (especially a more comprehensive range of tourists) by diversified tourism attractions, and the contribution to the local tourism related industries.

#### Environmental Consideration and Private Investment

The forest of Sonadia island where SE-TP is planned to be developed is designated as a forest preservation area and under the control of the Division of Forest (DoF), Ministry of Environment, Forest and Climate Change (MoEFCC). In Sonadia island, there live endangered species and near threatened species; it is acknowledged as the 20th Important Bird and Biodiversity Area by Birdlife International, an international environmental NGO for bird protection.<sup>11</sup> Therefore, natural environment protection measures must be appropriately taken for its development.

Regarding the eco-friendly development of eco-tourism park, BEZA believes domestic companies have less experience, and foreign investment is crucial.

#### (2) Countermeasure for the Challenges

MIDI MP will be started from infrastructure development, which is core for achieving the BIG-B plan, and incrementally updated and expanded for regional development, which deals with additional sectors. Therefore,

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<sup>9</sup> National Tourism Policy also recognizes that Cox's Bazar beach and Sonadia island area are major tourism attractions which could be developed as ideal holiday-making destinations.

<sup>10</sup> World Travel & Tourism Council, Economic Impact Report Country Data: Bangladesh (<https://wttc.org/Research/Economic-Impact>)

<sup>11</sup> JICA Land Use Plan Survey in 2019

by the phase that the tourism sector will be considered in MIDI MP at last, the master plans and policies which are being prepared will probably be finalized and implemented; then, development of SE-TP and surrounding tourism facilities could be developed be considered within the framework of the upstream plans.

Especially in terms of wider benefit for the tourism industry, it is better to be situated as a part of Cox's Bazar tourism destination; so, the tourism sector development plan in MIDI area should organically be coordinated with Cox's Bazar tourism development plan, which is Cox's Bazar Development Master Plan. Speaking of implementation, the coordination and demarcation between MIDI Authority and CoxDA will be assumedly essential.

### (3) TOR for MIDI MP Survey

Additional information collection for tourism development in MIDI area is suggested as below:

- Review of upstream plans: namely, Tourism Master Plan, Cox's Bazar Development Master Plan, National Tourism Policy, Community-Based Tourism Policy, Eco-Tourism Policy, Action Plan for Tourism Recovery from the COVID-19, etc.;
- Review of SE-TP Master Plan;
- Tourism marketing survey in MIDI area and Cox's Bazar (tourism resources/products, tourism calendar, number of domestic and international tourists, attribution of tourists, length of stay, tourism expense, purpose and type of tourism, tourism trail, etc.), tourism related survey (tourism related business, the situation of accommodation, tourism facilities, and amenities, benefit and effect in host communities, physical, environmental, and social carrying capacity);
- Environmental and social consideration in tourism development;
- Incentives and environmental regulation for private investment; and
- Demarcation and implementation capacity of MIDI Authority, CoxDA, and tourism related organizations.

## **15.5 Human Resource Development**

### **15.5.1 Current Situation of TVET and Tertiary Education**

#### (1) Educational System

Bangladesh's educational system is based on the British system and is generally categorized into three levels: namely, primary, secondary, and tertiary education. Primary education is eight years, consisting of pre-schooling (age 3-5) and primary school (Grade 1-5, age 6+); Grade 1-5 is compulsory education. Secondary education is seven years, which consists of junior school (Grade 6-8), middle secondary school (Grade 9-10), higher secondary school (Grade 11-12). From Grade 9, education starts to have a technical-vocational stream. Then, tertiary/higher education is a university (bachelor's, master's, doctorate degree).

#### (2) Technical and Vocational Education and Training (TVET)

For TVET, Bangladesh relies on several engineering colleges, polytechnic, and specialized colleges dedicated to train students in the arts, home economics, social welfare and research, and agriculture. There are two-year



vocational schools (Grade 9-10) for graduates of junior secondary education and two-to-three-year vocational schools or polytechnic (Grade 11+) for graduates of middle secondary school. The number of institutes, teachers, and students per type of institute (as of 2016) is shown in the following table.

Table 15.28 Number of TVET Institutions, Teachers, and Students

Type of Institute	Management	No. of Institute	Teachers	Students
Polytechnic Institute	Public	52	1492	92612
	Private	387	4759	111198
	Total	439	6251	203810
Technical School and College	Public	64	1144	36426
	Private	108	1168	28514
	Total	172	2312	64940
Glass and Ceramic Institute	Public	1	15	1058
	Private			
	Total	1	15	1058
Graphic Arts Institute	Public	1	17	1057
	Private		0	
	Total	1	17	1057
Survey Institute	Public	2	36	830
	Private	2	23	428
	Total	4	59	1258
Technical Training Center	Public	68	1126	21122
	Private	96	183	12768
	Total	164	1309	33890
Textile Institute	Public	10	188	3592
	Private	23	335	6546
	Total	33	523	10138
Textile Vocational	Public	40	267	4252
	Private	10	81	1275
	Total	50	348	5527
Agricultural Training Institute	Public	13	147	11378
	Private	170	818	18732
	Total	183	965	30110
Marine Technology	Public	1	52	916
	Private			
	Total	1	52	916
Secondary School Certificate (SSC) Vocational (Independent)	Public	11	272	2972
	Private	158	1714	21474
	Total	169	1986	24446
Higher Secondary Certificate (HSC) Vocational /Business Management (Independent)	Public	10	146	3122
	Private	665	5820	131152
	Total	675	5966	134274
Medical Technology	Public			
	Private	356	986	24734
	Total	356	986	24734
SSC Vocational (Attached)	Public			
	Private	2556	6667	199718
	Total	2556	6667	199718
HSC Vocational /Business Management (Attached)	Public	15	71	1255
	Private	1078	4852	138139
	Total	1093	4923	139394
<b>Total (Technical Education)</b>	Public	288	4973	180592
	Private	5609	27406	694678
	Total	5897	32379	875270

Source: Bangladesh Educational Statistics, 2016

The number of TVET institutes and that of their students are steadily increasing. The number of institutes increased from 1,137 in 2000 to 5,897 in 2016; the number of students increased from 116,055 in 2000 to 875,270 in 2016. However, it is estimated that only 14% of students still receive TVET, which is lower

compared to many developed and some developing countries.

It is also estimated that there are 2.7 million educated unemployed youths in Bangladesh. The Executive Committee of the National Economic Council (ECNEC) approved, in 2020, a Tk205.26 billion project to establish around 329 technical schools and colleges at the Upazila level by 2024 to build skilled and productive human resources in the country. It shows the Bangladesh government's intention to expand and provide technical education across the country, particularly in the rural areas for the disadvantaged, and to maintain a globally competitive, skilled workforce for sustainable economic development through TVET.

In addition, SDG4 Strategic Framework for Bangladesh in 2019 recognizes the challenges in terms of equitable access to TVET is as follows:

*TVET systems are yet to become market responsive. One of the important reasons behind this is that the current curriculum has not been reformed in line with the demands of time. Particularly the system is not favorable for females. As a result, youth and adult females are not enabled to economically empower themselves with the necessary skills. Due to the TVET system's inability to generate gainful employment it is held in low regard by society.*

Hence interventions, such as reform of curriculum, assessment of learning needs, increasing outreach and creating women friendly environments, among others, are addressed as strategic directions.<sup>12</sup>

Accordingly, and in response to the PP 2041 and SDGs, National Skill Development Policy 2020 was formulated to guide skills development strategies and facilitate coordination among all TVET organizations in Bangladesh. The policy includes the following fundamental principles:

- (a) Shared responsibilities among various actors and stakeholders in skills training design and delivery: Various actors and stakeholders will be involved in designing and delivering skills, re-skilling, up-skilling training, and apprenticeship.
- (b) Matching of skills demand and supply: The skills development system will be responsive to the labor market requirements through efficient coordination between demands for and supply of skills.
- (c) Equal opportunities: This policy will cover training opportunities across all segments of society, including women, people living in remote rural communities, disadvantaged youths, and persons with disabilities.

### (3) Tertiary Education

Colleges and universities provide higher education. Bachelor's degree consists of two courses: Pass (3 years) and Honours (4 years) in the general education stream. A Master's degree is one year for bachelor's degree (Honours) holders and two years for holders of bachelor's degree (Pass). Then, a Master of Philosophy degree and a doctoral degree follows.

Some vocational schools provide four-year vocational education for graduates of middle secondary education and certify diplomat degrees, especially in the field of engineering, agriculture, business, medical, and information & communication technology. Diplomat degree holders can continue their education with

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<sup>12</sup> Education Sector Analysis for Bangladesh (Approved Version (Under editing process)) (2020) (<https://www.globalpartnership.org/sites/default/files/document/file/2020-10-Bangladesh-ESA.pdf>)

bachelor's degrees and higher.

Bangladesh has 50 public universities (4 out of 50 were newly established in 2021) and 108 private universities<sup>13</sup>. Besides general universities, some public universities specialize in engineering and technology, agricultural, science and technology etc. and includes Islamic university, National University (NU), and Bangladesh Open University (BOU), which specializes in remote education. NU provides postgraduate and research programs in various academic fields; it also accommodates more than 2,000 affiliated colleges and has responsibility for academic control over all those affiliated colleges.

All public and private universities are supervised by University Grants Commission (UGC) and UGC is responsible for government grant allocation to those universities. Quality improvement in tertiary education is addressed in National Education Policy 2010.

The enrolment ratio to tertiary education remained around 13% until 2015 but increased in recent years and reached over 20% in 2020, though there is a gender gap.<sup>14</sup>

### 15.5.2 TVET and Tertiary Education in MIDI Area

The TVET schools available in MIDI area are listed in the following table.

Table 15.29 TVET Schools in MIDI Area

Name of School	Place (district, sub-district/municipality)	No.of students a year	Department available	% of working place after graduation
Cox's Bazar Polytechnic Institute	Cox's Bazar	300	Computer, Civil, Food, Refrigeration, and Air Conditioning, Tourism and Hospitality	Cox's Bazar: 5% Dhaka and Chittagong: 90 % Others: 5%
Cox's Bazar Model Polytechnic Institute	Main Road Sader Upzilla Parisad gate, Jhlongja, Cox's'sBazar	75	Civil Technology, Electrical Technology	Cox's Bazar: 5% Dhaka and Chittagong: 90 % Others: 5%
Cox's' Bazar Technical School and College	Rumaliar Chara, Cox's Bazar	200	Electrical, Electronics, Computer, Automotive	Cox's Bazar: 5% Dhaka and Chittagong: 75 % Others: 20%
BRAC Dokkhota Unnoyon Proshikkhon Kendro, Cox's Bazar	Salam Mension, in front of Modern Hachari, South Kolatoli Road, Cox's's Bazar	60	Short training/ certificate course (3months): Tourism and Hospitality (Food and Beverage Servicing) Tourism and Hospitality (House Keeping)	Cox's Bazar: 80% Dhaka and Chittagong: 10 % Others: 10%
Hotel Beach Way Training Institute, Cox's Bazar (Established from 2021)	House # 21, Block # C, Kolatoli Road, Cox's Bazar	75	Short training/ certificate course: Tourism and Hospitality (House Keeping) Tourism and Hospitality (Front Office Management)	Cox's Bazar: 80% Dhaka and Chittagong: 10 % Others: 10%
Skus Technical Training Center, Cox's Bazar (Established in 2008)	Kolatoli Bypass Road, Dolphin More, Cox's Bazar	250	Short training/ certificate course: Construction (Electrical Installation and Maintenance (Civil	Cox's Bazar: 60% Dhaka and Chittagong: 30 % Others: 10%

<sup>13</sup> University Grants Commission of Bangladesh (<http://www.ugc-universities.gov.bd/public-universities>)

<sup>14</sup> UNESCO Institute of Statistics: Bangladesh country data (<http://uis.unesco.org/country/BD>)

			Construction) Machinery, housekeeping, food and beverage production, driving, computer office application, Graphics, freelancing, industrial sewing, handicraft, fashion designing, Informal (Block Batik and Screen Printing) Informal(Tailoring) Informal (Beauty Care) Construction (Plumping) Informal (Mobile Phone Servicing)	
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As shown in the above table, graduates from relatively higher education in polytechnic institutes and technical schools tend to flow out from MIDI area as workforces, and only approximately 5% remain in Cox’s Bazar; while training institutes and centers providing short courses enable local people in MIDI area to learn a trade, especially in tourism and hospitality and handicraft sectors.

Speaking of tertiary education available, the following five universities are located in Chattogram:

- University of Chittagong
- Chittagong University of Engineering & Technology
- Chittagong Veterinary and Animal Sciences University
- Rangamati Science and Technology University
- Chittagong Medical University

### 15.5.3 Towards MIDI MP Formulation

The potential industries for MIDI area are, as discussed in Chapter 13, petrochemical and other manufacturing, which generally requires workers, skilled workers, and managers.

JICA’s Land Use Plan Survey in 2019 presumed that Cox’s Bazar Sadar Upazila and Chakaria Upazila would be the main labor force resources for MIDI area. In addition to those two Upazilas, Moheshkhali Upazila also could be a labor force resource. However, its literacy rate is lower than the other two because literacy is not a big deal for worker-level human resources, who are responsible for simple work. The total number of employees in those three Upazilas in 2013 is 149,000.

In the same survey, the employees demand due to MIDI is calculated as 19,400 persons in short term (by 2026) and 39,800 persons in mid- and long term (by 2041). Compared to the year 2013, the number of employees is required 10% extra by 2026 and 25% extra by 2041.

On the other hand, as mentioned in earlier, the majority of graduates of polytechnics and technical schools in the MIDI area, who could be skilled workers, tend to work outside of Cox’s Bazar. This trend would be the same for university graduates, who could be managers. During the MIDI MP formulation, the major cause of this skilled human resource flowing out needs to be carefully examined: nationwide lack of highly skilled personnel or lack of jobs in the MIDI area.

If it comes from the inadequate number of properly skilled human resources, in order to facilitate local human resource development and local employment in MIDI area, the following items need to be considered in

response to the above-mentioned strategic directions of SDG4 Strategic Framework for Bangladesh and the principles of National Skill Development Policy 2020:

- Needs in the job market of industries came into MIDI area (ideal type of human resources, specialties, certificates, etc.)
- Curriculum and education quality of existing and newly founded TVET and tertiary education institutions, and system for periodic curriculum revision (including dialogue with the industries)
- Enhancement of liaison from educational program to employment (internship, career support etc.)
- Gender equality and inclusion of the disabled and the marginalized to TVET and tertiary education and employment opportunities.