Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

(1) Country: The People's Republic of Bangladesh

(2) Project Site / Target Area: Cox's Bazar District, Chattogram Division (2.82 million (Census, 2022))

(3) Project:

(Japanese ODA Loan) Matarbari Port Development Project (II)

(Technical Assistance Project related to Japanese ODA Loan) Project for Capacity Development on Operation, Maintenance and management in Matarbari Port

(4) Loan Agreement: March 29, 2023

2. Background and Necessity of the Project

(1) Current State and Issues of the Port/Harbor Sector and the Priority of the Project in Bangladesh

In Bangladesh, with GDP having grown at an average annual rate of more than 6% during the past ten years, the value of cargo trade has risen at an average annual rate of approximately 8% during the same period (International Monetary Fund, 2022). Furthermore, container cargo handling volume in Bangladesh, which stood at 2.35 million TEU (Twenty-foot Equivalent Units) in 2016, is expected to reach 10.3 million TEU in 2041 (Japan International Cooperation Agency (JICA) Preparatory Survey on the Matarbari Port Development, 2019).

In Chattogram Port which handles 98 % of container cargo and 89 % of general cargo in Bangladesh, the cargo handling volume has increased from 1.34 million TEU (2010) to 2.59 million TEU (2020) for container cargo, from 41.18 million ton (2010) to 94.88 million ton (2020) for general cargo, in response to the increase in cargo demand. This indicates that the container cargo handling capacity in Chattogram Port has already exceeded the designed capacity (1.75 million TEU). The current water depth of Chattogram Port (the lowest water level (Chart Datum Level) is adopted as the tidal datum) is between 7.5 m and 9.5 m. In light of the recent worldwide trend of growth in the size of vessels and the future increase in cargo demand, the existing ports are unable to accept medium and large vessels exceeding 2,700 TEU which will be indispensable in the near future. In order to meet future cargo demand, it is urgent to develop a new port and harbors with sufficient depth to accept medium and large vessels.

Based on the situation above, the Matarbari Port Development Project (hereinafter referred to as the "Project") is planned to be implemented. The

Project aims to increase the overall cargo handling capacity of Bangladesh, help to meet the expected rapid increase in cargo demand, and allow the port to accept increasingly large vessels by constructing a new commercial port with a depth of 16 m in the Matarbari area as well as the access roads that will be indispensable to promoting use of the new port.

Matarbari port to be developed with the Project will be the first deep-sea port of Bangladesh, and it will huge impact on enhancing Bangladeshi port sector's cargo handling capacity. On the other hand, Matarbari Port has some issues to be tackled in terms of promoting its usage. Matarbari port, unlike exiting port at Chattogram, is located further from Dhaka and Chattogram, Bangladesh's biggest consumption centers, and at the same time road/railway access is not developed yet. Also since Matarbari Port is newly opening port, it is necessary to collect cargoes and customers from the scratch. In addition, it is the first experience for Chittagong Port Authority (hereinafter referred to as "CPA". In 2018, the government of Bangladesh changed the name of the city from "Chittagong" to "Chattogram", but the name of Project implementation organization is still "Chittagong Port Authority") to manage multiple ports in remote locations at the same time, so cannot be optimistic about the smooth operation of the new port. Based on this background, it is essential to build a system to realize smooth terminal operation and strengthening operation of the navigation management capacity of the port, examine cargo collection policy at the port, and strengthen the CPA's capacity on promoting usage of the new port. From this point of view, "Project for Capacity Development on Operation, Maintenance and Management in Matarbari Port" (hereinafter referred to as "Technical Assistance Project related to Japanese ODA Loan") was requested.

The Project (including Technical Assistance Project related to Japanese ODA Loan) is positioned as one of the highest-priority projects for improving the international competitiveness in economy and supporting domestic demand, in the Eighth Five-Year Plan (FY2020/21–FY2024/25) and Vision 2041 which sets out long-term development challenges to be achieved by 2041. The Project will also contribute to the realization of the Bay of Bengal Industrial Growth Belt (hereinafter referred to as the "BIG-B") initiative, which is advocated by the Governments of Japan and Bangladesh, and the Government of Bangladesh has decided to prioritize the development of industrial complexes, etc. with Matarbari Port as their core.

(2) Japan and JICA's Cooperation Policy and Operations in the Port/Harbor Sector

Japan's Country Assistance Program for Bangladesh (February 2018)

identifies one of Bangladesh's priority areas as being to accelerate economic growth so that everyone can benefit as Bangladesh strives to become a middle-income country. It mentions that the Government of Japan will cooperate chiefly in the BIG-B initiative and contribute to better connections throughout the region by developing high-quality transportation networks and promoting the efficient movement of people and goods. Moreover, the JICA Country Analysis Paper for Bangladesh (March 2019) identifies "development of national transportation networks" as prioritized issue, in response to the fact that the cargo transport delays caused by the cargo handling volume of Chattogram Port exceeding its design capacity. The JICA Country Analysis Paper also explains that it is necessary to improve and streamline the transportation and traffic network (roads, bridges, railroads, airports, ports, etc.) with an awareness of realizing BIG-B initiative, improving regional connectivity and rationalizing transportation modes. The Project is, therefore, consistent with the analysis and policy.

The Project will also contribute to "the pursuit of economic prosperity" under the Japanese government's vision of "Free and Open Indo-Pacific". Moreover, the Project also contribute to "building global network", one of the approaches in transportation area under the JICA Global Agenda (June 2022).

These effects brough by the Project will be reinforced by strengthening CPA's capacity for port management, operation, promotion and ship navigation safety through Technical Assistance Project related to Japanese ODA Loan.

(3) Other Donors' Activities

The Asian Development Bank (ADB) has supported for developing a master plan for Chattogram Port in "Strategic Master Plan for Chittagong Port" (2011-2019). ADB also conducted the detailed design for developing access railway between national road 1 and Matarbari area. Furthermore, the World Bank is supporting the strengthening of the inland water transportation capabilities between Chattogram, Dhaka and Ashuganj.

3. Project Description

(1) Project Description

① Project Objective

The objective of the Project is to strengthen the port's cargo handling capacity and to facilitate logistics operations with neighboring countries. It will do so by constructing a multipurpose deep-sea port for containers and general cargo in

the Matarbari area of Cox's Bazar, Chattogram Division, thereby contributing to economic development of Bangladesh.

② Project Components

(Japanese ODA Loan)

1) Civil work (construction of container terminal, multipurpose terminal, basin dredging, access roads, etc.)
2) Procurement and installation of cargo handling equipment
3) Development of port-related facilities and equipment
4) Consulting services

(Technical Assistance Project related to Japanese ODA Loan)

1) Input

Japanese side

A) Dispatch of short-term experts（148P/M in total）（Chief Advisor, Port Management Strategy, Port Operation, Port Promotion, Logistics Planning, Public Private Partnership（PPP）Legal System, Project Coordination）
B) Training in Japan（Training on port operation and management

Bangladesh side

A) Assignment of necessary personnel
B) Provide service, facility and cost necessary for the Project.

2) Project Purpose

Efficient operation, maintenance and management structure for Matarbari Port will be established.

3) Output

Output 1. The capacity of terminal operation in Matarbari Port is enhanced.
Output 2. The capacity of safe navigation management in Matarbari Port is enhanced.
Output 3. The capacity for planning/executing measures to attract port users and increase cargo demand of Matarbari Port is enhanced.
Output 4. The capacity for formulating mid- and long- term management strategy in Matarbari Port is enhanced.

4) Activities

1-1. Technical guidance on monitoring terminal operation
1-2. Technical guidance on container planning
1-3. Technical guidance on overall efficiency of terminal operation
1-4. Technical guidance on the development of a terminal operation manual
1-5. Technical guidance on drafting TOR on the consignment contract for terminal operation
1-6. Technical guidance on maintenance of cargo handling equipment
1-7. Technical guidance on port security
2-1. Technical guidance on the operation of navigation aids and VTMS
2-2. Technical guidance on the formulation of water area use rules in the port
2-3. Technical guidance on ship entry / departure management for large ships and ships carrying dangerous goods
2-4. Technical guidance on efficient maintenance dredging and maintenance of breakwater
2-5. Technical guidance on simplifying ship entry / departure procedures and on port EDI system
3-1. Technical guidance on practical realization of multi-modal hinterland logistics
3-2. Technical guidance on strategic tariff setting of ports
3-3. Technical guidance on enhancing collaboration with stakeholders for port promotion
3-4. Technical guidance on the marketing related to mid- and long-term industrial development in the hinterland
4-1. Technical guidance on reviewing PPP-related laws and regulations on a port terminal
4-2. Technical guidance on examining business conditions on the PPP of a port terminal
4-3. Technical guidance on preparing a roadmap for the introduction of PPP into a port terminal

③ Project Beneficiaries (Target Group)

(Japanese ODA Loan)

A) Direct beneficiary: User of Matarbari port and access road, logistics companies which will benefit from reduced congestion at Chattogram Port

B) Indirect Beneficiary: Bangladeshi citizens who are the consumers of goods and services delivered using Matarbari port and access road (165 million (Census, 2022))

(Technical Assistance Project related to Japanese ODA Loan)

A) Direct Beneficiary: CPA

B) Indirect Beneficiary: User of Matarbari Port

(2) Estimated Project Cost

(Japanese ODA Loan)

303,357 million Yen (Loan Amount: 105,362 million Yen)

(Technical Assistance Project related to Japanese ODA Loan)

640 million Yen

(3) Schedule(Japanese ODA Loan)

June 2018 – January 2028 (116 months in total). The Project will complete upon commencement of service at the facilities (January 2027).

(Technical Assistance Project related to Japanese ODA Loan)

January 2022 – June 2027 (66 months in total).

(4) Project Implementation Structure

1) Borrower: The Government of the People's Republic of Bangladesh
2) Guarantor: N/A
3) Executing Agency: Chittagong Port Authority (CPA) and the Roads and Highways Department (RHD) of the Ministry of Road Transport and Bridges
4) Operation and Maintenance System: CPA and RHD

(5) Collaboration and Sharing of Roles with Other Donors

1) Japan's Activity

Under the Japanese ODA Loan "Matarbari Ultra Super Critical Coal-Fired Power Project" (approved in FY 2014), a navigation channel, berth and breakwaters will be constructed as part of constructing the coal delivery port. The new commercial port to be constructed under the Project will jointly use these port facilities (navigation channel, berth and breakwaters). In addition, the Japanese ODA Loan "Chattogram-Cox's Bazar Highway Improvement Project" (approved in FY 2022) is providing support for the construction of a flyover and outer roads at a major congested sections of National Highway 1. By improving access from Cox's Bazar to Chattogram and further to Dhaka under this project, and together with constructing access road (from Matarbari

port to National Highway 1) under the Project, logistics in the country will be promoted. In addition, the Government of Bangladesh is planning comprehensive development in the hinterland of Matarbari port to attract large-scale investment, and JICA has been supporting formulation of the development plan and improvement of the implementation structure through dispatching "Advisor for Investment Climate Improvement" (FY 2019-2021) and "MIDI Policy Advisor" (FY 2021-2023).

2) Other Donors' Activity

N/A

(6) Environmental and Social Consideration

① Category: A (Japanese ODA Loan), C (Technical Assistance Project related to Japanese ODA Loan)

② Reason for Categorization: The Project falls into the port/harbor sector (likely to have significant adverse effects due to its characteristics) under the JICA Guidelines for Environmental and Social Considerations (published in April 2010). On the other hand, Technical Assistance Project related to Japanese ODA Loan can be considered to have minimum adverse impact on the environment.

③ Environmental Permit: The Environmental Impact Assessment (EIA) report on the Project was approved by the Department of Environment, Ministry of Environment and Forests of Bangladesh on November 26, 2018 (port/harbor) and December 6, 2018 (road). The Project requires annual renewal of environmental permits, and both CPA and RHD have been updated with the latest version in December 2021.

④ Anti-Pollution Measures: During the construction work, measures for air quality, water quality, and noise and vibration, etc., such as water sprinkling, covering vehicle platform, installation of silt diffusion prevention film, installation of wastewater treatment equipment, restrictions on nighttime construction, use of low noise/vibration equipment, etc., will be taken in order to satisfy the emission standards and environmental standards in Bangladesh. In accordance with domestic laws, the waste from vessels after opening will be appropriately treated in port facilities. Measures, such as limiting the speed around residential areas, etc., will be taken against noise and vibration generated on access road after opening.

⑤ Natural Environment: The port and access road construction sites do not fall under protected areas, such as national parks, etc., or important

habitats. The access road will be constructed in the vicinity of the Moheshkhali Forest and Hill Reserve and the Fasiakhali Wildlife Sanctuary, but the impact on the precious ecosystem in the reserve and sanctuary will be reduced by implementing awareness-raising programs for workers. In addition, there is an important natural habitat called “Sonadia Ecological Critical Area” located 15 km south of the Port. However, the area is far enough from the Port and the shipping channel, and significant impact is not expected. In case valuable species such as spoonbills and sea turtles are found around the construction site for the Port, awareness-raising programs for workers, appropriate monitoring and reduction of night-time construction to limit the use of lighting equipment and noise are planned.

⑥ Social Environment: The Project involves land acquisition of approximately 64 ha and 188 ha and involuntary resettlement of 176 and 1380 residents by the construction of the Port, excluding the soil disposal site, and the access road, respectively. For each component, land acquisition, compensation, etc. are being conducted in accordance with the national procedures of Bangladesh and the resettlement plan. With the loss of many salt fields and shrimp farms, there has been a growing demand among affected residents for support for the recovery of their livelihoods. In response to the demand, implementation of a livelihood recovery support program is planned. Community consultations will be conducted continuously to confirm the requests from affected residents, and a grievance mechanism will be operated. Although no particular impact of the Project on coastal fisheries and on the induction of flooding in the surrounding area is anticipated, monitoring will be conducted under the mechanism in ⑦ below, and executing agencies will provide livelihood recovery support as necessary.

⑦ Other / Monitoring: In the Project, the contractor will monitor environmental and social impacts during construction, under the supervision of the executing agencies. The executing agencies will monitor environmental impacts after opening. NGOs contracted by the executing agencies will monitor social impacts for both under construction and after opening, under the supervision of the executing agencies.

(7) Cross-Sectoral Issues

① Climate Change Measures: The Project will contribute to climate change countermeasures (adaptation) (secondary objective), as the construction

of the Port and the access road will contribute to reducing the impact of future climate change by taking into account long-term weather hazards.

② Infectious Disease Measure: Since this is a large-scale infrastructure development project in an area where the spread of HIV infection is concerned and workers will be concentrated at one construction site for a long period of time, education on preventing HIV infection will be provided to related workers, including drivers, who enter and leave the construction site. With regard to COVID-19, infection preventing measures will be implemented by paying attention to the local infection situation and referring to the local laws/regulations and WHO guidance on measures against COVID-19.

(8) Gender Category: [N/A] GI (Gender Mainstreaming Needs Assessment and Analysis Project)

Reason for Categorization:

Although gender mainstreaming needs were investigated in the preparatory survey, specific indicators were not established. On the other hand, the construction work under the Project plans to promote gender equality by ensuring equal pay for equal work regardless of gender and providing facilities for women workers.

(9) Other Important issues

The Project may be able to introduce advanced technologies (civil works, cargo handling equipment, etc.).

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

(Japanese ODA Loan)

Indicator	Baseline (Actual value in 2018)	Target (2029) [Expected value 2 years after project completion]
・Port Component		
Container cargo throughput (million TEU/year)*	-	0.45

General/bulk cargo throughput (million ton/year)*	-	0.99
Number of container cargo ships entering the port (ships/year)*	-	107
Number of general/bulk cargo ships entering the port (ships/year)*	-	31
Max capacity of container cargo ship which is acceptable for the port (TEU/ship)	-	4,700
Max capacity of bulk/general cargo ship which is acceptable for the port (DWT (note1) /ship)	-	70,000
・Access Road Component		
Annual average daily traffic (vehicles/day)	-	3,916
Travel time (minutes) (note2)	62	25

(note1) DWT means Deadweight Tonnage

(note2) The time required to drive from the intersection of National Road No.1 and the access road which will be constructed in the Project, to Matarbari port. Baseline is set as using the existing road, target is set as using the access road.

(Technical Assistance Project related to Japanese ODA Loan)

Items mentioned with "*" in above chart can be applied to Technical Assistance Project related to Japanese ODA Loan.

(2) Qualitative Effects

(Japanese ODA Loan)

Port congestion in Chattogram Port is reduced. Logistics with neighboring countries are promoted. Investment in the vicinity of Matarbari Port is promoted.

(Technical Assistance Project related to Japanese ODA Loan)

- Safe ship entry / exit of container vessels is realized after the commencement of the port.
- Efficient dredging plan is formulated.
- Strategic tariff setting is realized.
- Transportation system consists of multi-mode is constructed.
- Operation manual, rules on safe navigation, mid-long term management strategy are formulated.

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 10.5%, the financial internal rate of return (FIRR) is 3.3%.

[EIRR]

Cost: Project costs and maintenance/operation costs (excluding tax)

Benefit: Reduction in marine transportation costs, reduction in demurrage costs, reduction in travel time, reduction in travel costs and reduction in inland transportation costs

Project Life: 43 years

[FIRR]

Cost: Project costs and maintenance/operation costs for Port component

Benefit: Operating revenue of the port

Project Life: 43 years

5. External Factors and Risk Control

The construction of navigation channels, berths and breakwaters under the Japanese ODA Loan “Matarbari Ultra Super Critical Coal-Fired Power Project” will be smoothly implemented.

6.Lessons Learned from Past Projects

The results of the ex-post evaluation of “Batangas Port Development Project” (evaluated in FY 1999) and “Subic Port Development Project” (evaluated in FY 2014) by the Japanese ODA Loan for the Republic of the Philippines revealed that, when the construction of a new port is planned, it is important to clarify the division of functions between the existing port and the new port, to develop a policy or plan for operating each port organically, and to give incentives for using the new port (improving access to metropolitan area, etc.) in an effort to stimulate demand for its use. The Project has confirmed the division of functions with other domestic ports (current status, development plan and cargo demand sharing based on geographical conditions for each port) through preparatory survey and detailed design of the Project. The project will continue to follow up the discussion in the Government of Bangladesh and development of hinterland of Matarbari port. CPA will examine port operation strategies that will promote the use of the new port, such as the division of functions with ports in neighboring countries and ensuring the efficiency of the new port operated by CPA, etc. A part of the strategies will be implemented through technical assistance by JICA.

The results of the ex-post evaluation of “La Union Port Development Project”

(evaluated in FY 2015) by the Japanese ODA Loan project for the Republic of El Salvador revealed that it is important to consider ways of maintaining the sustainability of the project. This can be done by anticipating the risk of decreasing in cargo demand and fluctuation in maintenance and dredging expenses, and by predicting the volume of soil accumulated with reliable accuracy in the planning stage.

The cargo demand is expected to continue to increase because the amount of cargo trade has increased by 12% per year with GDP growth averaging over 6% per year for the past 10 years. In addition, the Government of Bangladesh is planning to formulate a development plan for the hinterland of Matarbari port which will attract large-scale direct investment. JICA has also been supporting formulating the development plan and improving the implementation structure, by dispatching experts named as “Advisor for Investment Climate Improvement” and “MIDI Policy Advisor”. The Project is expected to generate a large amount of soil and this has also been estimated in the preparatory survey. The monitoring of the amount of soil and the estimation of maintenance dredging cost will be continued by the executing agencies with the consultants for both “Matarbari Ultra Super Critical Coal-Fired Power Project” and the Project. The cost effective measures will be considered in the technical assistance project related to the Project.

7. Evaluation Results

The Project is consistent with Bangladesh’s development issues and policies and with the assistance policies and analyses of the Government of Japan and JICA. Through the development of multipurpose deep-sea port, the Project will strengthen the port’s cargo handling capacity and facilitate logistics operations with neighboring countries, thereby contributing to SDGs goal 8 (economic growth) and goal 9 (Build resilient infrastructure). Thus, the necessity for JICA to support the Project is substantial.

8. Plan for Future Evaluation

(1) Indicators to be Used

As indicated in sections 4..

(2) Future Evaluation Schedule

Ex-post evaluation: Two years after the project completion