

Ex-Ante Evaluation (for Japanese ODA Loan)

**South Asia Division 4, South Asia Department
Japan International Cooperation Agency****1. Name of the Project**

- (1)Country: The People's Republic of Bangladesh
- (2)Project: Chattogram - Cox's Bazar Highway Improvement Project (I)
- (3)Project Site / Target Area: Chattogram District, Chattogram Division (9.16 million) and Cox's Bazar Division (2.82 million) (Census, 2022)
- (4)Loan Agreement: March 29, 2023

2. Background and Necessity of the Project

- (1) Current State and Issues of the Road Sector and the Priority of the Project in Bangladesh

In the People's Republic of Bangladesh, the demand for transportation has increased in line with the GDP growth of over 6% per year over the last ten years. The road sector, which accounts for 87% of passenger traffic and 77% of freight traffic in all modes of transport, plays an important role in the economic growth of the country. National Highway 1 (N1), which runs from Dhaka to Cox's Bazar via Chattogram, has been positioned in Bangladesh's Road Master Plan (2009) as the country's most important arterial road linking the country's major cities. As the primary transport route to Matarbari Port, the construction of which is currently being supported by the ODA Loan "Matarbari Port Development Project" (E/S Loan Agreement approved in FY 2018, Phase 1 Loan Agreement approved in FY 2019), N1 is expected to become a key route for freight traffic, connecting the port to Dhaka and Chattogram, the country's commercial and industrial centers. Between Chattogram and Cox's Bazar in N1, four bridges are being replaced under the ODA loan "Cross Border Road Network Improvement Project" (approved in FY2016) to improve the transportation and logistics network between major urban segments.

However, currently, the section of N1 south of Chattogram is a single-lane road with insufficient width. Especially in the urban sections, general city traffic (rickshaws, tricycle, motorcycles, passenger cars, buses, trucks, etc.) and intercity traffic and logistics are not separated, which causes chronic traffic congestion nearby city center areas and traffic safety problems. After completion of Matarbari Port, N1 is expected to experience a significant increase in traffic volume, including large container vehicles. According to the Preparatory Survey on Matarbari Port Development Project (2017), the necessary travel time from Matarbari Port to Chattogram (approx. 130 km) is estimated to increase from 123 minutes in 2017 to 438 minutes in 2035.

The development of Matarbari Port is positioned as the highest priority project to improve the international competitiveness of the country's economy and support domestic demand in Vision 2041, which prescribes the country's long-term development agenda. In addition, the port development is also positioned as a project

that will contribute to the realization of the Bay of Bengal Industrial Growth Belt (BIG-B) Initiative, set forth by the Governments of Japan and Bangladesh. Therefore, the rehabilitation and widening of the N1, the main arterial road for transportation between Matarbari Port, Dhaka and Chattogram, is a priority in the Government's of Bangladesh's various policies such as 8th Five Year Plan (FY2020/21-2024/25) and Road Master Plan (2009).

With the opening of Matarbari Port, the Chattogram - Cox's Bazar Highway Improvement Project (hereinafter referred to as "the Project") will contribute to the smooth and safe transport of passengers and freight through the construction of flyovers and bypass roads in major congested sections between Chattogram and Cox's Bazar, and is positioned as a high priority project.

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

The JICA Country Analysis Paper for Bangladesh (March 2019) identifies transport as a priority issue and analyze the necessity to improve the national transportation network in order to achieve efficient movement of people and goods, balanced development of the country, and further economic growth. In particular, in order to realize the BIG-B concept, the report states that it will consider the necessary support to improve the efficiency of cargo transportation from the Moheshkhali region to the major consumption centers (Dhaka and Chattogram) and to improve accessibility from Cox's Bazar. In addition, the Project is consistent with this analysis and policy as well as contribute to one of goals, "Building a Global Network", set in the JICA Global Agenda in the field of transportation (June 2022).

Japan's Country Assistance Policy for Bangladesh (February 2018) has also set forth the priority area of "accelerating inclusive economic growth towards becoming a middle-income country," with initiatives for developing high-quality transport infrastructure in accordance with international standards and promoting the efficient movement of people and goods to contribute to the improvement of regional connectivity. The Project is thus consistent with this analysis and policy.

Additionally, by promoting the use of Matarbari Port, the Project will also contribute to the "pursuit of economic prosperity," as described in the Free and Open Indo-Pacific Strategy, from the aspect of enhancing efficiency and connectivity of the transport network with neighboring countries.

(3) Other Donors' Activity

The Asian Development Bank (ADB) has indicated a policy of strategically supporting the development of economic corridors to promote intra-regional trade between Bangladesh and its neighboring countries, and is also providing assistance for the development of the railway network between Chattogram and Cox's Bazar in the SASEC Chittagong-Cox's Bazar Railway Project Phase 1. The World Bank is also implementing a project to improve access in rural areas by rehabilitating county roads and village roads as well as rehabilitating and replacing bridges on those roads. China

is supporting the construction of the Karnaphuli River Tunnel at the estuary of the Karnaphuli River, which flows around the city of Chattogram, connecting the both banks with a tunnel.

3. Project Description

(1) Project Description

①Project Objective

The objective of the Project is to achieve smooth cargo transportation between Matarbari Port and Chattogram by improving roads at major congested section along the National Highway No.1, thereby contributing to improvement of logistics in Bangladesh and to the economic growth of the surrounding area.

②Project Component(s)

- 1) Road improvements (construction of flyovers in one section and bypass roads in four sections) (23km)
- 2) Consulting services (F/S review, detailed design, tender assistance, construction supervision, support of social and environment consideration, implementation of traffic safety measures, etc.)

The consulting services for the Project, this ODA loan covers the construction phase of the above 1) and 2). The F/S review, detailed design (including detailed design for environmental and social considerations and traffic safety measures), and bidding assistance in (2) are implemented under the Project's E/S loan (approved in FY2020).

③Project Beneficiaries (Target Group)

- 1) Direct beneficiary: Logistics companies using the improved roads and local residents benefiting from reduced traffic congestion
- 2) Indirect Beneficiary: Bangladeshi citizens who are the consumers of goods and services delivered using the improved roads (165 million (Census, 2022))

(2) Estimated Project Cost (Loan Amount)

207,455 million Yen (Japanese ODA loan amount for the first tranche: 55,729 million Yen)

(3) Schedule

August 2020 – November 2029 (112 months in total)

The Project will complete upon commencement of service at the facilities (November 2028).

(4) Project Implementation Structure

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

(5) Collaboration and Sharing of Roles with Other Donors

1) Japan's Activity: The Project intends to facilitate traffic on N1, a major route for transporting freight to and from Matarbari Port, which is currently being constructed under "Matarbari Port Development Project". In addition, four bridges on N1 are currently being constructed under "Cross-Border Road Network Improvement Project", an ODA Loan project aiming to improve regional connectivity, which is expected to accommodate traffic originating and terminating in the urban area, on the other hand, the bypass road to be constructed in the Project will bypass the urban area and be used for logistics transportation by large freight vehicles, thus these two project are complementing each other. Moreover, through the dispatch of technical cooperation "Advisor for Road and Bridge Maintenance" (FY2020-FY2023), technical support is provided to the executing agency of the Project to strengthen its system and improve its technical capabilities for road and bridge maintenance and management.

2) Other Donors' Activity: N/A

(6) Environmental and Social Consideration

- ① Category: A
- ② Reason for Categorization: The project is likely to have significant adverse impact due to its characteristic under the JICA guidelines for environmental and social considerations (published in April 2010).
- ③ Environmental Permit: The Environmental Impact Assessment (EIA) report for the Project was approved by the Department of Environment, Ministry of Environment and Forests of Bangladesh in November 2022.
- ④ Anti-Pollution Measures: During the construction work, measures for air quality, water quality, and noise and vibration, etc. will be taken in order to satisfy the emission standards and environmental standards in Bangladesh such as water sprinkling, maintenance of heavy construction equipment, leachate treatment and reuse of residual soil, restrictions on nighttime construction, use of low noise/vibration equipment, etc. During operation, the introduction of noise barriers around facilities and residences that are subject to roadside noise will be examined.
- ⑤ Natural Environment: Part of the construction site for the Project passes adjacent to the Fasiakhali Wildlife Sanctuary and Kalala Protected Forest, and approximately 4 km away from the Chunati Wildlife Sanctuary. In these nature reserves and forests, Asian elephants and other rare species are inhabited. However, the construction site for the Project is outside the protected areas, and significant negative impacts on biodiversity and ecosystem functions are not expected by complying with the protection plan set by the Forestry Bureau and minimizing undesirable impacts on the natural environment. Furthermore, 56,737 trees will be cut down by the Project, and compensatory planting is planned in accordance with the afforestation plan.

- ⑥ Social Environment: The project involves the land acquisition for approximately 80 ha, which will result in the resettlement of 9,119 people (2,035 households) and 5,340 people (1,071 households). Land acquisition will be carried out in accordance with the resettlement plan prepared based on domestic procedures in Bangladesh and JICA guidelines for environmental and social considerations. During the consultation with local stakeholders, the residents, including informal residents, demanded sufficient compensation and prior disclosure of information, etc., and such requests on compensation and resettlement procedures are reflected in the resettlement plan in an appropriate manner. No specific objections to the project have been raised by the affected residents.
- ⑦ Other / Monitoring: During construction, air quality, water quality, noise/vibration, waste, tree cutting, etc. will be monitored by the contractor under the supervision of the executing agency. During operation, air quality, water quality, noise, tree planting, etc. will be monitored by the executing agency. Land acquisition, resettlement, and livelihood restoration support will be monitored by NGOs, etc. commissioned by the executing agency under the responsibility of the executing agency.

(7) Cross-Sectoral Issues

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.

Wages will be set at the same level for men and women for construction work of the Project, and a quota for female employment will be set. Women will also be preferentially hired for the project implementation unit, to be established within the Executing Agency.

(9) Other Important Issues

The possibility of utilizing advanced technology in the project will be examined through detailed design.

4. Targeted Outcomes

(1) Quantitative Effects

- 1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual Value in 2019)	Target (2030) 【Expected value 2 years after project completion】
Annual average daily traffic volume *(vehicles/day)	13,800	48,700
Necessary average travel time*(hours)	142	89
Number of passengers *(1,000 persons/year)	88,000	232,000
Freight volume* (1,000 tons/year)	10,700	35,455

*Value at Dohazari point

(2) Qualitative Effects

To promote economic growth in the target region, to promote logistics and investment in Bangladesh

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 20.3%.The financial internal rate of return (FIRR) is not calculated since it is not assumed that fees will be collected from users.

【EIRR】

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

Benefit: Reduction in vehicle operation cost and travel time cost

Project Life: 35 years

5. External Factors and Risk Control

(1) Preconditions: N/A

(2) External Factors: N/A

6. Lessons Learned from Past Projects

It was learned from the ex-post evaluation of “Casablanca South Ring Road Construction Project” (evaluation year: 2007) that when constructing a bypass road, from the perspective of regional division, it is important to prepare an action plan on social considerations based on design drawings that reflect the latest on-site information. Information should be disclosed to local residents and a sufficient amount of discussion should be held beforehand. Based on the results of those discussions, the necessary number of crossing structures should be incorporated into the plan and design. In light of this, an explanation of the Project will be provided and discussions held with local residents, so that the detailed design can be formulated to reflect the views of the local community in the planning and design of the structures.

In addition, in the ex-post evaluation of the "Second Magsaysay Bridge and Butuan City Bypass Road Construction Project" (evaluation year: 2012), it was pointed out that problems originated from in design and construction management stages have occurred such as ground subsidence due to soft ground at the bridge approach and

the occurrence of potholes on the bridge. The lesson learned is that proper design and construction management is important. In the Project, based on a result of the geological investigation by the preparatory survey, since the project site contains soft ground layers, soft ground countermeasure works are planned in consideration of the behavior during the construction and maintenance phases. During the construction of the embankment, the contractor will monitor the actual behavior of the ground, and the design and construction method will be reviewed if necessary with consultation between the contractor and the consultant. The executing agency is also to communicate with JICA through periodic progress reports.

7. Evaluation Results

The Project is consistent with the development issues and development policies of Bangladesh, as well as the assistance policies and analyses of the Government of Japan and JICA. The Project will help promote passenger travel and physical distribution, including the movement of freight to and from Matarbari Port, as well as help the social and economic development of the areas along the route, thereby contributing to the achievement of SDGs 3 (Health and Wellness), 8 (Economic Growth) and 9 (Industries, Innovation and Infrastructure). Therefore, the necessity for JICA to support Project is substantial.

8. Plan for Future Evaluation

(1) Indicators to be Used

As indicated in sections 4.

(2) Further Evaluation Schedule

Two years after the project completion.