

## Ex-Ante Evaluation (for Japanese ODA Loan)

### 1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Jamuna Railway Bridge Construction Project (E/S)

Loan Agreement: June 29, 2016

Loan Amount: 2,464 million Yen

Borrower: The Government of the People's Republic of Bangladesh

### 2. Background and Necessity of the Project

#### (1) Current State and Issues of the Railway Sector in Bangladesh

Bangladesh possesses the railway transportation network of 2,877km in total. However, most facilities and equipment were developed during the British colonial rule (prior to 1947), and the deterioration causes speed/weight limit, delay in operation and vehicle failures. Advantages of the railway transportation, such as the fixed quantity, punctuality, mass transportation, safety and energy saving nature, are not fully demonstrated. As a result, while the road transportation has been rapidly expanding after 1970s, the percentage of the railway transportation in all transportation modes decreased to less than 10% in recent years. Moreover, the container transportation is expected to increase in the future along with the stable economic growth of Bangladesh and neighboring countries. Expectations towards the railway transportation are thus high.

Jamuna Railway Bridge Construction Project (hereinafter referred to as "the Project") covers the construction of a railway bridge (double-track, broad/narrow dual-gauge) at 300m upstream of the Jamuna Multi-purpose Bridge (hereinafter referred to as "the existing bridge") across the Jamuna River which flows through the central country. The existing bridge is equipped with a railway (single-track, broad/narrow dual-gauge) which was not initially planned, as the demand for international and domestic railway transportation was expected to increase as a part of Trans-Asian Railway which leads to neighboring India. However, the separation of the railway part is urgent due to various issues, such as 1) limited train capacity caused by the single track, and 2) limited speed/weight caused by the fact that the railway, which should be laid on the center of the bridge, was laid on one side (upstream). After the construction of the railway bridge, the existing bridge will be renovated into a 4-line road bridge at the expense of the Government of Bangladesh.

#### (2) Development Policies for the Railway Sector in Bangladesh and the Priority of the Project

In National Integrated Multimodal Transport Policy (2013), the Government of Bangladesh expressed its policy to strengthen the railway transportation in order to decrease the reliance on road transportation. In the Railway Master Plan (2013), it also expressed its will to prioritize the implementation of the Project which would contribute to the international railway transportation as a part of Trans-Asian Railway.

Japan's Country Assistance Policy for Bangladesh (June 2012) recognizes the acceleration of the economic growth as an important field and aims to engage in the development of transportation and traffic infrastructure, in order to promote efficient movement of people and things and reduce the regional gap. Moreover, in JICA Country Analysis Paper for Bangladesh (April 2013), JICA analyzes that the "development of national transportation and traffic network" is an important issue. The Project coincides with these policies and analyses.

The Project is one of the 5 projects requested by the Prime Minister Hasina in the joint statement "Japan-Bangladesh Comprehensive Partnership" which was published on the occasion of Prime Minister Hasina's visit to Japan in May 2014. It is positioned as an important project which will improve the regional connectivity.

(3) Japan and JICA's Policy and Operations in the Railway Sector

JICA conducts various assistance in the railway sector, such as Dhaka-Chittagong Railway Development Project (2007) and technical cooperation for Dhaka Urban Transport Network Development (2011-2015).

(4) Other Donors' Activity

The main donor in the railway sector in Bangladesh is Asian Development Bank (hereinafter referred to as ADB). As a part of its Railway Sector Investment Program (2007-), ADB conducts the reform of the railway sector, including the dual-gauging of some sections, privatization of Bangladesh Railway and the tariff reform. Recently, the Government of China is also proposing dual-gauging and new construction of multiple sections.

(5) Necessity of the Project

The Project is in consistent with Japan and JICA's assistance policy and analysis. The Government of Bangladesh also points out the importance of developing railway corridors which connect neighboring countries and optimizing the traffic and distribution. The necessity for JICA to assist the Project is thus high.

### **3. Project Description**

(1) Project Objective

The Objective of the Project is to improve capacity and safety of railway transportation by constructing a dedicated railway bridge over the River Jamna in parallel to the existing Bangabandhu Bridge (Jamuna Multipurpose Bridge), thereby contributing to the efficient logistic network within the country and with neighboring countries.

(2) Project Site / Target Area

Sirajganj District and Tangail District

(3) Project Components

The Project covers the construction of a railway bridge across the Jamuna River in central Bangladesh. This Japanese ODA Loan covers the Engineering Service (hereinafter, referred to as E/S) for the detailed design and tender assistance of the Project, in order to promote its smooth implementation.

- 1) Contents of civil work, facilities and equipment

- ① Construction of Jamuna railway bridge (dual-gauge double-track, steel truss bridge of 4.8km)
- ② Construction of approach bridges (elevated) on both banks and replacement of rails (6.5km in total on both banks)
- ③ Development of related facilities (electric signal system, replacement and renovation of stations on both banks, associated facilities, etc.)

2) Contents of consulting service

- ① F/S review, detailed design, tender assistance, assistance for environmental and social consideration procedure
- ② Construction supervision
- ③ Safety measures related to construction works
- ④ Monitoring assistance related to environmental and social consideration
- ⑤ Technology transfer related to design and construction, training related to railway technology and management strategy, etc.

The Loan for the Project will assist ① and the technology transfer among above ⑤.

(4) Estimated Total Project Cost (Loan Amount)

Approx. 150,000 million Yen (Loan Amount for E/S: 2,464 million Yen)

The total project cost based on the existing F/S is approximately 150,000 million yen. It will be re-calculated in the detailed design under the E/S Loan.

(5) Schedule

June 2016 - December 2018 (31 months in total). The Project will be completed upon the disbursement of the E/S Loan completes (December 2018). The construction phase of the project is planned from January 2019 to December 2023.

(6) Project Implementation Structure

- 1) Borrower: The Government of the People's Republic of Bangladesh
- 2) Guarantor: N/A
- 3) Executing Agency: Bangladesh Railways (hereinafter referred to as "BR")
- 4) Operation/Maintenance System: BR will manage and maintain the Project. BR is in charge of projects by various donors and the Government, including the Japanese ODA Loan projects, and possesses sufficient competences.

(7) Environmental and Social Consideration / Poverty Reduction / Social Development

1) Environmental and Social Consideration:

- ① Category: A
- ② Reason for Categorization: The Project falls under the Railway and Bridge Sector specified in JICA Guidelines for Environmental and Social Consideration (of April 2010).
- ③ Environmental Permit: To be confirmed in the E/S Loan.
- ④ Anti-Pollution Measures: To be confirmed in the E/S Loan.
- ⑤ Natural Environment: To be confirmed in the E/S Loan.
- ⑥ Social Environment: To be confirmed in E/S Loan.

⑦ Other / Monitoring: To be confirmed in E/S Loan.

2) Promotion of Poverty Reduction: N/A

3) Promotion of Social Development: The Project does not target gender, as no specific activity from the gender perspective is expected. Gender consideration will be examined, as in the design of stations, etc., when the loan for the construction phase of the project is approved.

(8) Collaboration with Other Donors

The information on the progress of the BR Reform Project assisted by ADB will be shared. If its progress is slow, appeal to BR and the Ministry of Railways, the supervising ministry, with ADB.

(9) Other Important Issues

The Project plans to use Japanese technology, such as direct steel fastened track, steel pipe sheet-pile foundation method, weathering steel materials and head hardened rails.

#### 4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and effect indicators)

Indicator	Baseline (Actual value in XXXX)	Target (XXXX) 【Expected value X years after the project completion】	
	To be determined during the Appraisal for the construction phase of the project.		

2) Internal Rate of Return

To be determined during the Appraisal for the construction phase of the project.

(2) Qualitative Effects

Efficiency of railway transportation in the region, etc. (To be determined during the Appraisal for the construction phase of the project)

#### 5. External Factors and Risk Control

N/A

#### 6. Evaluation Results and Lessons Learned from Past Projects

(1) Lessons Learned from Past Project

The ex-post evaluation of the Second Menkong International Bridge Construction Project in Thailand and Laos describes that developing an extensive traffic network, it is important to sufficiently analyze and examine the state of other traffic networks and development plans from a cross-border, extensive/comprehensive perspective before preparing the project. According to the ex-post evaluation of Nonthaburi and Pathumthani Bridges Construction Project in Thailand, floods and soft grounds obliged the plan had to be reviewed during the

construction, which was time-consuming.

(2) Application of Lessons Learned to the Project

Based on the Regional Transport Infrastructure Development Plan in South Asia, the collaboration with related projects assisted by other donors and the Government of Bangladesh will be considered when formulating the Project. As a countermeasure for floods and soft grounds, the F/S review for the E/S loan will include the topographical and geological survey which was not conducted for the existing F/S. Based on the survey, the selection of the bridge type and preparation of bidding documents will be conducted carefully. It will minimize the risk of having to review the plan after its start which is causing the delay in the Project.

<b>7. Plan for Future Evaluation</b>
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(1) Indicators to be Used

To be determined during the Appraisal for the construction phase of the project

(2) Timing

To be determined during the Appraisal for the construction phase of the project