

Ex-Ante Evaluation

1. Name of the Project

Country: People's Republic of Bangladesh

Project: Western Bangladesh Bridge Improvement Project

Loan Agreement: December 13, 2015

Loan Amount: 29,340 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 Road and Bridge Sector in Bangladesh

In the People's Republic of Bangladesh, with its steady economic development in recent years, the cargo and passenger transport increased by 8 times and 6.5 times, respectively, during the past 30 years from 1975 to 2005. The transport volume is expected to continue to grow at about 6% per year. Bangladesh is highly dependent on road transport, which accounts for 80% of all transport volume. Bangladesh's road networks, especially national and regional trunk roads leading to India, export processing zones and special economic zones, play an extremely important role in the domestic and international economic activities. Nevertheless, among some 3,800 bridges on national, regional, and district trunk roads throughout the country, approximately 40% are said to be too dangerous to pass through due to the structural defects or serious damage caused by aging, inadequate maintenance, initial defects, and other factors. In fact, some bridges are impassable during the rainy season (over two months), and some are too fragile for large vehicles with heavy loads to pass through. These bridges have become bottlenecks for traffic. Moreover, there are missing links (because of rivers crossing roads) on some routes to export processing and special economic zones.

(2) Development Policies for the Road and Bridge Sector in Bangladesh and the Priority of the Project

The policies of the Government of Bangladesh for the road sector, including the Sixth Five Year Plan (from FY2011-2012 to FY2015-2016), the National Land Transport Policy 2004, and the Road Master Plan 2009, place an emphasis on the development of road networks (including bridges) to provide better access to rural areas and neighboring countries, the replacement of bridges deteriorated over time or damaged in the structure, the strengthening of maintenance capacity, and the securing of financial resources. This Project is in line with these policies and objectives of Bangladesh as it is designed to construct or replace medium and small bridges constituting the western Bangladesh road networks by using the design and construction method that can make maintenance easier. The medium and small bridges in eastern Bangladesh have been repaired in the existing project: Eastern Bangladesh Bridge Improvement Project (approved in 2008).

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

The Country Assistance Program for Bangladesh (issued in June 2012) sets the acceleration of economic growth as a priority area and aims to contribute to the development of transport and traffic infrastructure, the promotion of efficient transport of passengers and goods, and the mitigation of regional disparities. Meanwhile, the JICA Country Analysis Paper for Bangladesh (issued in April 2013) identifies that development of transport infrastructure as a priority issue. Thus, this Project is consistent with the policy and analysis of the Japanese Government and JICA. JICA has implemented 12 loan and grant projects to develop bridges and other infrastructure facilities, along with technical cooperation for bridge maintenance.

(4) Other Donor's Activity

JICA, the World Bank (WB) and the Asian Development Bank (ADB) are serving as major development partners in the transport sector in Bangladesh, including the road and bridge sector. The WB assisted the Roads and Highways Department of the Ministry of Road Transport and Bridges (RHD) with the restoration and management of roads from the 1990s to 2006. The ADB supported the transport sector reform (including developing the institutional capacity of the RHD) and the Dhaka-Chittagong Expressway Project (feasibility study), among others.

(5) Necessity of the Project

Aiming to improve the safety of river-crossing traffic and the efficiency of road networks, mainly in western Bangladesh, this Project is in line with the development policies of the Government of Bangladesh, the assistance policies of the Government of Japan and JICA, and the above-mentioned development issues; therefore, it is highly necessary and relevant to implement this Project.

3. Project Description

(1) Project Objective

The objective of the Project is to promote reliable and efficient road transport network by replacing and constructing small and medium sized bridges mainly in Western Bangladesh, thereby contributing to socioeconomic development of the region.

(2) Project Site/Target Area

Throughout Bangladesh (mainly in Western Part)

(3) Project Components

- 1) Construction and replacement of bridges (approx. 60 bridges), and the construction of approach roads
- 2) Consulting services (detailed design, tender assistance, construction supervision, etc.)

(4) Estimated Project Cost (Loan Amount)

44,841 million Yen (Loan Amount: 29,340 million Yen)

(5) Schedule

This Project is planned to run from December 2015 to April 2022 (77 months in total). Project completion is defined as when the facilities start to operate (in May 2021).

(6) 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 (hereinafter referred to as "RHD")

4) Operation and Maintenance System: RHD

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

1) Environmental and Social Consideration:

① Category: B

② Reason for Categorization:

It is because this Project does not fall under the category of large-scale projects in the road and bridge sector specified in the JICA Guidelines for Environmental and Social Considerations (published in April 2010; hereinafter referred to as the "JICA Guidelines") nor is likely to have any significant adverse impact on the environment and because it does not have characteristics that are liable to cause adverse impacts or not located in or near sensitive areas as specified in the JICA Guidelines.

③ Environmental Permit:

This Project is required by the laws and regulations of Bangladesh to prepare an Environmental Impact Assessment (EIA) report, have it approved, and obtain an Environmental Clearance Certificate (ECC) for each of the bridges to be constructed or replaced. The Project obtained ECCs for all of the 61 bridges from the Department of Environment in June 2015.

④ Anti-Pollution Measures:

In order to mitigate the effects of construction works, such as air (gas and dust emissions), water, and noise pollution, the contractor will take necessary measures, including the sprinkling of water, the treatment of seepage water, the restriction of construction hours, the covering of materials to prevent dust emissions, and the proper management of construction heavy equipment. Moreover, the waste earth from the construction sites is to be transported to the specified final disposal site. After the commencement of the service, the noise level is expected to satisfy the legal requirements of Bangladesh.

⑤ Natural Environment:

The bridges to be constructed or replaced in this Project are not located in or around sensitive areas such as national parks; therefore, the Project is considered to have a minimum negative impact on the natural environment.

⑥ Social Environment:

This Project will entail land acquisition of approximately 125 hectares and resettlement of 385 households (1,818 people) for the total of 61 bridges. Both the land acquisition and resettlement will be carried out based on the resettlement action program formulated in accordance with the laws and regulations of Bangladesh and the JICA Guidelines. The executing agency held meetings to explain the land acquisition and resettlement to the residents to be affected according to the latest development plan of bridges and approach roads and reached agreement with the residents about the resettlement action program for each of the project bridges.

⑦ Other/Monitoring:

In this Project, the construction contractor is responsible for monitoring the air, noise, water, and other pollution during construction, and the executing agency is responsible for monitoring the noise and other pollution after the commencement of the service. The executing agency will also monitor the processes of the land acquirement and resettlement as well as the recovery of livelihoods while receiving support from consultants and local NGOs. Moreover, external monitoring will be carried out by a third-party organization under contract.

2) Promotion of Social Development:

This Project is expected to contribute to improving the quality of life of residents since the construction and replacement of bridges in rural areas can activate the local economy.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.):

This Project is classified as a gender integrated project for the following reasons. When an abridged resettlement action program was formulated, group discussions were held with widows and other women. In the implementation stage of the program, which is to be outsourced to a NGO, the Project is planned to conduct individual interviews with widows and other women and reflect the results in the relocation/resettlement program. Moreover, the Project is to provide opportunities for women who will be resettled to participate in easy construction works.

(8) Collaboration with Other Schemes and Donors

The anti-overloading regulations and anti-corruption action plan prepared in the technical

cooperation performed by the ADB to enhance the institutional capacity of the RHD will also be applied to this Project.

(9) Other Important issues

None in particular.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual value in FY2014)	Target (in 2023) [Expected value two years after project completion]
Annual average traffic (Passenger car unit per day)	13,074 (Karimpur Bridge) * ¹	19,989 (Same as the left)
Reduction in transportation costs (Taka per year)	-	114,428,000 (Mongle Bari Kuthibari Bridge) * ¹
Incidence of traffic obstructions on the project bridges (%) * ³	24 (Buri Bhairab Bridge) * ¹	0
Reduction in the number of days during which bridges are impassable due to flooding (days per year)	Approx. 60 * ²	0

*1. It is presented as a sample bridge which is the closest to the average value of all bridges. The target figures are set for each bridge.

*2. It is calculated from the data on the 25 bridges that are impassable during the rainy season (which lasts approx. 60 days).

*3. The possibility of bridge collapse and impassability is calculated from the age of the bridge.

(2) Qualitative Effects

Promotion of local economic development and enhancement of the safety and efficiency of road networks in the Project sites

(3) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of this Project was calculated to be 25.48%. The Financial Internal Rate of Return (FIRR) was not calculated because the project bridges will be toll-free.

【EIRR】

Cost: Project costs (excluding taxes), operation and maintenance costs

Benefit: Reduction in transportation time and costs

Project Life: 25 years

5. External Factors and Risk Control

(1) Preconditions: None in particular.

(2) External Factors: None in particular.

6. Evaluation Results and Lessons Learned from Past Projects

(1) Results of Evaluation of Similar Past Projects

The ex-post evaluation of the Rehabilitation of Bridges for Java North Line (1) and (2) in Indonesia identified the following lessons: in order to ensure that the executing agency can perform proper maintenance, it should be authorized to make necessary decisions and continuously train professional field personnel based on a long-term perspective. Moreover, a project consisting of multiple rehabilitation works in different locations over a wide area requires close supervision of these sub-projects.

(2) Lessons for the Project

Based on the above-mentioned lessons learned, this Project is designed to develop and maintain professional skills to manage bridges. The staff of the executing agency of this Project is being trained to perform maintenance through the existing ODA loan project known as the Eastern Bangladesh Bridge Improvement Project (underway since 2008) and the technical cooperation project known as the Bridge Management Capacity Development Project (underway since 2015). Moreover, because construction works will be located in different places over a wide area, this Project will use consulting services to provide recommendations and suggestions regarding how to manage sub-projects located in different sites over a wide area.

7. Plan for Future Evaluation

(1) Indicators to be Used

- 1) Annual average traffic (Passenger car unit per day)
- 2) Reduction in transportation costs (Taka per year)
- 3) Incidence of traffic obstructions on the project bridges (%)
- 4) Reduction in the number of days during which bridges are impassable due to flooding (days per year)
- 5) Economic Internal Rate of Return (EIRR)

(2) Timing of Next Evaluation

Two years after the completion of the Project (ex-post evaluation)