

Ex-ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country:	The People's Republic of Bangladesh
Project:	Padma Multipurpose Bridge Project
Loan Agreement:	May 18, 2011
Loan Amount:	34,200 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

The land of Bangladesh is divided by three large rivers - the Padma, the Jamuna and the Meghna - and many other uncountable small and medium-sized rivers. It is an urgent and fundamental issue among the development policies of Bangladesh to improve the transportation network by linking each region through the construction of bridges and roads. In addition, the number of water accidents involving ferry boats, which are a major means of water transportation, is increasing year by year and there is an urgent need to shift to safer land transportation.

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

The development of the road and bridge sector, which contributes to economic growth and poverty reduction in Bangladesh, is raised as a primary issue in the Poverty Reduction Strategy Paper (PRSP, 2001-2005) of Bangladesh. Moreover, the National Strategy for Accelerated Poverty Reduction II, which is the revised version of the PRSP to reflect the manifesto of the current administration, noted that the "construction of the Padma Bridge is the most important infrastructure project" since the improvement of the road and bridge is considered to be a necessary part of the policy for economic growth as well as poverty reduction.

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

In the light of Japan's Country Assistance Program for Bangladesh (May 2006), JICA has positioned the road and bridge sector in Bangladesh as one of the priority areas for the "Development of the Economic Infrastructure," one of the development issues in the area of "economic growth." The Project is in accordance with this policy. The following is a list of the major past aid projects within the road and bridge sector:

- ODA Loan: Jamuna Multipurpose Bridge Project, Jamuna Bridge Access Roads Project, Paksey Bridge Construction Project, Northern Rural Infrastructure Development Project, Rupsha Bridge Construction Project, Greater Faridpur Rural Infrastructure Development Project, Eastern Bangladesh Rural Infrastructure Development Project, Eastern Bangladesh Bridge Improvement Project, and Chittagong City Outer Ring Road Project
- Grant Aid: Project for the Construction of the Meghna Bridge, Project for the Construction of the Maghna Gumti Bridge, and Project for the Provision of Portable Steel Bridges on Upazila and Union Roads.

(4) Other Donors' Activities

In the transport sector, including the roads and bridges of Bangladesh, the World Bank (WB) and the Asian Development Bank (ADB) are the major donors, in addition to JICA. In the bridge sector, in particular, these three donors jointly provided finance for the Jamuna

Multipurpose Bridge Project (in 1994, loan). For the Project so far, JICA prepared the F/S (in 2003, Development Study), while the ADB implemented a F/S review (in 2006, TA loan) and the detailed design (2009-2011, TA loan).

(5) Necessity of the Project

Of the three large rivers in Bangladesh mentioned above, the mid-stream area of the Padma River is the only area where no bridge has been constructed and the southwestern region alone is separated from other regions even now and the smooth flow of people and goods has been impeded. Insufficient transportation access hinders economic development and affects the level of poverty in the region, which remains high. The Project is aimed at facilitating the smooth flow of goods between the southwestern region and Dhaka and other major regions by constructing a bridge across the Padma River, which will contribute to economic growth and poverty reduction in the southwestern region where the poverty rate remains high within Bangladesh. The Project is also in line with the objectives of priority support areas and the sectors specified in Japan's Country Assistance Program for Bangladesh, and therefore, the necessity and relevance of JICA's support of this Project is high. At the same time, the construction of the bridge will prevent water accidents in the river by ferry boats whose numbers have been increasing recently. In addition, river training work included in the Project is expected to demonstrate the effects of flood prevention by stabilizing the river channel flow of the Padma River.

3. Project Description

(1) Project Objectives

The objective of the Project is to support economic growth and poverty reduction through improved regional connectivity between south western region and central Dhaka as well as other regions in Bangladesh by achieving the smoother transportation.

(2) Project Site / Target Area: Munshinganj District, Shariatpur District and Madaripur District in the Dhaka Division, Bangladesh

(3) Project Components

- 1) Construction of a bridge (a total length of about 6.15 km, a double-deck steel truss bridge and the attachment of utility lines)
- 2) Construction of approach roads (a total length of about 14 km including bridge end facilities such as toll plaza)
- 3) River Training works (a total length of about 13.5 km)
- 4) Consulting services (construction supervision and project management support for the executing agency, etc.)

(4) Estimated Project Cost (Loan Amount)

249,233 million yen. Project cost of the bridge: 114,550 million yen (the amount of the yen loan is: 34,200 million yen)

(5) Schedule

It is scheduled to be implemented between May 2011 and February 2016 (58 months in total). The Project will be completed when the facilities begin operating (February 2015).

(6) Project Implementation Structure

- 1) Borrower: The Government of the People's Republic of Bangladesh

- 2) Executing Agency: Bangladesh Bridge Authority (BBA)
 - 3) Operation / Maintenance: The Project Implementation Unit (PIU) that has been established within the BBA will execute the Project, and an Operation and Maintenance Department to be established will carry out the operation/maintenance.
- (7) Environmental and Social Consideration / Poverty Reduction / Social Development
- 1) Environmental and Social Consideration:
 - a) Categorization: A
 - b) Reasons for Categorization: This project falls under the category of the bridge sector and the characteristics of the project will have an adverse impact on the environment under the “Japan Bank for International Cooperation Guidelines for the Confirmation of Environmental and Social Considerations” (established in April 2002).
 - c) Environmental Permit: The Environmental Impact Assessment (EIA) report concerning the Project was approved by the Department of Environment (DOE) in September 2010.
 - d) Anti-Pollution Measures: Since noise is expected to be generated from the construction machinery during the construction, such measures as periodic maintenance of the construction machinery, speed limits for vehicle type construction machinery and the wearing of earplugs by workers will be taken. In addition, a disposal site for the dredged silt will be installed since large-scale dredging will be carried out.
 - e) Natural Environment: Because about 200,000 trees will be cut down, twice as many trees will be planted. In addition, because it is feared that noise and vibration will be generated underwater due to the piling during bridge construction this will affect the breeding of dolphins and hilsa (fish), such measures as the suspension of piling work during the breeding season in areas with a depth of 7 m or more is important for breeding.
 - f) Social Environment: This project involves large-scale land acquisition (1,185 ha) and resettlement (20,836 residents) and for land leasing and temporary resettlement (about 300 households) accompanying the construction of a materials storage site, thus procedures will be followed in accordance with the domestic laws of Bangladesh and the Resettlement Action Plan (RAP) to be prepared by the executing agency.
 - g) Others / Monitoring: In the Project, the executing agency will monitor air quality, noise, water quality, land acquisition, resettlement, etc., during the construction work and after starting operation.
 - 2) Promotion of Poverty Reduction: This Project is expected to help rectify regional economic disparities by building a network of smooth transportation with the southwestern region, which has a high rate of poverty (rate for the poorest group: 32% in Khulna; 36% in Barisal; the national average is 25%). As a result, it is expected that poverty reduction will be promoted.
 - 3) Promotion of Social Development: The Project includes a gender action program in the Social Action Program, and therefore, gender considerations are planned to be implemented properly based on the program.

(8) Collaboration with Other Donors: The Project is expected to be implemented under joint financing with the World Bank (1,200 million US dollars) and the ADB (615 million US dollars), and parallel financing with the Islamic Development Bank (140 million US dollars).

(9) Other Important Issues: Bidding for civil works for all the components and the selection of consulting services are now being carried out in advance.

4. Targeted Outcomes

(1) Quantitative effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Area	Baseline (2010)	Target (2017) [Expected level 2 years after project completion]
Increasing the Annual Average Daily Traffic (vehicles/day)	Between Mawa and Janjira	About 3,600*	13,696
Saving the Average Traveling time (Minutes)	Between Dhaka and Khulna **	765	200
Decreasing accidents of Ferry and Launch	On the Padma River	About 2 accidents on average / year, Injured (about 150 people/year)	To be decreased

*Current number of vehicles transported by ferry boats

**Improvement of the movement between extensive cities will be measured.

2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the Project is 18.0% and the Financial Internal Rate of Return (FIRR) is 3.1%.

[EIRR]

Cost: Project costs (excluding taxes), operation and maintenance costs
 Benefits: Travel saving time, Vehicle operating cost savings, effect from the installation of utility lines, etc.
 Project Life: 30 years

[FIRR]

Cost: Project costs, operation and maintenance costs
 Benefit: Toll revenues, Utility crossing fee, etc.
 Project Life: 30 years

(2) Qualitative Effects

Economic development and poverty reduction in the southwestern region by facilitating the smooth mobilization of people and goods, and a reduction in flood damage through stabilization of the river flows.

5. External Factors and Risk Control

Delays in civil works caused by flooding and other natural disasters, delays in approval by the Prime Minister's Office of the Jamuna Bridge and Padma Bridge toll policy, occurrence of flooding that exceeds the projected scale, rising costs of materials and raw materials.

6. Lessons Learned from Past Project

Ex-post evaluations of similar projects in the past that were accompanied by large-scale

resettlement have noted that unemployment and a worsening of living standards occurred among some displaced people after implementation of the projects. In the light of this, in the Project, a framework will be put in place by assigning consultants or NGOs to the PIU's resettlement unit so that compensation or measures for improving livelihoods will be carried out properly based on the RAP. In addition, the environmental impact or resettlement status will be monitored continuously, not only during the period of project implementation, but also after the completion of the project (after the abolition of the PIU) by newly establishing an Environmental and Social Department in the BBA.

Ex-post evaluations of past large-scale bridge and road improvement projects have noted that the authorities were forced to review the plan because flooding occurred at the project site or the ground of the planned construction site was extremely soft and a substantial amount of time was required to deal with such work. In the light of this, the implementation of additional ground surveys, which were insufficient at the stage of the detailed design, will be proposed and the survey results will be incorporated into the bridge design and bidding documents so as to keep to a minimum any ex-post review or reworking of the plan due to contingencies.

7. Plan for Future Evaluation

(1) Indicators to be used

- 1) Annual average daily traffic (vehicles/day), the Average Traveling time (minutes), the number of ferry and launch accidents
- 2) EIRR (%)
- 3) FIRR (%)

(2) Timing: 2 years after project completion