

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

### 1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Cross-Border Road Network Improvement Project (Bangladesh)

Loan Agreement: June 29, 2016

Loan Amount: 28,698 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 Sector in Bangladesh

With advancing reform, such as economic liberalization, the South Asia region centering on India and the People's Republic of Bangladesh, is catching much attention as an economic market with high potential. The region has 1.7 billion in population and will have its demographic bonus period, where domestic demand expands, which should lead to further growth. On the other hand, interaction within the region out of the regional trade volume is as low as 3% (Asia Regional Integration Center 2012). For intra-regional connections, transportation infrastructure development has been a particularly big issue. Moreover, since Bangladesh is located in a crucial spot for connecting all the neighboring countries (India, Myanmar, Nepal, and Bhutan), installation of international corridors through Cross-Border Road Network Improvement Project (Bangladesh) (hereafter referred to "the Project") is highly expected to contribute to not only Bangladesh but also the whole region's stability and economic growth.

Road transport is the major means of transport in the region, serving 70% of the passenger and cargo transport. There are numerous international corridors such as the Asia Highway. However, many of the road sections hold technical issues in customs and entry procedures at the border, and domestic and near-border roads and bridges suffer deterioration and insufficient coverage. Thus, it is not efficiently functioning as international corridors and impeding passenger and cargo transport.

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

The region has set a mass transit system plan based on several local collaboration frameworks, and that has been installing both infrastructure and technical development. This Project targets zones that are selected according to the plan and National Integrated Multimodal Transport Policy (2013) of Bangladesh, and includes economic corridors that connect main cities, such as Asia Highway Route 1 or Route 41.

#### (3) Japan and JICA's Policy and Operation in the Road Sector

The Country Assistance Policy for Bangladesh (June 2012) sets the acceleration of economic growth as a priority area and aims to contribute to the development of transport and traffic infrastructure for promoting efficient transport of passengers and goods, and also for mitigation of regional disparities. Moreover, the JICA Country Analysis Paper for Bangladesh

(April 2013) identifies development of its domestic transport and traffic network as a priority issue. This Project is relevant with the policy and the analysis. JICA assistance so far has implemented 13 ODA loan and grant aid projects to develop bridges and other infrastructure facilities (e.g. The Kanchpur, Meghna, and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project (I) (FY 2012)) along with Technical Component of ODA Loan for Bridge Maintenance Capacity Development Project (2015-2018) and dispatch of Adviser for Road and Bridge Maintenance (1988-).

#### (4) Other Donors' Activity

The main donors for transport sector, including roads and bridges, in Bangladesh are JICA, Asian Development Bank (ADB), and the World Bank (WB).

The ADB has supported widening construction of road and transport sector reform (including enhancing the institutional capacity of the Roads and Highways Department (RHD) of the Ministry of Road Transport and Bridges) through South Asian Sub Regional Economic Cooperation (SASEC), and the Dhaka-Chittagong Expressway Project (feasibility study). The WB assisted the RHD with the restoration and maintenance of roads from the 1990s to 2006.

#### (5) Necessity of the Project

This Project is in line with the assistance policies and analysis of Government of Japan and JICA. Also, the policies of the Government of Bangladesh identify the crucial improvement needs in the transport network with neighboring countries and efficient traffic and cargo transport. Thus, the necessity of JICA to implement the Project is high.

### **3. Project Description**

#### (1) Project Objective

The objective of the Project is to improve intercity transport and logistics network, by developing major international road networks in Bangladesh, thereby contributing to facilitation of trade with neighboring countries.

#### (2) Project Site / Target Area

Gopalganj District, Narail District, Jessore District, Chittagong District, Khagrachhari District, Cox's Bazar District

#### (3) Project Components

- 1) Replacement of 16 existing bridges, construction of approach roads and box culvert (international competitive bidding).
- 2) Construction of Kalna Bridge and approach roads, and procurement of maintenance vehicles (international competitive bidding).

The target areas for 1) and 2) above are the international arterial roads leading to the border and connection roads (Dhaka-Benapole (Zone A), Ramgarh-Baraiyarhat (Zone B), Chittagong-Cox's Bazar (Zone C)) that are requested by the Government of Bangladesh, and they are selected according to the ranking based on the importance as cross-border road network, degree of damages, construction feasibility, economic effect etc.

3) Installation of axle load control station (Benapole and Rambarh border) (International competitive bidding)

4) Consulting Services (detailed designing, tender assistance, construction supervision, etc.) (by shortlist)

(4) Estimated Project Cost (Loan Amount)

39,177 million Yen (Loan Amount: 28,698 million Yen)

(5) Schedule

June 2016 - June 2022 (74 months in total). The Project will be completed when the facilities are first in operation (July 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 (RHD)

4) Operation and Maintenance System: The operation and maintenance of the Project is provided by RHD. RHD is capable of basic bridge checkup. Through manual development, on-the-job training, and construction of bridge management system in the Bridge Maintenance Project, capacity building and preventive maintenance in RHD will be further enhanced. The budget for maintenance will be preferentially allocated as to a donor project. There have never been any issues of budget allocation in the past projects.

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

1) Environmental and Social Consideration

① Category: B

② Reason for the Categorization

This Project does not apply to a large-scale project in road and bridge sector as described in JICA Guidelines for Environmental and Social Considerations (April 2010), and the project and its location are recognized in the guidelines as unlikely to have any significant adverse impact on the environment.

③ Environmental Permit

Environmental Impact Assessment (EIA) reports of all the seventeen target bridges are approved by Department of Environment and acquired Environmental Clearance Certificate (ECC) in January, 2016.

④ Anti-Pollution Measures

In order to mitigate the effects of construction works to the environment, these measures will be taken: water sprinkling to prevent dust emission, covering of materials to prevent scattering, proper management of construction heavy machinery to prevent gas and dust emissions for air, drainage water treatment by installing sanitary facilities for water, and work-time control and proper operation of heavy machinery for noise to remedy the possible effect and to satisfy the legal requirements in Bangladesh. Also, the waste soil from construction will be disposed of in a designated final disposal area

according to the waste management policy. The noise problems after the commencement will be monitored and responded to as necessary.

⑤ Natural Environment

The target area does not apply to a vulnerable area, such as national park, or its surrounding, and the expected influence on the local natural environment is minimum.

⑥ Social Environment

The Project, with construction of 17 bridges, will entail land of approximately 31 hectares and relocation of 149 households (755 people). Thus, the procedure will be held according to Abbreviated Resettlement Plan (ARP), which was prepared in accordance with the laws and regulations in Bangladesh and JICA Guidelines for Environmental and Social Considerations. In a stakeholder meeting in a local community, no special opposition against the project was identified.

⑦ Other / Monitoring

Though the project, monitoring of air, noise, and water quality etc. during construction will be done by contractor, and monitoring of noise after commencement of service will be done by executing agency. Also, land acquisition, status of relocation of the residents and their living recovery will be monitored by the executing agency in cooperation with the local NGO that runs ARP, followed up an external monitoring by the third party.

2) Promotion of Poverty Reduction

At the relocation, additional compensation and training for income generation for the poor will be run. The details of implementation are indicated in ARP.

3) Promotion of Social Development

Group discussion among women and widows were held for ARP development. This part of the program will be run by a NGO, and even during the operation stage, individual consultation of those women is planned so that the result can be reflected in the relocation planning. Also, those relocating women will be offered participation in simple construction tasks. For the reasons above, this part is classified as a gender integrated project.

(8) Collaboration with Other Donors

The project formulation will be executed referring to the result of technical assistance (development of anti-overloading regulations, anti-corruption action plan etc.) to the institutional capacity building in RHD by ADB.

(9) Other Important Issues

This project uses the bridge design that ensures sufficient height under the bridge girder to respond to floods. It will allow for responsive adaptation to possible impact of climate change.

#### 4. Targeted Outcomes

##### (1) Quantitative Effects

###### 1) Performance Indicators (Operation and effect indicators)

Indicator	Baseline (Actual Value in 2015)	Target (2023) 【Expected value 2 years after project completion】
Average Annual Traffic Volume (Passenger Car Unit/ day)	8,857 * <sup>1</sup>	19,958 * <sup>1</sup>
Transit transport (vehicle/day)	0 * <sup>1</sup>	761 * <sup>1</sup>
Decrease in days cars detour due to flooding of bridges (day/year)	Approx. 60 * <sup>1</sup>	0* <sup>1</sup>
Incidence of traffic impediment on the project bridges * <sup>2</sup> (%)	44* <sup>1</sup>	0* <sup>1</sup>
Average travel time between Dhaka-Benapole boarder (hour)	8.40	3.29

\*1 Jhikorgacha Bridge (Zone A) is indicated as the sample for its data closest to the average rate of all the bridges. The target figures are set for each bridge.

\*2 Estimated bridge collapse and impassability calculated from the age of the bridge.

###### 2) Internal Rate of Return

According to the following preconditions, this project's Economic Internal Rate of Return (EIRR) will be 39.7%. The Financial Internal Rate of Return (FIRR) of Kalna Bridge will be 8.7%. FIRR of the other target bridges will not be indicated for they will be free bridges.

###### EIRR:

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

Benefit: Reduction in travel time and vehicle operation cost

Project Life: 25 years

###### FIRR (Kalna Bridge only):

Cost: Project costs, operation/maintenance costs

Benefit: Fare receipt

Project Life: 25 years

##### (2) Qualitative Effects

Adaptation to the impact of climate change, expansion of goods distribution network, and increase in trade volume between Bangladesh and India

#### 5. External Factors and Risk Control

N/A

## **6. Lessons Learned from Past Projects**

### (1) Lessons Learned from Past Projects

The ex-post evaluation of the Second Mekong International Bridge Construction Project in Thailand and Laos describes that road network installation across a vast area needs to be done after thorough analysis and consideration on the status and development plan of the other related road and traffic network in a wide cross-border and comprehensive point of view.

### (2) Application of Lessons Learned to the Project

This project plan was developed according to the mass transport system plan in the South Asia region and in consideration of joining other related projects run by assistance from other donors and the Government of Bangladesh. The target bridges are all located either on the international arterial road (Asia Highway 1 and 41) or on a connection road between the border and the international arterial road. The synergy among the Project and the projects from the previous Japanese ODA loan, ADB, or Government of India (road/bridge construction, infrastructure installation around the boarder etc.) is highly anticipated to be brought about.

## **7. Plan for Future Evaluation**

### (1) Indicators to be Used

- 1) Average annual traffic volume (Passenger Car Unit/day), Cross-border transport (car/day), Decrease in days cars detour due to flooding of bridges (day/year), Incidence of traffic impediment on the project bridges (%), Average travel time between Dhaka-Benapole border (hour)
- 2) Economic Internal Rate of Return (EIRR) (%), Financial Internal Rate of Return (FIRR) (%)

### (2) Timing: Two years after the project completion