

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Dhaka Mass Rapid Transit Development Project (Line 1) (E/S)

Loan Agreement: June 29, 2017

Loan Amount: 5,593 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 Urban Development Sector in Bangladesh

The population of Dhaka, increased from 6.62 million to 16.98 million between 1990 and 2014 (UN, 2016). The rapid increase in transport demand due to the population increase is causing numerous problems, including chronic traffic congestion and the resultant air pollution. As a result, the average travel speed for vehicles in Dhaka is 6.4 km/hour, less than half that of vehicles in central Tokyo (16 km/hour) (Kanto Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism, 2010). As for air pollution, the PM₁₀ concentration is reported to be 158 µg/m³. This exceeds the World Health Organization standard of between 20 µg/m³ and 70 µg/m³. The economic loss due to traffic congestion is 3.868 billion US dollars per year, which is degrading the investment environment greatly and hindering the economic and social development of Bangladesh.

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

To solve this problem, the Government of Bangladesh identified the promotion of economic growth and poverty reduction as a major goal in the 7th Five-Year Plan (FY2016/17–FY2020/21) and mentions in its Traffic and Communication policy the importance of reducing road traffic congestion in the metropolitan area with appropriate investment. Based on this plan, the Government of Bangladesh revised the Strategic Transportation Plan (hereinafter called "STP"), the master plan for Dhaka urban transportation, with aid from JICA in August 2016. Within STP a development plan for five routes of Mass Rapid Transit (hereinafter "MRT") and two routes of Bus Rapid Transit (hereinafter "BRT") as a public transport network was suggested. The Project develops the MRT Line 1, which connects the central area of Dhaka city and a new residential area east of Dhaka. From the perspective of numerous factors—including transport demand, feasibility, and environmental and social consideration—the MRT Line 1 was considered a prioritized development initiative in the revised STP along with the MRT Line 5, which connects east and west Dhaka, and the MRT Line 6, which is now being developed through the Japanese ODA loan for the Dhaka Mass Rapid Transit Development Project.

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

The Acceleration of Economic Growth that Benefits All People was stated as a priority in the Country Assistance Policy for Bangladesh (June 2012) to develop transport and traffic infrastructure while keeping in mind the diversification of transportation, and promote the efficient transport of passengers and goods. Additionally, the JICA Country Analysis Paper for Bangladesh (April 2013) identifies urban development including urban transportation as a priority issue. This project is in line with these policies and analysis.

In the past, JICA implemented Institutional Building Assistance for Dhaka Urban Transport Network Development (FY2010–FY2011) and the Preparation of Rules and Regulations under Urban Mass Rapid Transit Act (Dhaka, Bangladesh): Technical Assistance Related to ODA Loan (FY2013–2015) with the goal of supporting the development of the legal system, including urban railway law and urban railway technical standards. Additionally, JICA provided support for the establishment of the revised STP through the Project on the Revision and Updating of the Strategic Transport Plan for Dhaka (FY2014–2016).

(4) Other Donor's Activity

In addition to assisting the establishment of the above-mentioned STP, the World Bank implemented the Clean Air and Sustainable Environment Project, which supports detailed designing of the BRT3 route (between the airport and Jhilmil) from 2009 to 2016.

The Asian Development Bank has been implementing the Greater Dhaka Sustainable Urban Transport Corridor Project to develop the BRT3 route (between Gazipur and airport) from 2010 with the goal of opening it by the end of 2019. Additionally, up to 1 billion US dollars in aid is planned for the MRT development plan proposed in the revised STP. Preparatory survey will be conducted in 2017 to offer the loan from 2018.

(5) Necessity of the Project

The Project is in line with the country's development challenges and policies, as well as with the assistance policies and the analysis of the Government of Japan and JICA. Through the development of an urban railway, the Project will contribute to easing the worsening traffic congestion in the Dhaka Metropolitan Area as well as reducing the negative effects on the environment caused by air pollution, and is considered to contribute to the eleventh goal of the Sustainable Development Goals (SDGs). Therefore, the necessity for JICA to support the Project is substantial.

3. Project Description

(1) Project Objective

The objective of the Project is to alleviate the traffic congestion and mitigate the air pollution in Dhaka by constructing the mass rapid transit system, thereby contributing to the economic development and improving urban environment.

(2) Project Site / Target Area

Dhaka and Narayanganj Districts

(3) Project Components

- 1) Construction of a depot (land development, construction of depot buildings, railway sidings, etc.)
- 2) Construction of railway structures (total length of approx. 27 km, construction of elevated and underground railways, stations, tracks, etc.)
- 3) Procurement of rolling stocks
- 4) Installation of electric and signal systems
- 5) Consulting service (F/S review, detailed design, tender assistance, construction supervision, environmental and social consideration, training on operation and maintenance, institutional development, non-rail operation development, security etc.)
Out of which, the Loan will assist F/S review, detailed design, tender assistance, environmental and social consideration, training on operation and maintenance, institutional development, non-rail operation development and security of the Project.

(4) Estimated Project Cost (Loan Amount)

7,395 million Yen (Loan Amount : 5,593 million Yen) is estimated for the Engineering Service. The Project Cost will be estimated during the detailed design.

(5) Schedule of the Engineering Service

June 2017 - October 2021 (53 months in total). The Project will be completed upon the disbursement of the E/S Loan completes (October 2021).

(6) Project Implementation Structure

- 1) Borrower: The Government of the People's Republic of Bangladesh
- 2) Executing Agency: Dhaka Mass Transit Company Limited (DMTC)
- 3) Operation and Maintenance System: The operation and maintenance of the Project is provided by DMTC

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

1) Environmental and Social Consideration

- ① Category: A
- ② Reason for Categorization: The project falls into the railway sector, and is likely to have significant adverse impact due to its characteristic under the JICA guidelines for environmental and social considerations (April 2010).
- ③ Environmental Permit:
Being studied by the Preparatory Survey to be reviewed during consideration of the Project Loan.

- ④ Anti-Pollution Measures:
Being studied by the Preparatory Survey to be reviewed during consideration of the Project Loan.
- ⑤ Natural Environment:
Being studied by the Preparatory Survey to be reviewed during consideration of the Project Loan.
- ⑥ Social Environment:
Being studied by the Preparatory Survey to be reviewed during consideration of the Project Loan.
- ⑦ Other / Monitoring:
Being studied by the Preparatory Survey to be reviewed during consideration of the Project Loan.
- 2) Promotion of Poverty Reduction: None
- 3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Person with Disability etc.): The safety of female passengers is not necessary ensured in the public transportation in Bangladesh. This makes female passengers feel reluctant to use the public transportation. In this context, a gender action plan will be promoted including operation of women-only cars in rush hours and installation of security cameras in the trains and stations, to ensure the safety of women in the trains and stations and to enhance understanding of gender issues. For this reason, the Project is specified as a project that includes gender-related activities.

(8) Collaboration with Other Donors: None

4. Targeted Outcomes

(1) Quantitative Effects

- 1) Performance Indicators (Operation and Effect Indicators)
To be reviewed during consideration of the Project Loan.
- 2) Internal Rate of Return
To be reviewed during consideration of the Project Loan.

(2) Qualitative Effects

To be reviewed during consideration of the Project Loan.

5. External Factors and Risk Control

Not applicable for Engineering Service Loan. To be reviewed during consideration of the Project Loan.

6. Lessons Learned from Past Projects

(1) Lessons Learned from Past Projects

The results of the ex-post evaluation of India's Kolkata Subway Construction Project (2002) revealed that, with projects that involve land acquisition and relocation of facilities, it is important to actively incorporate ideas from residents and parties involved from the planning and implementation phase. The results also indicated that underground installations such as water and sewage can become a factor for construction delays and cost overrun. Additionally, the results of the ex-post evaluation of India's Delhi High-speed Transit System Construction Project (I)-(IV) showed that construction delays were avoided by having the implementing agency (Delhi Metro) perform the relocation of all underground installations instead of the water works authorities, etc.

In the preceding Japanese ODA loan for the Dhaka Urban Transport Development Project, the project's alignment had to be changed due to the construction of a flyover planned by another agency. It is clear that proper coordination with relevant agencies must be done from the planning phase.

(2) Application of Lessons Learned to the Project

Based on the lessons above, the Project plans to identify the scale and transfer destination of land acquisition from the detailed design phase of the loan through environmental and social consideration support consulting service, etc., and start discussions with stakeholders from early on. Additionally, this E/S will facilitate plans for the implementation of specific measures for preventing construction delays and cost overrun by conducting a detailed geological survey, underground installation survey, underground obstacle survey, and cultural asset survey during the detailed design phase, and having the project's implementing agency, DMTC, perform the relocation of underground installations, removal of underground installations, and the associated coordination with relevant agencies.

Regarding coordination with other agencies in the design phase, only development projects that are planned in the cabinet-approved revised STP can be implemented. Projects from other agencies should not require changes to the Project's plan, but necessary adjustments will be made through inter-agency discussions attended by relevant agencies including DTCA.

7. Plan for Future Evaluation

(1) Indicators to be Used: To be reviewed during consideration of the Project Loan.

(2) Timing : To be reviewed during consideration of the Project Loan.