

Ex-ante Evaluation

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Dhaka–Chittagong Railway Development Project

(Loan Agreement: December 11, 2007; Loan Amount: 12,916 million yen; Borrower: The Government of the People's Republic of Bangladesh)

2. Necessity and Relevance of JBIC's Assistance

1. Present state and issues facing the railway sector in Bangladesh

In Bangladesh, projects in the railway sector require more time and funds to bear fruit than do projects in the road and other sectors. For this and other reasons, the government of Bangladesh has scarcely made any new investments in railway development since independence in the 1970s. Consequently, virtually all railway facilities and equipment now in use were developed during the British colonial period (up to 1947). Indeed, they have become so old and decrepit that they are unable to fully capitalize on the railway's inherent strengths – massive, rapid, punctual, safe, and environment friendly – resulting in reduced transportation volume, poorer service and a smaller role for the railway in the overall transport sector.

In parallel with the robust GDP growth (5–6%) in recent years, demand for freight transportation has steadily increased by 5–6% annually in Bangladesh, showing particularly rapid growth in the demand for transport in the Dhaka–Chittagong section, connecting Dhaka, the capital city and political and economic hub of the country, and Chittagong, the second largest city and industrial hub with the country's largest seaport. Since 2001, the amount of cargo handled at the port of Chittagong has been increasing by more than 10% annually, but if the port facilities are expanded and enough private companies are attracted to the Export Processing Zone (EPZ), the demand for transport in the Dhaka–Chittagong section can be expected to increase even further. Whereas the government has high expectations for the railway – as an alternative mode of transportation to roads – to play a leading role in meeting this increasing demand, it seems difficult, both in terms of transportation volume and quality of service, for the current railway facilities to meet such expectations, thus posing a bottleneck for the economic growth in the years ahead. Additionally, in order to achieve sustainable development that takes the environment into consideration, a modal shift from road transportation to environment friendly railway transportation is indispensable. (The railway's CO₂ emission per ton-kilometer is less than 1/8 of that of the automobile.)

2. Policies of the railway sector in Bangladesh and the position of this project

The need for infrastructure development, enhanced transportation capacity, and improvement in service quality of the railway sector are all stated in the National Land Transport Policy (adopted in August 2004) and the Integrated Multi-modal Transport Policy. On the basis of these policies, the government of Bangladesh is scheduled to formulate the Railway Development Plan, which will include the plan for implementing projects in the railway sector over the next 20 years. In addition, the government plans to take up sector reforms through organizational, administrative and institutional improvements of Bangladesh Railway (BR), and has formulated long-term planning and organizational realignment proposals (collectively designated as the BR Reform Program) with an eye to changing BR to a public corporation. JBIC intends to support these sector reforms jointly with

the Asian Development Bank (ADB) and the World Bank (WB).

3. JBIC's assistance policy for the railway sector in Bangladesh and actual performance

In its Medium-Term Strategy for Overseas Economic Cooperation Operations (FY2005–2007), JBIC sets “assistance for improvement of core economic infrastructure to promote economic growth” as its priority area for Bangladesh. By improving the railway sector, this project aims to take full advantage of the railway's inherent strengths – massive, rapid, punctual, safe, and environment friendly – and contribute to the socioeconomic development of Bangladesh in the years ahead. Thus the project is consistent with JBIC's assistance policy, and JBIC's support for the project is highly necessary and relevant.

3. Project Objectives

The objective of this project is to strengthen the transportation capacity and to improve the quality of service of the Dhaka–Chittagong Railway by doubling part of the line, rehabilitating a railway workshop, and procuring locomotives and the like, and thereby contribute to socioeconomic infrastructure development and environmental improvement.

4. Project Description

(1) Target Area

The area along the Dhaka–Chittagong Railway and the city of Chittagong

(2) Project Outline

- (a) Track doubling of the Laksam–Chinkiaastana section (61 km)
- (b) Expansion and rehabilitation of a Pahartali railway workshop (including its training facilities)
- (c) Rehabilitation of the Chittagong passenger station
- (d) Procurement of 11 locomotives for the Dhaka–Chittagong Railway
- (e) Consulting services (detailed design, tender assistance, project management, skill development)

(3) Total Project Cost / Loan Amount

20,811 million yen (Yen Loan Amount: 12,916 million yen)

(4) Schedule

November 2007–July 2015 (93 months). The project completion is defined as the completion of defect liability period.

(5) Implementation Structure

- (a) Borrower: The Government of the People's Republic of Bangladesh
- (b) Executing Agency: Bangladesh Railway (BR)
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

- (a) Environmental Effects / Land Acquisition and Resident Relocation
 - (i) Category: B
 - (ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established in April 2002). Thus this project is classified as Category B.

(iii) Environmental Permit

Preparation of the Environmental Impact Assessment (EIA) report related to this project is not required under the domestic laws of Bangladesh.

(iv) Anti-Pollution Measures

This project is expected to rehabilitate and expand mainly existing facilities, and so no significant adverse impact on the environment is foreseen. Nevertheless, during the construction, appropriate measures for pollution control based on the Initial Environmental Impact Assessment and the like will be implemented.

(v) Natural Environment

This project is expected to rehabilitate and expand mainly existing facilities, and so the adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

This project will hand over the approximately 1,440 ha of land owned by the executing agency as well as make compensation arrangements related to the handover in accordance with the domestic procedure of Bangladesh. Additionally, illegal residents of 11 households are expected to be relocated, and the compensation and relocation procedure will be carried out according to the domestic procedure of Bangladesh.

(vii) Other/ Monitoring

The executing agency will monitor the air quality, water quality, noise, resident relocation, etc.

(b) Promotion of Poverty Reduction

None

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

In the rehabilitation of a passenger station to be implemented in the project, in order to promote the use of the station by a wide range of people, including the elderly and the handicapped, while keeping in mind the need to allow for future increases in demand, a universal design will be applied to various railway facilities including platforms, overbridges, station building and an information and guidance system. In addition, as part of its consulting services, the project plans to engage in educational and awareness raising activities regarding the prevention of HIV/AIDS. The plan will be implemented by the contractor.

(7) Other Important Issues

This project plans to reform of the BR including strengthening its organizational capacity, jointly with ADB and the World Bank.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005 actual)	Target (2016, 1 year after completion)
Passengers getting on and off the target station (persons/day)	5,440	15,600
Freight transportation volume (1,000 TEU/year)	79	336
Number of running trains (number of up/down -trains/day)	38	65
Maximum speed (km/h)	Passenger trains: 55.0 Freight trains: 31.0	Passenger trains: 80.0 Freight trains: 60.0
Operation punctuality* (%)	Inter-city trains: 71.8 Local trains: 59.2	Inter-city trains: 95 Local trains: 85
Operating rate of locomotives** (%)	–	86
Productivity of the Pahartali workshop (number of repaired rail vehicles/day or month)	Locomotives: 3/month Coaches: 2.4/day Wagons: 5.00/day	Locomotives: 4/month Coaches: 3.5/day Wagons: 7.5/day

The values obtained for the Laksam–Chinkiastana section are used for indicators other than the “operating rate” and “productivity of the Pahartoli workshop.”

* Operation punctuality: (On-time running trains) / (running trains) at each station

** Operating rate of locomotives: Total number of operating days per year of procured rail vehicles / (number of procured rail vehicles × [number of business days – average non-operating days due to inspection, etc.])

Reference: Reduction in CO₂ emission can be expected.

(2) Internal Rate of Return (Financial and Economic Internal Rate of Return)

Based on the following conditions, the economic internal rate of return (EIRR) of the project is 9.0%; the financial internal rate of return (FIRR) is 2.0%.

[EIRR]

- Cost: Project cost (excluding tax), operation and maintenance expenses
- Benefit: Reduction in travel time, productivity improvement, and reduction in procurement cost of locomotives, automobiles, etc.
- Project Life: 25 years

[FIRR]

- Cost: Project cost, operation and maintenance expenses
- Benefit: Fare receipts
- Project Life: 25 years

6. External Risk Factors

- Diminished effectiveness of the project due to delays and interruptions of related projects funded by ADB and the World Bank.
- Delays in the project caused by delays and interruptions in railway sector reforms, as well as by organizational disruption at the time of reform.
- Delays in the civil engineering work, etc. due to flooding and other natural disasters.

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

In the ex-post evaluations of similar past projects, the lesson learned is that in numerous projects that involve procurement of facilities, railway vehicles and the like, it is necessary to determine the relevance of scale and specifications from the railway system as a whole and on the basis of future plans. In this project, in addition to calculating the procurement scale of locomotives based on the demand analysis of trunk rail lines, it is planned to consider, among other things, standardizing their specifications.

Another lesson learned is that, due to the executing agency's limited financial capacity and the inefficient implementation structure of state owned enterprises, similar past projects were neither properly implemented nor properly operated and maintained. In this project, as part of the government's railway sector reforms, JBIC plans to provide, jointly with other donors, support related to the improvement of financial and personnel management system, review of the fare system, and improvement of the operation and maintenance system.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Passengers getting on and off the target station (person/day)
- (b) Freight transportation volume (1,000 TEU/year)
- (c) Number of running trains (number of up/down -trains/day)
- (d) Maximum speed (km/h)
- (e) Operation punctuality (%)
- (f) Operating rate of locomotives (%)
- (g) Productivity of the Pahartali workshop (number of repaired rail vehicles/day or month)

(2) Timing of Next Evaluation

One year after project completion