

Ex-ante Evaluation

1. Name of the Project

Country: India

Project: Kolkata East-West Metro Project

(Loan Agreement: March 10, 2008; Loan Amount: 6,437 million yen; Borrower: The President of India)

2. Necessity and Relevance of JBIC's Assistance

In Delhi, Kolkata and other large cities, traffic congestion accompanying the surge in road traffic demand has become a serious problem. Since this causes economic loss and health hazards due to air, noise and other forms of vehicle-related pollution, there is an urgent need to introduce a public transportation system to alleviate traffic congestion and to cope with vehicle emissions.

In addition to meeting the demand for transportation brought about by recent economic growth, in the 10th Five-Year Plan (April 2002–March 2007), the Government of India calls for the development of a public transportation system from the perspective of safety, energy efficiency, and environmental conservation.

The importance of installing an urban transportation system is cited in the current administration's Common Minimum Programme (May 2004), and is also expected to be pointed out in the 11th Five-Year Plan (April 2007–March 2012).

In JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations, priority areas for assistance to India are "Economic Infrastructure Development" and "Response to Environmental Issues." The assistance provided by this project is therefore consistent with this strategy.

The population density in Kolkata is 25,000 people/km² (in 2001, 13,000 people/km² in Tokyo's 23 wards), making Kolkata one of the most overpopulated cities in the world. The Kolkata metropolitan area relies heavily on road traffic as a mode of transportation, as evidenced by the fact that public and privately owned bus lines have a 68% share of the city's mode of transport, compared to 25% for suburban railroad and loop lines, 2% for streetcars, 2% for subways, and 3% for ferries. However, since the ratio of road surface in the city is just 6% of the total area of Kolkata, which is extremely low compared with other major cities of India (23% in Delhi, 18% in Mumbai), the average speed of vehicles traveling on the main roads of the city is under 20 km/hr. Thus congestion is becoming a serious problem. However, since it is difficult to expand the transport capacity of existing public transportation (buses, trains) and improve the road system, establishment of a rapid transport system to ease the heavy traffic, reduce the atmospheric pollution from exhaust gases has become a linchpin of the state government of West Bengal's urban transportation policy and countermeasures for urban environmental issues. Therefore JBIC's support for this project is highly necessary and relevant.

3. Project Objectives

This project aims to cope with the surge in transport needs in the Kolkata metropolitan area in the state of West Bengal, India, by establishing a mass transit system in the region, and thereby help activate the regional economy and improve the urban environment through alleviation of traffic congestion and reduction of environmental pollution caused by traffic jams.

4. Project Description

(1) Target Area

Kolkata metropolitan area in the state of West Bengal

(2) Project Outline

This project aims to establish a rapid transit system (covering a total length of about 13 km between Howrah and Salt Lake) in the Kolkata metropolitan area.

- (a) Civil work: Howrah – Salt Lake Sector V (12.85 km, of which 8.0 km is underground);
Construction of 6 elevated railway stations and 6 subway stations
- (b) Electrical, signaling, and telecommunication system
- (c) Procurement of rolling stocks
- (d) Construction of depots
- (e) Consulting services (aid in bidding procedure, construction monitoring and supervision, quality control, safety control, etc.)

The yen loan portion applies to civil works for the underground portions, including subway stations, track sections along the entire line, etc.; electrical and telecommunication-related system for all lines; rolling stock procurement; and consulting services

(3) Total Project Cost/Loan Amount

144,537 million yen (Yen Loan Amount: 77,079 million yen)

(4) Schedule

January 2008–August 2014 (81 months). Project completion is defined as when consulting services are completed.

(5) Implementation Structure

- (a) Borrower: The President of India
- (b) Executing Agency: Transport Department, government of West Bengal
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

- (a) Environmental Effects/Land Acquisition and Resident Relocation

(i) Category: A

(ii) Reason for Categorization

This project falls into a railroad sector project which is likely to have significant adverse impact on the environment 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 A.

(iii) Environmental Permit

The Environment Impact Assessment (EIA) report for this project was approved by the Department of Environment of the state of West Bengal in November 2006 and September 2007 pursuant to the regulations set forth by the said state

(iv) Anti-Pollution Measures

With regard to noise pollution, noise reduction measures including soundproof walls and sound insulating pads are scheduled to be adopted.

(v) Natural Environment

The project's site is located in an urban area, and the planned route generally runs along existing roads, and so it is likely to have minimum adverse impact on the natural environment.

(vi) Social Environment

This project requires 22.64 ha of land acquisition (1.08 ha is private land), and 380 residences and buildings are expected to be relocated. Since discussions have already been held with those being targeted for land acquisition and relocation, land acquisition and resident relocation steps are now being taken pursuant to the Land Acquisition Law and the resettlement action plan prepared by the executing agency.

(vii) Other/ Monitoring

In this project, the executing agency will monitor, noise, groundwater level, air quality, water quality, land acquisition and resident relocation, etc.

(b) Promotion of Poverty Reduction

None

(c) Promotion of Social Development (e.g. Gender Perspective, Measures to Prevent Infectious Diseases Including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

Many of the migrant workers employed by this project live alone, and their risk of HIV infection is considered high. For this reason, the executing agency, in cooperation with local NGOs, is planning to implement HIV prevention activities. In addition, the station houses and coaches will be built by taking into consideration the needs of the elderly and the disabled (e.g., in the design of elevators and restrooms and the provision of in-train announcements, signs in Braille and space for wheelchairs).

(7) Other Important Issues

None

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Target (2016, 2 years after completion)
Operating rate (%/year)	89.4
Running distance (1000 km/day)	27.59
Number of running trains (number of trains/day, one direction)	213
Volume of transportation (million people- km/day)	3.15
Passenger traffic receipts (million rupees/day)	6.82

(2) Number of Beneficiary

15 million (population of the Kolkata metropolitan area in FY2001). The number of passengers per day on the Kolkata East-West Metro is expected to be 490,000 in 2014, which is the basis for the traffic receipts projected in the operation and effect indicators.

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

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) is 16.95%; the Financial Internal Rate of Return (FIRR), 5.64%.

[EIRR]

- (a) Cost: Project cost (excluding tax), operation and maintenance expenses
- (b) Benefit: Effects on cutting costs for conventional means of transportation and roads, effects on reducing travel time for those using the main roads and those using other means of transportation, effects on cutting costs for operating bus and other forms of transit system by alleviating road congestion, effects on reduction in traffic accidents and pollution alleviation
- (c) Project Life: 30 years

[FIRR]

- (a) Cost: Project cost, operation and maintenance expenses
- (b) Benefit: Fare income, advertisement revenue, real estate development revenue
- (c) Project Life: 30 years

6. External Risk Factors

Economic slowdown and deterioration in India and in surrounding regions together with natural disasters

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

From ex-post evaluations of railroad and subway projects in the past, the lesson learned is that, from the point of view of ensuring appropriate operation and maintenance, it is important to establish a financially independent system for project execution. Although increasing the rate of utilization is indispensable for strengthening the project's financial basis, because the project aims to increase the rate of utilization by sharing the responsibility of providing transportation with other means of transportation such as buses and ferries, the executing agency plans to hold a conference with other agencies in charge of public transportation.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Operating rate (available vehicles/procured vehicles) (%/year)
- (b) Running distance (1000 km/day)
- (c) Number of running train (trains/day, one direction)
- (d) Volume of transportation (million people-km/day)
- (e) Passenger traffic receipts (million rupees/day)
- (f) Internal rate of return FIRR (%), EIRR (%)

(2) Timing of Next Evaluation

2 years after project completion