

## Ex-ante Evaluation

**1. Name of the Project**

Country: Republic of Indonesia

Project: Construction of Jakarta Mass Rapid Transit Project (I)

Loan Agreement: March 31, 2009

Loan Amount: 48,150 million Yen

Borrower: The Republic of Indonesia

**2. Background and Necessity of the Project****(1) Current State and Issues of the Urban Transportation Sector in Indonesia**

The population of the Jakarta metropolitan area increased 1.4 times over the past 15 years, from approximately 1.7 million in 1990 to 2.4 million in 2005 (an average of approx. 2% per year). The population of Jabotabek (Bogor, Tangerang, Bekasi), located in the suburbs of Jakarta, has significantly increased. Along with this increase in population, the volume of traffic from the growing areas to the Jakarta metropolitan area has been growing steadily, and a further increase in the volume of traffic is being predicted. The volume of movement between Jabotabek and Jakarta is already significant, and it is highly dependent on road transportation (98%). The number of registered motor vehicles in the Jakarta metropolitan area increased approx. 2.4 times from approx. 3.26 million in 2000 to 7.97 million in 2006, which raised concerns about further traffic congestion.

**(2) Development Policy for the Urban Transportation Sector in Indonesia and the Priority of the Project**

National Midterm Development Plan of Indonesia (RPJM: 2004-2009) stipulates the construction and revitalization of railway mass transport in the Jakarta metropolitan area.

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

The Project matches Japan's Country Assistance Program for Indonesia, setting forth plans focusing on the sustainable growth of the county driven by the private sector and providing assistance for economic infrastructure development for the improvement of the investment climate, and is considered as a project for *business and investment climate development*, which is one of development goal of JICA. JICA also provides support for the Transportation Master Plan for Jakarta Metropolitan Area and dispatches experts for the Project.

**(4) Other Donor's Activity**

None in particular

**(5) Necessity of the Project**

In addition to the current level of significant economic loss due to traffic congestion, future traffic congestion as well as pollution is predicted to worsen with the above-mentioned increasing traffic volume and number of automobiles. Although traffic regulations against motor vehicles carrying fewer than three passengers during rush hour, both in the morning and evening, and the exclusive bus lanes have been introduced to reduce traffic congestion on Sudirman Street, a part of the target area of the Project, it is necessary to develop new mass urban transport system, including the construction of a mass rapid transit system, in order to respond to the increasing traffic volume. Supporting the Project with ODA loans is, therefore,

highly necessary and relevant.

### 3. Project Description

#### (1) Project Objective(s)

The objective of the Project is to enhance the transportation capacity in the Jakarta metropolitan area through the construction of a mass rapid transit system, thus mitigating the escalating traffic congestion, which ultimately contributes to enhancing the investment climate in the Jakarta metropolitan area.

#### (2) Project Site/ Target Area: DKI Jakarta Province

#### (3) Project Component(s)

##### 1) Construction of a Mass Rapid Transit System (MRT):

A total of 14.5 km between Lebak Bulus and Dukuh Atas (Track Works <10.5 km>, underground guideway <4.0 km>, 8 elevated stations, 4 underground stations, depot facilities, telecommunications system, vehicle procurement)

##### 2) Consulting services:

Engineering design, tender assistance, supervision of construction works, assistance to operations and business foundation, etc. (The engineering design was financed by Japanese ODA loan for the FY 2006 as the Jakarta Mass Rapid Transit System Project(E/S).)

#### (4) Estimated Project Cost (Loan Amount)

142,116 million Yen (Loan Amount: 48,150 million Yen for this tranche)

#### (5) Schedule

January, 2009 – March, 2016 (87 months in total).

The Project will be deemed complete when commercial operations begin.

#### (6) Project Implementation Structure

##### 1) Borrower: The Republic of Indonesia

##### 2) Executing Agency:

DKI (Provincial Government of DKI Jakarta)/ DGR (Directorate General of Railways, Ministry of Transportation)

##### 3) Operation and Maintenance System: MRTCA (PT Mass Rapid Transit Jakarta)

#### (7) Environmental and Social Considerations/Poverty Reduction/Social Development

##### 1) Environmental and Social Consideration

###### ①Category (A, B, C, or FI): A

###### ②Reason for Categorization:

The Project is categorized into Category A because it does fall under the railway sector stipulated in the JBIC Cooperation Guidelines for Confirmation of Environmental and Social Considerations (established in April, 2002).

###### ③Environmental Permit :

The Environmental Impact Assessment (EIA) regarding this Project was approved by the Jakarta Environmental Board (BPLHD) in August, 2005.

###### ④Anti-Pollution Measures:

In order to minimize noise and vibration, installation of sound insulation walls, and the adoption of long rails and antivibration mats will be considered.

###### ⑤Natural Environment:

The target area of the Project is located in the metropolitan district which has been urbanized; therefore, it is likely to have minimum impact on the natural environment.

⑥ Social Environment:

The Project requires the acquisition of approx. 1.1 ha land and transfer of 59 stores; however, residents' relocation is not scheduled. The land acquisition and transfer procedures for the stores will be carried out in accordance with the plans and domestic laws and regulations of the country of Indonesia.

⑦ Other/Monitoring :

The MRTC will monitor noise, air quality, etc. during both construction and service in the Project.

2) Promotion of Poverty Reduction: None in particular

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.)

Public sanitation training, safety measures, and countermeasures for HIV/ AIDS shall be taken for workers engaged in the Project. Station facilities in the Project are scheduled to be barrier-free.

(8) Collaboration with Other Donors: None in particular

(9) Other Important Issues: None in particular

**4. Targeted Outcomes**

(1) Performance Indicators (Operation and Effect Indicator)

Indicators	Baseline (Actual Value in 2008)	Target (2018) 【Expected value 2 years after project completion】
Volume of transportation (person- km/ day)		1,968,742
Number of running train (per day)		276
Running distance (km/ day)		22,729
Operation rate (%)		88

(2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) for this Project will be 7.38%, and the Financial Internal Rate of Return (FIRR) will be 1.99%.

[EIRR]

Costs: Project cost (excluding tax and duty), Operation & maintenance cost

Benefits: Time saving cost, operating cost, alternative transport (bus way) construction cost, reduction of NO<sub>x</sub> and CO<sub>2</sub>

Project Life: 40 years after the completion of the Project

[FIRR]

Costs: Project cost, Operation & maintenance cost

Benefits: Passenger revenue, non-passenger revenue

Project Life: 40 years after the completion of the Project

## **5. External Factors and Risk Control**

Changes in transportation demand

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

Ex-post evaluations for railway projects of Indonesia in the past have shown that 1) the framework of subsidy mechanism is unclear, 2) accessibility to railway stations is limited, and 3) integration with urban planning such as the development of station squares is weak. In addition, the evaluations point out the need to secure minimum profits for sustainable and self-sustaining development. Based on this lesson, it is necessary to provide technical assistance for the improvement of profitability and organizational management in addition to ODA loans.

Furthermore, in the ex-post evaluations of a subway project in another country, it was learned that appropriate coordination among public transport operation organizations is absolutely essential for improving the utilization of subways and, in cases requiring the coordination of many relevant organizations, a commitment by the relevant organizations is essential for the efficient implementation of the project.

As the lessons mentioned above and through investigation, JICA has given consideration to the meaning of development for access to railway stations and improvement of stations, and the introduction of an integrated fare system between buses and existing railways as measures for boosting demand and increasing revenue for the sustainable and independent development of this project. Furthermore, DKI announced that it would implement these measures during the implementation of the Project.

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

(1) Indicators to be used

- 1) Volume of transportation (man. km/ day)
- 2) Number of running train (per day)
- 3) Running distance (thousand km/ day)
- 4) Operation rate (%)
- 5) EIRR (%)
- 6) FIRR (%)

(2) Timing: 2 years after the completion of the Project