

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The Republic of Indonesia

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

Loan Agreement: December 4, 2015

Loan Amount: 75,218 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 total population of the Jakarta Metropolitan Area increased approximately 1.3 times over the past decade (at an annual average growth rate of approx. 2.8%), reaching some 28 million people in 2010. It is rising rapidly, especially in the suburbs of Jakarta (e.g., Bogor, Depok, Tangerang and Bekasi). Along with this population growth, the number of commuters from these suburbs to the city center also rose approximately 1.5 times over the past eight years, from around 743 thousand in 2002 to around 1,105 thousand in 2010. As of 2010, 97% of the work and school commuting traffic in the metropolitan area was accounted for by road transport. With a steady economic growth, the number of registered motor vehicles in the Special Capital Region of Jakarta rapidly increased by approximately 3.6 folds over the past 10 years, reaching 9.63 million in 2010. These factors have caused serious problems including severe traffic congestion and traffic-related pollution (e.g., air pollution caused by traffic emissions). Although the Government of Indonesia has taken various measures to mitigate traffic congestion, such as inner-city traffic restrictions on private cars and installation of bus lanes, it is still essential to develop a new mass urban transport system in the metropolitan area as robust traffic growth is expected to continue.

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

According to the Master Plan for Acceleration and Expansion of Economic Development (MP3EI) published by the Government of Indonesia as its economic development plan towards 2025, the development of the Jakarta Metropolitan Area has been identified as one of the key economic activities. Moreover, in the National Mid-term Development Plan (2015-2019) published in January 2015, the development of mass public transport systems in urban areas has been designated as one of the priority goals, and specific targets have been set for the promotion of a modal shift to public transport and the implementation of development projects for mass public transport systems.

Construction of Jakarta Mass Rapid Transit Project (hereinafter referred to as “this Project”) is given high priority by the Government of Indonesia as it can contribute to the mitigation of severe traffic congestion and traffic-related pollution through the construction of an urban mass rapid transit (MRT) system, including Indonesia’s first underground railways, in the Jakarta Metropolitan Area. This Project will construct a MRT line between Bunderan HI (Hotel Indonesia) in the center of Jakarta and Lebak Bulus in the south of the city. This is planned as the first-phase construction of the South North Line of the MRT network. Tender procedures have been launched, and ODA loans (STEP) have been partially disbursed (including 1,869 million yen of Engineering Service (E/S)

loans and 48,150 million yen of first-phase loans).

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

According to Japan's Country Assistance Policy for the Republic of Indonesia (revised in April 2012), "assistance for further economic growth" has been identified as a priority area, and "infrastructure development in Jakarta Metropolitan Area" has been planned as one of its assistance programs. Meanwhile, JICA's Country Analysis Paper for Indonesia has also identified "infrastructure development in Jakarta Metropolitan Area" as a priority development issue. Thus, this Project is in line with these policy and analysis documents. JICA has so far implemented 99 railway and road sector projects since the Railway Rehabilitation Projects approved in FY 1970.

(4) Other Donors' Activity

KfW Development Bank implemented a rolling stock procurement project for KRL Jabotabek (launched in 2005). Moreover, the World Bank carried out Indonesian Railway Efficiency Project (from 1996 to July 2009) including support for railway management and policy reform and the betterment of the Bandung line. These projects, designed to support existing railway systems, are not overlapped with this Project intended to construct a new urban MRT system.

(5) Necessity of the Project

As described above, this project is in line with the development issues and policies of Indonesia as well as the assistance policies of Japan and JICA; therefore, it is highly necessary and relevant for JICA to implement this project.

3. Project Description

(1) Project Objectives

By constructing an urban mass rapid transit system in the Jakarta Metropolitan Area faced with serious traffic problems, this Project aims to increase passenger traffic capacity and reduce traffic congestion, thereby contributing to the improvement of the investment climate in the metropolitan area and the mitigation of climate change.

(2) Project Site/Target Area: Special Capital Region of Jakarta

(3) Project Components

- 1) Construction of an urban MRT system: Lebak Bulus - Bunderan HI Line with a total length of approx. 15.7km, consisting of an elevated line of approx. 9.2km long (with seven stations and a depot) and an underground line of approx. 6.5km long (with six stations, including the development of Dukuh Atas station area) (international competitive bidding)
- 2) Electric and mechanical systems (international competitive bidding)
- 3) Rolling stock: 16 trains with a total of 96 cars (international competitive bidding)
- 4) Consulting services: basic design, tender assistance, construction supervision, support for start-up and operations, E/S for the extended South North Line (Bunderan HI - Kampung Bandan Line with a total length of approx. 7.8km), etc. (short list selection)

(4) Loan Amount

137,395 million yen (including 123,368 million yen of ODA loans, among which 75,218 million yen will be disbursed during this Project)

(5) Schedule

Planned from January 2009 to November 2019 (131 months in total); project completion is defined as the commencement of the service

- (6) Project Implementation Structure
 - 1) Borrower: The Republic of Indonesia
 - 2) Executing Agency: DKI Jakarta Provincial Government (DKI),
Directorate General of Railways (DGR)
 - 3) Operation and Maintenance System: PT MRT Jakarta (MRTJ)
- (7) Environmental and Social Consideration/Poverty Reduction/Social Development
 - 1) Environmental and Social Consideration:
 - (i) Category: A
 - (ii) Reason for Categorization: It is because this Project falls into the railway sector under the JBIC Guidelines for Confirmation of Environmental and Social Considerations (established in April 2002).
 - (iii) Environmental Permit: The Environmental Impact Assessment (EIA) report for this project was approved by the Regional Environmental Management Agency (BPLHD) of DKI in August 2005 (The revised report was approved in November 2010).
 - (iv) Anti-Pollution Measures: DKI will be responsible for solid waste management and other pollution control during the construction phase. Noise barriers, long rails, and vibration isolation mats will be installed to mitigate noise and vibration from the operation of the railway.
 - (v) Natural Environment: The project site is not located in or around sensitive areas such as national parks, and adverse impact on the natural environment is assumed to be minimal.
 - (vi) Social Environment: This Project will require the acquisition of approximately 1.1 ha of land and the transfer of 59 stores but not involve the resettlement of residents. These processes will be managed in accordance with relevant plans as well as Indonesian laws and regulations.
 - (vii) Other / Monitoring: MRTJ will monitor the project site for atmospheric, noise, and other pollution during the construction and operation phases and share the results with JICA by submitting progress reports on a regular basis.
 - 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.): It is planned that based on the contract, the construction contractor will offer HIV/AIDS prevention services for construction workers to be employed for this Project. Moreover, barrier free access will be provided at the stations to be built in this Project.
- (8) Collaboration with Other Donors: The Technical Cooperation Project for the Study on JABODETABEK Public Transportation Policy Implementation Strategy developed a transport master plan. Moreover, an expert (Jakarta MRT Project Advisor) has been dispatched in relation to this Project.
- (9) Other Important Issues: none in particular

4. Targeted Outcomes

- (1) Quantitative Effects
 - 1) Operation and Effect Indicator

Indicator	Baseline (Actual Value in 2012)	Target (2020) 【Expected value 2 years after project completion】

Volume of passengers (person per km per day)	N.A	2,647,100
No of running trains (trains per day)	N.A	236
Running distance (km per day)	N.A	32,000
Operating rate (%)	N.A	81.5

(Note 1) Section to be surveyed: Lebak Bulus - Bunderan HI Line

(Note 2) The target values were reviewed between Phases I and II. As a result, some of the target values were revised from those set out in the ex-ante evaluation of Phase I.

1) Internal Rate of Return

FIRR: 2.4%

- Cost: Project costs and operation & maintenance costs
- Benefit: Passenger and non-passenger revenues
- Project Life: 40 years

EIRR : 14.7%

- Cost: Project costs (excluding taxes) and operation & maintenance costs
- Benefit: Reduction in transportation time, running costs, construction costs for alternative transportation (bus way), atmospheric pollutants (NO_x), and greenhouse gas (CO₂) emissions
- Project Life: 40 years

(1) Qualitative Effects

Mitigation of traffic congestion; improvement in the living environment by reducing traffic-related air and noise pollution; development of the investment environment in the Jakarta Metropolitan Area; creation of employment opportunities; economic development in the Jakarta Metropolitan Area and its surrounding areas; reduction in greenhouse gas emissions; etc.

5. External Factors and Risk Control

Non in particular

6. Lessons Learned from Past Projects

(1) Results of Evaluation of Similar Past Projects

The ex-post evaluation of Construction of Railway Double Tracking of Cikampek-Cirebon in Indonesia indicated that because an engineer of the operation and maintenance agency had always participated in the construction supervision process and provided his opinions promptly to solve on-site problems, solutions had been quickly developed and implemented resulting in early completion of the construction work. Meanwhile, the ex-post evaluation of Depok Depot Construction Project in Indonesia suggested that it is important to carefully judge the necessity of comprehensive technical assistance, including support for the operation and maintenance of facilities.

(2) Lessons for the Project

This Project is designed to strengthen the capacity of engineers and accelerate the construction work by providing technical assistance, such as consulting services for operation and maintenance, training to enhance the skills of MRTJ staff, and advice from the Jakarta MRT Project Advisor, as well as assigning an engineer of MRTJ to the construction site for supervision.

7. Plan for Future Evaluation

- (1) Indicators to be Used
 - 1) Volume of passengers (person per km per day)
 - 2) No of running trains (trains per day)
 - 3) Running distance (km per day)
 - 4) Operating rate (%)
 - 5) Economic Internal Rate of Return (EIRR) (%)
 - 6) Financial Internal Rate of Return (FIRR) (%)
- (2) Timing
 - Two years after project completion