

Ex-ante Evaluation

1. Name of the Project

Country : Republic of the Philippines

Project : Capacity Enhancement of Mass Transit Systems in Metro Manila Project

Loan Agreement : 27 March 2013

Loan Amount : 43,252 million yen

Borrower : The Government of the Republic of the Philippines

2. Background and Necessity of the Project

(1) Current State and Issues of the Transportation Sector in the Philippines

In Metro Manila, traffic situations have been continuously worsened associated with rapid urbanizations such as population growth (11.86 million in 2010 as 1.5 times as 7.95 million in 1990) and increase of the number of registered vehicles (more than 1.76 million in 2009 which has been increased by about 5% per annum). As a result, it is estimated that the economic loss deriving from traffic congestion is about 137.5 billion pesos per annum (annual average from 2001 to 2011). Moreover, it has been urgently needed to address air pollution and greenhouse gas emission issues due to the increase of travel times. Thus, it is necessary to promote modal shift from road based transportation to rail based mass transit. In Metro Manila, urban rail systems have been constructed since mid-1980s, namely LRT Line 1 (open in 1985) connecting North-South of Metro Manila, MRT Line 3 (open in 1999) running over the arterial road of Metro Manila (Circumferential Road 4 or EDSA) and LRT Line 2 (open in 2004) connecting East-West of Metro Manila. Due to recent population growth within Metro Manila and its suburbs, it is necessary to extend LRT Line 1 to the South (Northern part of Cavite Province) and LRT Line 2 to the East (Marikina City and Antipolo City) to accommodate demand increases.

(2) Development Policies Regarding Transportation Sector in the Philippines and Priority of the Project

Philippine Development Plan (2011-2016) emphasizes logistics promotion by decongesting traffic in Metro Manila. One of the policies to address the issue is to expand rail based mass transit system. Also, Aquino Administration which took office in June 2010, put LRT Line 1 South Extension and LRT Line 2 East Extension (hereinafter referred to as “the Project”, excluding civil works, E&M for LRT Line 1 Extension which will be undertaken by a private concessionaire) as one of the prioritized 10 PPP projects. The Project is also prioritized in 5 year Investment Plan of DOTC (October, 2011).

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

JICA Country Analytical Work for the Republic of the Philippines (March, 2012) analyses that “Infrastructure development in Metro Manila and other Metros is a

prioritized issue” and “it is necessary to decongest and promote logistics in Metro Manila by enhancing public transportation networks”. Under the Country Assistance Program for the Republic of the Philippines (April 2012), “Sustainable economic growth through investment promotion” is one of prioritized areas and more concretely it supports transportation infrastructure network in Metro Manila and other Metros. The Project is in line with those analysis and policy.

Japan has been the biggest donor to support the transportation sector of the Philippines through “Metro Manila Urban Transportation Integration Study (MMUTIS)”, “LRT Line 1 Capacity Expansion Project (I) (II)”, “Metro Manila Strategic Mass Rail Transit Development Project (I) (II) (III)”, among others.

(4) Other Donor Operations

The feasibility study for LRT Line 1 South Extension was supported by International Finance Corporation (IFC) (2006). Also, IFC is supporting concession bidding for the LRT Line 1 South Extension.

(5) Necessity of the Project

The Project supports to enhance rail based mass transit system in Metro Manila which is the center of economic activities of the Philippines. The Project is also in line with development policy of the Philippines and assistance strategy of JICA. Therefore it is needed and relevant that JICA supports the implementation of the Project.

3. Project Description

(1) Project Objectives

The objective of the Project is to enhance capacities of LRT Line 1 and LRT Line 2 by procuring new rolling stocks, and expansion and development of depot (for LRT Line 1) as well as extending LRT Line 2, and thereby contributing to mitigate traffic congestion and air pollution in the Metro Manila.

(2) Project site/Target Area

Metro Manila

(3) Project Outline

- ① Procurement of Rolling Stocks (LRT Line 1 Extension) (International Competitive Bidding)
- ② Depot (Expansion of the existing depot and construction of new one for LRT Line 1) (International Competitive Bidding)
- ③ Railway System (Electricity, Mechanics, Signal, Communication) (LRT Line 2 Extension) (International Competitive Bidding)
- ④ Consulting Services (Tendering support, Construction supervision, etc.) (Short list selection)

(4) Total Project Cost

60,764 million yen (Yen Loan Amount : 43,252 million yen)

(5) Project Implementation Schedule

December 2012-May 2017 (54 months) The completion of procurement of goods

and machinery, and of civil works shall be the time of the Project's completion (May 2016).

(6) Project Implementation Structure

1) Borrower : The Government of the Republic of the Philippines

2) Project Executing Agency :

DOTC (Department of Transportation and Communications)

3) Operation and Maintenance System : Concessionaire which will be selected through bidding

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

1) Environmental and Social Considerations

① Category : B

② Reason for Categorization : The Project is not considered to be a large-scale rail project, is not located in a sensitive area, or has none of the sensitive characteristics under in the "Japan International Cooperation Agency (JICA) Guidelines for Environmental and Social Considerations" (April 2010).

③ Environmental Permit : For LRT Line 1 Extension, although Environmental Compliance Certificate (ECC) obtained in 2002 was already expired, the Executing Agency has applied Department of Environment and Natural Resources (DENR) for the new ECC based on the Environment Impact Assessment and Resettlement Action Plan made in February, 2012. It also applied DENR for ECC for LRT Line 2 Extension.

④ Anti-Pollution Measures : It is not supposed that discharge water from the depots would include contaminant which requires special care. During the construction, contractors take countermeasures against discharge water, waste management, noise, vibration, air pollution, traffic congestion and others based on the Environment Management Plan in the EIA report. After operation starts, discharge water will be treated by effluent treatment facility. Sound proof walls and vibration-proofing sleepers will be used to prevent noise and vibration.

⑤ Natural Environment : The Project is not conducted in or near a sensitive area such as national parks, and is expected to cause little adverse environmental impacts.

⑥ Social Environment : The project may cause resettlement of 42 households (194 persons) from the land for the new satellite depot for LRT Line 1. The resettlement process will be implemented in accordance with the country's laws and regulations and Resettlement Action Plan (RAP). For LRT Line 2 Extension, no land acquisition or resettlement will occur.

⑦ Other/Monitoring : Based on Environment Management Plan and Monitoring plan, contractors will monitor air quality, noise/vibration, underground water level, etc, under the supervision of DOTC during the construction. After operation starts, operators will monitor air quality, noise/vibration, water quality, wastes, etc. under the

supervision of DOTC.

2) Promotion of Poverty Reduction : N/A

3) Promotion of Social Development :

Facilities with special care for elderly people and handicapped people, such as elevators, escalators will be installed in the stations.

(8) Cooperation with other donors :

Since IFC is supporting bidding process for the civil works and E&M of LRT Line 1 Extension, JICA and IFC have had close coordination.

(9) Other Important Issues :

The Project will utilize Japanese technologies such as high efficient inverters for the procurement of new rolling stocks.

4. Outcome Targets

(1) Quantitative Effect

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (2011 Actual)	Target(2018) 【2 years after Project completion】
Volume of Transportation (Thousand persons X Thousand km/Day)	3,791 (LRT Line 1) 1,691 (LRT Line 2)	5,922 (LRT Line 1)、 3,464 (LRT Line 2)
Number of Running Train (per direction/Line1),both direction/Line2) / Day (weekday)	222 (LRT Line 1) 342 (LRT Line 2)	258 (LRT Line 1) 428 (LRT Line 2)
Operating Rate (%)	76.4 (LRT Line 1) 83.3 (LRT Line 2)	95 (LRT Line 1) 95 (LRT Line 2)
Running Distance (Km)	9,818,243 (LRT Line 1) 1,514,315 (LRT Line 2)	19,374,842 (LRT Line 1) 2,523,959 (LRT Line 2)

2) Internal Rate of Return

Assuming the conditions listed below, the whole LRT Line 1 Extension's economic internal rate of return (EIRR) is 18.9%, and financial internal rate of return (FIRR) is 2.9%. LRT Line 2 Extension's EIRR is 11.1% and FIRR is 3.7%.

【EIRR】

Cost : Project cost (excluding tax), O&M cost

Benefit : Reduction of vehicle running cost, shortening of travel time

Project Life : 34years (30 years after commencement of operation)

【FIRR】

Cost : Project cost, O&M cost

Benefit : fares

Project Life : 34years (30years after operation)

(2) Qualitative Effect

Decongestion of traffic in Metro Manila, improvement of air pollution, reduction of greenhouse gas, enhancement of investment climate

5. External Conditions/Risk Control

- (1) Bidding process and construction of the civil works and E&M for LRT Line 1 Extension will be implemented without significant delays.
- (2) Severe natural disaster, which affect construction period

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

(1) Findings of Similar Projects :

The ex-post evaluations of “Beijing Subway Construction Project” points out that it is important to have measures to improve convenience of transfer at nodes with other transportation modes from the points of view to enhance project effectiveness.

Also, the ex-post evaluations of “LRT Line 1 Capacity Expansion Project” (the Philippines) and “Metro Manila Strategic Mass Rail Transit Development Project” (the Philippines) points out that it is important to consider government financial supports in order to improve financial situation of Light Rail Transit Authority so as not to affect project sustainability.

The ex-post evaluations of “Metro Manila Strategic Mass Rail Transit Development Project” (the Philippines) points out that it is important to secure enough amount of spare parts at the time of procurement of rolling stocks because there are some non-operational rolling stocks because of scarce of spare parts

(2) Lessons Learned :

JICA requests the Executing Agency to establish multimodal facilities (such as bus/jeepney stations) near the stations of LRT Line 1 and Line 2 because it is important to secure convenience for passengers transfer and avoid congestion around the stations from the points of view to enhance transportation networks in Metro Manila.

It is expected that private operators (selected by bidding process) will undertake operation and maintenance of LRT Line 1 and Line 2 (after the extension). Since those operators will take demand risks, LRTA’s financial situation will not affect the project sustainability without government additional financial support. DOTC will review financial situation of private operators at pre-qualification process of bidding. DOTC’s Project Management Office will monitor the operator’s financial situation during the implementation stage.

The project scope includes enough amount of spare parts because it also procure new rolling stocks.

7. Plans for Future Evaluation

- (1) Indicators for future Evaluation
 - 1) Volume of Transportation
 - 2) Number of Running Train
 - 3) Operating Rate
 - 4) Running Distance
 - 5) EIRR
 - 6) FIRR
- (2) Timing of Next Evaluation
 - Two years after Project completion

END