

Ex-Ante Evaluation

Southeast Asia Division 5

Southeast Asia and Pacific Department, JICA

1. Name of the Project

Country: Republic of the Philippines

Project: Metro Rail Transit Line 3 Rehabilitation Project

Loan Agreement: November 8, 2018

2. Background and Necessity of the Project

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

The population of Metro Manila, with its relatively small area of 620 km², has been surging at an annual rate of 1.8%. Despite the resulting 1.6-fold increase from 7.92 million in 1990 to 12.87 million in 2015, this cramped area only has three rapid transit lines with a total length of around 50 km. Transport capacity in some of these lines has reduced due to inadequate maintenance and ageing management, exacerbating traffic congestion in Metro Manila. The estimated daily social cost associated with congestion in the Republic of Philippines (hereinafter referred to as the “Philippines”) amounts to 3.5 billion pesos, lowering the international competitiveness of the country's economy.

Metro Rail Transit Line 3 (hereinafter MRT Line 3) is one of these three rapid transit lines. It runs roughly 17 km over 13 stations in alignment with Circumferential Road 4 (EDSA), one of the busiest roads in Manila. For the first 12 years since the line was put into service in 2000, reliable operation had been ensured with proper maintenance and management by a Japanese company. Later, local and other foreign companies bid and took charge of the line's maintenance and management according to the policy of the Philippines Department of Transportation to pursue cheaper contracts. This shift led to inadequate maintenance, including a neglect to procure necessary spare parts. As a consequence, the line has been plagued with frequent disruptions from the deteriorating railway system and vehicles.

In the Philippine Development Plan 2017–2022, the national government places an emphasis on the rehabilitation and expansion of the mass transport network in Manila. The Duterte administration, in power since June 30, 2016, announced its program "Build Build Build" to invest a total of 8.4 trillion yen in infrastructure over the six years from 2017 to 2022. Accordingly, the infrastructure investment surged to 5.3% of GDP in 2017, a leap from the annual average of 2.6% over the past 50 years. The Metro Rail Transit Line 3 Rehabilitation Project (hereinafter referred to as the “Project”),

along with other projects for strengthening the railway network in Metro Manila, is one of the top priorities of the current administration.

(2) Policies of the Japanese Government and JICA on Cooperation in the Railway Sector, and Relevance of the Project

The Japan's Country Assistance Policy for the Philippines in April 2018 prioritizes sustainable economic growth through robust investments. More specifically, it pursues assistance in developing the transport network. In its country analysis paper of the Philippines in November 2014, JICA identified infrastructure development in metropolitan areas as a priority. The paper calls for the expansion and enhancement of public transportation systems and development of infrastructure to ease congestion and boost logistics, especially in metropolitan areas. The Project is in line with these policies and analyses.

In the past, Japan has assisted in the railway sector through the following projects:

- LRT Line 1 Capacity Expansion Project (I) and (II) (loan agreements signed in 1994 and 2000)
- Metro Manila Strategic Mass Rail Transit Development Project (I), (II), and (III) (loan agreements signed in 1997, 1998, and 1999)
- Capacity Enhancement of Mass Transit Systems in Metro Manila (loan agreement signed in 2013)
- North-South Commuter Railway Project (Malolos-Tutuban) (loan agreement signed in 2015)
- Metro Manila Subway Project (Phase 1) (loan agreement signed in March 2018)

(3) Other Donors' Activities

In its country operations business plan 2018–2020 for the Philippines, the Asian Development Bank identified enhancement of the accessibility and sustainability of transport infrastructure as a key program. Accordingly, the bank provides advisory services for boosting investments in transport infrastructure. In its country partnership framework 2015–2018 for the Philippines, the World Bank commits to help improve traffic conditions in Metro Manila and Cebu City in line with one of its priorities to ensure rapid, comprehensive, and sustainable economic growth.

3. Project Description

- (1) Project Objectives: To improve the safety and the service level of MRT Line 3 and to promote the use of it, by rehabilitating MRT Line 3, thereby

contributing to alleviate serious traffic congestion as well as to mitigate air pollution and climate change in Metro Manila

(2) Project Site/Target Area: Metro Manila

(3) Project Components

1) Rehabilitation and maintenance of vehicles (in operation and out of service), railway systems (tracks, signals, electric equipment, etc.), station facilities (elevators, etc.), and equipment for maintenance and management, as well as provision of spare parts (including maintenance and management during rehabilitation and defects liability period) (international competitive bidding—tied)

2) Consulting services (e.g., capacity building in construction management and supervision of maintenance and management) (short list)

(4) Estimated Project Cost: ca. 44,785 million yen (Loan Amount: 38,101 million yen)

(5) Schedule: From June 2018 to April 2022 (46 months in total)

(6) Project Implementation Structure

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

2) Guarantor: None

3) Executing Agency: Department of Transportation (DOTr)

4) Operation and Maintenance Agency: Currently, MRT Line 3 is operated and maintained by the Department of Transportation. A proposal has been given to the national government from a local private company to handle the operation and maintenance during or after the project, and these responsibilities are expected to be commissioned to a private company in this fiscal year after a due Swiss challenge. Along with other factors, the short contract period and disjointed operation and maintenance by separate entities are considered to have hastened the deterioration of MRT Line 3. As such, unimpeded operation and maintenance will be sought by commissioning a single private company with the right incentive to handle both operation and maintenance for 20 years or longer. The Department of Transportation has already had commissioned the Light Rail Transit Authority (LRTA) and private companies to handle the operation of LRT Lines 1 and 2. For this reason, there are no major concerns over the handling of operation and maintenance by a private company.

(7) Collaboration with and Division of Roles with other Projects and Donors

1) Japan's Assistance Activities: None in particular

2) Other Donors' Assistance Activities: None in particular

(8) Environmental and Social Consideration/Poverty Reduction/Social Development

1) Environmental and Social Consideration

- i) Category: B
- ii) Reason for Categorization: The project is not considered to be a large-scale roads and bridges project, is not located in a sensitive area, and has none of the sensitive characteristics under the JICA guidelines for environmental and social considerations(April 2010), it is not likely to have a significant adverse impact on the environment.
- iii) Environmental Permit: The construction of the target transit system of the Project has been exempted from the EIA Law with the issuance of a certificate of exemption from the Department of Environment and Natural Resources (DENR) in 1997. The exemption from the EIA/IEE reporting requirements has also been confirmed for the Project.
- iv) Anti-Pollution Measures: The construction work is expected to generate contaminated water from work such as the cleaning of railway vehicles. Such wastewater will be discharged in adherence to effluent standards after repairing the wastewater treatment facilities of the depot package and obtaining a discharge permit from the Laguna Lake Development Authority. The Project produces industrial waste, including hazardous waste like polychlorinated biphenyl (PCB) and lead. Most of the wastes are metals and other recyclable materials. Their handling will be entrusted to authorized operators to recycle as much as possible. The disposal of hazardous waste will be entrusted to authorized operators in accordance with the applicable laws and regulations in the Philippines. Moreover, a temporary duct will be installed during any work that produces dust or odor to maintain a proper working environment in the depot. Once the transit system is put into service, a ventilation system with exhaust ports will be installed to improve the working environment.
- v) Natural Environment: Negative impact on the natural environment is expected to be minimum as the target site is not located in or around a national park or another susceptible area.
- vi) Social Environment: The Project only involves the rehabilitation of an existing transit system. It is carried out in the existing premises without any need for land acquisition or resettlement.
- vii) Other/Monitoring: The Department of Transportation, as the executing agency, is responsible for the monitoring conducted by a contractor regarding water quality, waste, working environment, and

accidents. Once the transit system is put into service, the Department of Transportation will assume the responsibilities for monitoring conducted by an operation and maintenance agency regarding water quality, waste, and working environment (including the installation of a ventilation system with exhaust ports).

2) Cross-Cutting Issues

- i) Measures against climate change: The Project is estimated to reduce greenhouse gas (GHG) emissions by roughly 14,411 ton-CO₂/year in 2030, and thereby help curb climate change.
- ii) Protection against HIV/AIDS and other infections: None in particular
- iii) Considerations for people with disabilities: None in particular

3) Gender Classification: Gender unspecific

(9) Other Important Issues:

None in particular.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2017)	Target (2022) [Expect value 2 years after project completion]
Volume of Transportation (persons x km)	812,882,534	1,402,051,018
Number of Running Trains (Number of trains/Day)	142	255
Operation rate (%) (Annual total working days/ number of trains × (365 days – average non-operation days caused by the inspection)))	58.5%	76.0%

2) Impact

(2) Qualitative Effects: The Project eases serious congestion in Metro Manila, and mitigates air pollution and climate change.

(3) Internal Rate of Return

Based on the following conditions, the Project yields an economic internal rate of return (EIRR) of 19.8% and a negative financial internal rate of return (FIRR).

[EIRR]

Cost: Project costs, and operation and maintenance expenses (all excluding taxes)

Benefit: Reduced travel costs, reduced travel time, reduced alternative costs, etc.

Project life: 10 years

[FIRR]

Cost: Project costs, and operation and maintenance expenses

Benefit: Fare yield

Project life: 10 years

5. Pre-conditions and Important Assumptions

- (1) Pre-conditions: None in particular
- (2) Important Assumptions: None in particular

6. Lessons Learned from Past Projects

The ex-post evaluation of the Railway Improvement Project (Phase 2) in Myanmar, along with other findings, points to the importance of constant and adequate supply of spare parts for proper maintenance and management of railway vehicles. Toward this end, they commonly noted the need for enhancing the capacity of the maintenance agency, as well as skills and awareness of engineers. A similar challenge was observed with the maintenance and management of MRT Line 3 since 2012.

In this Project, necessary spare parts will be provided along with consulting services to teach planning for the procurement of spare parts. Through these consulting services, the capacity of the Department of Transportation will be built to adequately manage and supervise a maintenance agency. For instance, a manual and a check list will be drafted for managing the maintenance agency. As a part of the consulting services, advice will be offered also to ensure that adequate maintenance contracts with the right terms (e.g., contract period and substantial advance payment) are signed.

7. Evaluation Results

This Project is conducted to rehabilitate MRT Line 3 to improve the safety and the service level and to promote the use of it, by rehabilitating MRT Line 3, thereby contributing to alleviate serious traffic congestion as well as to mitigate air pollution and climate change in Metro Manila. The objective is in line with the

development policy of the Philippines, policies of the government of Japan and JICA, as well as relevant analyses. The Project is believed to contribute to Goal 9 of SDGs to build resilient infrastructure, which fact all the more heightens the urgency for JICA to implement this Project.

8. Plan for Future Evaluation

(1) Indicators to Be Used

Per 4. (1)–(3)

(2) Timing

Ex-post evaluation: 2 years after project completion