

Japanese ODA Loan

Ex-Ante Evaluation(for Japanese ODA Loan)

Southeast Asia Division 5,
Southeast Asia and Pacific Department
Japan International Cooperation Agency

1. Name of the Project

- (1) Country: The Republic of the Philippines (the Philippines)
- (2) Project: Metro Rail Transit Line 3 Rehabilitation Project (III)
- (3) Project Site / Target Area: Metro Manila (population: approx. 13.48 million)
- (4) Loan Agreement: March 3, 2026

2. Background and Necessity of the Project

- (1) Current State and Issues of the Railway Sector in Metro Manila

Metro Manila covers approximately 620 km², yet its population has risen from about 9.93 million in 2000 to 13.48 million in 2020—a 1.4-fold increase. With a population density of 200 persons per hectare, it is more densely populated than Tokyo (150 persons per hectare). Despite such concentration, the development of mass transit systems remains insufficient: the three existing urban rail lines total only 50 km, resulting in severe traffic congestion in Metro Manila and its surrounding areas.

The economic loss attributed to congestion-related travel delays is estimated at 3.8 billion pesos (approx. 9.0 billion yen) per day (“Project for Comprehensive Traffic Management Plan for Metro Manila”(2022)), creating significant bottlenecks for logistics and mobility. As Metro Manila accounts for more than 30% of the Philippines’ GDP, such congestion erodes the country’s competitiveness.

Among the three major urban lines, MRT Line 3 (MRT3)—17 km with 14 stations—runs along EDSA, one of the busiest corridors. Constructed under a Build-Lease-Transfer (BLT) scheme, the line opened in 2000, with the Metro Rail Transit Corporation (MRTC) responsible for construction and the Department of Transportation (DOTC, now DOTr) managing operations. For the first 12 years, Japanese company provided maintenance services, during which daily ridership peaked at roughly 600,000 in 2012. After 2012, however, DOTr outsourced, through a bidding process, maintenance to local and Korean companies according

to the policy of DOTr to pursue cheaper contracts. These short-term fixed contracts offered little performance incentive, and the contractors—unfamiliar with the original system—faced delays in procuring parts. As a result, maintenance quality deteriorated, equipment conditions worsened, and service disruptions became frequent.

Due to growing concerns about safety and reliability, DOTr terminated the maintenance contract in November 2017 and requested Japan's assistance to rehabilitate MRT3. JICA subsequently extended two ODA yen loans (2018 and 2023, totaling 55.5009 billion yen) to support rehabilitation and maintenance.

The Philippine Development Plan (2023–2028) lists infrastructure expansion and qualitative improvement as national priorities. The MRT3 Operation and Maintenance (O&M) project is classified as an Infrastructure Flagship Project, underscoring its strategic relevance.

Demand has increased in recent years: in March 2025, operating hours were extended, and DOTr is considering further augmenting train frequency (from 18 to 19–20 trains/hour) given expected traffic restrictions along EDSA. The need to maintain and enhance MRT3's capacity is therefore substantial.

- (2) Development Policy for the Railway Sector and Positioning of the Project
- The Philippine Development Plan notes that insufficient development of rail-based mass transit has contributed to severe road congestion and limited access to commercial districts. It emphasizes establishing an integrated rail network that ensures interconnectivity. A roadmap, which JICA supported and approved by the Philippines Government in 2014, proposes a north–south mass transit corridor linking Metro Manila with its suburbs, alleviating congestion and encouraging planned urban expansion. Additional expected benefits include investment growth, CO₂ reduction, improved air quality, and shorter commuting times. The current administration's "Build, Better, More" initiative maintains the prioritization of Metro Manila rail infrastructure, including MRT3.

- (3) Other Donors' Activities

The Asian Development Bank (ADB) prioritizes high-quality infrastructure in its Country Partnership Strategy (2024–2029). It co-finances the North–South Commuter Railway Extension with JICA and provides transaction advisory services for procurement of private O&M operators

for MRT3 and other major lines. ADB also supports project preparation through its Infrastructure Preparation and Innovation Facility (IPIF).

3. Project Description

(1) Project Description

① Project Objective

To improve the safety and service level of MRT3, promote ridership, and contribute to mitigating traffic congestion, air pollution, and climate change in Metro Manila.

② Project Components

1) Rehabilitation and maintenance of rolling stock, track, signaling, power systems, station facilities, and maintenance equipment, supply of spare parts and maintenance services during rehabilitation and defects liability periods.

2) Consulting services including construction management support and maintenance management capacity building.

③ Beneficiaries of the Project

MRT3 users and surrounding residents (population approx. 13.48 million).

④ Relationship with Other JICA Projects

Support for formulating a railway master plan for the Greater Metro Manila area—covering an even wider scope than Metro Manila—is currently being implemented under the “Project on Formulation of 30-year Railway Master Plan for the Greater Capital Region” (2023–).

(2) Estimated Project Cost

97,725 million Yen (Japanese ODA loan: 21,634.83 million Yen)

(3) Schedule

From June 2018 to January 2028 (115 months)

Completion of the Project is defined as completion of rehabilitation and maintenance in October 2027.

(4) Project Implementation Structure

1) Borrower: Government of the Republic of the Philippines

2) Executing Agency: Department of Transportation (DOTr)

3) Operation and Maintenance System :

DOTr currently oversees all O&M activities. As noted above, maintenance services are outsourced by DOTr to a Japanese company. Through the comprehensive rehabilitation and maintenance works carried out by this

company under the Project, the maximum operating speed—previously reduced to 40 km/h due to equipment deterioration—has been restored to the original design speed of 60 km/h. This improvement has enabled an increase in peak-hour operations from 10 to 18 trainsets per hour, thereby ensuring stable and efficient service performance.

In addition, through the consulting services under this Project, DOTr has been provided with information and advice related to overall project planning, including passenger demand forecasting and other analytical support.

(5) Collaboration and Sharing of Roles with Other Donors

1) Other Donors' Activity

ADB is currently providing transaction advisory services to DOTr in preparation for the outsourcing of O&M operations to a private company upon completion of this project.

(6) Environmental and Social Consideration

① Category: B

② Reason for Categorization

The project is not considered a large-scale road or bridge project, is not located in a sensitive area, and has none of the sensitive characteristics specified in the JICA Guidelines for Environmental and Social Considerations (April 2010). Accordingly, it is not expected to have any significant adverse environmental impacts.

③ Environmental Permit

When the existing railway was constructed in 1997, it was confirmed that the Department of Environment and Natural Resources (DENR) issued a Certificate of Exemption, thereby exempting the Project from the requirements of the Environmental Impact Assessment (EIA) Law and the preparation of an EIA or Initial Environmental Examination (IEE). Furthermore, an Environmental Compliance Certificate (ECC) was issued in 2008 for the extension to the Common Station, which has been newly incorporated into the Project.

④ Anti-Pollution Measures

The construction works are expected to generate contaminated wastewater from activities such as the cleaning of railway vehicles. This wastewater will be discharged in compliance with applicable effluent standards, following the rehabilitation of the depot's

wastewater treatment facilities and the issuance of a discharge permit by the Laguna Lake Development Authority.

The Project will also generate industrial waste, including hazardous materials such as polychlorinated biphenyls (PCBs) and lead. Most of the waste consists of metals and other recyclable materials, and their handling will be entrusted to authorized operators to maximize recycling. The disposal of hazardous waste will similarly be carried out by licensed operators in accordance with relevant Philippine laws and regulations.

Furthermore, temporary ducts will be installed during activities that produce dust or odors to ensure adequate working conditions within the depot. Once the transit system becomes operational, a ventilation system equipped with exhaust outlets will be installed to further improve the working environment.

⑤ 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.

⑥ 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 at the Project site.

⑦ Other/Monitoring

DOTr, as the executing agency, is responsible for overseeing the monitoring activities carried out by the contractor with respect to water quality, waste management, the working environment, and safety incidents. Upon the commencement of operations, the operation and maintenance entity will carry out monitoring of water quality, waste, and the working environment (including the installation of a ventilation system equipped with exhaust outlets), under the responsibility of DOTr.

(7) Cross-Sectoral Issues

1) Measures against climate change

The Project is estimated to reduce greenhouse gas (GHG) emissions by roughly 35,506 ton-CO₂/year in 2035, and thereby help curb climate change.

2) HIV/AIDS and Other Infectious Disease Measures

As part of the measures against HIV/AIDS and other infectious diseases during the maintenance and rehabilitation period, the contractor shall implement appropriate infection-prevention measures for all personnel engaged in the works.

3) Considerations for people with disabilities

None in particular (For MRT3, elevators at all stations, tactile paving, and level access between platforms and train cars have already been implemented. No additional measures will be introduced under this project.)

(8) Gender Category

[Gender cases] Gender Informed [GI]

<Details of Activities/Reason for Categorization>

No initiatives will be made through the project since it was not possible to formulate or establish initiatives and indicators that would contribute to gender equality and the empowerment of women.

<Details of Activities/Reason for Categorization>

(9) Other Important Issues

1) The STEP condition will be applied because the Project makes use of Japanese technologies related to maintenance and asset management, including the rehabilitation of aging rolling stock and equipment. In particular, the Project will support the establishment of a long-term maintenance implementation system that enables these rehabilitation works to be conducted without disrupting regular operations. This system is intended to restore the line to a safe and efficient condition and to ensure that a high level of operational reliability is maintained even after the completion of the rehabilitation activities.

2) After the completion of the project, in anticipation of increasing demand on MRT 3, DOTr plans to respond by (1) increasing the number of daily train operations and (2) deploying unused train sets into commercial service.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline	Target (2029)
	(Actual value in 2017)	[2 years after project completion]

Volume of Transportation (persons x km)	812,882,534	1,131,005,567.84
Number of Running Trains (Number of trains/Day)	142	237
Operation rate (%) (Annual total working days/ number of trains × (365 days – average non-operation days caused by the inspection)))	58.5%	88.1%

(2) Qualitative Effects

Mitigation of serious traffic congestions in Metro Manila, mitigation of air pollution.

(3) Internal Rate of Return

The economic internal rate of return (EIRR) for the Project is 26.9%, and the financial internal rate of return (FIRR) is negative 1.2%. The cost of the Project and operation and maintenance will be covered from farebox revenue and the government general budget.

【EIRR】

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

Benefit : Reduced vehicle operating cost, reduced travel time cost, reduced in Carbon Dioxide emissions

Project Life : 25 years

【FIRR】

Cost : Project costs, and operation and maintenance expenses

Benefit: Fare yield

Project Life : 25 years

5 . External Factors and Risk Control

(1) Preconditions: None in particular

(2) External Factors: None in particular

6 . Lessons Learned from Past Projects

The ex-post evaluation of the Railway Improvement Project (Phase 2) in Myanmar (Evaluation Year: 2002), together with other findings, highlighted the importance of maintaining a consistent and sufficient supply of spare parts to ensure proper maintenance and management of railway vehicles. These evaluations commonly emphasized the need to strengthen the capacity of maintenance agencies, as well as enhance the skills and technical awareness of engineers.

A similar issue was observed in the maintenance and management of MRT3 after 2012. Under this Project, the necessary spare parts have been procured, and consulting services have been provided to support planning for spare parts procurement. Through these consulting services, DOTr's capacity to appropriately manage and supervise the maintenance agency has been significantly enhanced. For example, a maintenance management manual and checklist have been prepared to guide oversight activities. The consulting services have also included advice to ensure that maintenance contracts contain appropriate provisions—such as adequate contract duration and sufficient advance payments—to facilitate proper maintenance implementation.

7 . Evaluation Results

This Project aims to rehabilitate MRT3 in order to enhance its safety and service quality, thereby promoting greater ridership. Through these improvements, the Project is expected to help alleviate the severe traffic congestion in Metro Manila and contribute to mitigating air pollution and climate change. The Project's objectives are fully aligned with the development policies of the Government of the Philippines, as well as with the policies of the Government of Japan and JICA, and are consistent with relevant sectoral analyses.

The Project is also expected to contribute to several Sustainable Development Goals (SDGs), including Goal 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation), Goal 11 (Make cities and human settlements inclusive, safe, resilient, and sustainable), and Goal 13 (Take urgent action to combat climate change and its impacts). Given these contributions, there is a strong rationale for supporting the implementation of the Project.

8 . Plan for Future Evaluation

(1) Indicators to be Used

As indicated in Sections 4.

(2) Future Evaluation Schedule

Ex-post evaluation: 2 years after the Project completion

END