**Japanese ODA Loan**

**Ex-Ante Evaluation(for Japanese ODA Loan)**

**Southeast Asia Division 5,**
**Southeast Asia and Pacific Departmentt**
**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 (II)

（３）Project Site / Target Area: Metro Manila (population: approx. 13.48 million)

Loan Agreement: May 26, 2023

## ２．Background and Necessity of the Project

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

Metro Manila is a relatively small urban area of 620 km2, however, its population is growing at a rate of 1.8% per year, from approx. 7.92 million in 1990 to 13.48 million, representing a 1.7-fold increase in 2020. Despite the overcrowded population, the development of rail-based public transportation as a means of mass transportation is lagging behind, which is represented by the situation that the three main urban railroads (two of which are for Light Rail Transit (LRT)) in the metropolitan area are only 50 km in total length, so Metro Manila and its suburbs have serious traffic congestion. The economic loss due to traffic congestion is estimated at 2.5 billion pesos (approximately 5.7 billion yen) per day ("Follow-up Survey on Roadmap for Transport Infrastructure Development for Greater Capital Region (GCR)" (2019)), which means that traffic congestion is one of the bottlenecks for smooth logistics and mobility, thus reducing the country's international competitiveness.

Metro Rail Transit Line 3 (hereinafter MRT Line 3) is one of these three rapid transit lines. It runs roughly 17 km over 14 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 has been ensured with proper maintenance and management by a Japanese company. It leads to the result that reach its peak daily average of approximately 600,000 passengers in 2012, which it exceeds that of LRT Line 1. However, local and other foreign companies bid and took charge of the line's maintenance and management according to the

policy of the Department of Transportation (DOTr) 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 response to this situation, in November 2017, DOTr terminated the maintenance and management contract with a local company, etc., and after taking over the operation and maintenance of the MRT Line 3, the "Metro Rail Transit Line 3 Rehabilitation Project" (hereinafter referred to as the "Project") for the renovation of MRT Line 3. and outsource maintenance and management to a private operator through the Project (hereinafter referred to as the "current maintenance and management contract"). The contract period is from May 2019 to May 2023.

The current Philippine administration, which was inaugurated on June 30, 2022, has announced "Build, Better, More" to further promote infrastructure investment, taking over the infrastructure development plan "Build, Build, Build" of the previous administration. The strengthening of the railway network in Metro Manila, including the Project, has been positioned as one of the top priorities of the current administration, following the previous administration, and is in line with the policies of the Philippine government.

（２） Japan’s and JICA’s Policy Cooperation Policy and Operations in the Railway Sector in Metro Manila and its suburbs (especially in relation to major foreign policies such as the Free and Open Indo-Pacific (FOIP))

Japan's Country Development Cooperation Policy for the Republic of the Philippines (April 2018) sets "Strengthening a Foundation for Sustainable Economic Growth" as a priority area and states that Japan will provide support for high quality infrastructure development including transportation networks mainly in the major metropolitan areas and regional cities. “Republic of the Philippines JICA Country Analysis Paper” (July 2020) states that Japan will develop the necessary socioeconomic infrastructure in the urban areas of the Philippines as a direction of future support so that, in the Philippines that shares basic values such as democracy, the rule of law, and a market economy, the middle class that benefits from these values will improve in both quality and quantity. It also states that given the fact that the Philippine government has placed "Build,

Build, Build" and "Build, Better, More" policy as a catalyst for economic recovery from the economic downturn caused by the spread of the new coronavirus infection (hereinafter called as "COVID-19"), Japan will continue to cooperate with efforts related to high-quality infrastructure investment in response to the above. The Project is consistent with these policies.

Japan has been supporting the development of a track-based transportation network in Metro Manila through development of masterplans, ODA yen loans, and technical cooperation. With regards to the masterplans, Japan has been supporting the actual transportation survey and urban transportation planning through the "Roadmap for Transport Infrastructure Development for Metro Manila and its Surrounding Areas (Region III & Region IV-A) in the Republic of the Philippines" (2014) and the "Follow-up Survey on Roadmap for Transport Infrastructure Development for Greater Capital Region (GCR)" (2019), which revised the infrastructure roadmap of 2014. As ODA loan projects, Japan has implemented the "Capacity Enhancement of Mass Transit Systems in Metro Manila" (2013), the "North-South Commuter Railway Project (Malolos-Tutuban) (I) (II)" (2015 and 2023), the "North-South Commuter Railway Extension Project (I) (II)" (2019 and 2023), and the "Metro Manila Subway Project (Phase 1) (I) (II)" (2018 and 2021), in addition to past projects aimed at easing traffic congestion in Metro Manila. As for technical cooperation, Japan has been dispatching experts to DOTr since 2008, and has also been supporting the Philippines in developing human resources in the railway field by the "Technical Assistance Project to Establish of the Philippine Railway Institute (hereinafter referred to as “PRI”) "

（３） Other Donors’ Activities

The Asian Development Bank (hereinafter referred to as ADB), in its Country Operations Business Plan (2021-2023), focusing on accelerating infrastructure projects that bring economic synergies and long-term growth, has been co-financing with JICA in the North-South Commuter Railway Extension Project. The ADB has also been providing procurement assistance to private operators for the operation and maintenance of the Metro Manila Subway Project and the North-South Commuter Railway Project through the Transaction Advisory Service for

the Public Sector of the ADB's Office of Public-Private Partnership. It has also granted a technical assistance loan "Infrastructure Preparation and Innovation Facility" (L/A signed in November 2017), for the purpose of bidding assistance in the civil works package for the Extension Project it is financing.

## ３．Project Description

（１）Project Description

① Project Objective

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 Components

1) Rehabilitation and maintenance of vehicles, 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)

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

（２）Estimated Project Cost

65,424 million Yen (Japanese ODA loan: 17,399.9 million Yen)

（３）Schedule

From June 2018 to July 2025 (85 months)

Completion of the maintenance of the vehicles and railway systems (July 2025) is considered as the completion of the Project.

（４）Project Implementation Structure

１）Borrower: Government of the Republic of the Philippines

２）Executing Agency: DOTr

３）Operation and Maintenance System：

Currently, DOTr takes responsibility for operation and maintenance. (Maintenance and management is outsourced to a private company through the Project.) DOTr has experience in the operation and maintenance of this line since the termination of the maintenance contract with local companies (November 2017). In addition, through appropriate rehabilitation and maintenance by Japanese companies

participation in the Project, the maximum speed has been increased from 40 km/h due to deterioration of equipment to 60 km/h, which is the design speed, and the number of vehicles introduced during peak hours has been increased from an average of about 10 cars per hour to about 20 cars. In addition, the Philippine government has established the PRI to develop human resources for railways, and a project attached to the North-South Commuter Railway Project and grant aid (Ministry of Foreign Affairs) have been implementing to PRI. It is anticipated that DOTr staff involved in the operation and maintenance of this project will receive basic training at PRI. After the completion of maintenance for this project in July 2025, the DOTr plans to outsource the operation and maintenance to private entities, with contractors to be selected through bidding. To ensure the quality of operation and maintenance is appropriately secured, consulting services for this project provide DOTr with information related to the overall business plan and advice on passenger demand forecasts, advocating for the selection of operators with no technical or financial issues. Therefore, there are no concerns regarding the system, technology, or financial aspects.

（５）Collaboration and Sharing of Roles with Other Donors

１）Other Donors’Activity

As a techcanical assistance, "Technical Assistance Project to Establish of the Philippine Railway Institute" has been implementing.

（６）Environmental and Social Consideration

① Category: B

② 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.

③ Environmental Permit

When the existing railway was built in 1997, it has been confirmed that an Certificate of Exemption has been issued by the Department of Environment and Natural Resources (DENR )to exempt the Project from the application of the Environmental Impact Assessment (hereinafter referred to as "EIA") law and the preparation of an

EIA/Initial Environmental Examination (IEE). In addition, Environmental Compliance Certificate (ECC) was issued in 2008 for the extension to the Common Station which is a new component has been added this time.

④ 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.

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 including the extension to the Common Station.

⑦ Other/Monitoring

DOTr, 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, DOTr 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)

（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）In response to the spread of COVID-19, the DOTr has established measures such as temperature checks for workers and thorough hand washing and gargling at construction sites, operation of offices avoiding “3 C's” (closed spaces, crowded places, and close-contact settings), restrictions on sharing of property, disinfection of work areas, and self-isolation in the event of potentially infectious symptoms, as guidelines for quarantine measures and has been ensuring that these measures are thoroughly enforced. In the aforementioned technical assistance project for the PRI, JICA is now additionally holding counter-infectious disease training courses online as part of its safety measures for employees and passengers. In response to the concerns of the contractors and consultants, the DOTr is also preparing guidelines for extension of the construction period and additional costs due to the impact of this infectious disease on the projects implemented by the DOTr.

３）Considerations for people with disabilities: None in particular (Because although there are existing efforts to accommodate people with disabilities in the MRT Line 3, no additional efforts will be made under the Project)

（８）Gender Category

[Gender cases] Gender Informed [GI]

<Details of Activities/Reason for Categorization>

Although gender-sensitive initiatives are being implemented on the existing MRT Line 3, no additional initiatives will be made through the Project.

<Details of Activities/Reason for Categorization>

（９）Other Important Issues

１）STEP condition will be applied because the Project utilizes Japanese technology related to the maintenance and management such as

rehabilitation of aging vehicles and equipment. Specifically, it will support the construction of a long-term maintenance implementation system so that the above rehabilitation works can be carried out without interfering with normal operation to restore the route to a safe and efficient line, and to maintain a high operating rate even after the completion of the rehabilitation.

２）After the completion of the project, the demand for MRT Line 3 will increase due to the connection to the Common Station, etc., and a high congestion rate is expected in MRT Line 3. In response, DOTr plans to alleviate the congestion by (i) increasing the number of trains in operation per day, (ii) introducing unused vehicles into commercial operation, and (iii) changing a trainset from 3 to 4 cars.

## ４. Targeted Outcomes

（１）Quantitative Effects

１） Outcomes (Operation and Effect Indicators)

| Indicator | Baseline (Actual value in 2017) | Target (2027) [2 years after project completion] |
|---|---|---|
| Volume of Transportation (persons x km) | 812,882,534 | 1,443,531,817 |
| Number of Running Trains (Number of trains/Day) | 142 | 283 |
| Operation rate (%) (Annual total working days/ number of trains × (365 days – average non-operation days caused by the inspection))) | 58.5% | 83.3% |

２）Impact

（２）Qualitative Effects

Transit-Oriented Development (TOD) for stationd of the Project, Mitigation of serious traffic congestions in Metro Manila, mitigation of air pollution and contribution to mitigation of climate change.

（３）Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 25.4%,and the financial internal rate of return (FIRR) is negative 1.7%. Through "Technical Assistance Project to Establish of the Philippine Railway Institute", it aims to improve operational capability. In addition, 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 travel costs of vehicles, reduced travel time, reduced costs, reduced GHG emission etc.

Project Life：25 years

【FIRR】

Cost：Project costs, and operation and maintenance expenses

Benefit: Fare yield, advertisement and non-farebox revenue. etc.

Project Life：25 years

## ５. External Factors and Risk Control

（１）Preconditions: None in particular

（２）External Factors: Convergence of COVID-19 infection

## 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 are provided along with consulting services to teach planning for the procurement of spare parts. Through these consulting services, the capacity of DOTr has been enhanced for adequate management and supervision of a maintenance agency. For instance, a manual and a check list are drafted for managing the maintenance agency. As a part of the consulting services, advice is 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 considered to contribute to SDGs Goal 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation), 11 (Make cities and human settlements inclusive, safe, resilient, and sustainable), and 13 (Take urgent action to combat climate change and its impacts), there is a strong need to support 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