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 Manila Subway Project (Phase 1) (IV)
（３）Project Site / Target Area: Metro Manila
Loan Agreement: March 27, 2026

２．Background and Necessity of the Project

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

Metro Manila is an urban area of approximately 620 km², and its population has grown rapidly from 9.93 million in 2000 to about 24.7 million in 2025, representing a 2.5-fold increase. In addition, the population density of Metro Manila has reached 200 persons per hectare, which is significantly higher than that of Tokyo (150 persons per hectare), indicating further intensification of overcrowding (“Project for Comprehensive Traffic Management Plan for Metro Manila,” 2022). Meanwhile, the total length of the three elevated urban railway lines in the metropolitan area remains only 50 km, and the development of rail-based mass transit as a major mode of transportation has lagged behind, resulting in severe traffic congestion throughout the region. The economic cost of traffic congestion for road users, rising vehicle operating costs and travel time costs, has been estimated at PHP 4.9 billion per day (approx. JPY 12.7 billion). Furthermore, private traffic statistics show that Metro Manila ranks as the third most congested urban area in Southeast Asia in terms of average travel time and congestion levels (TomTom Traffic Index, 2024). These severe traffic conditions continue to impede smooth logistics and mobility and have become one of the factors undermining the international competitiveness of the Republic of the Philippines.

In response to these conditions, the “Study on Transportation Infrastructure Roadmap to Sustainable Development of Metro Manila” (2014), supported by JICA and approved by the Government of the Philippines, proposes strengthening the public transportation network linking the metropolitan center and its surrounding suburban areas through the development of a large-scale mass transit system along the north–south axis of

Metro Manila. This vision aims to address the growing congestion and overcrowding in the metropolitan core by promoting planned urban expansion along the same axis and encouraging a modal shift toward public transportation. These improvements are expected to contribute to accelerated economic growth driven by increased investment and industrial expansion, as well as reduced health hazards related to air and noise pollution, shorter commuting times, and improvements in people's quality of life. The Metro Manila Subway Project (Phase 1) ("the Project"), which will introduce the country's first subway, is anticipated to play a significant role in mitigating the severe traffic congestion in Metro Manila. Moreover, the Project is included as one of the high-priority initiatives under the Philippine Government's Infrastructure Flagship Projects, positioning it as one of the most important projects promoted by the administration.

（２） Japan's and JICA's Policy Cooperation Policy and Operations in the Railways Sector

Under Japan's Country Development Cooperation Policy for the Philippines (September 2023), "Strengthening a foundation for sustainable economic growth" is identified as one of the priority areas. The policy states that Japan will support the development, operation, and maintenance of quality infrastructure, particularly the enhancement of transportation networks in the Greater National Capital Region and in regional cities. In addition, JICA's Country Analysis Paper for the Philippines (March 2024) highlights the pursuit of human security that leaves no one behind, through generating a virtuous cycle of high-quality growth, job creation, and improved livelihoods. Specifically, it emphasizes promoting urban development with improved functionality and convenience in densely populated urban areas, and expanding and upgrading quality infrastructure. Furthermore, the Project corresponds to JICA's Global Agenda (Thematic Strategy): "2. Transportation" and is aligned with these policies and analyses.

Japan has supported the railway sector in Metro Manila through Technical Cooperation for Development Planning, Japanese Official Development Assistance (ODA) Loans, and Technical Cooperation. Examples include: the "Project on Formulation of 30-year Railway Master Plan for the Greater Capital Region" (2023–); the "Capacity Enhancement of Mass Transit Systems in Metro Manila Project" (2013); the "North–South Commuter Railway Project (Malolos–Tutuban) (I) (II)" (2015, 2023), the "North–South Commuter

Railway Extension Project (I) (II)" (2019, 2023), and the "Metro Rail Transit Line 3 Rehabilitation Project (I) (II)" (2018, 2023). In addition, through Private-Sector Investment Finance, it includes the "LRT Line 1 Operation and Maintenance Improvement Project" (2024). Moreover, as Technical Cooperation, it includes "Technical Assistance Project on Railway Innovative Technologies for Sustainable Development (TRAINTECHS)" (2025–) for the Philippine Railway Institute. Furthermore, railway training simulators have been provided through Grant Aid by the Ministry of Foreign Affairs.

（３） Other Donors' Activities

The Asian Development Bank (ADB) identifies the promotion of quality infrastructure as one of its priority areas under its Country Partnership Strategy (2024–2029). ADB has been co-financing with JICA in the North–South Commuter Railway Extension Project. In addition, through the Transaction Advisory Service of its Office of Market Development and PPP, ADB has been providing procurement assistance for private operation and maintenance (O&M) operators for the Project, as well as for the MRT Line 3 and North–South Commuter Railway projects. In addition, ADB has extended a technical assistance loan, the "Infrastructure Preparation and Innovation Facility (IPIF)," to support upstream activities including the implementation of preparatory surveys for the MRT Line 4 Construction Project and Metro Manila Subway Project (Phase 2).

３．Project Description

（１）Project Description

① Project Objective

The objective of the Project is to accommodate increasing transportation demand by constructing a subway line in Metro Manila, thereby contributing to the alleviation of serious traffic congestion as well as to the mitigation of air pollution and climate change.

② Project Component

1) Civil works, facilities, equipment, etc.

(a) Civil works (27-km, 15 stations)

(b) Depot and Philippines Railway Institute (PRI)

(c) Railway system (electricity/machines/signals/communications)

(d) Procurement of Rolling Stock (240 train cars)

2) Consulting services (e.g., bidding assistance, supervision of construction, capacity building of the executing agency, and support for

implementing Transit Oriented Development (TOD)

③ Project Beneficiaries（Target Group）

People in Metro Manila (Approx.24.70 million people)

（２）Estimated Project Cost

1,492,912 million Yen (Japanese ODA loan amount this time: 220,000 million Yen)

（３）Schedule

March 2018-October 2033 (188 months in total)

The commencement of the service of the facilities (scheduled in October 2031) is considered as the completion of the Project.

（４）Project Implementation Structure

１）Borrower: Government of the Republic of the Philippines

２）Guarantor: None

３）Executing Agency: Department of Transportation (DOTr)

４）Operation and Maintenance System：

DOTr envisions outsourcing operation and maintenance to the private sector, and the operation and maintenance entity will be determined through a bidding process.

（５）Environmental and Social Consideration/Cross-Sectoral Issues/Gender Category

１）Environmental and Social Consideration

① Category: A

② Reason for Categorization: The Project targets the road sector and areas vulnerable to the features and impacts defined in the JICA Guidelines for Environmental and Social Considerations (Promulgated in April 2010, "JICA Guidelines") (large-scale involuntary resettlement)

③ Environmental Permit: The Project obtained an Environmental Compliance Certificate (ECC) in October 2017. In addition, the Project's Environmental Impact Statement (EIS) was updated, and a revised ECC was obtained in December 2019.

④ Anti-Pollution Measures: While the construction may affect the air and water quality and cause waste, soil pollution, noise and vibration, mitigation measures will be in place, such as watering, setting up silt screens, drainage paths and septic tanks, regularly measuring the concentration of heavy metals and recycling them, appropriately storing fuels and oils and adopting a shield tunneling method. After the

commencement of service, the impact of surface vibrations will be governed by the nighttime regulation standards stipulated by the Tokyo Metropolitan Government.

⑤ 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 predicted to be minimal.

⑥ Social Environment: The Project requires land acquisition of approximately 1,039 thousand square meters (area basis) and about 2,083 lots (lot basis), resulting in the involuntary resettlement of 234 households. Land acquisition and resettlement have been implemented in accordance with the country's laws and regulations and the Resettlement Action Plan (RAP) that satisfies the JICA Guidelines. As of the end of January 2026, approximately 945 thousand square meters (area basis) and about 1,210 lots (lot basis) had been acquired, and all 234 households had been resettled. In January 2026, the executing agency conducted a subdivision (re-plotting) of the target lots for land acquisition. As a result of the subdivision and the subsequent more detailed measurement, the total target area was reduced. However, there has been no change in the overall area of project impact.

⑦ Other/Monitoring: During the construction period, the contractor will monitor water and air quality, noise, vibration, waste and the like on the project site under the supervision of the executing agency (DOTr), based on the Environment Management Plan and Environment Monitoring Plan. At the commencement of service, the operation and maintenance body will monitor noise, vibration, etc., under the supervision of the DOTr. The DOTr will monitor land acquisition, resettlement, and the success of income restoration efforts.

（６）Cross-Sectoral Issues

① Climate Change Measures: The Project contributes to climate change mitigation by alleviating traffic congestion through improved response to increasing transport demand in Metro Manila. It is aligned with the Philippines' nationally determined contribution (NDC) under the Paris Agreement, which sets a target of reducing GHG emissions by 72.29% by 2030 in sectors including transportation, with support from the international community. This alignment has already been confirmed and shared with the implementing agency. Based on the estimation of

mitigation effects, the overall GHG emission reduction attributable to Phase I is expected to be approximately 303,453 tons of CO_2 per year in 2045.

② Measures to Prevent Infectious Diseases Including HIV/AIDS: To mitigate the risk of infection of HIV/AIDS during construction, the Project will include preventative measures in the bidding documents to urge contractors to provide preventative programs to their labor force.

③ Consideration for People with Disabilities: In line with principles such as TFDS (Transport for Disabled and Seniors) and the Accessibility Transport Policy, the Project will incorporate facility designs that reflect the needs of persons with disabilities. These include the installation of elevators, barrier-free toilets, accessible rolling stock, and information signage that enhances station usability. In addition, accessibility audits will be conducted on a regular basis through the National Council on Disability Affairs (NCDA), in collaboration with organizations representing persons with disabilities, to ensure that accessibility requirements are appropriately reflected throughout the Project.

（7） Gender Category: Gender Informed (Significant) [GI(S)]

<Details of Activities/Reason for Categorization>

Metro Manila's railway system faces a range of gender-based challenges, including the frequent occurrence of sexual violence and harassment on public transportation, the significant burden placed on women by long commuting times, insufficient sanitation and comfort within stations and train cars, a lack of design features that adequately accommodate pregnant women, older persons, and persons with disabilities, limited opportunities for victims to report incidents, and weak security conditions during nighttime hours. In response to these issues, the Project will implement a series of integrated gender-responsive measures aimed at improving safety, comfort, and accessibility for female and vulnerable passengers. These actions include the introduction of women-only cars, the installation of security cameras and enhanced lighting, the provision of an adequate number of gender-segregated and women-friendly toilets, the improvement of barrier-free station facilities, the implementation of training programs for project stakeholders, awareness-raising activities to prevent harassment, and enhancements to station guidance and signage. Through these

measures, the Project seeks to create an environment where women, children, pregnant women, and older persons can use the subway safely and with peace of mind, thereby contributing to the mainstreaming of gender considerations throughout the implementation of the Project.

（８）Other Important Issues

Advanced Japanese technologies are introduced such as underground tunnel excavation, construction in narrow spaces, safe and highly reliable time signal systems, and lightweight/energy-efficient train cars, and the Special Terms for Economic Partnership (STEP) is adopted.

４. Targeted Outcomes

（１）Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2017)	Target (2033) [2 years after project completion]
Volume of Transportation (Person x km/Day)	-	4,679,071
Number of Running Trains (Number of running train return trips/Day)	-	128
Operation Rate (%)	-	86
Running Distance (km/Day)	-	45,612
Running Hours between East Valenzuela Station and NAIA Terminal 3 Station	(Note) (Road Transportation)	41 minutes

(Note) For reference, the time required to travel the section between Quirino Highway Station and FTI Station (approximately 22.5 km) by road transportation was 100 minutes as of September 2019, before the significant decrease in traffic use due to the spread of COVID-19.

（２） Qualitative Effects

Promotion of Transit Oriented Development (TOD) along the subway, mitigation of severe traffic congestion, and alleviation of air pollution and climate change.

（３）Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 9.3%, and the financial internal rate of return (FIRR) is -1.8%.

【EIRR】

Costs: Project cost, and operation and maintenance expenses (excluding tax)
Benefits: Reducing vehicle running costs, travel time costs, greenhouse gas emissions.
Project Life: 45 years

【FIRR】

Costs: Project cost, and operation and maintenance expenses
Benefits: Revenues from fares, advertisement, and income other than railway business
Project Life: 45 years

５. External Factors and Risk Control

None in particular

６. Lessons Learned from Past Projects

Past ex-post evaluations of Japanese ODA Loan projects to the Philippines (e.g. the Improvement and Modernization of Commuter Line South Project (evaluated in 2000)) have indicated that, in cases involving the resettlement of informal settlers, the implementation process is likely to require a considerable amount of time. Therefore, these evaluations highlighted the necessity of thoroughly examining the feasibility of the measures to be taken by the executing agency, clearly defining the role-sharing among institutions involved in resettlement, and preparing implementation plans that sufficiently incorporate the time required for resettlement activities. Furthermore, ex-post evaluations of other projects (e.g., the Delhi Mass Rapid Transport System Project for the Republic of India (evaluated in 2010)) have drawn lessons regarding the need for policies that contribute to the development of a systematic and efficient urban transport network, including other modes of transportation, in order to improve ridership and thereby ensure financial viability and sustainability.

In this Project, based on the Resettlement Action Plan (RAP) prepared by DOTr, consultations will be conducted with a wide range of residents, ensuring sufficient coordination with relevant institutions such as the National Housing Authority (NHA) and Local Government Units (LGUs). In addition, high-level meetings between the two governments, as well as regular reporting to and consultations with the Secretary of Transportation of the Philippines, will be conducted to promote steady progress in land acquisition and resettlement. Moreover, the Project will also consider appropriate interchanges and

connections with other railway lines, develop transport intermodal facilities with feeder transport systems at each station, and promote integrated station-area development. Through these efforts, the Project aims to facilitate the use of the subway and ensure convenience for its users.

７. Evaluation Results

The Project is in accordance with the development issues and development policies of the Philippines and Japan's and JICA's Policy Cooperation Policy. And it aims to take measures to increase the demand for transportation
and contributes to the mitigation of severe traffic congestion as well as to the alleviation of air pollution and climate change. Furthermore, since the Project is expected to contribute to Sustainable Development Goals (SDGs) Goal 9 (Build resilient infrastructure), 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), the necessity of the implementation of the Project is high.

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

Attachment: Map of the Metro Manila Subway Project (Phase 1)