

Ex-Ante Evaluation (for Japanese ODA Loan)**1. Name of the Project**

Country: The Republic of the Philippines

Project: Metro Manila Interchange Construction Project (Phase VI)

Loan Agreement: March 26, 2015

Loan Amount: 7,929 million yen

Borrower: The Government of the Republic of the Philippines

2. Background and Necessity of the Project

(1) Current State and Issues on Development of the Transportation Sector in Metro Manila, the Philippines

Being the largest economic center in the Philippines with a concentration of 13 percent of the country's population and 36 percent of the GDP, Metro Manila has grown from 7.95 million people in 1990 to 12.54 million people in 2013. In Metro Manila, traffic and transport networks such as circumferential roads, highways and LRT have been improved. Although 5 circumferential roads (C-1 to C-5) from the center of Manila to suburbs were improved, serious traffic congestion remains to be unsolved and increasing time for movement continues to be a bottleneck of logistics and people's mobility, which has caused great losses in economic activities and has become one of the factors for the decline in the international competitiveness of the country. Since C-4 (also known as: Epifanio de los Santos Avenue or EDSA) is the road connecting the business districts in the center of Metro Manila (such as in Ortigas and Makati City) and Quezon City, the most populous city in the Philippines with a large number of residents and commuters, it is the road with the largest traffic volume in Metro Manila - the traffic congestion level of which is worse than other circumferential roads. Moreover, C-5 which is located 2 km outside C-4, is expected to be an alternative traffic route; however, similar to C-4, severe congestions are observed in the road. One of the main factors of such congestions in both roads is the bottleneck at major intersections and would therefore necessitate the implementation of a project for installing flyovers at the ground intersections. Moreover, chronic traffic congestion has caused traffic accidents, air pollution, noise, etc. thereby deteriorating the urban environment. Thus, construction of flyover at ground intersections has become an urgent issue for both economic activities and urban environmental improvement in Metro Manila.

(2) Development Policies for the Transportation Sector in Metro Manila and the Priority of the Project

The Government of the Philippines places the improvement of traffic and transport network in Metro Manila as an important issue in the "Philippine Development Plan" (2011 to 2016). It also prioritizes reduction of congestion in Metro Manila and therefore this Project is recognized as a priority project in the "Medium-Term Public Works Urban

Development” (2011 to 2016) formulated by the Department of Public Works and Highways (DPWH).

(3) Japan and JICA’s Policy and Operations in the Transportation Sector in Metro Manila

In the JICA Country Analysis Paper for the Republic of the Philippines, “Infrastructure Development centered on the Greater Capital Region” is analyzed as an important issue and strengthening of transportation and traffic infrastructure is deemed necessary for both investment promotion and improvement of investment climate in Metro Manila. Moreover, “Achieving Sustainable Economic Growth through Further Promotion of Investment” is set as one of the priority areas in the Country Assistance Policy for the Republic of the Philippines (April 2012), specifically providing assistance for the improvement of traffic and transportation network of the Greater Capital Region. Thus, this Project is consistent with these analyses and policies. Furthermore, Japan has provided its assistance for design and construction of Metro Manila Interchange through Phase I to V. The Government of the Philippines recognizes the improvement of road network in Metro Manila including this Project as a major project of traffic and transport network improvement in the “Roadmap for Transport Infrastructure Development for Metro Manila and Its Surrounding Areas” which Japan currently supports its formulation.

(4) Other Donor’s Activity

South Korea has provided its support for F/S formulation in 2011 on C-6 which is planned to be newly constructed as a circumferential road located in the outermost areas of Metro Manila.

(5) Necessity of the Project

This project is consistent with the development policy of the Philippines and assistance policy of Japan and JICA. This project can contribute to the improvement of investment climate in Metro Manila and further vigorous economic activities of Japanese private sectors in Philippines, and thereby sustainable growth of the Philippines. Therefore, it is highly necessary and relevant for JICA to support this Project.

3. Project Description

(1) Project Objective

The objective of this Project is to reduce traffic congestion at intersections in the main roads of Metro Manila where traffic congestion frequently occurs by constructing flyovers, thereby contributing to the improvement of transport efficiency and urban environment in Metro Manila.

(2) Project Site/Target Area

Metro Manila

(3) Project Components

- ① Civil works: construction of flyover, underpass and approach roads at 4 intersections located in the main road of Metro Manila (international competitive bidding)

- ② Consulting services: detailed design review, bidding assistance, construction supervision (short-listing method)

(4) Loan Amount

9,535 million yen (of which, loan amount: 7,929 million yen)

(5) Project Implementation Schedule

March 2015 to March 2020 (60 months in total). Project completion is defined as when the operation of the facility is commenced (March 2019).

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of the Philippines
- 2) Executing Agency: Department of Public Works and Highways (DPWH)
- 3) Operation and Maintenance System: DPWH

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

1) Environmental and Social Consideration

① Category: B

- ② Reason for Categorization: This Project is not assumed to have a significant negative impact on the environment because it does not fall under the category of large-scale projects in the road sector as specified in “the JICA Guidelines for Environmental and Social Considerations” (issued in April 2010) (hereinafter, the “JICA Guidelines”). Moreover, this Project does not have sensitive characteristics nor is located in sensitive areas as defined in the Guidelines.

- ③ Environmental Permit: The Environmental Impact Assessment (EIA) Report will be approved and the Environmental Compliance Certificate will be issued by the Department of Environment and Natural Resources in April 2015.

- ④ Anti-Pollution Measures: The construction site will be sprinkled with water regularly, its construction work period will be restricted, and low-noise construction machineries will be used to prevent air pollution and noise during the construction period. Measures will also be taken against these pollutants after the commencement of services including regular monitoring, planting, introduction of traffic signs on regulation of horn and speed restrictions, etc.

- ⑤ Natural Environment: Since the Project is not located in or around sensitive areas such as national parks, its adverse impact on the natural environment is assumed to be minimal.

- ⑥ Social Environment: This Project requires land acquisition of about 100 m² in total which will be implemented in accordance with the procedures of the country and a simple relocation plan since no relocation of residents is required.

- ⑦ Other/Monitoring: Based on the environmental management plan, a monitoring team consisting of the executing agency, contractors, consultants, and local governments will monitor the status of air quality, waste, water quality, etc.

2) Promotion of Poverty Reduction: none

3) Promotion of Social Development:

Expected flow of migrant workers into the project site during the construction period may cause to develop infectious diseases (including HIV/AIDS, etc.) in the project site. The implementing organization will ensure that the contractor will be contractually obliged to take HIV/AIDS prevention measures for construction workers.

(8) Collaboration with Other Donors: none

(9) Other Important Issues:

This project is implemented in the central part of a large city. Therefore, Japanese technologies of rapid construction using steel viaduct for intersection will be utilized.

4. Targeted Outcomes

(1) Quantitative effect

(1) Operation and Effect Indicators

Indicator		Baseline (Actual Value in 2011)	Target (2020 [2 years after project completion])
Daily traffic volume (vehicle/day)	Intersection 1	99,813	118,167
	Intersection 2	166,381	178,985
	Intersection 3	69,392	76,593
	Intersection 4	129,440	178,551
Running speed at peak time(Km/hour)	Intersection 1	16.2	62.2
	Intersection 2	19.9	33.6
	Intersection 3	9.8	50.3
	Intersection 4	29.3	51.0

Intersection 1 : EDSA-Roosevelt-Congressional Intersection

Intersection 2 : EDSA-West-North Intersection

Intersection 3 : North-Mindanao Intersection

Intersection 4 : C-5-Green Meadows-Acropolis-Calle Industria Intersection)

2) Internal Rate of Return: Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project is: Intersection 1: 32.1%; Intersection 2: 59.9%; Intersection 3: 20.9%; and Intersection 4: 21.5%. (Since a free access road is constructed in the Project and fee is not charged, the financial internal rate of return (FIRR) is not calculated)

- Cost: Project cost (tax excluded), operation and maintenance cost
- Benefit: vehicle operation cost savings, time savings
- Project life: 20 years

(2) Qualitative effect: Reduction of road traffic congestion in Metro Manila and increase of road traffic safety

5. External Factors and Risk Control

Construction schedule is not influenced by a large-scale natural disaster, etc.

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

(1) Findings of Similar Projects: (i) the necessity of more detailed technical survey and design at the detailed design stage before starting construction works to avoid design change which may result in the work delay and cost overrun is pointed out in ex-post evaluation of "Metro Manila Interchange Construction Project (IV)." (ii) The ex-post evaluation also points out that land acquisition should be completed before starting the construction work by estimating sufficient time for land acquisition and other measures.

(2) Lessons Learned to the Project: (i) the field conditions are grasped correctly and a feasible construction plan is sufficiently examined at the stage of detailed design. (ii) By implementing land acquisition earlier, its impact on the construction period will be avoided so that the project completion period will be shortened.

7. Plan for Future Evaluation

(1) Indicators for Future Evaluation

- 1) Daily traffic volume (vehicle/day)
- 2) Running speed at peak time (km/hour)
- 3) Economic internal rate of return

(2) Timing of Next Evaluation: 2 years after project completion