

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

Country: The Republic of the Philippines

Project: Davao City Bypass Construction Project (South and Center Sections)

Loan Agreement: August 25, 2015

Loan Amount: 23,906 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 Mindanao**

The island of Mindanao is located in the south of the Philippines with its area about 102,000 km<sup>2</sup> and its population about 22 million people (according to 2010 statistics). Economic development of the island has lagged behind compared to other regions in the country due to prolonged conflict in the southwest part of the island. With the Comprehensive Agreement on the Bangsamoro concluded between Moro Islamic Liberation Front (MILF) and the Government of the Philippines in March 2014, expectations for full-scale economic development centered on agriculture and fisheries, mineral industries, etc. have been growing. Davao City in Region XI where the project site is located is the largest city in the island with a population of approximately 1.45 million people and is considered to have the third largest population scale among metropolitan areas in the country following to Metro Manila and Cebu.

For example, the average increase rate of the number of vehicles registered in the past two years in Region XI was 4.66% which exceeded the national average of 3.79%. Moreover, Davao City port district including the major export bases like Sasa International Seaport mainly exports agricultural products (such as bananas and durians) and industrial products, and is also used by Japanese companies located nearby. Functioning as a gateway to other islands, Davao City is expected to increase its importance as the driving force for stable economic growth in the island going forward.

Associated with a rise in the population density, however, traffic congestion has become a serious problem in the center of Davao City where urban areas, commercial facilities, airport, etc. are densely distributed and 45% of urban population is concentrated in only 3% of the overall City area. In the road extending to the City from outside as well as the existing road from Davao City to Sasa International Seaport area, the maximum running speed at peak time has been reduced to 20km/h or slower. In the center of Davao City, truck regulation is implemented in the morning and evening (6 hours in a day) to mitigate traffic congestion during rush hours. This forces drivers to choose alternative roads in the west side in the center of the City. However, steep sections and excessive traffic density in these alternative roads hinder an efficient route of logistics and people.

## (2) Development Policies for the Transportation Sector in Mindanao and the Priority of the Project

In the “Philippine Development Plan” (2011 to 2016), one of the prioritized issues of the transportation sector is to expand the scope of improvement from the central region centered on Metro Manila to local regions to promote economic growth in major regions other than Metro Manila. Moreover, to promote economic growth by strengthening connection among major base cities inside islands through increasing road pavement ratio by new road constructions, rehabilitation of the pavement of existing roads with significant damage is set as a goal in “Region XI Regional Development Plan” (2011 to 2016). Under these development plans, construction of a bypass road connecting the southern tip and the north eastern part of Davao City has been placed as one of the prioritized project in the “Master Plan on High Standard Highway Network Development” (July 2010) which was formulated by DPWH with Japan’s assistance.

This Project plans to construct a new bypass road which can contribute to reduce traffic congestion in the section where such measure is urgently needed and to improve the paving of existing roads connecting the central part of the city and port area, thereby improving access between ports, including Sasa International Seaport, and the city center as well as to reduce traffic congestion in the city.

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

In the JICA Country Analysis Paper for the Republic of the Philippines (March 2012), “Infrastructure improvement for rural base development” is analyzed as an important issue and therefore highway network extension and industrial space formation and efficient logistics is deemed necessary to reduce congestion and improve logistics in capital region. 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 infrastructure improvement program for rural base development. Thus, this Project is consistent with these analyses and policies.

To date, Japan has provided approximately 301.9 billion yen of ODA Loan in total to road and bridge projects out of the about 1,162 billion yen of the total loan amount from FY 1995 to FY 2013. JICA has provided ODA Loan projects for the improvement of road network in Mindanao, including “Central Mindanao Road Project” (L/A in 2003), “Second Magsaysay Bridge and Butuan City Bypass Road Construction Project” (L/A in 2000), “Philippines - Japan Friendship Highway Mindanao Section Rehabilitation Project (Phase I and II)” (L/A in 1997 and 1999), “Rural Road Network Development Project (Phase II)” (L/A in 1995). In addition, JICA also has provided its support through Grant Aid projects of “Project for Supply of Road Construction Equipment in Western Mindanao” (EN in 1998) and “Project for Construction of Rural Road and Bridge in Mindanao Section” (EN in 1995)

while through technical cooperation of “Improvement of Quality Management for Highway and Bridge Construction and Maintenance, Phase II” (Cooperation period: October 2011 to September 2014) and other projects.

#### (4) Other Donor’s Activity

The World Bank sets improvement of investment climate and increase of jobs in rural areas as goals of “rapid, inclusive and sustained economic growth” in the Country Partnership Strategy (2015 to 2018).” One of its areas of engagement, the “Philippines Rural Development Project” targets the creation of value chains in rural areas and improvement of Farm to Market roads as one of the subcomponents. The International Finance Corporation has provided advisory service related to Sasa International Seaport Expansion Project through PPP scheme as IFC focuses on its support provided to private-sector-oriented development as its strategy for East Asia and Pacific Region.

Asian Development Bank places its focus of assistance on maintenance and improvement of existing road network including urban transportation network in its Country Partnership Strategy (2011 to 2016), and plans to commence improvement project for public transportation network in the center of Davao City.

#### (5) Necessity of the Project

As noted above, this Project responds to the goal of sustained economic growth through infrastructure improvement for rural base development and investment promotion in the Philippines. This Project is in line with the development policy of the Philippines and the assistance policy of Japan and JICA. Therefore, it is highly necessary and relevant for JICA to support this Project.

### **3. Project Description**

#### (1) Project Objective

The Objective of the Project is to construct a bypass road connecting the southern tip and the center part of Davao City and improve the paving of existing roads, thereby improving access between ports, including Sasa International Seaport, and the city center, and improving logistics and traffic congestion in the biggest economy in Mindanao, the core of which is Davao City, with the objective of contributing to economic development in Mindanao.

#### (2) Project Site/Target Area

Davao City, Davao Province, Mindanao Island

#### (3) Project Components

- 1) Civil works: construction of new bypass road for about 30 km (including bridges and road tunnels) and improvement of the paving of existing roads for about 10 km
- 2) Consulting services: detailed design and bidding assistance, construction supervision, strengthening of tunnel maintenance and management capacity

#### (4) Loan Amount

29,123 million yen (of which, for loan amount: 23,906 million yen)

#### (5) Project Implementation Schedule

August 2015 to September 2022 (86 months in total). Project completion is defined as when the operation of the facility is commenced.

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of the Philippines
- 2) Guarantor: none
- 3) Executing Agency: Department of Public Works and Highways (DPWH)
- 4) Operation and Maintenance System: DPWH Region XI Office maintains the main bypass road section while the City of Davao is in charge of the section for improving the paving of existing roads. Technical assistance was provided to the Region XI Office through a technical cooperation project "Improvement of Quality Management for Highway and Bridge Construction & Maintenance, Phase 2" (Cooperation period: October 2011 to September 2014) which aims to improve the capacity of local engineers relevant to road and bridge maintenance, thereby they are expected to utilize manuals prepared in the project.

(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 Statement (EIS) Report is under the appraisal process for the Environmental Compliance Certificate at the Department of Environment, Natural Resources, as of August 2015. The EIS is expected to be approved by September 2015.
- ④ Anti-Pollution Measures: Water pollution by effluents and soil runoff from the barren lands is expected during the construction period; therefore, measures will be taken to reduce the impact by installing sediment basin, anti-pollution fence, etc. Excavated soils associated with tunnel construction amounting to approximately 2 million m<sup>3</sup> are expected with about 0.6 million m<sup>3</sup> of which will be reused for road pavement in this Project while the rest be appropriately disposed in the muck disposal site designated by Davao City. Measures for air quality and noise and vibration after the commencement of services will be undertaken by installing noise barrier and greenbelt as needed.
- 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 will require the relocation of 24 households (96 people) the acquisition of additional 172.8 Ha land and their procedures will be in line with the Philippines' procedures and the Resettlement Action Plan (RAP). At a consultation meeting with residents held during the process of RAP preparation, among the items explained were the description of this Project, compensation and assistance, relocation schedule, monitoring plan, grievance redress mechanism, etc. Throughout the meeting, no specific adverse opinions against the project implementation were observed.

⑦ Other/Monitoring: Based on the environmental management plan and environmental monitoring plan, the Implementing Agency (DPWH) will conduct monitoring of water quality, noise, air quality, etc. in areas surrounding the project site in Davao City both during the construction period and after the commencement of services. Monitoring of the implementation status of land acquisition and resettlement and the state of livelihood recovery will be oriented by the local government (the City of Davao).

2) Promotion of Poverty Reduction: Living standards of residents in local areas are expected to increase through the improvement of employment opportunities, etc. by strengthening logistics and traffic function in Davao City, Mindanao Island, and other region.

3) Promotion of Social Development and Measures for Infectious Disease including HIV/AIDS:

① Gender perspective: Gender-responsive project: In order to appropriately grasp women's issues and needs - in the process of RAP preparation, a focus-group discussion will be held for female-headed households and monitoring will be conducted to secure proper response at the relocation stage.

② Measures for infectious disease including HIV/AIDS: 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 shall be required to include the provision on HIV/AIDS in the bidding document and 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:

1) Utilization of Japanese technologies for construction in tunnel section: Given the circumstance as noted above that there is no experience of construction and maintenance of long tunnel in the Philippines, Japanese tunnel excavation and construction methods which are superior in terms of safety and technology will be utilized.

2) Support for enhancing capacity related to tunnel construction and its general maintenance: Considering the fact that it will be the first long tunnel construction in

the Philippines, capacity development taking into consideration the utilization of Japanese technologies will be implemented at each stage of the project implementation.

#### 4. Targeted Outcomes

(1) Quantitative effect

(1) Outcome (Operation and Effect Indicator)

Indicator	Section	Baseline (Actual Value in 2013)	Target (2023 [2 years after project completion])
Annual average daily traffic volume (vehicle/day)	Sirawan to Sasa International Seaport	n/a	15,238
Reduction of time required (hour)	Sirawan to Sasa International Seaport	1.27	0.47

\*As sub-indicator, “Increase of average running speed (km/h)” and “Reduction of congestion length and passing time (hour)” can also be used in ex-post evaluation.

2) Impact

- Vitalization of economic activities by the improvement of logistics in the core city of Davao and Mindanao Island (indicator: cargo transportation volume (t/year))

(2) Qualitative effect

- Reduction of traffic congestion in Davao City
- Promotion of overseas investment to Mindanao

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project is 23.7%. In this Project, toll is planned to be collected only for the 2 km of tunnel section but not for the whole stretch of the road. Therefore, the financial internal rate of return (FIRR) is not calculated.

**【EIRR】**

Cost: Project cost, operation and maintenance cost

Benefit: Vehicle operation cost savings, time savings

Project Life: 30 years

#### 5. External Factors and Risk Control

None

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

(1) Findings of Similar Projects

Ex-post evaluations of “Hai Van Tunnel Construction Project (1) to (3)” in Vietnam suggests that formulation and implementation of various training programs within and

outside the country on the theme of maintenance at the project implementation stage as well as establishment of a close relationship of cooperation with implementing agency and maintenance body are important for proper implementation of tunnel maintenance by using new and advanced technologies.

## (2) Lessons Learned to the Project

Based on the findings above, since a long tunnel is constructed in this Project which will be the first of its kind in the Philippines, capacity development of agencies implementing the tunnel maintenance will be conducted to ensure the proper monitoring of private companies who will serve as the maintenance operators. Those private companies which are expected to be the maintenance operators will form a joint venture with overseas operators who have experience in tunnel maintenance works.

## **7. Plan for Future Evaluation**

### (1) Indicators for Future Evaluation

- 1) Annual average daily traffic volume (vehicle/day)
- 2) Reduction of time required (hour)
- 3) Economic internal rate of return (EIRR)

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