

Ex-Ante Evaluation (for Japanese ODA Loan)
Southeast Asia Division 5, Southeast Asia and Pacific Department,
Japan International Cooperation Agency (JICA)

1. Basic Information

Country: The Republic of the Philippines

Project: Davao City Bypass Construction Project (II)

Loan Agreement: June 16, 2020

2. Background and Necessity of the Project

(1) Current State and Issues of the Development of the Transportation Sector in Mindanao and the Positioning of the Project

Mindanao is an island located in the southern part of the Republic of the Philippines, with an area of approximately 102,000 km² and a population of about 24 million people (Philippine population statistics for 2015). Compared to other parts of the country, economic development has been slow and the poverty rate is high, due to the long-standing armed conflict in the southwest part of the island. However, recently, the Bangsamoro Organic Law was established in July 2018, based on the Comprehensive Agreement on Bangsamoro (2014) between the Government of the Philippines and the Moro Islamic Liberation Front (MILF), and the Bangsamoro Transition Authority was launched in March 2019. As such, the peace process is steadily progressing toward the establishment of the Bangsamoro Government in 2022, and expectations continue to rise for full-scale economic growth centered on the agricultural, fisheries, and mining industries.

The target region of the Project is Davao City, which is located in the Province of Davao del Sur and is the largest city on Mindanao (with a population of 1.63 million, according to the 2015 census). In terms of population, it is the third-largest urban area in the country, after Manila and Cebu. With a GDP growth rate of 10.7% in 2017 and 8.6% in 2018, the Davao region has achieved high economic growth compared to the nation as a whole, which showed an overall GDP growth rate of 6.7% in 2017 and 6.2% in 2018. In the port area of Davao City, large-scale port facilities have been developed. Sasa International Seaport is a major port for exports, and from here, agricultural products, which are the main export items of Mindanao, as well as the agricultural and industrial products produced by Japanese companies are exported. In this way, Davao City is the center of the island's economy and also functions as a gateway to the

island. In the future, the city is expected to become even more important as a driving force in the economic growth of the island.

Along with this economic growth, the number of registered vehicles in the Davao region has also increased rapidly. In 2018, there were approximately 590,000 registered vehicles, which is an increase of about 20% over the previous year. In addition, economic activity and residential land development have been concentrated along the limited number of arterial roads located in the city. These have caused an influx of vehicles travelling in a north-south direction from the port area, despite the fact they do not need to pass through the city. In peak hours, travelling speed on the city's arterial roads slows to less than 20 km/hour, thereby hindering economic activity and physical distribution in the city. There are concerns that traffic congestion will become even more serious as the city continues to develop.

Therefore, constructing a bypass road that connects the port area to the southern end of the city, while avoiding the city center, will increase road transport capacity, separate intracity traffic from through-traffic, improve physical distribution, and help alleviate traffic congestion.

The Philippine Development Plan 2017-2022 positions the Davao metropolitan area as one of the economic centers of the country, and includes the further improvement of transport infrastructure based on master plans and other development programs. It also puts forth issues regarding traffic congestion and fragile road networks, with policies for developing bypasses and alternatives roads, including necessary and appropriate tunnels. After the inauguration of the current government administration in June 2016, the Government of the Philippines announced an infrastructure development program in April 2017 called "Build, Build, Build," with plans to implement infrastructure investments in the amount of 8.4 trillion pesos (approx. 17.64 trillion yen) over six years until 2022. One of the flagship projects of this program is the Davao City Bypass Construction Project (hereinafter referred to as the "Project"), in which a bypass road will be built to improve logistics in the Davao City economic region and mitigate traffic congestion in the city.

(2) Japan and JICA's Cooperation Policy, etc. for the Transportation Sector in Mindanao and the Positioning of the Project

In Japan's Country Assistance Policy for the Philippines (April 2018), "strengthening a foundation for sustainable economic growth" was specified as a priority area; this entails providing cooperation in the development of high-quality

infrastructure, including transportation networks in the greater national capital region and provincial cities. In the JICA Country Analysis Paper for the Republic of the Philippines (November 2014), the “improvement of transport/transportation and infrastructure development by PPP” was identified as a priority issue; the Project is thus consistent with these policies and analyses. In addition, the Project will contribute to improving physical distribution in the Davao metropolitan area, reducing traffic congestion in Davao City, and to SDG goal 8 (inclusive and sustainable economic growth) and goal 11 (making cities inclusive, safe, resilient, and sustainable).

To date, Japan has provided support for the transport sector in Mindanao in the Central Mindanao Road Project and the Road Network Development Project in Conflict-Affected Areas in Mindanao. Additional assistance has also been provided in the form of Grant Aid, covering the Project for Community Development in Conflict-Affected Areas in Mindanao and the Program for the Support for Rehabilitation and Reconstruction of Marawi City and its Surrounding Areas. Technical cooperation projects include the Project on Improvement of Quality Management for Highway and Bridge Construction and Maintenance Phases 1-3 and the Davao City Infrastructure Development Plan and Capacity Building Project.

(3) Other Donor Activity

Based in their Country Partnership Strategy (2018-2023), the Asian Development Bank plans to implement local economic development in Mindanao and the Visayan Islands, which have high poverty rates, by strengthening connectivity between local growth corridors. In line with this policy, road development in the Zamboanga Peninsula of Mindanao is currently underway as part of their Improving Growth Corridors in Mindanao Road Sector Project. In the World Bank’s National Roads Improvement and Management Project (Phase 2) from 2008 to 2016, arterial roads connecting conflict-affected areas with other regions were repaired.

3. Project Description

(1) Project Objective

The objective of the Project is to respond to increasing traffic demand, mitigate traffic congestion in Davao City and improve logistics in the biggest economic region in Mindanao, the center of which is Davao City, by constructing a bypass road connecting the southern tip and the center part of the City in Mindanao, thereby contributing to economic development in Mindanao.

- (2) Project Site/Target Area
Davao City, Davao Province, Mindanao Island (population: 1.63 million)
- (3) Project Components
 - 1) Construction of a new bypass road: 29.6 km (4-lane road; includes bridges and road tunnels)
 - 2) Consulting services (detailed design, bidding assistance, construction supervision, strengthening of tunnel maintenance and management capacity)
- (4) Estimated Project Cost
71,292 million yen (of which the present loan amount is 34,830 million yen)
- (5) Project Implementation Schedule
August 2015 – July 2024 (108 months in total). Project completion is defined as the commencement of operation for all facilities (April 2023).
- (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/Maintenance and Management Agency: DPWH
- (7) Collaboration and Division of Roles with Other Projects and Donors
 - 1) Japan's Assistance Activities: Under the Davao City Infrastructure Development Plan and Capacity Building Project from 2015 to 2018, a master plan for urban infrastructure development in Davao City was created, and assistance was provided for the formulation of road traffic demand forecasting and development plans for road networks, including this Project.
 - 2) Other Donors' Assistance Activities: None
- (8) Environmental and Social Considerations/Cross-Cutting Issues/Gender Classification
 - 1) Environmental and Social Considerations
 - ① Category: A
 - ② Reason for Categorization: The Project is likely to have significant adverse impact due to its characteristics under the JICA Guidelines for Environmental and Social Conditions (published in April 2010) (hereinafter referred to as "JICA Environmental Guidelines").
 - ③ Environmental Permit: For the Project, an ECC was obtained from the Philippine Department of Environment and Natural Resources (DENR) on September 22, 2015 for four lanes. However, because the

detailed design made it necessary to change the road alignment and widen the right of way in some sections, the Environmental Impact Assessment (EIA) was revised, and an amended ECC obtained in June 2018. It subsequently became necessary to slightly change the road alignment and widen the right of way again, upon which another amended ECC was obtained on August 23, 2019.

- ④ Anti-Pollution Measures: Mitigation measures such as spraying water and installing sedimentation ponds and silt fences will be taken, in consideration of air and water quality during construction. Noise and vibration will be mitigated by installing sound barriers and prohibiting nighttime construction work. Some of the waste material, such as excavated dirt, will be reused for building roads for the Project; the remainder of the waste will be properly disposed of at designated spoil banks. The impacts of the scattering or runoff of surplus soil will be monitored and managed appropriately.
 - ⑤ Natural Environments: The Project is not in a sensitive area such as a national park, nor in the surrounding area of such. The Project will impact vulnerable (VU) plant species on the IUCN Red List. Transplanting is prioritized, but if plants are cut down, tree planting will be conducted according to domestic standards and monitored periodically.
 - ⑥ Social Environment: The Project will require the acquisition of 154.8 hectares of land, accompanied by the involuntary resettlement of 396 households (1,771 people). The procedures for land acquisition and resettlement for the Project will be implemented following a Resettlement Action Plan created in accordance with the laws of the Philippines and JICA Guidelines. No particular opposition to the implementation of the Project has been raised in discussions with residents regarding the Project.
 - ⑦ Other/Monitoring: During construction, DPWH and the construction contractor will monitor air quality, noise/vibration, and water quality, etc. DPWH will monitor the progress of procedures for land acquisition, resettlement, and support for livelihood recovery necessary for the Project.
- 2) Cross-Cutting Issues: During the construction period, an influx of migrant workers from outside the local area is expected, so infectious diseases

(including HIV and AIDS) may occur at the project site. As a countermeasure, an AIDS clause will be included in bidding documents, and the construction contractor shall implement measures for workers to prevent HIV infections.

3) Gender Classification:

[Excluded] GI (Gender mainstreaming needs survey/analysis project)

<Reason for Categorization> Although gender mainstreaming needs were surveyed and checked for the Project, it did not lead to any specific efforts that would contribute to gender quality and women’s empowerment.

(9) Other Important Issues

As there has never been a long tunnel constructed in the Philippines, Japanese tunnel excavation and construction technologies will be used for their superiority in terms of safety and technology.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator		Baseline (actual value in 2017)	Target (2025: 2 years after project completion)
Annual average daily traffic volume (Passenger Car Unit (PCU) per day)	Davao-Cotabato Road (existing road)	11,868	14,471 (Note 1)
	Davao Bypass (this Project) (Note 2)	-	25,868 (Note 2)
Travel time between Sirawan to Sasa International Seaport (in minutes)		87 (for the existing road)	47 (for the bypass (this Project))
Average speed (Existing urban road) (Note 3)		(Note 3) (baseline for 2020)	(Note 3)

(Note 1) Measured on the Davao-Cotabato Road with Davao Bypass as the start point.

(Note 2) Tunnel section. Traffic volume also measured at bypass start point, Mintal intersection (intersection of the Davao-Bukidnon Road and the bypass), and bypass end point.

(Note 3) The selection of an appropriate urban road and the setting of baseline and target values by the construction supervisor consulting service was agreed upon by appraisal mission.

(2) Qualitative Effects: Vitalization of economic activity in Davao City and other regions in Mindanao, promotion of overseas investment in Mindanao.

(3) Internal Rate of Return

Based on the following preconditions, the Economic Internal Rate of Return (EIRR) for the Project will be 15.9%. Of the sections covered by the Project, tolls will be collected for only the 2.3 km of tunnel section. Since profits are not planned to be maintained or secured for the Project overall, the Financial Internal Rate of Return (FIRR) is not calculated.

[EIRR]

Costs: Project cost, maintenance cost (both excluding taxes)

Benefits: Vehicle operation cost savings, travel time savings

Project life: 36 years

5. Prerequisites and External Factors

None in particular

6. Lessons Learned from Past Projects and Application of Lessons Learned to the Project

From the ex-post evaluation findings from the Hai Van Tunnel Construction Project (1)-(2) (evaluation year: 2009), which was an ODA loan project for the Socialist Republic of Vietnam, it was learned that in order for tunnel maintenance to be conducted appropriately, it is important to formulate and implement various training programs on maintenance from the project implementation stage, both in and outside the country. It is also important to establish a close, cooperative relationship with the implementing agency and the organization handling the maintenance.

In the Philippines, there has only been one tunnel built in the past (a 300 m tunnel in the Cavite region of the southern part of Luzon). Since the Philippines has no experience in the construction and maintenance of long tunnels, for this Project, tunnel operation and maintenance will be commissioned to a private company (a joint venture with an overseas tunnel operation and maintenance company who can transfer technology to a local company). As part of ODA loan consulting services, assistance will be provided in the selection process of the private company to ensure that one with sufficient experience is chosen. In addition, support will be provided for strengthening the capacity of the implementing agency in tunnel maintenance so that it can properly monitor said private company.

7. Evaluation Results

The Project is consistent with the development issues and development policies of the Philippines, as well as Japan's and JICA's policies and analyses. The Project will contribute to improving physical distribution in the Davao metropolitan area, reducing traffic congestion in Davao City, and to SDG goal 8 (inclusive and sustainable economic growth) and goal 11 (making cities inclusive, safe, resilient, and sustainable). Therefore, the need to support the implementation of the project is high.

8. Plan for Future Evaluation

(1) Indicators to be Used

As provided in 4. (1) to (3).

(2) Next Evaluation Schedule

Ex-post evaluation: Two years after project completion

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