

Japanese ODA Loan

Ex-Ante Evaluation(for Japanese ODA Loan)
Southeast Asia Division 2, Southeast Asia and Pacific Department
Japan International Cooperation Agency

1. Name of the Project

- (1) Country: Kingdom of Cambodia
 - (2) Project: National Road No. 5 Improvement Project (Prek Kdam- Thlea Ma'am Section) (IV)
 - (3) Project Site: Kandal, Kampong Speu, Kampong Chhnang and Pursat Provinces
- Loan Agreement: June 22, 2023

2. Background and Necessity of the Project

(1) Current State and Issues of the Road Sector and the Priority of the Project in Cambodia

Railway network development has made slow progress in Cambodia, and road transportation plays a central role in domestic transportation. Moreover, Cambodia is located between Thailand and Vietnam and is located in the middle of the Southern Economic Corridor, in which efforts to strengthen connectivity are being made under the Master Plan on ASEAN Connectivity approved at the ASEAN top-level meeting in 2010. Thus, Cambodia is expected to be a regional distribution hub. Cambodia is making a progress in rehabilitating its transportation infrastructure with the aid of the international society, including Japan, World Bank, and Asian Development Bank (hereinafter referred to as "ADB"), since the end of the civil war in 1991. The core parts of road and bridge infrastructure have been almost rehabilitated and constructed. However, regarding existing roads, as sections that have been temporarily repaired after the civil war have aged and some of them are narrow in width, further rehabilitation of the existing roads has become an issue in responding to increased domestic and international logistics resulting from future economic development in Cambodia.

In particular, National Road No. 5 is an arterial road in Cambodia and is a part of Asian Highway Route No. 1 and the Southern Economic Corridor, and thus, it is expected to function as a main industrial artery in the Mekong region. Although the temporary restoration work has been carried out for the section covered by National Road No. 5 Improvement Project (Prek Kdam - Thlea Ma'am Section)

(hereinafter referred to as "the Project"), the Road is of poor quality, and traffic volume shows an upward trend. For these reasons, increasing the transportation capacity and improving the logistics efficiency have become urgent issues in responding to increased domestic and international logistics resulting from future economic development in Cambodia. Under such circumstances, the Royal Government of Cambodia requested the Japanese government to carry out the Project in October 2013, and loan agreements for the Projects (I), (II), and (III) were signed in July 2014, March 2016, and March 2020, respectively.

As of 2023, in the National Strategic Development Plan 2019–2023 (hereinafter referred to as "NSDP 2019–2023"), the Royal Government of Cambodia shows that it continues to make efforts to rehabilitate and develop the transportation infrastructure as a priority issue and aims at rehabilitating, constructing and widening the single digit national roads over a length of 700 kilometers or more from two-lane double bituminous surface treatment roads to four-lane asphalt concrete roads in the period of the NSDP 2019–2023. In the National Road Network Master Plan (hereinafter referred to as "M/P") formulated in 2006 with the assistance from JICA, improvement of National Road No. 5, which is a part of the Southern Economic Corridor, is defined as a priority project, since the project is considered a contribution to national and regional integration.

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

In the Japanese Development Cooperation Policy for the Kingdom of Cambodia (July 2017), Japan provides assistance for strengthening distribution networks including both hard and soft infrastructure (e.g. roads, ports, the procedures of customs and excise, etc.) with the aim of promoting regional connectivity and industrial development, under the priority goal of "Industry development." Moreover, in the JICA Country Analysis Paper for the Kingdom of Cambodia (March 2014), the analysis results showed that infrastructure development to enhance transportation capacity to Vietnam and Thailand was a priority issue. Therefore, the Project is consistent with Japan and JICA's country assistance policies and analyses. The Project will also contribute to the pursuit of economic prosperity in a Free and Open Indo-Pacific (FOIP) as it will improve physical connectivity in Cambodia by improving the country's road network.

JICA has made efforts at infrastructure development and capacity development for maintenance of infrastructure by carrying out the Project for Improvement of National Road No. 1 (I) to (IV) and Urban Section (2005–2017, Grant Aid), the Project for Construction of Neak Loeung Bridge (2010–2016,

Grant Aid), the Project for Rehabilitation of the Chroy Changwar Bridge (2016–2020, Grant Aid) and other projects undertaken as Grant Aid, as well as the Project for Strengthening Capacity for Maintenance of Roads and Bridges (2015–2018, Technical Cooperation Project), the Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector (2017–2020, Technical Assistance Project related to Japanese ODA Loan) and other projects as Technical Cooperation. Moreover, based on the M/P as mentioned above, JICA is currently supporting improvement of National Road No. 5 (a total length of 366 kilometers), which is part of the Southern Economic Corridor, and have provided Japanese ODA loans for National Road No. 5 Improvement Project (Battambang – Sri Sophorn Section) ((I) in May 2013 and (II) in March 2017); National Road No. 5 Improvement Project (Prek Kdam – Thlea Ma'am Section) ((I) in July 2014, (II) in March 2016, and (III) in March 2020); and National Road No. 5 Improvement Project (Thlea Ma'am – Battambang and Sri Sophorn – Poipet Sections) ((I) in March 2015 and (II) in March 2020). Furthermore, JICA has also made efforts to improve capacity to implement road safety measures along National Road No. 5 through the Project for Improvement of Road Traffic Safety on Trunk Roads (Technical Assistance Project related to Japanese ODA Loan, June 2021 to January 2025). National Road No. 5 will, once improved, contribute to the improvement of the distribution network between Thailand and Cambodia and benefit Japanese companies operating in both countries.

Additionally, the Technical Assistance Project related to Japanese ODA Loan helps to ensure road safety along National Road No. 5, and the Project is, therefore, expected to contribute to SDG Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Goal 3: Ensure healthy lives and promote well-being for all at all ages; and Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents.

(3) Other Donors' Activities

According to Country Partnership Strategy (October 2019), in order to support agriculture commercialization, access to markets and tourism, and facilitate trade, ADB will continue to improve selected national, provincial and rural roads. ADB implemented Road Asset Management Project (2008–2014) in collaboration with World Bank and Australia to build capacity to improve the maintenance and management of roads network including installation of road

signs and repair to damaged sections including National Road No. 5. In addition, ADB is supporting improvement, asset management, road safety and etc. of rural roads in ten provinces. World Bank is giving support for improving climate resilience of national roads, provincial roads and rural roads.

Moreover, China has been increasing support for the transportation sector and is the largest donor in the sector. A Chinese company recently constructed the Phnom Penh-Sihanoukville expressway under the build-operate-transfer model. (The expressway, which stretches 190 kilometers and cost US\$2 billion to construct, was opened in October 2022.) China also carried out improvement of National Road No. 5 (2012–2016), in which it widened the road to four-lane in the section from the environs of Phnom Penh to Prek Kdam Bridge (30 kilometers), which is not covered by the Project.

3. Project Description

(1) Project Description

1) Project Objective

The objective of the Project is to increase the transportation capacity as well as to improve the logistics efficiency in the section between Prek Kdam and Thlea Ma'am Section along the National Road No. 5 which connects Phnom Penh Capital and Thai border, by improving the condition of existing road and constructing the new bypasses, thereby contributing to economic development of Cambodia.

2) Project Components

- ① Civil works (rehabilitation and widening of the existing road (about 118 kilometers in total length), construction of bypasses (about 17 kilometers in total length), newly construction of 2 bridges, rehabilitation of 18 bridges and widening of 13 bridges, installation of median division (3 meters in width over the whole section)) (international competitive bidding)
- ② Consulting services (e.g. detailed design, bidding assistance, construction supervision, human resource development / enhancement of the organization) (shortlisting)

3) Project Beneficiaries (Target Group)

- ① The public and private sector companies that will use the improved roads
- ② Consumers of goods and services that will be provided using the improved roads

- ③ Executing agency that will benefit from human resource development and capacity building
- (2) Estimated Project Cost
45,364 million yen (Japanese ODA loan: 37,917 million Yen)
- (3) Schedule
July/2014-July/2024 (121 months in total). Project completion is defined as the commencement of the service of all facilities (May 2023).
- (4) Project Implementation Structure
 - 1) Borrower: The Royal Government of Cambodia
 - 2) Executing Agency: Ministry of Public Works and Transport (hereinafter referred to as "MPWT")
- 3) Operation and Maintenance System: Same as above
- (5) Collaboration and Sharing of Roles with Other Donors
 - 1) Japan's Activity
Japan is promoting connectivity in the Mekong region by improving roads in the Southern Economic Corridor through National Road No. 5 Improvement Project (Battambang - Sri Sophorn) (I) (II) (2013–2021), which is a Japanese ODA loan project completed in September 2021, and National Road No. 5 Improvement Project (Thlea Ma'am – Battambang and Sri Sophorn – Poipet Sections) (I) (II) (2015–2024), which is a Japanese ODA Loan project in progress. Moreover, Japan has made efforts to improve the executing agency's capacity to implement road safety measures along National Road No. 5 through the Project for Improvement of Road Traffic Safety on Trunk Roads (Technical Assistance Projects related to Japanese ODA Loan, June 2021 to January 2025). The outcomes of the Technical Cooperation are used in infrastructure development projects including the Project.
 - 2) Other Donors' Activity
N/A
- (6) Environmental and Social Consideration
 - 1) Category: A
 - 2) Reason for Categorization: The Project falls into the road sector and sensitive characteristics under the Japan International Cooperation Agency Guidelines for Environmental and Social Considerations (promulgated in April 2010) (hereinafter referred to as the "JICA Guidelines for Environmental and Social Considerations").

- 3) Environmental Permit: An Environmental Impact Assessment (EIA) report for the Project was approved by the Ministry of Environment on November 26, 2013.
 - 4) Anti-Pollution Measures: The measures will be taken to address air pollution, noise, and vibration during the construction stage, including the regular maintenance of construction machinery and the regulation of construction working hours, and noise and vibration countermeasures by speed regulation will be carried out in the service stage.
 - 5) Natural Environment: Since the Project site is not located in sensitive areas such as national parks, adverse impact on the natural environment is assumed to be minimal. However, as the Project site is near the boundary of the Tonle Sap Biosphere Reserve, cutting down of trees will be minimized during the construction stage, and a five-year monitoring plan on the surrounding ecosystem will be implemented in the service stage.
 - 6) Social Environment: The Project involves the land acquisition about 90.3 hectares and the involuntary resettlement of 872 households (including setback). The resettlement was completed in August 2022 in accordance with the resettlement action plan, which was prepared in accordance with domestic procedures in Cambodia and the JICA Guidelines for Environmental and Social Considerations (promulgated in April 2010). No specific objections to the Project were raised by the affected residents.
 - 7) Other/Monitoring: MPWT, which is an executing agency of the Project, will monitor air quality, noise and vibration, waste amount, and influences on ecosystems and other matters during the construction and service stages. Moreover, the Inter-Ministerial Resettlement Committee (hereinafter referred to as "IRC") is monitoring the land acquisition and involuntary resettlement, and external consultant hired by IRC is monitoring the state of paying compensation and residents' living conditions after resettlement.
- (7) Cross-Sectoral Issues
- 1) The MPWT obligates contractors to implement AIDS / HIV prevention program as a part of health care for workers at site.
 - 2) The Project will contribute to adaptations regarding climate change through climate risk mitigation measures such as raising the level of road surface in the partial sections and proper development of water supply pipes and

drainage pipes under the roads in order to prevent further flood damage. The Project will also contribute to climate change mitigation as traffic congestion will be improved as a result of the widening of roads and the construction of bypasses and consequently greenhouse gas emissions will be reduced. The reduction in greenhouse gas emissions is estimated to be 11,447 tons of CO2 per year.

(8) Gender Category: [Gender Project] GI(S) (gender activity integration project)

<Details of Activities/Reason for Categorization> The Project is carried out to implement initiatives to create job opportunities for women under the "Gender Strategy: Mainstreaming in Public Works and Transport Sector 2016-2020" formulated by the executing agency (It has been confirmed with the executing agency that the strategy is effective as of January 2023.), and the proportion of women in the unskilled workforce is set in the Project.

(9) Other Important Issues: N/A

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Target roads	Baseline (Actual value in 2012)	Target (2025) [2 years after project completion]
Annual average daily traffic (PCU*/day)	National Road No. 5 main road	7,306	16,300
	Kampong Chhnang bypass	-	17,300
	Odongk bypass	-	23,200
Travel Time (minutes) (Prek Kdam - Thlea Ma'am)		135	125

* PCU: Passenger Car Unit. To show traffic volume, one passenger car is counted as 1 PCU, and other types of vehicles are converted into passenger cars by multiplying them by a given coefficient according to their types.

(2) Qualitative Effects

Promotion of the investment environment through the improvement of physical distribution on the Southern Economic Corridor including the section between

Thailand and Cambodia, as well as bringing benefits to Japanese companies in Cambodia. Strengthening of connectivity and promoting regional integration. Increasing of the transportation capacity and improvement of the logistics efficiency through improving the condition of existing road. Reduction in the number of road traffic deaths through road safety measures implemented along National Road No. 5.

(3) Internal Rate of Return

Based on the assumptions listed below, economic internal rate of return (EIRR) for the Project is 22.5%. Since the Project is a project for construction of a road for which no toll will be collected, financial internal rate of return (FIRR) is not calculated.

【EIRR】

Cost: Project costs and operation / maintenance costs (excluding tax)

Benefit: Shortening of travel time and reduction in vehicle operating cost

Project Life: 38 years

5. External Factors and Risk Control

(1) Preconditions: N/A

(2) External Factors: N/A

6. Lessons Learned from Past Projects

From the results of the ex-post evaluations of the Project for Improvement of National Highway Route 6, Siem Reap Section (Grant Aid for Cambodia), and the Indus Highway Construction Project (Japanese ODA Loan for the Islamic Republic of Pakistan), it has been learned that reckless driving and overloaded vehicles have frequently caused traffic accidents. A lesson learned is that it is necessary to secure safety through installing ancillary roads facilities and measures for control on overloaded vehicles. Based on the above, the Project plans to install median division (3 m in width over the whole section of the Project) for securing safety. It is expected that the median division will contribute to reduction of traffic accidents. Moreover, regarding overloaded vehicles, the scope of the National Road No. 5 Improvement Project (Thlea Ma'am - Battambang and Sri Sophorn - Poipet Sections) includes construction of weigh stations in the whole section of National Road No. 5, therefore weigh stations will also be constructed in the section covered by the Project.

7. Evaluation Results

The Project is consistent with the development issues and policies of Cambodia, as well as the assistance policies and analysis results of Japan and

JICA, and will contribute to the enhancement of connectivity in the Mekong region through the Japanese government's initiatives to develop infrastructure in the region. Additionally, the Technical Assistance Project related to Japanese ODA Loan helps to ensure road safety along National Road No. 5, and the Project is, therefore, expected to contribute to SDG Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Goal 3: Ensure healthy lives and promote well-being for all at all ages; and Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents. For these reasons, it is highly necessary 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: Two years after the project completion

END