

**Ex-Ante Evaluation (for Japanese ODA Loan)**  
**Southeast Asia Division 2 Southeast Asia and Pacific Department, JICA**

**1. Basic Information**

- (1) Country: Kingdom of Cambodia (Cambodia)
- (2) Project Site/Target Area: Pursat, Battambang, and Banteay Meanchey provinces
- (3) Project: National Road No. 5 Improvement Project (Thlea Ma'am - Battambang and Sri Sophorn - Poipet Sections) (III)

Loan Agreement signing date: July 19, 2024

**2. Background and Necessity of the Project**

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

Railway network development has made slow progress in the Kingdom of Cambodia (hereinafter referred to as "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

(Thlea Ma'am - Battambang and Sri Sophorn - Poipet Sections) (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. In light of these circumstances, the Cambodian government requested in September 2014 that Japan provide assistance on the Project. The first phase of the L/A was signed in March 2015, and the second was in March 2020.

As of 2023, the Cambodian government continues to prioritize the development of road infrastructure through its Pentagonal Strategy-Phase I, announced by the new administration in September 2023, which corresponds to the previous administration's Rectangular Strategy-Phase IV. The National Strategic Development Plan (2019 - 2023) aims to rehabilitate, improve, and expand over 700 km of major national roads, including National Road No. 5, converting them from two-lane double bituminous surface treatment roads to four-lane asphalt roads. In the National Road Network Master Plan (hereinafter referred to as "M/P"), formulated in 2006 with the assistance from JICA, improvement to 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. Also, The Comprehensive Intermodal Transport and Logistics Master Plan (CITL-MP), approved in August 2023, identifies, as a top priority, the rehabilitation and development of several national roads, including National Road No. 5. In 2019, Cambodia's road accident fatality rate was approx. 19.6 per 100,000 people, which was significantly higher than the global average of 16.7 per 100,000 people and Japan's rate of 2.1 per 100,000 people. It highlights the urgent need to improve road safety.

## (2) Japan and JICA's Cooperation Policy, etc. in the Road Sector and the Positioning of the Project

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. Its analysis therefore concludes that further expansion of the road network is still necessary, and that infrastructure development is a priority issue. The Project aligns with these policies and analyses, and also aims to strengthen the international logistics network and improve road traffic safety, in alignment with JICA Global Agenda for "Transportation." In addition, the Project will improve physical connectivity by upgrading Cambodia's road network, and is therefore positioned under Pillar 3 "Multi-layered Connectivity" in the new plan for "Free and Open Indo-Pacific".

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 Loeng 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 of Construction Quality Control (2009-2012, Technical Cooperation Project), Project on Capacity Enhancement of Environmental and Social Considerations for Resettlement (2010-2012, Technical Cooperation Project), 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 and has provided support through Japanese ODA Loan Agreements to: the 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) signed in July 2014, (II) signed in March 2016, (III) signed in March 2020 and (IV)

signed in June 2023); and National Road No.5 Improvement Project (Thlea Ma'am - Battambang and Sri Sophorn - Poipet Sections) ((I) signed in March 2015 and (II) signed in March 2020). In addition, capacity building for road safety measures along National Road No. 5 is being undertaken through the Project for Improvement of Road Traffic Safety on Trunk Roads (June 2021 - January 2025), which is Technical Assistance Project related to National Road No. 5 Improvement Project . In addition, JICA is supporting Rural Road Connectivity Improvement Project (L/A signed in June 2023), which improves rural roads along National Road No. 5. The rehabilitation of National Road No. 5 is expected to benefit Japanese companies involved in the transportation of raw materials and agricultural products between Thailand and Cambodia, as well as those with manufacturing bases in both of those countries.

### (3) Other Donors' Activities

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. Recently, the Phnom Penh-Sihanoukville expressway was constructed by a Chinese company under the Build Operate Transfer (BOT) system (total project cost: approx. USD 2,000 million, total length: approx. 190 km, 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, 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 Thlea Ma'am and Battambang, and Sri Sophorn and Poipet 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 Component

- i. Civil works (rehabilitation and widening of the existing road (about 134 kilometers in total length), construction of bypasses (about 12 kilometers in total length), newly construction of 8 bridges and rehabilitation of 25 bridges, installation of median division (3 meters in width over the whole section), construction of 6 weigh stations), and installation of traffic safety infrastructure
- ii. Consulting services (e.g. detailed design, bidding assistance, construction supervision, human resource development / enhancement of the organization)

3) Project Beneficiaries (Target Group)

- ① Direct Beneficiaries: Citizens and private companies who use the improved roads, and implementing agency personnel who receive human resource development and organizational capacity building
- ② Final Beneficiaries: Consumers of goods and services transported on the improved road

(2) Estimated Project Cost

52,171 million yen (8,293 million yen of which is covered by Japanese ODA loan for the Project (III))

(3) Schedule (Cooperation Period)

March 2015 to October 2027 (152 months). The Project is completed when the road put into service (April 2026).

(4) Project Implementation Structure

- 1) Borrower: The Royal Government of Cambodia
- 2) Executing Agency: Ministry of Public Works and Transport
- 3) Operation and Maintenance System: Same as above

(5) Collaboration and Division of Work with Other Projects and Donors

1) Japan's Assistance Activity

By improving roads consists of the Southern Economic Corridor, Japan

is promoting connectivity in the Mekong region through: the National Road No.5 Improvement Project (Battambang – Sri Sophorn) (I to II) (2013-2021), Japanese ODA Loan projects completed in September 2021; the National Road No.5 Improvement Project (Prek Kdam – Thlea Ma'am) (I to IV) (2014-2024), completed in May 2023; and Rural Road Connectivity Improvement Project (2023-2028), a Japanese ODA Loan project that is in progress at present. In addition, JICA is enhancing the capacity of related agencies implementing road safety measures along National Road No. 5 through the Project for Improving Road Traffic Safety on Trunk Roads (Technical Assistance Project related to Japanese ODA Loan, June 2021 - January 2025), to contribute the Project objective of increasing transport capacity and improving transport efficiency in the target area in tandem with ensuring the traffic safety of surrounding residents, etc.

## 2) Other Donors' Assistance Activity

Neighboring Countries Economic Development Cooperation Agency (hereinafter referred to as "NEDA"), which is a government agency of the Royal Thai government, is giving support for construction of border crossing facilities between Thailand and Cambodia and an access road to National Road No.5 from the border between Thailand and Cambodia through providing a loan to the Royal Government of Cambodia. Development of National Road No. 5 under the Project is expected to have a synergy with the above support of NEDA that enhances increasing logistics between Thailand and Cambodia.

## (6) Environmental and Social Considerations

### 1) Environmental and Social Considerations

- ① Category: A
- ② Reason for Categorization: The Project falls into the road sector and sensitive characteristics under the JICA Guidelines for Environmental and Social Considerations ((promulgated in April 2010).
- ③ Environmental Permit: An Environmental Impact Assessment (EIA) report for the Project was approved by the Ministry of Environment on October 17, 2014.
- ④ Measures for Pollution Control: Measures against air pollution, noise, and vibration, such as regular maintenance of construction machinery and restrictions on the hours of construction work, will be taken during

construction, and when the facilities have been put into service, measures such as speed restrictions will be implemented to reduce noise and vibration.

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, although the bypass route was constructed on the boundary of Zone 1 (the Transition Zone) of Tonle Sap Biosphere Reserve. Nevertheless, additional environmental permissions besides EIA related to the construction activities in Zone 1 are not required. Cutting down of trees will be minimized during the construction stage, and the ecosystems surrounding the Project site will be monitored for the first five years of service.

⑥ Social Environment: The Project involves the land acquisition about 56.6 hectares and the involuntary resettlement of 772 households (including setbacks), and it is carried out in accordance with domestic procedures in Cambodia and the JICA Guidelines on Environmental and Social Considerations. Land acquisition and resettlement have been completed for packages 1 to 4, and are under implementation for package 5. During the public consultations on land acquisition and involuntary resettlement, no specific objection to implementation of the project was identified from the affected households.

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-Cutting Issues

- 1) The MPWT obligates contractors to implement HIV/AIDS prevention program as a part of health care for workers.
- 2) The Project will contribute to climate risk mitigation (adaptation) through measures such as raising the level of some sections of the road surface and proper construction of water supply pipes and drainage pipes under the road in order to prevent further flood damage. In addition, widening

the road and constructing bypasses will reduce greenhouse gas (GHG) emissions by easing traffic congestion. The estimated reduction of GHG emission is 5,341t CO<sub>2</sub>/year.

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

<Activity Contents / Reason for Categorization> The Project, which falls under the "Gender Strategy: Mainstreaming in Public Works and Transport Sector 2016-2020" (confirmed as valid by the implementing agency as of January 2024), requires contractors to develop a gender plan and implement initiatives to create employment opportunities for women. It sets a target of at least 10% women in the unskilled workforce.

(9) Other Important Issues: N/A

#### 4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicators	Target roads	Baseline (Actual value in 2012)	Target (2028) [Expected value 2 years after project completion]**
Annual average daily traffic (PCU*/day)	Thlea Ma'am - Battambang	6,174	19,374
	Pursat bypass	-	17,343
	Sri Sophorn - Poipet	7,454	21,142
Travel time (minutes) (Prek Kdam - Thlea Ma'am)	Thlea Ma'am - Battambang (including the Pursat bypass)	116	148.4
	Sri Sapon - Poipet	44	48.2

\* 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.

\*\* Target (2028) [Expected value 2 years after project completion]: The target figures are set in the detailed design by revising the estimates for 2028 calculated at the time of the Preparatory Survey (2014).



## (2) Qualitative Effects

Promotion of the investment environment through the improvement of physical distribution between Thailand and Cambodia, as well as bringing benefits to Japanese companies in Cambodia. Strengthening of connectivity and promoting regional integration. Securing of safe passage, increasing of the transportation capacity and improvement of the logistics efficiency through improving the condition of existing roads. Improvement of safety for pedestrians and, etc., through securing shoulders and sidewalks and installing appropriate road safety facilities.

## (3) Internal Rate of Return

Based on the following assumptions, Economic Internal Rate of Return (EIRR) of the Project is calculated to be 17.6%. Since the Project is 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: 40 years

## 5. Prerequisites / External Conditions

- (1) Preconditions: None in particular.
- (2) External conditions: None in particular.

## 6. Lessons Learned from Past Projects

From the results of the ex-post evaluations of the Project for Improvement of National Highway Route No. 6, Siem Reap Section (Grant Aid for Cambodia) (year of evaluation: FY2005), and the Indus Highway Construction Project (Japanese ODA Loan for the Islamic Republic of Pakistan) (year of evaluation: FY2004), 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, as part of the effort to ensure traffic safety, the Project includes plans to install a median divider (of width 3 m) over the whole of the section covered by the Project and weigh stations over the whole National Road No.5, together with other road safety infrastructures. These are expected to contribute to reduction of traffic accidents.

## **7. Evaluation Results**

The Project aligns with Cambodia's development challenges and policies, and with Japan's and JICA's cooperation policies and analyses. It also contributes to strengthening the connectivity in the Mekong region through infrastructure development, which is a priority for the Japanese government. In addition, since Technical Assistance Project related to National Road No. 5 Improvement Project aims to ensure road safety in the areas along the route, it is considered to contribute to achievement of SDG Goal 9 (Resilient Infrastructure and Industrialization) and Goal 3 (Good Health and Well-being), particularly Target 3.6 (Halve the number of global deaths and injuries from road traffic accidents). Therefore, there is high necessity to implement the Project.

## **8. Plan for Future Evaluation**

### (1) Indicators to be Used in Future Evaluation

As indicated in 4.

### (2) Timing of Future Evaluation

Two years after project completion (ex-post evaluation)

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