

Ex-Ante Evaluation

1. Name of the Project

Country: Kingdom of Cambodia

Project : National Road No.5 Improvement Project (Thlea Ma'am - Battambang and Sri Sophorn - Poipet Sections)(I)

Loan Agreement: March 30, 2015

Loan Amount: 19,208 million yen

Borrower: The Royal Government of Cambodia

2. Background and Necessity of the Project**(1) Current State and issues of road sector in Cambodia**

In Cambodia, railways are largely undeveloped, with road transport playing the central role for domestic transportation. Located between Thailand and Vietnam, the country is at the center of the Southern Economic Corridor of the Greater Mekong Subregion (GMS) Development Program spearheaded by the Asian Development Bank (ADB). It is thus expected to become a relay base for regional distribution. Since conflict ended in 1991, progress has been made in repairing the transportation infrastructure of Cambodia with assistance from the international community, including Japan, the World Bank and the Asian Development Bank, but areas remain where current conditions cannot be handled, such as deterioration to stop gap repairs made after the conflict and inadequate road widths. Repairing existing roads to meet the increase in domestic and international goods transportation accompanying economic development is a priority. Serving not only as a trunk road for Cambodia but as a part of Asian Highway (AH) 1 and the Southern Economic Corridor, National Road No. 5 is expected to function as a major industrial arterial for the Mekong region. Among the sections targeted for this project, in the section connecting Thlea Ma'am and Battambang, the quality of the pavement is poor, and rainwater that collects on the side of the road permeates the pavement, weakening it and causing cracks. The pavement in the section between Sri Sophorn and Poipet is in relatively good condition compared to other sections, but as with the Thlea Ma'am-Battambang section, it is a 2-lane road. Anticipating an increase in traffic with future economic growth, road rehabilitation and the construction of bypasses to improve transport efficiency are pressing issues.

(2) Development policy on road sector in Cambodia and the Priority of the Project

In the Government of Cambodia's National Strategic Development Plan (2014-2018), the rehabilitation and development of transport infrastructure has been indicated as one of the four main pillars, and improvement of the transportation network and the formation of an intermodal transport network have been designated as priority areas. In the nationwide road network master plan (M/P) created with support from JICA in 2006, National Road No. 5, which also makes up a portion of the Southern Economic Corridor, was designated as a road targeted for development based on development strategy.

This project is a succeeding project to the National Road No. 5 Improvement Project (Battambang-Sri Sophorn Section) and the National Road No. 5 Improvement Project (Prek Kdam-Thlea Ma'am Section). With the implementation of this project, improvements for all of National Road No. 5 will be completed.

(3) Japan and JICA's Assistance Policy for and experience in road sector

In Japan's Country Assistance Policy for Cambodia, support for the road sector is part of developing the economic infrastructure, which is designated as a priority goal (strengthening the basis for economic activities). In the JICA Country Analysis Paper for Cambodia as well, the development of infrastructure to strength transport capacity between Cambodia and Thailand/Vietnam is listed as an important issue. Thus far, JICA has provided assistance through grant aid, including the National Road No. 1

Improvement Project (Phases 1-4 and urban sections) (grant aid, 2005-2007) and the Project for Construction of the Neak Loeung Bridge (grant aid, 2010-2016). In order to improve road standards that can accommodate the increased domestic and international distribution caused by Cambodia's rapid economic growth, assistance has been provided in the form of ODA loans for the National Road No. 5 Improvement Project (Battambang-Sri Sophorn Section) (ODA loan, 2013-2020) and the National Road No. 5 Improvement Project (Prek Kdam- Thlea Ma'am Section) (ODA loan, 2014-2020). JICA has also implemented the Strengthening of Construction Quality Control Project (2009-2012) and the Project on Capacity Enhancement of Environment and Social Considerations for Resettlement (2010-2012) as technical cooperation projects working to development infrastructure and strengthen maintenance management capacity.

(4) Other Donor's Activity

JICA as well as ADB and WB have provided various forms of cooperation for the road sector so far. Recently, aid from China has been expanding, and the following are examples of the projects.

• ADB: "Road Asset Management Project" (2008-2014), "Northwestern Rural Development Project" (2011-2013)

• WB: "Provincial and Rural Infrastructure Project" (2004-2010), "Road Asset Management Project" (2008-2014) • China: National Road No 214 and Mekong-Stung Treng Bridge Construction Project (2012-2015), National Road No. 6 Improvement Project (2012-2017)

(5) Necessity of the Project

The Project is consistent with the priority area of Japan and JICA's Assistance Policy. Also, in the National Road Network Master Plan of the Cambodian government, the roads targeted by this project are positioned as the most important area that contributes to economic development of Cambodia, and is consistent with the developmental agenda and its national policy; therefore, the necessity and relevance for JICA to aid the Project is high.

3. Project Description

(1) Project Objectives

By rehabilitating and widening the existing roads, and by constructing bypasses on the Thlea Ma'am-Battambang section and Sri Sophorn-Poipet section of National Road No. 5, which connects the capital of Phnom Penh with Thai-Border, , the project will increase the country's road transport capacity and facilitate physical distribution between Thailand and Cambodia, thus contributing to the promotion of Cambodian economic growth.

(2) Project Site/Target Area:

Pursat province, Battambang province, and Banteay Meanchey province

(3) Project Components (including the method of procurement)

1) Civil engineering works

① Rehabilitation of the existing main road and road widening (from two lanes to four lanes)

② Bypass road construction (Pursat bypass , Total length 9 km) : Constructed with AC pavement and four lanes.

③ Rehabilitation of bridges (28 locations) : new (13 locations), rebuilding (3 bridges) and widening (12 bridges)

④ Installation of vehicle weighing facilities (4 stations with a total of 8 locations for both sides)

2) Consulting service (e.g. detailed design, bidding assistance, construction management, human resource development/enhancement of the organization) (short list method)

(4) Estimated Project Cost

47,874 million yen (including the yen loan of : 19,208 million yen)

(5) Schedule

From March 2015 to April 2022 (total of 86 months). Project completion is defined as the initiation of the use of the road (scheduled in August 2020).

(6) Project Implementation Structure

- 1) Borrower : The Royal Government of Cambodia
- 2) Guarantor : None
- 3) Executing agency : Ministry of Public Works and Transport : MPWT
- 4) Operation/maintenance/management system : MPWT

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

1) Environmental and Social Considerations

- ① Category : A
 - ② Reason for categorization : This project falls under the road sector and with vulnerable characteristics presented in “Guidelines for environmental and social considerations” (promulgated in April 2010).
 - ③ Environmental permission and authorization : The Environmental Impact Assessment (EIA) report concerning this project was approved by the Ministry of the Environment on October 17, 2014.
 - ④ Measures against pollution : The contractor will take measures to minimize the negative impacts of air pollution, noise, and vibration by limiting construction work times and conducting regular maintenance on construction machinery. After the facilities are placed in service, the implementing agency will plant roadside trees as a measure against noise and vibration.
 - ⑤ Natural environment : Since the target area of the project is not located in a sensitive area such as a national park, adverse impact on the natural environment is expected to be minimal, although bypass construction will be conducted within the border (Zone 1) of the Tonle Sap Biosphere Reserve (TSBR). However, construction for this project in Zone 1 does not require special authorization other than the EIA. Tree-cutting during construction will be kept to a minimum and ecosystems surrounding the project area will be monitored after the facility is placed in service.
 - ⑥ Social environment : This project includes the acquisition of approximately 29.6 ha of land and involuntary relocation of 819 households (including setbacks. Of 819, 92 households are considered to be forced to move to relocation sites.). Relocation is scheduled to proceed based on the domestic procedures and the resettlement plan. In discussions with residents regarding the resettlement, there have been no particular dissenting opinions from affected residents.
 - ⑦ Monitoring : The contractor and the executing agency will monitor air quality, waste volume, and ecosystems during the construction period. The executing agency will work together with the Resettlement Department to monitor land acquisition and involuntary resident resettlement. After the facility is placed in service, the executing agency will monitor air quality, noise/vibration, waste volume, and ecosystems. Additionally, an external consultant employed by the executing agency will monitor the compensation payments and living conditions of residents after resettlement.
- 2) Promotion of poverty reduction : Upon completion of the project, National Road No. 5 is planned to be opened with a total of four lanes. Implementation of this project is expected to contribute to poverty reduction in the target region through the creation of new jobs for local residents and economic growth.
- 3) Promotion of social development
- ① Gender perspective : Considerations will be made during resettlement in regard to collecting information on gender for the target households, monitoring, and income compensation methods.

- ② Measures for infectious diseases including HIV/AIDs : The total road length of this project will be approximately 150 km, and many laborers are expected to concentrate in specific places for a long period. During construction periods, measures against HIV/AIDS in worksite will be provided, as part of health management of laborers. (Standard tendering documents obligate the contractor for its implementation.)

(8) Collaboration with Other Schemes and Other Donors:

The Strengthening of Construction Quality Control Project (2009-2012) and the Project on Capacity Enhancement of Environment and Social Considerations for Resettlement (2010-2012) have already been implemented as technical cooperation projects. The former project improves MPWT's (executing agency for this project) capacity in road and bridge construction, which they will implement directly. In relation to this project, contributions to MPWT's operation and maintenance capacity after the road is placed in service are expected. The latter project strengthened the capacity of the Resettlement Department of the Ministry of Economy and Finance to allow for centralized handling of resettlement matters caused by public works, and also developed systematic and detailed regulations. Using these outcomes, resettlement and land acquisition will be conducted in accordance with the JICA Guidelines for Environmental and Social Considerations. Another technical cooperation planned for implementation is the Project for Strengthening Capacity for Maintenance of Roads and Bridges (2015-2017), in which maintenance capacity will be strengthened through technical guidance.

(9) Other Important Issues:

In response to worsening flood damage, the project will take measures such as elevating a portion of the road surfaces and appropriately installing drainage pipes and box culverts crossing under the road, which will contribute to measures to combat climate change (adaptation measures).

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators

Indicator	Target road	Reference value (value in 2011)	Target value (2020) [2 years after completion of the project]
Passenger car unit per day (PCU/day)	Thlea Ma'am - Battambang	6,174	14,229
	Pursat bypass	-	12,090
	Sri Sophorn -Poipet	7,454	15,566
Time required (minutes) (Prek Kdam- Thlea Ma'am Section)	Thlea Ma'am - Battambang (including Pursat bypass)	116	107
	Sri Sophorn -Poipet	44	36

2) Internal Rate of Return

Based on the following premises, the economic internal rate of return (EIRR) of this project is 15.0%. Since this project aims to construct toll free road, FIRR is not to be calculated.

【EIRR】

- Cost: cost of project (tax excluded), cost of operation/maintenance
- Benefit: it shortens the time required, and saves the driving expenses.
- Project life: 30 years

(2) Qualitative Effect: Promotion of the investment environment through the improvement of physical distribution between Thailand and Cambodia, and benefits to Japanese companies in Cambodia. Strengthened connectivity and promotion of regional integration. Ensured safe passage, increased

transport capacity, and improved transport efficiency through the rehabilitation of existing national roads. Improved pedestrian safety through the installation of sidewalks, road shoulders, and appropriate road safety facilities.

5. External Factors and Risk Control

N/A

6. Evaluation of Similar Projects and Lessons Learned from Past Projects

(1) Evaluation of Similar Projects:

The ex-post evaluation of the Indus Highway Project in Pakistan shows that overloaded vehicles and reckless driving cause frequent traffic accidents. Therefore, it was learned that it is necessary to ensure safety by installing road traffic safety facilities.

(2) Lessons Learned from Past Projects:

Based on this, the project plans to install vehicle weighing facilities, median strip (mount-up, width of 3 m) and provide warnings using laminate road markings at strategic points. By installing these road traffic safety facilities, a reduction in traffic accidents can be expected.

7. Plan for Future Evaluation

(1) Indicators to be Used in Future Evaluations:

- 1) Passenger car unit per day (PCU/day)
- 2) Time required (minutes)
- 3) Economic internal rate of return (EIRR) (%)

(2) Timing for Next Evaluation:

Two years after completion of the Project

End