

Ex-Ante Evaluation

1. Name of the Project

Country: Kingdom of Cambodia

Project : National Road No.5 Improvement Project (Prek Kdam- Thlea Ma'am Section)(I)

Loan Agreement: July 10, 2014

Loan Amount: 1,699 million yen

Borrower: The Royal Government of Cambodia

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

In Cambodia, roadways are playing the central role in domestic transportation, accounting for approximately 65 percent in passenger transport and 70 percent in freight transportation (2006, Ministry of Public Works and Transport: MPWT). Since Cambodia is located between Thailand and Vietnam, and in the center of the Southern Economic Corridor in the Greater Mekong Subregion (GMS) development program led by the Asian Development Bank (ADB), the country is expected to serve as transit point for regional distribution. The transportation infrastructure in Cambodia has been restored since the end of civil war in 1991 with the support from international societies such as Japan, the World Bank (WB), and ADB. The core components of the road/bridge infrastructure have almost been completed with the first round of repair/renovation. However, problems are seen in locations which were temporarily repaired after the civil war, as well as roads with smaller width or inadequate specification. The existing roads need renovation in order to accommodate the domestic/international distribution that is expected to increase along with the future economic growth in Cambodia. Among other things, the National Road No. 5 serves as trunk road in Cambodia, and is also expected to function as an industrial artery in the Mekong Region as part of the Asian Highway 1 and the Southern Economic Corridor. Although the roads targeted by this project underwent temporary repairs, the road quality is still low while traffic is increasing. The section National Road No. 5 between Prek Kdam and Thlea Ma'am is close to the capital of Phnom Penh and has a high volume of traffic. However, the quality of the pavement is low, with some areas of the road surface submerged due to the flow of rainwater and flooding from the Tonle Sap. Since the pavement has become extremely deteriorated, immediate rehabilitation is necessary.

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

The Cambodian government designates the repair and renovation of infrastructure as one of the four pillars in its "National Strategic Development Plan 2009-2013", and considers the expansion of transportation network and establishment of a complex, seamless transportation network as a priority issue. The National Road Network Master Plan, prepared in 2006 with assistance from JICA, positions the renovation of the National Road No. 5, part of the Southern Economic Corridor, as priority project that contributes to national and regional integration.

This project is a successor project to the National Road No. 5 Improvement Project (Battambang-Sri Sophorn Section), for which L/A was signed in May 2013. Thus, together with the National Road No. 5 Improvement Project (Thlea Ma'am-Battambang Section) being studied this year, development of National Road No. 5 will progress by dividing it into three sections.

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

The assistance for transportation sector is positioned as "strengthening of the basis for economic activities" in "development of economic infrastructure", the priority area of Japan's assistance policy for Cambodia (2012). Thus far, JICA has implemented the National Road No. 1 Improvement Project (Phases 1-3) (2005-2010) and the Project for Construction of the Neak Loeng Bridge (2010-2015) through grant aid. In May 2013, they also concluded an agreement for the first ODA loan project in the road sector with the National Road No. 5 Improvement Project (Battambang-Sri Sophorn Section). 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 Donors' 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” (2008-2013), “Northwestern Rural Development Project” (2011-2013)

• WB: “Provincial and Rural Infrastructure Project” (2004-2010), “Road Asset Management Project” (2008-2013)

• China: “Prek Kdam Bridge Construction Project” (2007-2010), “National Road No.8 Construction Project” (2007-2012)

(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 assist the Project is high.

3. Project Description

(1) Project Objectives

The Project aims to renovate the existing main road from Prek Kdam to Thlea Ma’am of the National Road No.5 that connects the capital Phnom Penh and Thailand border, and improve the bypass road that detours around the urban areas of Kampong Chhnang and Odongk so as to increase transportation capacity of the target area, improve transportation efficiency, and help facilitate Cambodia’s economic growth.

(2) Project Site/Target Area

Kandal province, Kampong Speu province, Kampong Chhnang province and Pursat province

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

1) Civil engineering works

- ① Rehabilitation (from DBST pavement to AC pavement) of the existing main road (total length of 118.7 km) and road widening (from two lanes to four lanes)
- ② Bypass road construction (Total length of 16.7 km, consisting of the Kampong Chhnang bypass (11.8 km) and the Odongk bypass (4.9 km). Constructed with AC pavement and four lanes.)
- ③ Bridges (30 locations: new (13), rebuilding (3), widening (14))
- ④ Construction of median strip (3 m)

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

(4) Estimated Project Cost

26,787 million yen (including the yen loan of 1,699 million yen)

(5) Schedule

From July 2014 to December 2020 (total of 78 months). Project completion is defined as the initiation of the use of facility (scheduled in December 2019).

(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 November 26, 2013.
- ④ Measures against pollution: Measures will be taken 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, speed limits will

be imposed as a measure against noise and vibration.

- ⑤ Natural environment : The target of the project is not vulnerable areas such as national parks and their vicinity. Thus, undesirable impact on natural environment is expected to be minimal. However, since the project is near the border of the Tonle Sap Biosphere Reserve, tree-cutting during construction will be kept to a minimum and ecosystems surrounding the project area will be monitored for five years after the facility is placed in service.
- ⑥ Social environment : This project includes the acquisition of approximately 60.9 ha of land and involuntary relocation of 1,079 households (including setbacks. Of 1,079, 111 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 : MPWT, the executing agency for the project, will monitor land acquisition, involuntary resident resettlement, air quality, waste volume, and ecosystems during the construction period as well as air quality, noise/vibration, waste volume, and ecosystems after the facility is placed in service. Additionally, an external consultant employed by MPWT will monitor the compensation payments and living conditions of residents after resettlement.

2) Promotion of poverty reduction:

One of the target regions of the project is Kampong Speu province, where the poverty rate is higher than the national average. 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 (e.g. gender perspective, measures for infectious diseases including HIV/AIDs, participatory development, considerations for persons with disabilities):

- 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: During construction periods, many laborers are expected to concentrate in specific places for a long period. As part of health management of laborers, MPWT schedules to conduct awareness campaign on HIV/AIDs for laborers.

(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. Contributions to MPWT's road operation and maintenance management capacity are expected through the implementation of training on quality control and the use of standards/regulations related to quality control and guarantees that were created during the former technical cooperation project. While using resettlement documents formulated for the latter technical cooperation project, employees of the Resettlement Department who received training will implement appropriate discussions for residents as well as resettlement and land acquisition.

(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 installing drainage ditches, 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)	No. 5 main road	7,306	13,817
	Kampong Chhnang bypass	-	14,586
	Odongk bypass	-	19,363
Time required (minutes) (Prek Kdam- Thlea Ma'am Section)		135	126

2) Internal Rate of Return

Based on the following premises, the economic internal rate of return (EIRR) of this project is 20.9%. 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. Increased transport capacity and improved transport efficiency through the rehabilitation of existing national roads.

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 a median strip (mount-up, width of 3 m) and provide warnings using laminate road markings at strategic points, through which 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