

## Ex-Ante Evaluation (for Japanese ODA Loan)

### 1. Name of the Project

Country: Kingdom of Cambodia

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

Loan Agreement: March 31, 2016

Loan Amount: 17,298 million yen

Borrower: The Royal Government of Cambodia

### 2. Background and Necessity of the Project

#### (1) Present State of Development and Problems of the Road Sector in Cambodia

Due to slow progress in railway network development in Cambodia, road transportation plays a central role in domestic transportation. Cambodia is located between Thailand and Vietnam. The territory is also located in the heart of the Southern Economic Corridor, where initiatives to strengthen connectivity are being promoted under the Master Plan on ASEAN Connectivity approved at the 2010 ASEAN top-level meeting. Because of its location, Cambodia is expected to become a regional distribution hub. Cambodia is making a progress in rehabilitating its transportation infrastructure since the civil wars ended in 1991 with help of the international community, including Japan, World Bank and Asian Development Bank. Rehabilitation and construction on the core part of its road and bridge infrastructure has almost been completed for the first time during the post-war period. However, some further rehabilitation is still needed due to aged parts and makeshift repairs after the civil war and the narrowness of the roads in order to cope with the increase in domestic and international logistics in line with expected future economic growth in the country.

In particular, Cambodia's arterial national road No.5 is a part of Asian Highway Route No.1 and the Southern Economic Corridor, so it is expected to function as a main industrial artery of the Mekong region. Despite the temporary repairs done on the project section, road quality is inferior and traffic volume is steadily increasing. Therefore, enhancing transportation capacity and improving transportation efficiency have become pressing issues in the race to cope with increased domestic and international freight given expected future economic development in Cambodia.

#### (2) Development Policies for the Road Sector in Cambodia and the Priority of the Project

The government of Cambodia has defined rehabilitation and construction of infrastructure as one of the four pillars of its 2014-2018 National Strategic Development Plan (NSDP). In this context, the Cambodian government defined improvement of traffic networks and the building of intermodal freight transport

networks as priority areas. Under the National Road Network Master Plan (M/P) formulated in 2006 with the help of JICA, the improvement of national road No. 5 is defined as a priority project, since the project is considered contributory to national and regional integration as part of the Southern Economic Corridor.

(3) Japan and JICA's Aid Policy and Operations in the Road Sector

Japan has defined economic infrastructure development as one of its priority areas under the Country Assistance Policy for the Kingdom of Cambodia. Japan also announced their prioritized projects, such as road network development in the Southern Economic Corridor. Also, an analysis under Country Analytical Work for the Kingdom of Cambodia revealed that infrastructure development to enhance transportation capacity in Thailand and Vietnam was the priority issue. The Project is in line with these analyses and policies. JICA implemented a development study titled the Cambodia Nationwide Road Network Investigation (2006) to formulate the M/P as stated above. Based on the M/P, JICA implemented the following projects to strengthen maintenance capacity and infrastructure development: The Project for the Improvement of the National Road No.1 (I) to (IV) and Urban Section (2005-2017); the Project for Construction of Neak Loeung Bridge (2010-2015); the Strengthening of Construction Quality Control (2009-2012); Project on Capacity Enhancement of Environmental and Social Considerations for Resettlement (2010-2012); and the Project for Strengthening Capacity for Maintenance of Roads and Bridges (2015-2018). Based on the M/P described above, JICA is currently supporting Cambodia to rehabilitate National Road No. 5 by establishing a yen loan agreement to implement the following: May 2013: National Road No. 5 Improvement Project (Battambang-Sisophon); July 2014: National Road No.5 Improvement Project (Prek Kdam-Thlea Ma'am Section) (I), and March 2015: National Road No.5 Improvement Project (Thlea Ma'am-Battambang, and Sisophon-Poipoet) (I).

(4) Other Donors' Activities

So far, the Asian Development Bank and World Bank have implemented many aid programs. Recently, more and more aid programs targeting the road sector are being offered from China. Major assistances provided to Cambodia are listed below:

- Asian Development Bank:

- Project for Enhancing Road Asset Management (2008-2013) and the Project for Improvement of Roads in the Northwestern Provinces (2011-2013)

- World Bank:

- Project for Rehabilitating Provincial and Regional Infrastructure (2004-2010) and Project for Enhancing Road Asset Management (2008-2013)

- China:

- Prek Kdam Bridge Construction Project (2007-2010), National Road No. 8

Construction Project (2007-2012), Project for Rehabilitation of the Second Chroy Changwar Bridge (2011-2014)

(5) Necessity of the Project

The aims of the project satisfy the development themes and development policies of the Cambodian government. The M/P defines roads targeted by this project as the most critical section for making a contribution to the country's economic growth. This project is also in line with Japan's assistance programs, while making contributions to strengthening connectivity in the Mekong region through infrastructure development addressed by Japan. Therefore, JICA's support for implementing this project is highly necessary and relevant.

### **3. Project Description**

(1) Project Objectives

This project rehabilitates and expands the existing National Road No. 5 (Prek Kdam-Thlea Ma'am Section) and constructs a bypass to reroute the road around the Kampong Chhnang and Oudong city areas. National Road No. 5 connects the state capital Phnom Penh and the border with Thailand, while it is a part of the Southern Economic Corridor. The project aims to enhance transportation capacity and improve traffic efficiency in the target area, and thereby contributes to facilitating economic growth in Cambodia.

(2) Project Site/Target Area

Kandal Province, Kampong Speu Province, Kampong Chhnang Province, and Pursat Province

(3) Project Components

- 1) Rehabilitation (from Double Bituminous Surface Treatment pavement to Asphalt Concrete pavement) of the existing main road (total length of 118.7 km) and road widening (from two lanes to four lanes)
- 2) Construction of a bypass (about 16.7 km long in total, Kampong Chhnang bypass (about 11.8 km) and Oudong bypass (about 54.9 km), and Asphalt Concrete pavement (four lanes)
- 3) Rehabilitation of bridges (30 locations): 13 new construction, 3 replacement bridges, and widening 14 bridges
- 4) Construction of median strip (3 m wide)
- 5) Consultation services (e.g. detailed designs (D/D), bidding assistance, and supervision of construction)

(4) Estimated Project Cost (Loan Amount)

Estimated Project Cost (Loan Amount): 34.945 billion yen (Loan Amount: 28.238 billion yen)

(5) Schedule

From July 2014 to October 2020 (total of 76 months). Project completion is

defined as the commencement of the service of the facilities (October 2019)

(6) Project Implementation Structure

- 1) Borrower: The Royal Government of Cambodia
- 2) Guarantor: N/A
- 3) Executing Agency: Ministry of Public Works and Transport (MPWT)
- 4) Operation and Maintenance System: MPWT

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

1) Environmental and Social Consideration

- i. Category: A
- ii. Category: A. This project targeted the road sector and areas vulnerable to the features and impacts defined in the JICA Guidelines for Environmental and Social Considerations (Promulgated in April 2010).
- iii. Environmental Permit: Preparation of an Environmental Impact Assessment (EIA) report for this project has already been approved by the Ministry of Environment on November 26, 2013.
- iv. Anti-Pollution Measures: During construction, measures will be taken to address air quality, noise, vibration, and similar factors. Measures will include setting a limit on work hours and periodic maintenance on construction machines. Once the facilities are in use, impact will be minimized by limiting driving speed as a way to mitigate noise and vibration.
- v. Natural Environment: The project site is not located in sensitive areas such as national parks, and adverse impact on the natural environment is assumed to be minimal. However, the project site is near the border of the Tonlé Sap Biosphere Reserve. During construction, measures will be taken to minimize tree cutting and implement a five-year monitoring plan on the surrounding ecosystem after handover.
- vi. Social Environment: The project will involve the acquisition of 60.9 hectares and involuntary resettlement of 1,079 households (including setback.111 households out of the 1,079 need to be relocated to replacement lands, etc.), which will be carried out in accordance with the nation's domestic procedures and the resettlement action program. No particular objection from the residents that will be affected was heard during the resident discussion on the project.
- vii. Other / Monitoring: During the construction period, MPWT will monitor land acquisition, involuntary resettlement, air quality, waste emission, and the ecosystem. After the handover, MPWT will continue monitoring air quality, noise, vibration, waste emission, ecosystems, and the like. Also, a third party consultant hired by MPWT will monitor payment status of compensation and living conditions of residents after resettlement.

2) Promotion of Poverty Reduction

The poverty rate in Kampong Speu Province, one of the project sites, is higher than the national average. We can expect that implementing this project will contribute to the creation of new jobs for local residents, economic development, and poverty reduction in the project areas.

3) Promotion of Social Development:

i. Gender Perspective

MPWT defined a gender mainstreaming strategy to create employment opportunities and make efforts to carry out capacity building for women. MPWT is expected to implement this project under a gender mainstreaming framework. Additional compensation will be offered to vulnerable households such as those led by widows under the resettlement action plan.

ii. Measures to Prevent Infectious Diseases Including HIV/AIDS

For construction work, a large external labor force other than local residents is likely to gather in certain places over a long period of time. To mitigate the risk of HIV/AIDS, MPWT will provide educational activities as a part of health management for the laborers.

(8) Collaboration with Other Donors: N/A

**4. Targeted Outcomes**

(1) Quantitative benefits

1) Outcomes (Operation and Effect Indicator)

Performance Indicators	Target roads	Baseline (Actual Value in 2012)	Target (2021) (Expected value 2 years after project completion)
Passenger Car Unit (PCUs per day)	Main road No. 5	7,306	13,817
	Kampong Chhnang bypass	-	14,586
	Oudong bypass	-	19,363
Time required (min.) Prek Kdam-Thlea Ma'am Section		135	126

(2) Qualitative Effects:

Promoting Cambodia's economy and improving the investment climate

(3) Internal Rate of Return (IRR):

Based on the conditions below, the Economic Internal Rate of Return (EIRR) of this project was calculated as 20.7%. Since this project constructs roads that will collect no fees, the Financial Internal Rate of Return (FIRR) will not be calculated.

Cost : Project cost (excluding tax), operation and maintenance expenses

Benefit : Shortening time required and cost savings for vehicle traffic

Project Life: 30 years

## **5. External Risk Factors and Risk Control**

N/A

## **6. Lessons Learned from Past Projects**

### (1) Lessons learned from similar projects

Ex-post evaluations of the Project for Improvement of the National Highway Route 6 (Siem Reap section) for Cambodia and the Indus Highway Construction Project for Pakistan demonstrated that the traffic accidents caused by reckless driving and overloading increased. Therefore, construction of ancillary roads facilities and measures to eliminate overloaded vehicles are necessary for the project to ensure safety.

### (2) Lessons for the Project

Based on the above, the project will construct 3-meter wide median strip as a safety measure in the hopes of reducing traffic accidents. To combat overloaded vehicles, the scope of the National Road No. 5 Improvement Project (Thlea Ma'am-Battambang and Sisophon-Poipoet sections) (I) includes the construction of facilities to weigh vehicles throughout the length of National Road No. 5. Therefore, specific measures for eliminating overloaded vehicles are expected to be taken for the sections targeted by this project.

## **7. Plan for Future Evaluation**

### (1) Indicators to be Used:

- 1) Passenger Car Unit (PCU/day)
- 2) Time required (min.)
- 3) Economic Internal Rate of Return (EIRR) (%)

### (2) Timing:

Two years after project completion