Ex-post Evaluation Report 2011-2-4

Road Rehabilitation Project from Kampot to Trapangropo, Cambodia

Country : Cambodia

Loan Contract Number : KHM-003-2003

Loan Approval Date : February 4, 2003

The Export-Import Bank of Korea

(Government Agency for the EDCF)

EDCF Evaluation Team

(Evaluated by : **Korea Expressway Corporation)**

Executive Summary

Road Development Project in Cambodia is promoting the country's renovation project, due to the insufficient economic development and transportation infrastructure to relieve inhibition of major countries. The project plan is to develop the roads on the target edge to a critical high priority projects are shown.

This project is to rehabilitate last section of Route 3 (Kampot ~ Trapangropo), which is Southwestern coastline road of Cambodia, and to make it connect with Route 4 (Phnom Penh ~ Siahanukeville), the national main road. It will become the center of transportation logistics. It secures supplementary road for Route 4, which is the main highway for transportation and aims to contribute to balanced economy.

This project of 32.79km two lane road renovation project contains reconstruction of 14 aging bridges out of 16 in total. It was designed not just to rehabilitate the road, but also improve general driving conditions by designing the longitudinal and transverse slope gently. The reconstructed bridges in this project area are considered to have bought advanced construction technology of bridge to Cambodia using the Steel Box Girder, which is a rare applied case in the country.

The ex-post evaluation on this project was carried out separately according to quantitative and qualitative items in order to draw an accurate and objective conclusion. The five criteria of the OECD Development Assistance Committee (DAC), including relevance, efficiency, effectiveness, impact, and sustainability, were applied in the evaluation items. The quantitative items were accessed by analyzing related references by evaluation items and the qualitative items were evaluated by having interviews and conducting a survey.

The project is considered as successful as a result of combining quantitative effect and qualitative impact, which is based on what the recipient country actually experiences after completion of the project. This means that the project achieved the goal of project successfully.

Ⅰ. Project Overview

1. Basic Information of the Project

Loan Information

Project	Loan Type	Loan approved amount	Date of Approval
KHM-003-2003	Project development Loan	$17 million	2002.10.19.

Project Expenses

(Unit: Million dollars)

Areas	Planned	Actual	Difference
Total cost of project	21,312	21,304	8
EDCF support Amount	17,050	17,042	8

Promotion Schedules

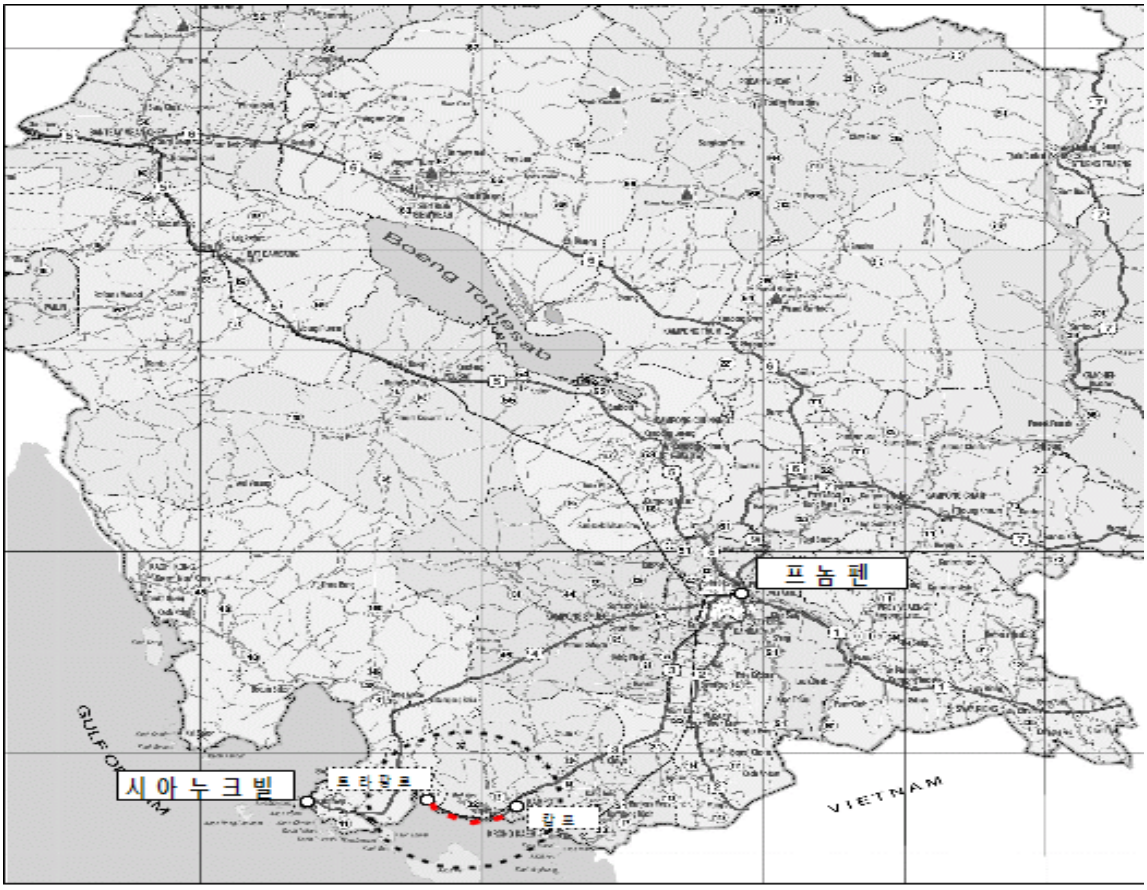
Areas	Plan	Actual
Government policy-making support	2002.10.19.	2002.10.19.
Loan approved date	2003.02.04.	2003.02.04.
Contract loan effective date	2003.04.21.	2003.04.21.
First loan execution date	2004.06.24.	2004.06.24.
Project start	2003.11.19.	2004.05.07.
Closing of the Project	2006.05.19.	2007.05.06.
Final date of execution	2007.04.20.	2007.12.20.
Project terms (Months)	42 Months	61 Months

□ Borrowers : Ministry of Economy and Finance (MEF)

□ Project Executing Agency: Ministry of Public Works and Transportation (MPWT)

2. Map of Project Area

This project is to rehabilitate last section of Route 3 (Kampot ~ Trapangropo), which is Southwestern coastline road of Cambodia, and make it connect with Route 4 (Phnom Penh ~ Siahanukeville), the national main road.



[Picture 1] Map location of the project sector

3. Evaluation Overview and Procedures

□ Evaluation Method

- Research literature: a feasibility study report (F/S), audit reports, Project Completion Report, Loan Agreement and other relevant data review.

- Interviews and surveys: From conducting project organizations, and officials, related organizations, including the Korea Highway Corporation current dispatch teams.

4. Project Purpose and Scope

This project is to rehabilitate last section of the Route 3 (Phnom Penh ~ Kampot ~ Siahanukeville), which is Southwestern coastline road of Cambodia, and make it connect with the Route 4, the national main road. It secures supplementary road for the Route 4, which is the main highway for transportation and aims to contribute to balanced economic development in the vicinity of the Kampot-Tranpangropo by promoting development of tourist attractions and facilitating transportation of agricultural products.

Route 3, the Kampot ~ Trapani of the 32.7km on the road connecting between Phnom Penh, the capital city of Cambodia, and Sihanoukville, is the target area. It is connected with the Route 4 from Phnom Penh to Sihanoukville for now. Some part of the road are toll road. As surface condition and alignment on the road are satisfactory, the road is able to deal with most of the quantity of goods transported. On the other hand, the Route 3, which is the alternative road for the Route 4, is in a process of improving, long distance driving was not able to be handled on Route 3 because surface and management conditions were poor in some parts of the road. This project includes civil engineering works and consulting services such as the renovation of existing two lane roads and the reconstruction of the bridges, and specifics are as follows:

○ Public Works: Renovation of existing two lane road (including some bridges) and installation of additional facilities.

○ Consulting Services: Supervision of construction (design consulting firm in Korea called “Korea International Technology Corporation (KCI))

<Table 1> Range of Supporting Project

Areas		Plans
Road	Length	Kampot ~ Trapangropo 32.79km (round-trip two lane)
	Width	11.0m (Main road 3.5m, side strip of the road 2.0m)
	Style of layout	(Double Bituminous Surface Treatment, DBST)
Bridge	Places	14 Ea.
	Extension	Total of 645m
Drainage system	Places	Box Culvert 6Ea., Pipe Culvert 33Ea.
	Extension	Box Culvert 107m, Pipe Culvert 629m

5. Reasons to Support

A. Improvement of the Road Networks in Cambodia

Although roads are responsible for transporting most of passengers and carrying freight in Cambodia, they were damaged by civil wars from 1970s to 1980s. The remaining roads are not working well too due to budgetary deficit of the government.

Accordingly, the Cambodian government has been trying to promote projects for renovation of existing roads supported by World Bank, Asian Development Bank, Japan International Cooperation Agency etc. recognizing that renovation of existing roads is necessary for balanced economic development between regions and developing tourist attractions.

B. Invigoration of the Local Economy in Kampot

Tourist industry has great potential to be growing because there are beautiful coastlines and Boko national park in the vicinity of the project target area. Also the area is rich in agricultural products. In spite of those advantages, it is hard to connect this area to main consumption places including Phnom Penh, the capital city, and Siahanukeville, the biggest port city due to damages of roads and poor condition of bridges that hinder economic growth.

Accordingly, this renovation project is necessary for invigorating of the economy in Kampot and promoting of the natural tourist attractions.

C. Improvement of the Bilateral Economic and Diplomatic Cooperation between Two Countries

Cambodia has conducted the first local elections since independence in February 2002. The CPP(The Cambodia People's Party) has occupied 1,597 seats out of a total number of 1,621. Thus, the government had shown that the political situation is now being stable. Especially after the visit of Prime Minister Hun Sen to Korea in 2001, the friendship between two countries has been established. Also, it is considered that economic and diplomatic cooperation have been strengthened between two countries by investing road development project, which is what the Cambodian government put the highest priority among national development projects, by EDCF.

6. Cost, Financing and Executing Process

Initially assigned to the reserve fund, and consultants cost that were unused, are reallocated fully to the civil engineering sector.

<Table 2> Project expense items

(Unit: Million dollars)

Summary	Details	Plan[1](Total cost of Project)	EDCF		
			Supported amount[2]	Actual	difference
Media Compensation		500	-		-
Consulting Services	Construction supervision fee	1,250	1,250	1,347	97
Construction fees [3]	Pre construction fee	867	737	862	125
	Civil construction fee	2,985	2,537	2,607	70
	Road construction fee	3,147	2,675	3,479	804
	Bridge construction fee	8,011	7,946	6,938	△1,008
	Drainage system construction fee	397	337	382	45
	Other expenses	405	124	116	△8
Contingency fund		1,706	1,426	1,294	△132
Total		19,269	17,032	17,025	△7

1) Audit report of award amount
2) The amount of Loan Agreement
3) EDCF had responsibility to cover 91.98% of overhead; the Cambodian government will pay 8.02%.
Material: Road renovation Project completed in Cambodia Kampot ~ Trapangropo checklist, 2009, the Export-Import Bank of Korea

Project implementation period was expected to take 42 months, but the actual implementation required 61 months so it was delayed for 19 months. EDCF requested reassessment to the recipient country because the country applied an Evaluation Basis to Bid that was not approved by EDCF. Whether accept the request or not delayed the project implementation period. Due to the delay, disbursement period needed to be postponed for one year. The project, however, was completed as planed from begging of the construction. The project was successfully completed as final retention fund was discharged on 20th December 2007.

7. Outputs

The targeted sectors of the project was two lane road of 32.79km round trip between Kampot ~ Trapangropo. The main road has been extended 3.5m for each direction, so the total road wide is 11m. Also, the project was designed to improve general driving conditions by reconstructing 14 bridges out of 16 aging bridges and improving design speed by making cross-fall gently.

The reconstructed bridges in this project area are considered to have bought advanced construction technology of bridge to Cambodia using the Steel Box Girder, which is a rare applied case in the country.

Ⅱ. Evaluation by Criteria

1. Evaluation items and results

The ex-post evaluation on this project was carried out separately according to quantitative and qualitative items in order to draw an accurate and objective conclusion. The five criteria of the OECD Development Assistance Committee (DAC), including relevance, efficiency, effectiveness, impact, and sustainability, were applied in the evaluation items. The quantitative items were accessed by analyzing related references by evaluation items and the qualitative items were evaluated by having interviews and conducting a survey.

The project is considered successful as a result of combining quantitative effect and qualitative impact, which is based on what the recipient country actually experiences after completion of the project. This means that the project achieved the goal of project successfully.

<Table 3> Evaluation result summary

Ratings	Percent	Quantitative evaluation results		Qualitative evaluation results		The final evaluation results
		Assessment rating	Scales	Assessment rating	Scales	
Adequacy	20%	Very appropriate	4	Appropriate	3.50	3.75
Efficiency	20%	Efficient	3	Efficient	3.00	3.00
Effectiveness	20%	Very effective	4	Effective	3.50	3.75
Influence	20%	Highly influenced	4	influential	3.50	3.75
Sustainability	20%	Positive	3	Positive	3.67	3.34

2. Detailed evaluation rating score

2.1 Relevance

In conformity with development policy of the recipient country, and appropriateness of EDCF's assistance policy, route selection, timing of the assistance, project plan, and response to demands from local residents and enterprises, this project is considered to be highly relevant.

As one of SOC projects in transportation sector, which is EDCF's priority assistance sector, this project is considered to be corresponded with EDCF assistance policy especially in consideration of Cambodia's development policy that pursues to promote economic growth intending further expansion of road construction.

Cambodia has conducted the first local elections since its independence in February 2002. The CPP took 1,597 seats out of a total number of 1,621 showing the country's political stability. After the visit of Prime Minister Hun Sen to Korea in 2001, friendly relations have been established between two countries. Also, it is considered that economic and diplomatic cooperation have been strengthened between two countries by investing road development project, which is what the Cambodian government put the highest priority among national development projects, by EDCF.

The Cambodian government has been cooperative with countries such as Thailand, Laos, and Vietnam to enhance price bargaining power of rice, the main production of Cambodia, in world market. From an economic perspective, the road rehabilitation project is considered helping establishment of export competitive power of rice as national industry by reducing transportation cost to export ports.

Technically, the project is evaluated to have improved general driving conditions by repairing, strengthening, and widening existing roads and improving design speed by making cross-fall gently.

2.2 Efficiency

As a result of measuring efficiency of this project, the project implementation period and cost were spent efficiently implying that the project has been conducted efficiently in general although there were some delays in project implementation period due to local conditions.

The time of payment was extended for one year from April 2nd 2007, which is after 48 months from the effective date of Loan Agreement, to April 20th 2008 because it seemed hard to be conducted within the original period due to delay on selecting providers.

In reality, the Taking-over Certificate was issued on May 18th 2007 and the first retention money was executed on September 28th 2007. In the same year, the second retention money was conducted on December 20th so disbursement of the fund was completed. Unspent money from the amount that was initially allocated to reserve fund and cost for consultant was reallocated to civil works, so the whole amount of money was spent.

2.3 Effectiveness

Effectiveness was evaluated on non-technical sector and technical sector separately and it was analyzed that the road was completed as planned and there is no major problem in general.

After the project of road renovation between Kampot and Trapangropo, average traveling time, operating cost and the number of damages from traffic accidents have been decreased with safety facilities including widen road increased paved areas in shoulders of the road. The road condition, also, has been improved in general reducing operation and maintenance cost.

As a result of investigating the volume of traffic in target area, traffic volume is 720-792/h, which is less than highway capacity on provincial level in Korea, 1,300/h showing there is no major problem with traffic congestion. It is suggested to separate two-wheel vehicles from ordinary vehicles in consideration of safety and efficiency because more than half of total traffic are made up with two wheeled cars.

According to investigation on running speed of main section within the project target area, the sectional speed is 42~64km/h. Considering width, plane, vertical alignment, pavement method, activities in edges of the road such as illegal parking, and side friction derived from roadside development, the running speed on this road is evaluated appropriate compared to design speed, which is the maximum speed for safe driving, 80km/h.

2.4 Impact

The overall impact of this project is considered high as a result of evaluating economic, socio-cultural, and environmental impact and technology transfer. Most of areas in near vicinity of Route 3 from Kampot to Trapangropo are fruit-growing areas, farmlands, and salt ponds. Especially Kampot, which is the starting point of this project, is a major agricultural producer as well as a center of fishery resources that are provided to all over the Cambodia. Those productions are transported to big cities such as Phnom Penh, and Siahanukeville through this project.

The Cambodian government expects development of tourist attractions in Southern areas of Cambodia to be vitalized through this project because the project region has great potential of tourist development and beautiful coastline. Also, the project has improved road efficiency by renovating existing road, and contributed to balanced economic development through connecting 'missing link' in other renovating project areas conducted from other donors. This is evaluated to be bringing big impact on Cambodia's economic development.

The MPWT announced that there has been a great improvement in project management knowledge, skills for asphalts-producing and pavement, bridge construction technology, and driving skills for heavy vehicles. Particularly, the reconstructed bridges in this project area are considered to have brought advanced construction technology of bridge to Cambodia using the Steel Box Girder, which is a rare applied case in the country.

2.5 Sustainability

The sustainability is considered positive in terms of management, operation and maintenance status and financial requirements.

This project area is a major road which is managed by the country. It is shown that there is an organized operation and maintenance system by MPWT. Construction quality is considered superior as a result of field survey and reviewing operation and maintenance history and there has been no special problems within 12-month defect repair period.
In an interview with the MPWT, they said sustainability of operation and maintenance in the project area is considered high with the fact that the budget for operation and maintenance has been appreciated annually and importance of budgeting for the operation and maintenance is recognized.

Ⅲ. Lessons learned and Recommendations

1. Insufficient Management of Traffic Operation System

When passing through a populated town, despite plenty of spaces in the road, there are lots of frictions due to non-compliance of the traffic regulations, and unauthorized crossing.

In particular, the driving speed is lower than expected one because various types of transportation such as motorcycles, most used one for personal transportation, tuk-tuk (three-wheeler), cars, and trucks are mixed on the road. It causes a serious problem in traffic safety. For example, high speed vehicle drives over the centerline in order to overtake low speed vehicle.

In addition, budget for operation and maintenance of the road is not enough for having an installation of additional traffic safety facilities.

2. Additional Assistance Projects in Road Sector in Cambodia

Cambodian government has carried forward a number of road renovation projects in order to promote its economy. It includes the renovation of the main highway connecting capital city Phnom Penh to main cities in the country.

In interview with the government, the Ministry of Finance and Ministry of Public Works and Transportation, requested to be supported from ODA organizations in developed countries. In this regard, it is considered that EDCF needs to participate more SOC projects.

3. To Strengthen the Monitoring System and Project Supervision

EDCF's current way of assistance is that the recipient country designs, and supervises the project after financial assistance from EDCF, but to improve efficiency, there needs to be more active management system for the project at EDCF level. A continuous, and regular project progress report about project process after the financial assistance needs to be made in order to conduct close management and supervision on the project.

A regular monitoring for each stage should be conducted by EDCF to resolve problems that might happen from project implementation agency and contractor. The efficiency of the project could be enhanced by those efforts, especially when evaluating similar project by comparing cost estimate and the monitoring system, as a key indicator, could be reviewed as well.

4. Pass on Korean Traffic Management Technology

To manage the completed road more efficiently and safely, there should be an extended application of traffic management and advanced technology, which can be transferred from our country. First of all, considering the road condition that one should drive over the

centerline for overtaking lower speed one because most of the roads are two-lane (round-trip), the introduction of 2+1 road system (two lane main road + extra one lane road) in Korea can be considered.

The signal intersection system is not efficient to decrease costs and injuries as there is not many cars. It could be a good way to firstly install the rotation intersection when the volume of traffic is increased and secondly and to transfer to signal intersection system.

5. Introduction of Various Ways including PPP

For processing SOC project like this road renovation one, it needs relatively enormous budget comparing to other project types. EDCF is able to expand its influence in assistance projects by linking private enterprises with EDCF's large scale infrastructure projects using various methods including PPP (Public Private Partnership).