

GSO Road Expansion and Emergency Dredging Project in Philippines

Loan Agreement No. : PHL-008-2005

Year Month Date : 2005. 12. 15

Country : Philippines

The Export-Import Bank of Korea
(Government Agency for the EDCF)

EDCF Operations Evaluation Team
(Evaluated by Korea Institute for Industrial Economics & Trade)

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I . General Provisions

1. Basic Project Info

Loan Info

Project No.	Type of Loan	Completion Period	Approved Amount	Approved Date
PHL-008-2005	Development project loan	66 Months	Korean Won equivalent to 22.3 million dollars	Nov. 22, 2005

Project Cost

(Unit: 1,000 dollars)

Classification	Estimated Project Cost	Actual Project Cost	Remarks
Total Project Cost	27,939.36	35,697.27	-
EDCF Loan	22,300.00	21,775.28	-

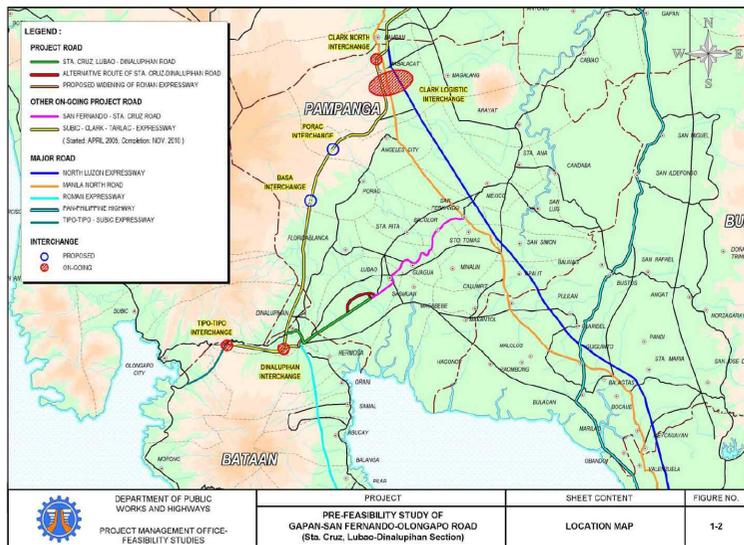
History

Classification	Date	Remarks
Evaluatory Visit	Oct. 15, '05	-
Support policy decided	Nov. 22, '05	-
Loan agreement established	Dec. 15, '05	-
Loan agreement comes in to effect	Mar. 27, '06	-
Consultant hired	May 24, '07	-
First fund executed	Nov. 08, '07	-
Purchase contract established	Aug. 26, '08	-
Construction initiated	Oct. 16, '08	-
Project completed	Sept. 08, '11	'11. 06. 06(Completion Date)
Final fund executed (planned)	Jul. 27, '12	-
Submit completion report	Jan. 31, '12	-
Project period (months)	66 months	-

- Loaner : Department of Finance
- Project Execution Agency : Department of Public Works and National Roads (Department of Public Works and Highways)
- Business Trip Info

Type	Period	Remarks
Field Evaluation	Oct. 15 ~ 22, 2005	
Construction initiation	Jan. 29, 2009	
Mid-term Review		
Completion Review	Yet to be done	Jan. 31, 2012 Project Completion Report received
Expost Evaluation	Jul. 10 ~ 16, 2013	

2. Map of Project Area



<Figure 1> Road Network in the Project Area

The project sector, the GSO road, runs through key cities in the Philippines' central Luzon region (Gapan, San Fernando, and Olongapo), and is also the main road among the North Luzon Expressway that links Manila and the Northern Luzon area that connects to Clark-Suvic Economic Zones where the government and major cities in Pampanga Province are strategically developing as a gateway to the Asia-Pacific region. Naturally, the plays a critical role in the Philippines' economy. The government aims to efficiently connect Manila and Suvic New Town, develop industries in the Pampanga Province, foster the tourism industry, promote balanced inter-regional economic growth and reduction of poverty through this project.

3. Evaluation Overview and Procedures

- Organization of the Expost Evaluation Group
 - Chief Evaluator :
 - Dr. Park Jin-young (Division for International Transport Cooperation Research, The Korea Transport Institute)
 - Collaborative Evaluators :
 - Dr. Lee Hun-ki (Division for International Transport Cooperation Research, The Korea Transport Institute)
 - Kang Ji-won (Researcher, Division for International Transport Cooperation Research, The Korea Transport Institute)
 - Chi Jong-ki (Director, Seoyoung Engineering Transportation Planning Team)
 - Chu Jun-yeon (Section Chief, Seoyoung Engineering Transportation Planning Team)

Evaluation Procedures

Includes literature investigation, field survey and questionnaire based surveys.

<Table 1> Contents of Expost Evaluation

Classification	Date	Content
Preliminary literature investigation	Jun. 1 ~ Jul. 8	- Investigate relevant literature
Notify execution of expost evaluation		
Send Evaluation questionnaire		- Project executor and related agencies
Field survey	Jul. 8 ~ 12	- Site visit, interviews, surveys, etc.
Prepare field survey result report	Jul. 12 ~ 16	- Results of interviews with related agencies
Prepare mid-term report	Aug. 1 ~ 27	- Quantitative/qualitative evaluation result analysis
Review report and modify/supplement	Sep. 2 ~ 6	-
Prepare and submit final report	Sep. 15 ~ Oct. 21	-

Evaluation Method

○ List of documents

- 'FEASIBILITY STUDY for the GAPAN - SANPERNANDO - OLONGAPO(GSO) ROAD (Sta. Barbara Vridge - Sta. Cruz Bridge Section) and EMERGENCY DREDGING PROJECT'(Hanjin Heavy Industries, Sep. 2003)
- GSO Road Expansion and Emergency Dredging Project Evaluation Report (Nov. 2005)
- GSO Road Expansion and Emergency Dredging Project Completion Evaluation Report (Jul. 2012)

○ Interview and Survey

<Table 2> Organizations Interviewed during Field Survey

Classification	Interviewee	Content
Korean Embassy in the Philippines	Iric C. Arribas (First Secretary and Consul General Philippine Embassy)	Preliminary visit before site survey
EDCF Philippines branch	Deputy Manager Kim Eun-Seok	Collect and analyze related literature and data
Department of Public Works and National Roads (DPWH)	Undersecretary Yabut Director Ms. Potante	Collect data and conduct survey
National Economic and Development Authority (NEDA)	Roderick M. Planta Director	Collect data and conduct survey
Asia Development Bank	Kwon Eun-kyoung (Principle Evaluation Specialist, IED) Lloyd Wright (Senior Transport Specialist, SERD)	Collect data and conduct survey
Seoyoung Engineering	Song Young-han (Chief of GSO Phase II project site office) Oh Jae-jin (KCI, GSO Phase II project supervision)	Field survey and interview
Prepare mid-term report	Sep. 10, 2013	
Final Report	Planned	

II. Project Design and Implementation

1. Project Organization

1.1 Project Title

Gapan - San Fernando - Olongapo (GSO) Road Expansion and Emergency Dredging Project

1.2 Objective

- Resolve traffic congestion in the project area by expanding the road and rebuilding the bridge
- Prevent natural disaster such as floods by river dredging
- Promote economic recovery of areas that suffered volcano eruption damage
- Promote economic growth in the metropolitan area

2. Grounds for Support

The aim is to resolve traffic congestion in the project area by expanding the road and rebuilding the bridge, prevent natural disaster such as floods by river dredging, promote economic recovery of areas that suffered volcano eruption damage, and promote economic growth in the metropolitan area. Only 15% of the roads in the Philippines is managed by the central government, while the local governments oversee the remaining 85%, the portion of which is in dilapidation due to funding shortage and is in need of support.

Meanwhile, the road network transports 53% of domestic cargo and 89% of passengers, playing a critical role in national transport. Despite of its importance of the road network, there is regional unbalance in terms of infrastructure and a general lack of maintenance.

The GSO road bypasses Gapan, San Fernando, and Olongapo. which are key cities in the Philippines' central Luzon region, and is a key trunk route that connects Manila, central west Luzon, and Clark-Suvic Economic Zone. The project area in Pampanga Province is the northwestern gateway to the metropolitan area, and takes a key position in the national economy. The infrastructure has been heavily damaged by the volcano eruption in 1991 and the earthquake in 1990, and the river has been flooding due to shallower depth caused by sediments from the volcano eruption, damaging the nearby area and obstructing road traffic.

3. Product

- Expand lanes of the GSO road 18km section (Dolores Flyover~Sta. Cruz Bridge) from two to four, and rehabilitate the pavement
- Sta. Babara Bridge ~ Sta. Cruz Bridge 15km Section : Elevate the road above the ground with embankments to maintain function during floods, expand the road from two to four lanes, and rehabilitate the pavement
 - Average design speed : 70km/h
 - Road width : Total 16.40m (3.35m four lanes, 1.50×both shoulders)
 - Pavement: Road 100mm asphalt concrete/Shoulder 200mm basic pavement

- Roadbed embankment : average height 2.50m
- Dolores flyover ~ Sta. Barbara Bridge 3km section : pave the road
- Expand (to four lanes) and rebuild the two-lane section on Sta. Cruz Bridge
- Elevate the bridge (length: 280m), expand lanes from two to four
- Dredge the Porac-Gumain River 8km section (depth: 2m, width: 100m) to facilitate the river flow, prevent flooding during raining season in the Lubao, Guagua, and Sasmuan areas in Pampanga Province

<Table 3> Project Product

Details	Plan	Actual	Remarks	Photos
GSO Road Expansion	GSO road's 18km section expansion from 2 to 4 lanes	Identical	-	
Rebuild Sta. Cruz Bridge	Sta.Cruz Bridge (263m) Expand lanes: 2 to 4 lanes	Identical	Alter design for certain sections and begin construction	
Porac-Gumain River Dredging	Porac-Gumain River (8km) Dredging: depth 2m, width 100m	Identical	-	
Build Bypass Road	-	Build road that detours Sta. Cruz Bridge, install transportation facilities	Subsidiaries from the Phosphines government	-

4. Loan Provision Conditions

- Loaner : The Philippines' Department of Finance
- Interest Rate : 1.5%/year
- Principal Redemption Period : 30 years (including a term unredeemed of ten years)
- Redemption method : After the expiration of the term unredeemed, regular level payment, twice per year
- Interest Collection Method : deferred collection every sixth months regarding unrepaid principal
- Handling Charge: 0.1% of the amount in the letter of credit issuance indemnity report or aid loan funds expense

III. Evaluation by Criterion

1. Evaluation Method

Evaluation standards were composed based on OECD DAC (Development Aid Committee)'s criteria. Qualitative and quantitative items were each evaluated through data analysis and interview/surveys.

<Table 4> Key Evaluation Criteria in Each Sector

Evaluation Criterion	Quantitative Evaluation Index	Qualitative Evaluation Index
Relevance	<ul style="list-style-type: none"> - Relevance to the recipient country's development policies - Propriety of EDCF's support policy and directionality - Propriety of support timing and project plan 	<ul style="list-style-type: none"> - Relevance to the recipient country's development policies - Propriety of route selection - Propriety of project scope - Relevance to the local community's demands
Efficiency	<ul style="list-style-type: none"> - Project execution period - Project cost 	<ul style="list-style-type: none"> - Project execution period - Project execution system
Effectiveness	<ul style="list-style-type: none"> - Whether the project objectives have been accomplished - Traffic volume and driving speed in each section 	<ul style="list-style-type: none"> - Whether the project objectives have been accomplished - Accomplishment of accessibility and mobility
Impact	<ul style="list-style-type: none"> - Socio-economic impact - Technology transfer and environmental impact 	<ul style="list-style-type: none"> - Economic impact - Socio-cultural impact - Environmental impact
Sustainability	<ul style="list-style-type: none"> - Operation and maintenance system status - Financial conditions for operation and maintenance 	<ul style="list-style-type: none"> - Road maintenance system - Road condition - Road maintenance budget

2. Evaluation Result

Overall evaluation rating was 3.5, which qualifies as "Successful." This result is a combination of the qualitative effect of the project after completion and the effect actually experienced at the recipient country.

<Table 5> Evaluation Result Summary

Evaluation Item	Weighted Value	Evaluation Result		Content
		Category	Rating	
Relevance	20%	Highly Successful	3.9	The project was deemed most relevant to the Philippines government's national development plan
Efficiency	20%	Successful	3.0	Cost was executed within the budget, but completion was considerably delayed due to the lack of on-site capacity, and the project content underwent change
Effectiveness	20%	Highly Successful	3.7	Most of the initially planned products, and mid to long-term goals were found to have been accomplished
Impact	20%	Successful	3.4	The transportation network in the Pampanga Province and accessibility to the economic zone (Suvic, etc.) were improved
Sustainability	20%	Successful	3.3	Expected to greatly contribute to the national economy development strategy focused on Suvic in the long-term perspective, but needs for road plans considering climate change arose
Total Rating : Successful 3.5				

This project stands relevant to the Manila government's policy of strategically developing the Pampanga Province north to Manila, and improves accessibility to Manila and project areas from Suvic Economic Zone in terms of route selection, and is therefore deemed successful in the relevance category. Also, the timing is proper, in connection to the Suvic Economic Zone development plan, needs to restore damaged infrastructure and respond to increasing population needs. The project properly responds to the local communities and enterprises' needs, as it expands free-of-charge roads that greatly improve the community members' accessibility and save logistics cost. DPWH (project executor) is most satisfied, and is currently executing Phase II of the project.

The project is deemed successfully efficient. Completion was delayed due to the Philippines government's delay in administrative processing, the construction company undergoing corporate rehabilitation procedures, changes in the bridge design and the reduction of working days caused by adverse weather conditions, but this is mainly a site-specific problem, rather than EDCF's responsibility. Also, there were no conflicts during the execution period.

This project was deemed highly successful, as the roads were completed according to plan, dredging executed. Also, no problems were found with road conditions or operations. The travel time was shortened by 20 minutes from the initial 1 hour 40 minutes, saving transport and operation cost. Other effects include the reduction of traffic accidents due to the expansion of safety facilities and road

width. However, certain sections were submerged during the rainy season, which will be remedied in Phase II. Therefore, the rating was 3.7.

The project was found to be economically feasible with an economic internal rate of return (EIRR) of 26.7%. The Porac-Gumain dredging project will be able to 100% prevent annual average flood damage up to 2 years from completion. Presuming that the project's effect will expire after six years without any additional repair/maintenance, with 50% annual reduction from the third year on, the economic internal rate of return (EIRR) is 18.2%. Also, the project created employment and improved earnings. There were no specific technology transference, but project know-how was passed on, and the economic impact was considerable with improved accessibility and mobility. Socio-cultural impacts were also positive, with reduction of commute time, improved accessibility to public service, and increased income. However, there were some negative repercussions in terms of migration and land compensation, and therefore the rating of the impact criterion is 3.4.

In terms of management/maintenance status and system and financial conditions, a systematic maintenance structure was established for each region such as designating personnel in charge and dedicated organizations. Therefore, the sustainability criterion was deemed successful and the rating was 3.3.

IV. Problems, Lessons Learned, and Suggestions

1. Problems

There must be measures to prevent project delays due to the executing agencies' lack of capacity. Support programs such as offering consultancy to project execution agencies or KSP may be considered. Also, problems may arise in the process of securing project sites and moving the residents, and delays may be caused due to difficulties in securing funding or resistance from local community members. Other obstructions include community members' resistance or rejection in installing road structures. Supplementation of the 1st stage of the project was conducted during the 2nd stage, which concerns poor roadbed conditions in certain sectors due to abnormal climate due to the greenhouse effect and increased rainfall caused by localized heavy rain. Such problems must be addressed.

2. Lessons Learned and Suggestions

Consulting support should be mentioned in detail and executed to prevent delays in the project due to the recipient country's lack of capacity. Projects are often delayed due to administrative complications, which calls for professional consulting that can support the recipient country's project execution agency. By supporting mid to long-term capacity reinforcement through KSP projects, there will be

greater synergy in terms of project term extension or sustainability.

Also, EDCF's mid-term review must be vitalized to enable timely response to unforeseen changes in international and (the recipient country's) domestic politics during project implementation.

Climate change is becoming aggravated due to the greenhouse effect all over the world, exerting greater influence on social infrastructure. Especially, climate change must be prioritized as a consideration for road projects. This project is especially meaningful in that it is a new project that comprehensively establishes responses to transport and climate change relations by simultaneously conducting river dredging and road construction.