Thailand

Outer Bangkok Ring Road (East Portion) Construction (I)

Report Date: June 2000
Field Survey: April 2000

1. Project Profile and Japan's ODA Loan

(1) Background

This project was implemented as part of the Eastern Seaboard Development Plan, which began under the Fifth National Five Year Plan for Economic and Social Development (1982~1986). The aim of the Plan was the comprehensive development of the coast to the southeast of Bangkok as a production center for domestic industry. Acting on the importance of the Eastern Seaboard Development Plan, the Road Development Plan called for the construction of three new roads, two roads to meet new traffic demand between Bangkok and the coast and one (this project) to link North and Northeast Thailand to the coast without passing through the congestion of Bangkok.

(2) Objectives

This project was to develop a total length of 63km of outer ring road linking the north and the southeast of the capital region, avoiding the congestion of central Bangkok. Its objective was that "as traffic demand in Bangkok and its surrounding increases with the progress of the Eastern Seaboard Development Plan, the road will redistribute traffic volumes to alleviate congestion in those areas."

(3) Project Scope

The cope of this project was as follows.

[1] Construction of a four lane automobile-only road with full access control (total length 63km, referred to below as the motorway).
[2] Construction of a four lane, free access general road (a section of approximately 21km in the south)
[3] Eight interchanges.
[4] Consulting services (construction supervision).

The 63km were broken into 16 sectors. Phase I was planned to construct seven sections totaling 39.5km (including 5km of ordinary road), with phase II planned to construct nine sections totaling 23.5km (including 16km of ordinary road and eight interchanges). The JBIC loan covered the entire foreign currency portion of the project and a portion of the local currency portion (construction supervision).

(4) Borrower/Executing Agency

Kingdom of Thailand / Department of Highways, DOH

(5) Outline of Loan Agreement

	(I)	(II)	Total
Loan Amount/ Loan Disbursed Amount	¥12,958 million / ¥12,828 million	¥12,473 million / ¥12,469 million	¥25,431 million / ¥25,297 million
Exchange of Notes/ Loan Agreement	February 1990 / December 1990	September 1993 / September 1993	
Terms and Conditions Interest rate Repayment period (Grace period)	 2.7% 30 years 10 years	 3% 25 years 7 years	
Final Disbursement Date	April 1999	January 2000	

2. Results and Evaluation

1. Relevance

When this project was planned, the main trunk roads in areas around Bangkok were severely congested, and therefore the plan for this project, which aimed to relieve congestion by redistributing traffic volume, was relevant. After the completion of the project, most sections were used by more traffic than predicted at the planning stage, which reconfirmed the relevance of the project content.

2. Efficiency

[1] Project Cost: The foreign currency portion was largely as planned, but the local currency portion exceeded the planned amount due to increased compensation payments related to land acquisition.

[2] Implementation Schedule: The project was completed 29 months behind the planned schedule, mainly due to delays in the compensation procedures for land acquisition.

[3] Implementation Scheme: The executing agency is the Department of Highways (DOH), which was responsible for all administrative aspects of project planning, development, operation and maintenance etc. The DOH has played a central role in building trunk roads since its foundation in 1972. It has abundant experience of ODA loan projects, and no notable problems were apparent in its executing ability. The DOH reports that the performance of the consultants and contractors was good.

(3) Effectiveness (Operational status / quantitative effects)

As shown below, traffic volumes exceed the planned values on almost all road sections, except between kilometers 40 and 50. The EIRR, recalculated according to the recorded figures, is 13.06%.

Traffic Volume

Units: Vehicles/day

Section	Actual (1999)	Predicted (1993)
0～40km	33,014	29,225
40～50km	45,883	71,113
50～63km	41,259	32,275

Source: M/D, PCR.

(4) Impact

[1] **Local economic impact:** At the time of the evaluation, this project had only been completed for one year, which made it difficult to gauge the impact of its completion in encouraging development at that stage. However, considering the current state of usage of the road, 20~30% of the vehicles are goods vehicles, which indicates the road is fulfilling its role as an industrial route linking the Eastern Seaboard with the Bangkok hinterlands. Compared to traveling on the older main National Routes, the travel time is shorter, with heavy vehicles gaining the greatest reduction in travel time. Therefore the use of the road as an industrial route can be expected to grow in future.

[2] **Environmental impact:** Sound baffle walls have been installed at three locations along the route to reduce noise problems. The DOH also plans to install a noise monitoring system along the route, and points which are expected to suffer from extreme noise will be prioritized for the installation of sound baffle walls and planting of trees against noise.

[3] **Social impact:** The design of the expressway makes it difficult to cross it in either direction. At the planning stage it was pointed out that the severing of local transport networks could inconvenience people living along the route in their daily lives, and it was decided that countermeasures should be taken where demands were made by residents. The DOH responded to such demands from residents by building service roads along the whole route to reconstruct local transport networks, and using the space beneath bridges over rivers and canals to build U-turn spaces. Footbridges were built in sections where it is impossible to cross the road for a long distance, because there are no bridges to use. That means that it is possible to cross the expressway in some way within 2~4km of almost any point, and no complaints have been made since completion.

(5) Sustainability

[1] **The current status of operation and maintenance:** The expressway now operates as a toll road, collecting approximately 701 million Baht in tolls in 1999. The collected tolls are to be applied to the operation and maintenance costs of the road, which were calculated at 300~600 million Baht per year. In 1999 the costs were covered by collected tolls, and there is no problem with the current management of operation and maintenance.

[2] **Future scheme:** The DOH has provisionally taken on the operation and maintenance of the expressway, but at the time of the appraisal it was decided that a scheme and system for the project should be prepared with reference to the proposal (toll road with toll collection in a closed system and the creation of an operation and maintenance organization) contained in the JICA master plan for the operation and maintenance of toll roads (1991). The Thai government formally approved the JICA master plan in 1997, and the cabinet resolved in 1999 that a new organization should be set up in line with the JICA proposal. Therefore it appears that progress will be made on setting up systems according to the content of the JICA proposal.

3. Lessons Learned

None in particular.

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Comparison of Original and Actual Scope

(1) Project Scope

Project Content		① Plan	② Actual	Difference (②-①)
Eastern OBRR		63.0km	64.1km	1.1km
Service road		20.8km	24.3km	3.5km
Unpaved service road		0	26.9km	26.9km
Interchange		8	8	None
Consulting Service	(F)	202M/M	268M/M	66M/M
(construction supervision)	(L)	200M/M	278M/M	78M/M

(2) Implementation Schedule

Year	1993				1994				1995				1996				1997				1998				1999			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Civil works																												Opened
Plan				1												10												
Actual							6																					3
Construction supervision																												
Plan				1														12										
Actual							6																					3
Land acquisition																												
Plan			8							5																		
Actual	4																											3

(3) Project Cost

Item	① Plan		② Actual		Difference (②-①)	
	Foreign currency (¥ million)	Local currency (million B)	Foreign currency (¥ million)	Local currency (million B)	Foreign currency (¥ million)	Local currency (million B)
Civil work	21,486	4,869	24,792	5,493	3,306	624
(for ODA loan portion)	*22,268*	*0*	*24,792*	*0*	*2,524*	*0*
Consulting service (Construction supervision)	441	7	505	59	64	52
(for ODA loan portion)	*706*	*4*	*505*	*0*	*-201*	*-4*
Zylstra						
	0	8,052	0	18,926	0	10,874
Land acquisition						
(for ODA loan portion)	---	---	---	---	---	---
Total	21,927	12,928	25,297	24,478	2,256	11,550
(for ODA loan portion)	*22,974*	*4*	*25,297*	*0*	*2,323*	*-4*
Contingency	2,457	680				
(for ODA loan portion)	*2,439*	*0*				
Total project cost (¥ million)		84,531		125,657		41,126
Total ODA loans (¥ million)		*25,431*		*25,297*		*-134*