

Eastern Seaboard Development Plan Road Project

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Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

Since new heavy demands for inland transportation were anticipated to arise in accordance with development of the Eastern Seaboard, the preparation of road and railway networks for handling these demands was necessary. In the said seaboard, since early in the 1980's, the expansion of national roads has progressed, financed by the Thai government's own funds and financial assistance from donor agencies such as World Bank. Then the preparation of the inter-city expressway known as the "Motorway" was accelerated with the ODA loan. These motorways in the Eastern Seaboard form the first project in the development plan of nation-wide Motorway network in Thailand.

(2) Objectives

To meet the increasing demand for inland transportation for industrial developments of the Eastern Seaboard.

(3) Project Scope

This report deals with only the Chonburi-Pattaya Highway construction project (about 68 km long, four lanes), which is one of the three motorway construction projects included in the Eastern Seaboard Development Plan. The ODA loan covers full amount of the foreign currency portion and part of local currency portion required for the motorway construction. Since the three motorway projects are aiming at building an integrated network, the other two projects will be mentioned briefly in this evaluation.



Project name	Purpose	Remarks
Chonburi - Pattaya Highway (about 68 km)	Meet the demand for traffic between the Bangkok metropolitan area and Eastern Seaboard.	In the scope of present evaluation
Bangkok - Chonburi Highway (about 82 km)		Not yet completed at the time of field survey
Outer Bangkok Ring Road (East Portion) (about 63 km)	Meet the demand for traffic between the Eastern Seaboard and the other regions by passing the congested Bangkok.	

(4) Borrower/Executing Agency

Kingdom of Thailand/Department of Highways (DOH), Ministry of Transport and Communications

(5) Outline of Loan Agreement

	Phase (1)	Phase (2)
Loan Amount	¥4,117 million	¥5,670 million
Loan Amount Disbursed	¥4,074 million	¥4,512 million
Date of Exchange of Notes	September 1988	September 1991
Date of Loan Agreement	November 1988	September 1991
Loan Conditions		
Interest Rate	2.9%	3.0%
Repayment Period (Grace Period)	30 years (10 years)	25 years (7 years)
Final Disbursement Date	March 1994	November 1997

Note: Phase (2) is an additional loan due to increased project cost

2 Analysis and Evaluation

(1) Project Scope

A four-lane motorway was built between Chonburi and Laem Chabang (sections 1 to 3) and a two-lane motorway between Laem Chabang and Pattaya (section 4), as planned. Four of five projected interchanges have been constructed. The construction of six flyovers (overpasses) was included in the project later, but only two of them have been completed because of a delay in land acquisition. (There is no problem with the use of the motorway, however.)

(2) Implementation Schedule

The delay of about one year in selecting consultants and a contractor occurred due to a delay in the detailed design which was implemented by DOH using its own budgets. Since the project cost bulged due to an increase in building material costs (see "Comparison of Original Plan and Actual"), it needed much time to prepare additional funds (financed by the additional ODA loan). Finally, the project was finished about two years behind the initial schedule at the time of appraisal in the first loan and about one year behind the revised schedule at the time of appraisal of the additional loan. This project, however, can be said to be successfully implemented by and large when considering it is construction of a new, large scale motorway.

(3) Project Cost

Originally, the project was to be financed by the 14th ODA loan alone. But as a result of the bidding, the total project cost was escalated to about 1.8 times higher than the original plan, because the construction costs bulged suddenly, reflecting a construction boom in Thailand. As the project cost increase was caused by unpredictable factors such as high growth of the Thai economy and its accompanying construction boom, an additional loan was granted in 1991 to cover the excess cost. Since then, the project could have been completed successfully within the cost estimated at the time of appraisal of the additional loan.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Motorway Construction		
Section 1 (Chonburi bypass)	Widening of the two-lane road to four lanes.	Widening of the two-lane road to four lanes.
Section 2 (Chonburi bypass - Laem Chabang intersection)	(13.851 km)	(13.851 km)
Section 3 (Laem Chabang intersection - Laem Chabang Industrial Estate)	Construction of a new four-lane motorway	Construction of a new four-lane motorway
	(24.548 km)	(24.548 km)
	Construction of a new four-lane motorway	Construction of a new four-lane motorway
	(7.625 km)	(7.425 km)

Section 4 (Laem Chabang intersection - National road 36)	Construction of a new two-lane motorway (17.384 km)	Construction of a new two-lane motorway (17.384 km)
Interchange Construction	Five locations	Four locations
Consulting Services ¹⁾	F37 M/M / L30 M/M	F52 M/M / L30 M/M
2. Implementation Schedule		
(commencement to completion)		
Motorway Construction	July 1990 to September 1992	June 1990 to May 1993
Interchange Construction	October 1991 to May 1993	December 1991 to June 1994
3. Project Cost		
Foreign currency	¥6,046 million	¥7,712 million
Local currency	1,321 million bahts	474 million bahts
Total	2,462 million bahts (¥13,049 million)	2,425 million bahts (¥9,943 million)
Exchange Rate	1 baht = ¥5.3	1 baht = ¥4.1

1) Consulting service: F: Foreign consultant; L: Local consultant

2) The original plan of implementation schedule and project cost was at the time of appraisal of the additional loan.

(4) Project Implementation Scheme

The executing agency is DOH. DOH has long experience in many ODA loan projects and is familiar with the loan procedure. Although DOH needed an additional loan to make up for the shortage of the project cost, DOH was able to minimize the delay in completing the project, and the efforts by DOH for this purpose should be highly appreciated.

(5) Operations and Maintenance

DOH has created a practical road maintenance manual based on its long experience. The Chonburi - Pattaya Highway has been maintained properly, but the rate of traffic volume of heavy vehicles (large and medium-sized trucks) to the whole traffic in 1997 was 40.1%, which is much higher than the initial projection (14.9% in 2000). Thus, the highway may be subject to severe loads more than expected, and it is necessary to implement due maintenance and to make sufficient budgetary request and their execution, taking account of such conditions.

(6) Operational Performance

The daily average traffic volume of the Chonburi-Pattaya Highway is as follows:

Year	1994	1995	1996	1997
Section 1	22,178	24,155	26,308	28,461
Section 2	22,513	24,520	26,705	28,890
Section 3	45,024	49,037	53,408	57,779
Section 4	12,576	13,695	14,913	16,131

(Unit:vehicles)

This motorway connects Chonburi, one of large cities in the Eastern Seaboard, and Pattaya, an international tourism resort, to accommodate the need of transporting many passengers travelling for tourism or on business. This motorway also provides a direct access to the Laem Chabang Port, a major international port in Thailand, and to Laem Chabang City, where Laem Chabang Industrial Estate is located, responding to the demand of cargo transportation from/to said port and industrial estate.

(7) Motorway Tolling

The Chonburi-Pattaya Highway was originally planned as a toll road with full access control, but no fee was charged as of 1998. Motorways, including the Chonburi-Pattaya Highway, are designed to provide the service with higher value added than national roads. The toll fees of motorways should be chiefly borne by their beneficiaries, from the standpoint of economic-efficiency. Construction of the motorway network in Thailand is at its initial stage, therefore it is now necessary and useful for Thai government to examine a proper tolling policy for said network, considering the increasing financial burden in the future.

(8) Project Effects and Impacts

(i) Quantitative Effects

(a) Chonburi - Pattaya Highway Traffic Volume

The traffic volume of the Chonburi - Pattaya Highway accounts for about 56% of the south-north traffic volume in the Eastern Seaboard (Chonburi-Pattaya Highway plus two national roads paralleling said motorway) (see Table below), and functions as a trunk road in the Eastern Seaboard.

Year	1990	1997
National road 3	77.1%	31.0%
Chonburi - Pattaya highway (Section 2)	-	56.3%
National road 331	22.9%	12.7%

(b) Effects of ODA Loan Projects on the Road Traffic in the Whole Eastern Seaboard

The simulation based upon the Thai traffic model which was created by the Office of the Commission for the Management of Land Traffic (OCMLT) demonstrates that, if all the road projects of the Eastern Seaboard Development Plan had not been implemented, the traffic volume would have been less than 80% and the average speed would have been about 70% of the level achieved when these projects are implemented (as of 1997). It also predicts that, if the ODA loan projects including the Chonburi - Pattaya Highway had not been implemented, the traffic volume would have been less than 80% and the average speed would have been about 75% of the level when all of the road projects are implemented. From this simulation, it is clear that construction of the motorway has a significant positive effect on the road traffic in the entire Eastern Seaboard.

(c) Economic Internal Rate of Return (EIRR)

EIRR of the Chonburi - Pattaya Highway is calculated to be 23.3% based on the actual performance.

ii) Qualitative Effects

(a) Promotion of Industrial Developments in the Eastern Seaboard

The road network developed around the Chonburi - Pattaya Highway in the Eastern Seaboard makes a great contribution to the industrial development of said seaboard through the provision of inland transportation of raw materials and products from various factories therein and of cargoes handled at the Laem Chabang Port.

(b) Smooth Land Transportation between the Eastern Seaboard and Other Regions

The Chonburi-Pattaya Highway, connected with the Bangkok-Chonburi Highway and the Outer Bangkok Ring Road (East Portion) which were completed just at the end of 1998, is expected to function as an integral motorway network to make great contribution to ensuring a smooth transportation route between the Eastern Seaboard and the Bangkok metropolitan region, and to extending the route from said Seaboard to the northern and north-eastern parts of Thailand, by forming a new route bypassing the Bangkok metropolitan region.