

THAILAND

New Rama VI Bridge Construction Project

Report Date: March 1999

Field Survey: February 1999

1 Project Summary and JBIC's Cooperation

This project is designed to replace the deteriorating Rama VI Bridge, spanning the Chao Phraya River in the city of Bangkok, with a new bridge up-river (north) in order to alleviate traffic congestion in the northwest area of Bangkok. The ODA loan covers the entire foreign currency portion and a part of local currency portion for cost of civil and construction works and the entire foreign currency portion for consulting services.

2 Evaluation Results

(1) Project Implementation

(i) Project Scope

The project scope was implemented mostly in accordance with the original plan, and no problems were observed.

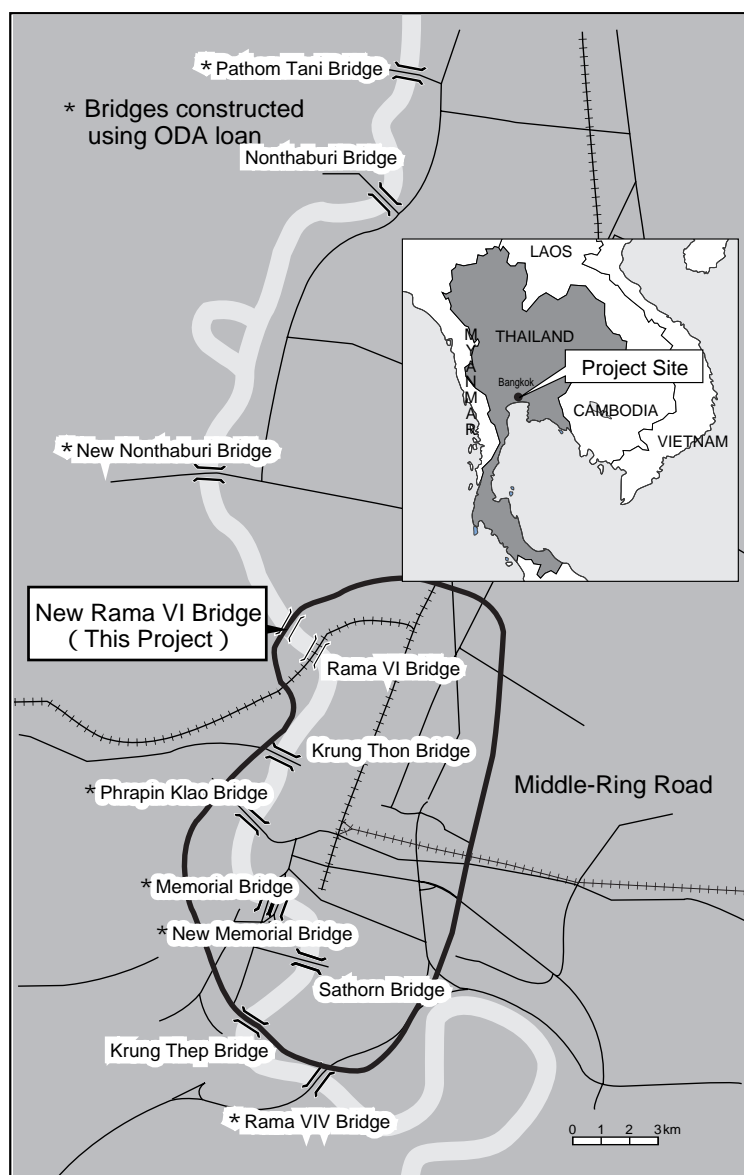
Regarding the land acquisition, the size of a park adjoining the bridge had to be reduced owing to the fact that land prices soared drastically, but this had no effects on the actual construction of the bridge and no substantial modifications were made to the plan.

(ii) Implementation Schedule

The start of the construction was delayed by twenty months mainly owing to the delay of land acquisition, and the completion of the project was consequently delayed by twenty months against the original plan. Considering the difficulty in forecasting increases in land prices, the delay in the implementation schedule was unavoidable.

(iii) Project Cost

A cost under-run of approximately 11% arose with the project. This was owing to lower costs for the civil works resulted from the bidding. The cost of land acquisition was contained within the original plan by reducing the area of land acquisition, as mentioned above.



Borrower / Executing Agency	The Kingdom of Thailand / PWD: Public Works Department, Ministry of Interior
Exchange of Notes / Loan Agreement	September 1987 / September 1987
Loan Amount / Loan Disbursed Amount	· 5,599 million / · 3,811 million
Loan Conditions	Interest: 3.0%, Repayment period: 30 years (10 years for grace period), General Untied (partial untied for consultants)
Final Disbursement Date	September 1993

Comparison of Original Plan and Actual

(1) Project Scope	Plan	Actual
(1) Civil works		
(i) Main bridge frame (PC bridge)	Total length 290m / 6 lanes for both ways	Same as planned
(ii) Approach area (RC bridge)	780m in total	Same as planned (Slight changes)
(iii) Railway bridge (highway grade separation area, PC bridge)	Total length 70m	Same as planned
(iv) Road construction work		
¥Concrete pavement	Total area 59,400m ² / 26cm thick	Same as planned
¥Drainage appliance and flood prevention facility	RC concrete box culvert Pipe culvert / pumping facility etc.	Same as planned Same as planned (Slight changes)
¥River revetment work	528m in total	Same as planned
¥Electrical facility	Street lamps, drainage, flood prevention facility Electrical power supply facility	Same as planned (Slight changes) None (Excluded from the project scope)
(2) Consulting service	Total 267 M/M	Total 275.5 M/M
(2) Implementation Schedule		
(Commencement of land acquisition ~ Completion of construction)	September 1986 ~ January 1991 (53 months)	September 1986 ~ September 1992 (73 months)
(3) Project Cost		
Foreign currency	· 3,919 million	· 3,411.6 million
Local currency	865.6 million baht	798.3 million baht
Exchange rate	1 baht = · 5.5	1 baht = · 5.43

(2) Organization of the Executing Agency (implementation and operation/maintenance after completion)

(i) Implementation Scheme

The executing agency for this project was the Public Works Department (PWD), Ministry of Interior, and Bridge Construction Office of PWD was directly engaged in the implementation of the project. PWD has had much experience in constructing bridges and roads and has built bridges over the Chao Phraya River on several occasions in the past. It also has had past experience of borrowing yen loans, and the project was implemented without problem, with the exception of the delays in acquiring the required land.

PWD also employed consultant (J/V from Japanese company and local companies) to provide assistance on the technical front, and reported that the performance of this consultant was favorable.

Bidding was implemented as a single package involving the construction of the main bridge frame, the approach area and other works, and the contract was given to the Japanese company J/V. No delays were recorded after commencement of the works and the project was completed according to the original design. It was also recognized that the performance of the contractor was favorable.

(ii) Operations and Maintenance

Post-project maintenance for the main bridge and approach area is being implemented by Rehabilitation and Maintenance Division of PWD. Bangkok Metropolitan Authority (BMA) is in charge of connecting roadways and flood prevention facilities, and State Railway of Thailand (SRT) is in charge of the railway bridge. As of the time of field survey, there are no particular problems with the maintenance of these facilities.

(3) Project Effects and Impacts

(i) Facilitating the smooth flow of traffic

The former Rama VI Bridge with two lanes of traffic was replaced by the New Rama VI Bridge with six lanes of traffic to increase the total number of vehicles from 14,700 (7,350 vehicles per lane) to 40,000 vehicles (approximately 6,700 vehicles

Comparison of Traffic and Average Vehicle Speeds Crossing the Former Rama VI Bridge and the New Rama VI Bridge

Name of bridge	Total volume of rush hour traffic in one hour (Note)	
	Traffic volume (thousands of vehicles)	Average speed (km/h)
(Former) Rama VI Bridge (as of 1987)	14.7	9.8
New Rama VI Bridge (as of 1998)	40.0	N.A.

(Source) PWD

(Note) Rush hour period: 6:00~9:00, 16:00~19:00

per lane) during the rush hour (06:00 to 09:00 and 16:00 to 19:00). In addition to this, traffic was formerly restricted to a maximum load of 12t owing to the deterioration of the old bridge, but this project (new bridge) has enabled large trucks to utilize the facility by greatly enlarging these maximum load restrictions. (facilitating and actively encouraging the flow of goods between the center of Bangkok and the Thonburi region on the western bank of the Chao Phraya River.)

(ii) Effects of eradicating traffic congestion

This project (new bridge) is the important part of the Middle-Ring Road of Bangkok, and this has enabled the smooth flow of traffic into the city center, leading to a firm contribution to relieving traffic congestion in central Bangkok.

3 Lessons Learned

Nothing in particular.



(1) New Rama VI Bridge
(Named Rama VII Bridge when completed)



(2) Traffic on the new bridge
(The congestion is on the carriageway heading to Bangkok from Thonburi)



(3) Former Rama VI Bridge
(Now only used for rail traffic)