Thailand

Environmental Protection Promotion Program

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1 Project Profile and Japan's ODA Loan

1) Background

At the start of the 1990s, Thailand was achieving rapid economic growth, but deterioration of natural environment was becoming a problem. The Thai government, being aware of the importance of environmental protection, positioned the issue in the Seventh National Economic and Social Development Plan (1992-96). This project was implemented as a means of funding private companies to invest in environmental conservation (anti-pollution) measures to solve environmental pollution issues from the manufacturing industry.

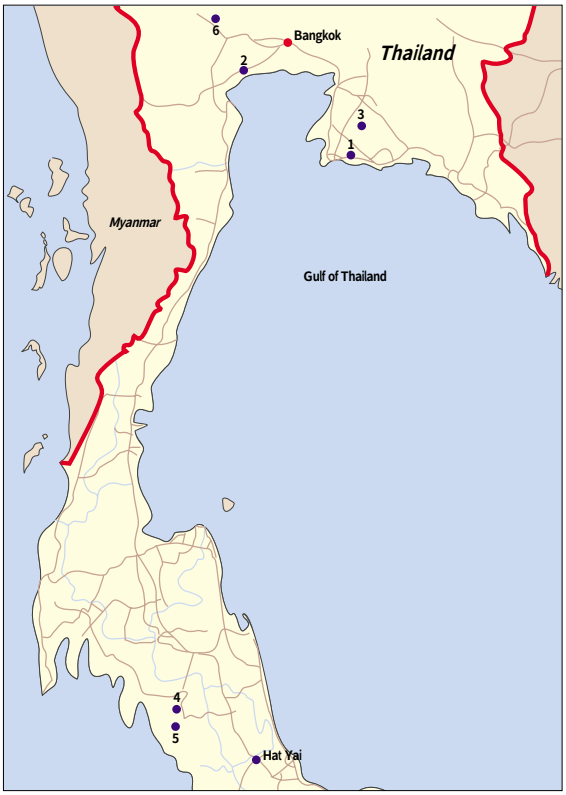
2) Objectives

This project was a two-step loan through which JBIC extended an ODA loan to the Industrial Finance Corporation of Thailand (IFCT) that provided medium- and long-term sub-loans to end-user companies at fixed, low interest rates, to promote Thai private companies to introduce environmental protection facility (pollution prevention system).

3) Project Scope

(Summary of sub-loans)

Purpose:	The purchase and/or installation of environmental protection facilities (anti-pollution systems).
Amount:	No more than one million baht (1.6 million baht for shared facilities) per sub-loan. From 1995, loan in excess of the above limit was made available, conditional on prior approval by JBIC.
Funding source :	In principle, up to 100% of the source of the sub-loans was the ODA loan.
Interest rate:	10.0% (10.75% since November 1995)
Repayment period:	3-15 years, with a grace period of 1-5 years.



1-6 in the map mark the locations of six factories visited during the field survey

4) Borrower/Executing Agency

IFCT (Guarantor: Kingdom of Thailand) / IFCT

5) Outline of Loan Agreement

Loan Amount / Loan Disbursed Amount	\3,000 million / \1,996 million
Exchange of Notes / Loan Agreement	December 1992 / January 1993
Terms and Conditions	Interest rate: 3.0%, Repayment period: 25 years (7 years for grace period), General Untied
Final Disbursement Date	May 1999

Exchange rate: 1 baht = \5.1 (at the time of appraisal: January 1993)

2 Results and Evaluation

1) Relevance

At the time of appraisal, since environmental degradation was becoming a problem in Thailand, it is considered that the objective of this project, to provide low-interest finance to private sector companies which were lagging behind in environmental protection measures, was relevant. Judging by the fact that the companies which installed environmental protection systems under this project experienced a certain degree of environmental improvement effect, the project plan is deemed to have been largely relevant.

2) Efficiency

1. Lending Situation

   The value of ODA loan disbursement to the IFCT under this project was approximately ·2 billion, which was 66.5% of the ·3 billion originally planned.

2. Loan Disbursement Deadline

   The initial deadline of May 1998 was extended by one year to May 1999 at the request of the Thai government.

3. Implementation Scheme

   Finance to end-users and sub-project management were left almost entirely in the hands of the IFCT. The IFCT made the end-users submit evidential documents of actual installation of the planned equipment and facilities. The IFCT has abundant experience of ODA loan projects, and appears to have been an appropriate choice as the executing agency.

3) Effectiveness

On the one hand, ODA loan disbursement was approximately 70% of the initially planned amount. The main causes of this shortfall are that fewer companies than anticipated applied for the loans, that the economic crisis in Thailand greatly discouraged Thai companies' investment in environmental protection, and that the market interest rates fell substantially below the sub-loan interest rates of this project.

On the other hand, many of the companies that installed environmental protection systems under this project achieved environmental improvement effects, and the end-users highly appreciated this project. With 84% of the total sub-loans in the amount used for water treatment facilities, the discharged load of BOD and other water contaminants has been reduced, and the local communities have been able to enjoy cleaner and safer atmosphere and water. However, since the number of factories covered by this project was extremely smaller than that in entire Thailand, and since the size of the factories concerned was small, there was not necessarily any clear, wide-ranging impact.

4) Impact

A cost-benefit analysis was conducted for the environmental impact of installing environmental protection systems in five of the factories visited in the field survey. The analysis applied a number of evaluation methods, such as benefit transfer of the willingness to pay (WTP) acquired by the contingent value method (CVM).

In three factories the EIRR figures gained by this method ranged from 1-74%, indicating that these were appropriate investments. For the two factories where EIRR was negative, the EIRR value was depressed because advanced and expensive treatment facilities were installed. Considering their role as model factories which have been open for study visits from other factories, they also appear to have been appropriate investments.

5) Sustainability

In the factories visited in the field survey, the equipment was operating properly and delivering adequate environmental improvement effects. However, the operation and maintenance situation was not always good, and in some factories the equipment was deteriorating due to corrosion in a few years after the installation.

3 Lessons Learned

■ Improvement of the System and the Scheme of TSL Is Necessary

The total disbursement amount under this project fell short of the initial plan. The primary reason is that the economic crisis caused a drop in market interest rates, which eliminated the low-interest merit that this project was supposed to offer the end-users.

The risk of fluctuation of market interest rates was considered to some extent at the planning stage, but the influences of the Asian Financial Crisis exceeded the initially anticipated range of interest rate risk.

When similar projects are to be considered in future, it would be significant to discuss with the counterpart government and the relevant ministries the system and scheme on which the ODA loan interest can be applied flexibly in accordance to changes in economic conditions after the startup of the project.

4 Recommendations

<Follow-up was needed after the end-users had installed the facilities >

The installed facilities are running properly, but before long they will be superannuated and necessitate repair or replacement. There is cause for concern over what the companies will do at that stage.

The IFCT, the executing agency, keeps information on each end-user which was collected at the loan application, but it keeps no systematic information on the facilities which were actually installed or the state of operation, etc.

Consequently, it can be concluded that there was a need for a regular monitoring system for the environmental improvement effects yielded by the equipment installed by the end-users. Specifically, the loan agreement should have stated that the executing agency was to follow up on end-users, and it should have asked some or all of the end-users to report on the installation of new facilities and their operational status, either on a mandatory or voluntary basis, at the closing of the loan agreement.

Comparison of Original and Actual Scope

1) Project Cost

Project Content	①Plan(At the time of Appraisal)	②Actual	Difference (①-②)
Total Project Costs Sub-loans	\2,950 million (578 million baht)	\1,996 million (575 million baht)	\954 million (3 million baht)
Consulting service	\50 million (10 million baht)	\0	\50 million (10 million baht)
Total	\3,000 million (588 million baht)	\1,996 million (575 million baht)	\1,004 million (13 million baht)
Sub-loan Number of sub-loans	20	8	12
Interest rate	10%	10-10.75%	
Repayment period	3-15 years	4 years 9 months - 8 years	
Grace period	1-5 years	1 year - 2 years 6 months	

Waste Water Solid Separator in a Food Processing Factory

Waste Water Treatment Equipment in a Food Processing Factory

Waste Water Treatment Equipment in an Industrial Park