

Small Scale Irrigation Programme (IV) ~ (VI)

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1 Project Summary and Japan's ODA Loan

(1) Background

While the agriculture, forestry and fishing industries at the beginning of 1980 were positioned as the principal industries of Thailand, these industries faced many problems, among which the following stand out as being particularly severe. (1) Stagnating agricultural income and regional income disparity, (2) high unemployment rate of agricultural laborers (during the dry season), (3) limit to expansion of arable land, (4) lower productivity and slow diffusion of agricultural techniques, and (5) low enthusiasm among farmers about learning about agricultural technology. The Thai government has been working to increase and stabilize agricultural productivity through the diffusion of irrigation projects, and in the Fifth Five-Year Plan from 1982 to 1986, it has allocated 34.950 billion Baht (349.5 billion yen) for irrigation-related projects, of which 35.8% or 12.5 billion Baht (125 billion yen) are earmarked for small-scale irrigation development projects.

(2) Objectives

The project aimed to build a number of small-scale water supply facilities in agricultural areas that do not have the benefit of large-scale water-supply facilities in order to stimulate irrigation, stockbreeding, and fish farming, increase and stabilize agricultural production, promote agricultural development, and secure daily life water, so as to reduce income disparity with cities.

(3) Project Scope

Succeeding Small Scale Irrigation Programme (I) to (III) conducted from 1977 to 1981, this project was designed to build a total of 1,500 small-scale irrigation facilities (reservoirs, levees, water volume adjustment facilities, etc.) mainly in the northern and northeastern part of Thailand at the rate of 500 a year over 3 years, (2,094 such small-scale irrigation facilities were actually built), as well as to procure construction and repair equipment and spare parts, and to provide consulting



services. The portion funded by the ODA loan was the entire foreign currency portion.

(4) Borrower/Executing Agency

Kingdom of Thailand/Ministry of Agriculture and Cooperative, Royal Irrigation Department (RID)

(5) Outline of Loan Agreement

	Phase (IV)	Phase (V)	Phase (VI)
Loan Amount	¥7,310 million	¥6,900 million	¥5,293 million
Loan Disbursed Amount	¥6,707 million	¥5,782 million	¥4,443 million
Date of Exchange of Notes	June 1983	July 1984	September 1985
Date of Loan Agreement	September 1983	September 1984	October 1985
Loan Conditions			
Interest Rate	3.00%	3.50%	3.50%
Repayment Period	30 years	30 years	30 years
(Grade Period)	(10 years)	(10 years)	(10 years)
Final Disbursement Date	September 1988	September 1989	October 1990

2 Analysis and Evaluation

(1) Project Scope

Since small-scale irrigation projects are selected using bottom-up selection method whereby requests are made by the beneficiary groups and projects are then approved or rejected. Therefore, the number of projects actually implemented differs from the initially planned number. However, the number of irrigation facilities constructed every year exceeds the planned number, and it is judged that the project's contents, while exceeding the project objectives, were appropriate.

(2) Implementation Schedule

Since, under Small Scale Irrigation Project (SSIP), projects are divided by fiscal year and are implemented on a one-year basis, there were projects whose construction work was carried over to the following year. However, this being a project extending over a number of years, project delays are not considered to have been a problem. The construction start for Small Scale Irrigation Project (6) was delayed by about 3 years, but this was caused by the fact that the project was frozen due to a review of the foreign currency loan by the Thai government.

(3) Project Cost

The foreign currency portion for each project period was lower than planned, while the local currency portion was greater than planned. However, no problems were found in the use of both the local and foreign currency portions.

Comparison of Original Plan and Actual

Item	Plan			Actual		
	Phase(IV)	Phase(V)	Phase(VI)	Phase(IV)	Phase(V)	Phase(VI)
1. Project Scope						
i) Civil works by facility						
Reservoir (numbers)	245	250	249	-	348	412
Levee (numbers)	190	185	195	-	233	221
Water volume adjustment facility etc. (numbers)	65	55	56	-	141	79
Total (numbers)	500	500	500	660	722	712
ii) Consulting services	203	90	74	62	54	61
Total (M/M)				(foreign consultant only)		
2. Implementation Schedule						
i) Consulting services	Oct. 84 to Sep. 85	Jan. 86 to Dec. 86	-	Feb. 85 to Jun. 86	Jul 86 to Oct. 87	-
ii) Civil works	Oct. 83 to Sep. 84	Oct. 84 to Sep. 85	Oct. 86 to Sep. 87	Oct. 83 to Sep. 84	Oct. 84 to Sep. 86	Oct. 87 to Feb. 90
iii) Procurement	Aug. 83 to Apr. 84	Oct. 84 to Sep. 86	-	Feb. 85 to Jun. 86	Jul. 86 to Sep. 88	-

3. Project Cost						
Foreign currency (¥ million)	7,310	6,900	5,293	6,707	5,782	4,443
Local currency (million Baht)	1,100	1,068	1,067	1,168	1,151	1,086
Total (¥ million)	18,306	17,686	15,001	16,339	15,336	10,208
(Exchange Rate: 1 Baht = ¥)	(¥10.0)	(¥10.1)	(¥9.1)	(¥8.3)	(¥8.3)	(¥5.3)

(4) Project Implementation Scheme

The executing agency for this project was the Ministry of Agriculture and Cooperative, Royal Irrigation Department (RID). RID was in charge of design and construction for each irrigation project. The hired consultants, in addition to construction supervision, performed maintenance and operation planning, monitoring, creation of future plans, etc., and their performance was satisfactory. No particular problems were found to exist in the implementation scheme.

(5) Operations and Maintenance

The operations and maintenance of irrigation facilities following the completion of the project is the responsibility of the beneficiaries, but the implementation status differs depending on the area. The selection of a maintenance system for areas with insufficient autonomous management is considered to be an issue that will require addressing.

(6) Project Effects and Impacts

(i) Quantitative Effects

Increased production of agricultural products, livestock, and fish were aimed for through this project. The economic internal rate of return (EIRR) of the project rose as the result of the implementation of this project, as shown in the following table.

Table 1 Changes of Economic Internal Rate of Return in each Project

	Phase(IV)	Phase(V)	Phase(VI)
At the time of appraisal	13.2%	13.9%	13.4%
At the time of evaluation	14.9%	17.4%	17.1%

Note: The EIRR for Phase(IV) and (V) was calculated using project costs and maintenance expenses as the costs, and the increase in revenues from agricultural products, livestock, and fish as the benefits. For (VI), the EIRR was calculated during both appraisal and evaluation by adding labor reductions to the benefits.

(ii) Qualitative Effects

With regard to the objectives of this project, namely 1) raising people's livelihood by securing daily life water during the dry season, 2) reducing drought damage through rainy season refill irrigation, 3) increased livestock, fish farming, and crop production, 4) creation of employment opportunities through construction of irrigation facilities, and 5) farmer organization through the construction, maintenance, and operation of tertiary canals, which represent income and living level improvements for small farmers, a survey done through questionnaires found that the project resulted in incomes and level of living improvements. Therefore, this project is considered to have been effective for a large number of farmers.



Reservoir and Waterway



Irrigated Farms



Supplying Water through a Pipeline from the Reservoir