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The Thailand Land Settlement Project
Has Made Progress But Some Subprojects
Require Better Mission
Monitoring

USAID/Thailand
Memorandum Audit Report No. 2-493-84-02
November 17, 1983

This \$7.6 million project has made some progress in meeting its objectives. However, the water resource subprojects require the attention of Mission management.

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November 17, 1983

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Subject : Memorandum Audit Report 2-493-84-02
"The Thailand Land Settlement Project Has Made
Progress But Some Subprojects Require Better
Mission Monitoring"

SUMMARY

After a delayed start, progress in project implementation was clearly being made. Water resource sites, however, were not constructed in accordance with original contract specifications. Few of the water runoff tanks and ponds visited appeared to be functional. Only one out of every four water tanks actually contained water and the utility of the ponds was questionable. We believe the deviations from construction requirement may be detrimental to the project's overall success. USAID engineers claim that the deviations made from contract specifications were within the authority of Thai inspectors to approve. Further, the engineers felt the deviations did not result in an overall detriment to the project. We believe, however, that the participation of USAID engineers in the final inspection and certification process -- which was required by the AID loan agreement -- ought to be more fully adhered to in the future.

INTRODUCTION

The USAID/Thailand Land Settlements Project (493-0289) is a pilot effort to improve the utilization of land in eight land settlements in northeast Thailand. The project provides for road construction, small water subprojects, and strengthening the Royal Thai Government's (RTG) agricultural extension services in the target settlements. The settlements involved are located in the villages of Huai Luang, Non Sang, Lam Nam Oon, Kham Soi, Lam Pao, Lam Takhong, Prasat, and Ubonrat. Ubonrat also serves as the project headquarters.

The project was being carried out by the Self-Help Land Settlements Division of the RTG Department of Public Welfare (DPW), with the assistance of local Architectural and Engineering (A&E) firms under contract, expatriate and Thai technical consultants, and Peace Corps Volunteers.

Funds were being provided by the Agency for International Development through a \$4 million loan and a \$200,000 grant. In addition, the RTG was expected to contribute resources equivalent to at least \$4,090,000 including "in kind" services to the project. The Peace Corps was expected to provide an engineer and 16 rural development volunteers at a cost of \$340,000.

Major components of the loan included water and road supply construction (\$3,154,190), A&E construction supervision (\$450,000), and technical assistance (\$274,113). The grant provided support funds for a baseline survey (\$30,000), project evaluation (\$70,000), and training/advisory activities (\$100,000). Details of funds obligated and expended as of March 31, 1983 are presented in Exhibit A.

PURPOSE AND SCOPE

Our audit objectives were to (1) to assess controls over project finances, and (2) evaluate project accomplishments. We reviewed project accounting records and reimbursement vouchers at USAID, RTG, and various project field offices. We also visited eight project sites, reviewed progress reports and evaluations, and discussed project activities with officials of the RTG and USAID. Field work was completed as of July 1, 1983, and covered expenditures of \$648,250 during the period September 1979 to March 1983.

OVERALL IMPLEMENTATION PROCEEDING AT A STEADY PACE

The Land Settlements Project Loan Agreement was signed on September 20, 1979. For a number of reasons, however, including leadership changes in the RTG Ministries, actual implementation did not get underway until more than two years later. Despite the late start, implementation was proceeding at a steady pace, and progress in two aspects of the project -- the extension effort and road construction -- was clearly being made. Sixty-three extension agents, 378 farm leaders and 1,886 pilot farmers were involved in the project at the time of our audit. Peace Corps Volunteers and extension workers were carrying out agricultural demonstrations in all settlements. As of June 1983, seven of the eight settlements had a total of 26 soil and water conservation subprojects in operation. As of March 1983, 7,404 farmers had been issued land certificates by the RTG. While this number is far below the 25,000 targeted for the first three years, it is reasonable, considering the two-year delay in getting the project underway.

Our review of selected project vouchers at the RTG Department of Technical and Economic Cooperation and DPW on grant and loan expenditures, respectively, showed that costs were properly accounted for and appropriately charged to the project.

WATER SUPPLY CONSTRUCTION NOT CONSISTENT WITH CONTRACT TERMS AND BELOW ACCEPTABLE STANDARDS

Although implementation has progressed at a steady pace in recent months, the project has serious problems -- particularly in the areas of water subproject construction and monitoring. We visited five of the eight water resource sites. None of these sites were constructed according to original contract specifications. The deviations from construction requirements may be detrimental to the project's overall success.

In three villages where rain runoff tanks were constructed, only 8 of the 31 tanks held or were capable of holding water. In not one of the five sites visited were all the water runoff tanks located in the places specified by the contract. For example, rather than placing tanks equally around all sides of the building to catch rainfall directly from the roof, as indicated by the A&E drawing, the contractor "batched" the tanks at one side of a building. As a result, the water catchment area was less than would be the case had the tanks been placed according to contract specifications. The two pond subprojects visited also were not constructed according to original contract specifications. Moreover, the utility of the ponds appears questionable. Below are specific examples of these problems.

Village of Bam Thung Bo

In the village of Bam Thung Bo, eight tanks were constructed at a school in locations other than prescribed by the blueprints. There was no deviation, however, from the plan in locating the downspouts necessary for filling the tanks. Consequently, the downspouts led nowhere in particular, and if not plugged, would divert water from the relocated tanks. A school official said the misplaced downspouts had been plugged. This apparently was not done effectively. It had rained a short time before our visit, but the tanks which should have held some water were dry.

Village of Nong No

In the village of Nong No, there were seven water tanks surrounding an AID-funded public shelter. All of the faucets in these tanks had been tampered with, and could not be shut off. Consequently, none of those tanks were capable of collecting and storing water. The contract had required that the faucets be capable of being locked. While the faucets did have apertures which would have facilitated locking, none of the seven tanks were actually locked.

Village of Sung Yai

The pond at Khok Sung Yai which is concrete lined, 50 by 30 meters, has no visible catchment area. It can be filled only by rainfall directly into the pond. One RTG official estimated that this might take three to five years. The USAID engineers were skeptical about whether the pond would ever be filled. Monks from a nearby temple in an attempt to fill the pond had laid temporary pipes from a nearby roadway, but this only caused the entry of small amounts of very muddy water into the pond. In our opinion, the potential utility of the pond for drinking or raising fish is highly questionable. It is also a safety hazard because the slope of the concrete sides is steep, and a person falling in might have difficulty in getting out.

Village of Sa Kut

The pond at Sa Kut was to have been a drinking water facility. For that reason, the A&E firm had recommended it be fenced in, as villagers would not

drink from it if not protected from water buffalo. The fence was only partially built around three sides of the pond. Thus, the buffalo would have no problem entering the pond area. There was ample evidence that many were doing just that. Although the pond held virtually no water, the earthen sides of the pond had already been badly eroded by rain. In summary, the condition of the pond was such that its potential utility as a public drinking source is highly questionable.

All of the subprojects had been inspected and accepted by the DPW Inspection Committee. The USAID engineers had not participated in the final inspection. The engineers stated that "owing to the integrity and responsiveness of the DPW personnel involved, we deem that the final inspection for the activities is not necessary for USAID engineers to participate" (sic). USAID engineers also felt that the 5% performance bond would be sufficient to correct any deficiencies.

The Loan Agreement, Section 5.3(6) states that reimbursement for completed subprojects shall be made only if "an inspection team including RTG and AID representatives has certified that the completed work meets or exceeds Project specifications...."

Conclusions and Recommendations

It is not certain whether the contractor's performance bond alone will be adequate to correct the construction deficiencies of the water resource subprojects. Therefore, the USAID should not process further payments to the RTG unless these construction deficiencies are corrected.

Recommendation No. 1

USAID/Thailand defer further payment to the RTG for work performed under contract number 6 (water construction) until it has:

- a) determined and certified in writing that any changes in the construction and location of water tanks in all locations are in compliance with contract terms, have been properly documented and approved by the appropriate DPW authorities, and have not resulted in the tanks being located where the catchment areas would be inadequate to supply them;
- b) determined what steps, if any, can be taken to fill the pond at Khok Sung Yai with water. (If not economically feasible to fill with water, the pond should be fenced off or filled in with other matter as a safety precaution); and
- c) reached agreement with the DPW and the contractor that the embankment work at the pond at Sa Kut be repaired and fence construction extended to achieve the purpose of protecting the water supply.

Recommendation No. 2

USAID/Thailand establish procedures to ensure that:

- a) public faucets on future water projects are equipped with locking devices; and
- b) the USAID participates in the construction acceptance and certification process, in accordance with Section 5.3(6) of the Loan Agreement.

Mission Comments

The USAID has indicated that the engineers did monitor project construction for one of the water subprojects one week prior to the formal inspection. At that time, they found the work virtually complete and satisfactory. The USAID, further stated it "did not believe it was cost-efficient to verify the remaining work". We continue to believe, however, that the participation of the USAID in the final certification process is a requirement not subject to such cost efficient judgements. In any event, it would be just as cost-efficient and considerably more a guarantee of work quality to schedule such visits at the same time or before DPW final acceptance.

LOCAL NEEDS NOT THOROUGHLY CONSIDERED IN SELECTION PROCESS

Our observations during on-site visits and review of project files indicate that the planners could have done better in selecting sites for water and road subprojects. Therefore, the use of available resources for these subprojects were not optimized.

The selection of villages for water resource development was to be based on shortages in water for drinking, household, and livestock uses. The A&E studies show that of the 33 villages selected for development in the Ubonrat land settlement area, only one village had a shortage in all three categories of water supply. Six villages had shortages in two categories, eighteen had a shortage in only one category and eight actually showed a surplus of water in all three categories. At one location where new rainwater storage tanks had been installed, older but still usable tanks had simply been set aside, apparently abandoned.

We noticed that very few vehicles were using the new road network at Ubonrat. Engineering reports also characterize traffic volume as relatively low in this settlement area.

Conclusion and Recommendation

The USAID has indicated that there are firm plans for an evaluation of this project at the end of the third quarter of 1984. We suggest that the evaluators specifically analyze the need for and placement of present water and road subprojects. Although after the fact, their findings should be helpful in planning and designing future water resource subprojects.

Recommendation No. 3

Based on the results of the evaluation, USAID/Thailand should develop criteria for water and road site selection that will encourage the RTG to make optimum use of project resources.

CONSTRUCTION OVERSIGHT NEEDS TO BE CARRIED OUT MORE EFFECTIVELY

As previously discussed, there are many shortcomings in the construction requirements of the water resource subprojects. Since most of the construction work remains to be done on this project, it is important that future work be more effectively inspected and supervised.

The Loan Agreement, signed September 20, 1979, included a condition precedent (CP) to the commencement of construction that the RTG shall furnish "evidence that arrangements had been made to provide adequate engineering services to assist in subproject design and supervision of construction." On December 11, 1981, a Project Implementation Letter (PIL) was sent out by the USAID "updating" the conditions precedent. It acknowledged that the DPW Engineering Division would supervise all construction and requested details of a construction supervision plan. PIL No. 11, dated June 2, 1982, repeated this request for a plan.

On June 14, 1982, the RTG submitted a two-page "plan" which consisted of a list of names and a bar-chart indicating approximately when each pair of inspectors would be at each settlement. It was not the comprehensive plan envisioned by the loan covenant. When the revised financial plan was being considered in November 1982, the DPW still had not submitted any detailed plan for construction supervision. Construction, however, started at Ubonrat Dam in December 1982 despite the fact that the condition precedent had not been fully complied with. It was not until March 9, 1983 that the DPW finally submitted a detailed construction supervision plan to the USAID.

Conclusion

Inspection and supervision of construction has not been a priority matter with RTG. The problems encountered so far with water resource subprojects, however, makes it important that the DPW resident inspectors closely monitor the quality of construction for the rest of the project. We suggest that the Mission more closely monitor the supervision and inspection efforts of the DPW.

Land Settlement Project (493-0289)
Financial Status
(as of March 31, 1983)

	<u>Obligated</u>	<u>Expenditures</u>	<u>Expenditures as % of Obligations</u>
<u>Grant</u>			
Baseline Survey	\$ 30,000	\$ 26,258	87.5
Evaluation	70,000	159	.2
Training & Advisory	100,000	47,837	47.8
Subtotal	<u>\$ 200,000</u>	<u>\$ 74,254</u>	37.1
<u>Loan</u>			
Technical Assistance	\$ 274,113	\$ 49,589	18.1
Research/Extension	47,552	13,626	28.7
Training	30,000	- 0 -	- 0 -
A&E Costs	450,000	272,176	60.5
Construction	3,154,190	238,605	7.6
Contingency	44,145	- 0 -	- 0 -
Subtotal	<u>\$4,000,000</u>	<u>\$ 573,996</u>	14.4
Total	<u>\$4,200,000</u>	<u>\$ 648,250</u>	

Source: Project Financial Implementation Report USAID/Thailand