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Auditor General

SEED DEVELOPMENT PROJECT
LOAN NO. 493-T-017
USAID/THAILAND

The United States is providing \$3.7 million loan funding and \$200,000 grant funding to assist the Royal Thai Government in a project to increase the supply of improved seed for distribution to Thai farmers. The project is encountering management and implementation problems (outlined in this report) which are in need of increased attention by both USAID/Thailand and the Royal Thai Government.

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SEED DEVELOPMENT PROJECT
LOAN NO. 493-T-017
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TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	
Introduction	i
Scope	ii
Conclusions and Recommendations	ii
BACKGROUND	1
SCOPE OF AUDIT	4
FINDINGS AND RECOMMENDATIONS	
Project Implementation	5
Foundation Seed Component	12
Seed Processing Component	14
Seed Distribution Component	23
Inoculum Program	28
Working Capital Fund (Revolving Fund) and the RTG's Matching Contribution	32
Technical Training and Farmer Extension Education	35
Mississippi State University Technical Advisory Services	39

EXECUTIVE SUMMARY

I. Introduction

The Area Auditor General for East Asia (AAG/EA) has completed a full scope audit of USAID/Thailand's Seed Development Project. This \$7.9 million project is assisted by the United States under AID Loan No. 493-T-017 for \$3.7 million and a grant of \$200,000. The Royal Thai Government (RTG) provides the balance of the \$7.9 million total project funding. This is the initial audit of the project. The project was selected for audit because of USAID/Thailand's interest in our reviewing the project which coincided with our prior intentions to conduct the review as part of our scheduled audit plan for USAID/Thailand.

The Seed Development Project was developed to increase the supply of improved seeds for distribution to Thai farmers. Its goal is to increase the productivity and income of the farmers who have access to the improved seeds.

The Seed Development Project has three distinct programs: (1) Seed Program, (2) Inoculant Program, and (3) Technical and Extension Education Training Program.

The Seed Program has four separate components:

- a - Foundation Seed - Improved seed varieties are to be developed;
- b - Seed Multiplication - Foundation seed is to be issued to contract seed growers for planting;
- c - Seed Processing - Threshed seed is to be delivered to seed processing center for drying, cleaning and storage;
- d - Seed Distribution - Processed seed is to be sold to farmer associations and cooperatives, generally small farmers, and certain RTG agencies.

The Inoculant Program is to provide the necessary staff, facilities and equipment to manufacture inoculant for legume plants. Inoculation of soybeans and other leguminous plants such as peanuts and mung-beans has a significant effect on yields.

The Technical Participant Training and Farmer Extension Education Training Program is to include in-depth professional training, operational technical training, on-the-job training, and seed awareness training. Farmers are to be made aware of the benefits of using improved seeds through educational and demonstration programs.

II. Scope

The scope of our review was directed at seeking determinations in the following areas:

1. Is the project as designed and presently implemented achieving predetermined goals?
2. Are anticipated time frames for implementation of major components of the project being met?
3. Is USAID/Thailand and RTG management of the project adequate?

During our audit we reviewed project files and held discussions with USAID and RTG officials responsible for the project. We visited the existing seed center at Phitsanulok and examined loan-funded equipment which had been installed in the seed processing center. The three new seed centers to be established at Korat, Lampang, and Chai Nat had not been completed sufficiently to provide us with the opportunity to observe complete seed processing activities and we therefore did not visit these locations.

The responses of the USAID to our findings and recommendations were taken into consideration in the final preparation of this audit report.

III. Conclusions and Recommendations

Major Conclusion:

Inadequate management on the part of the USAID and the RTG was a key factor involved in major components of the project slipping 6 to 33 months behind schedule (Page 5).

Supporting Conclusions:

- USAID/Thailand had not had sufficient dialogue with RTG officials to address the many project problems noted in the following sections of this report. Regularly scheduled meetings should be held between the USAID, the Mississippi State University (MSU) technical advisors and the RTG to identify, discuss and assign resolution action to the project's problems (Recommendation No. 1, page 8).
- No follow-up had been made of recommendations made in a 1978 Project Evaluation Report (Recommendation No. 2, page 8).
- The current Project Manager, due to an overloading of responsibilities, had been unable to devote adequate time to effectively monitor the project (Recommendation No. 3, page 9).
- The project's goals need to be restructured to recognize the long delay and changing conditions in implementation of the project (Recommendation No. 5, page 11).
- The USAID had not requested project status reports to assess the actual accomplishments of the project (Recommendation No. 4, page 10).
- The USAID and the RTG need to reassess the possible involvement of the private sector in the project (Recommendation No. 6, page 12).
- In the Foundation Seed component, the procurement of foundation seed for corn and sorghum products has not been in accordance with the project's original design contained in its Project Paper (PP). As a result, the Department of Agriculture (DA) may have lost some of the benefits that would have accrued had the DA been called upon to provide the foundation seed (Recommendation No. 7, page 14).

- Under the Seed Processing component of the project, equipment for the plants at Phitsanulok and Korat was not available for installation at the plants until almost 20 months after the bids were opened. These delays were due to the need to (a) first work out suitable financing procedures and (b) later on to obtain seed processing equipment clearances from RTG custom warehouse (Recommendation No. 8, page 17) .

Staffing of the seed processing centers needs to be given more attention in order to assure that at least a trained nucleus of personnel is available when the three remaining seed processing plants become operational (Recommendation Nos. 9 and 10, page 19).

The USAID had not implemented AID's requirement for marking of commodities financed by AID (Recommendation Nos. 11 and 12, pages 20 and 21).

Seed processing centers need to provide better security and inventory control over spare parts for seed processing equipment (Recommendation No. 13, page 21).

Follow-up had not been made on a shipment of equipment, in which there had been considerable damage and missing items (Recommendation No. 14, page 22).

The RTG had not submitted quarterly shipping reports. (Page 23).

- In the Seed Distribution component of the project, the USAID should meet with the RTG to give immediate attention to the significant changes in project planning brought about by RTG decisions. The definitive new roles of the Marketing Organization of Farmers (MOF) and the Department of Agriculture Extension (DOAE) need to be determined (Recommendation No. 15, page 26).

The USAID needs to seek assurances that necessary actions are taken to strengthen the capability of the MOF if the MOF is to continue to be responsible for the seed marketing component of the project (Recommendation No. 16, page 26).

Aspects of the Seed Distribution component affected by the changing circumstances need to be redesigned. Recommendation No. 17, page 26).

Further, there should be assurances that lower income farmers will have access to high quality seed (Recommendation No. 18, page 27).

- Under the Inoculum program, the USAID needs to hold discussions with the RTG to work out procurement problems for inoculant production equipment to ensure as little further delay as possible (Recommendation No. 19, page 30).

In addition loan funds reserved for the procurement appear to be insufficient and determinations should be made as to the extent of services to be provided by the suppliers (Recommendation No. 20, page 31).

- In the Working Capital Fund (Revolving Fund) and the RTG's Matching Contributions aspects of the project, the RTG entity which will have the responsibility for operation and management of the revolving fund needs to be identified and approved by the USAID (Recommendation No. 21, page 33).

The accounting system for the revolving fund should be installed as soon as possible (Recommendation No. 22, page 34).

The RTG's financial reports need to be revised to identify types and amounts of expenditures (Recommendation No. 23, page 35).

The Audit Council of Thailand had not performed audits of the revolving fund and the RTG's matching contribution (Recommendation No. 24, page 35).

- In the area of Technical Participant Training and Farmer Extension Education there are indications that marginally qualified candidates will be selected for participant training in the U.S. (Recommendation No. 25, page 38).

Further, the accomplishments to date in the in-country farmer extension and demonstration program were not

available from USAID's project records (Recommendation Nos. 26 and 27, pages 38 and 39).

- Under Technical Advisory Services, numerous recommendations made by Mississippi State University (MSU) technical advisers had not been acted on by Thai counterparts (Recommendation No. 28, page 40).

Finally the USAID needs to determine whether the contract period for the MSU Seed Processing Specialist is to be extended, and if extended, how the contract extension will be funded (Recommendation No. 29, page 41).

BACKGROUND

The purpose of the Thailand Seed Development Project is to increase the supply of improved seeds for distribution to Thai farmers. The project has as its goal the increase of productivity and income of the farmers who have access to the improved seeds.

The project had identified three major categories of farmer beneficiaries: (a) farmers in general, as represented by the membership of Agricultural and Farmer Organizations; (b) farmers in close proximity to the four seed centers who can buy seeds directly; and (c) farmer participants in programs of selected RTG agencies dealing directly with groups of poor, small farmers.

The project is focusing on soybeans, corn, rice, peanuts, mungbeans, and sorghum. At the end of the project the following national requirements for improved seed are planned to have been met: soybeans 31 percent, corn 6 percent, rice 2 percent, peanuts 6 percent, mungbeans 5 percent, and sorghum 7 percent. Over 75 percent of the farmers in the target areas selected, including poor, small farmers, will be using seed of improved varieties.

The RTG estimated that by the sixth year of the project and in the following years, the four seed centers will be producing, on a combined basis, 8,650 tons of improved seeds annually. The RTG also estimated that the 8,650 tons of seed will be planted in a total area of 1,491,666 rai (238,667 hectares/596,666 acres) which will produce about 460,000 tons of seed.

Three agencies of the RTG are involved in the project. These are the Department of Agriculture (DA), the Department of Agricultural Extension (DOAE), and the Marketing Organization for Farmers (MOF).

1. Department of Agriculture (DA) - Foundation seed will be developed on the DA's research stations. The DA will also operate an inoculum production plant.
2. Department of Agricultural Extension (DOAE) - Foundation seed received from the DA will be provided to contract farmers for multiplication. The DOAE operates the seed centers which will take the seeds and process them for distribution to the farmers.

3. The Marketing Organization for Farmers (MOF) - MOF will buy the processed seed from the DOAE's seed centers and sell it to the individual farmers, farmer organizations and cooperatives, and RTG agencies.

The seed project has three distinct activities: (1) Seed Program, (2) Inoculant Program, and (3) Technical Participant Training and Farmer Extension Education Training Program.

1. The Seed Program of the Project has four separate components:
 - a. Foundation Seed - Improved seed varieties are to be developed by the DA.
 - b. Seed Multiplication - Improved seed varieties are to be issued to contract seed growers who will plant the foundation seed. Seed meeting the field inspection requirements will be harvested and threshed by the contract farmers.
 - c. Seed Processing - Threshed seed is to be delivered to a seed center where it will be dried, then cleaned and packaged for storage at the seed center.
 - d. Seed Distribution - Processed seed is to be sold to farmer associations and cooperatives, general small farmers, and certain RTG agencies. These RTG agencies deal directly with poor, small farmers and therefore provide improved seed to this segment of the population.
2. The Inoculant Program of the project is to provide the necessary staff, facilities and equipment to manufacture inoculant for legume plants. Inoculation of soybeans and other leguminous plants such as peanuts and mungbeans has a significant effect on yields. The project designers determined that the inoculant program will be an integral part of the project.

Loan funds will be used to procure the equipment for research, quality control and production of inoculant.

3. The Technical Participant Training and Farmer Extension Education Training Program is to be a vital component of the project in order to assure success of the project. Participant training is to include in-depth professional training, operational technical training, on-the-job training, and seed awareness training.

The farmer extension education program is also considered essential to the success of the project. The farmers are to be made aware of the benefits of using improved varieties and higher quality seed through various educational and demonstration programs.

The AID Loan funds are utilized for the procurement of seed processing and inoculant production equipment, the financing of two seed specialists from Mississippi State University (MSU), and for local currency for a working capital account (revolving fund).

The RTG committed itself to the construction of three new seed centers and the inoculum production plant.

The loan agreement provides for use of loan funds up to \$2.1 million for the procurement of local currency to be deposited into a Working Capital Fund (revolving fund). The revolving fund will be used to purchase foundation seed, inoculant, multiplied seed from contract farmers, and production supplies. Revenue derived from project operations will be deposited into the revolving fund and will be used to purchase the above-mentioned items.

SCOPE OF AUDIT

We have audited USAID/Thailand's Seed Development Project from inception through March 31, 1979. The purpose of our audit was to determine whether;

- a) the project as designed and presently implemented is achieving predetermined goals,
- b) anticipated time frames for implementation of major components of the project are being met,
- c) USAID/Thailand and RTG management of the project is effective, and
- d) AID provided resources are being utilized in accordance with U.S. Government/AID regulations in an effective and efficient manner.

This was a full scope audit as defined in prescribed standards for government audits. We reviewed project files at USAID/Thailand. We held discussions with USAID and RTG officials responsible for the project. We visited the existing seed center at Phitsanulok and examined loan funded equipment which had been installed in the seed processing center. The three new seed centers to be established at Korat, Lampang and Chai Nat had not been completed sufficiently to provide us with the opportunity to observe complete seed processing activities and we therefore did not visit these locations.

The responses of the USAID to our findings and recommendations were taken into consideration in the final preparation of this audit report.

FINDINGS AND RECOMMENDATIONS

Project Implementation

Implementation of major components of the Seed Development Project was from 6 to 33 months behind schedule. Planning documents had set the following time phased schedule to which we have added the project's status as of our review:

<u>Project Goals</u>	<u>Original Objective Completion Date</u>	<u>Status at Time of Audit (3/31/79)</u>
Technical Assistance Contract Signed	April 1976 (16 months)	Contract signed in August 1977.
Marketing Organization for Farmers (MOF) (Organized and Staffed to Support Project)	June 1976 (33 months)	Not functioning
Phitsanulok Plant Expansion Completed	September 1976 (18 months)	Completed by March 1978
Khon Kaen (Korat) Plant Operational	September 1977 (18 months)	Operational in April 1979
Strong Evidence that MOF Capable of Playing Major Role in Project	July 1977 (21 months)	Not functioning
Chiang Mai (Lampang) Plant Operational	June 1978 (9 months)	Operational by Oct. 1979
Chai Nat Plant Operational	October 1978 (6 months)	Operational by Oct. 1979

It is our opinion that the lack of adequate management on the part of the USAID and the RTG was one of the key factors which resulted in the delay in project implementation. Many of the problems noted in following sections of the report had not received sufficient attention by the USAID and the RTG. The USAID had not had sufficient dialogue with RTG

officials to address project problems and needed actions. The current project manager, due to many other responsibilities, had been unable to devote sufficient time to effectively monitor the project. This all resulted in inadequate monitoring on the part of the USAID.

Inadequate Dialogue with RTG

Inadequate dialogue with the RTG resulted in less than effective monitoring by the USAID. We found little evidence that the USAID's previous Project Managers took direct actions to attempt to get the project moving when it was obvious that delays faced the project.

We were provided copies of the translations of various Seed Committee meetings held over the past few years. Except for attendance by the Assistant Project Manager at some of the meetings, the USAID was not invited. We were told the meetings were always conducted in the Thai language although most of the Thai committee members had the ability to speak English. Further the Project Manager was not fluent in the Thai language.

We found only one instance in which the USAID requested a meeting with RTG officials. A list of "talking points" had been prepared. The translation of the minutes of the meeting indicated many of the talking points were merely touched upon and no significant solutions were agreed upon to correct the problems. As far as we could determine, the meeting was the last time a high-level meeting between the USAID and RTG had been held to address project implementation.

Two project evaluations have been made, one each in 1977 and 1978.

We were unable to find documentation in the files to indicate that the USAID met with the RTG to discuss the 1977 project evaluation report. There was no correspondence from the USAID to the RTG requesting information on follow-up actions by the RTG to the evaluation report recommendations.

The 1978 evaluation was conducted in September and

October, 1978. The team was composed of a Soil Microbiology Specialist from AID/W, two U.S. University officials, and three officials from Thailand's National Institute of Development Administration. A number of the problems which existed in the 1977 evaluation were reported again in the 1978 evaluation report.

We are summarizing the 1978 evaluation report findings and recommendations (numerically) for the various components of the project.

<u>Component</u>	<u>No. of Findings</u>	<u>No. of Recommendations</u>
Foundation Seed Program	3	7
Seed Multiplication Program	5	5
Seed Processing Program	5	6
Seed Distribution Program	7	3
Inoculum Production and Distribution	3	5
Technical Assistance	3	2
Training	2	2
Project Coordination	<u>4</u>	<u>5</u>
TOTALS	<u>32</u>	<u>35</u>

One of the U.S. members of the 1978 project evaluation team wrote:

"One of our concerns revolves around getting all persons involved with the project, AID personnel, Ministry of Agriculture, Center Managers, Committees, DA, DOAE, MOF, etc., together on a regular basis and make certain these persons understand the importance of the project and are familiar with its progress and its problems. With knowledge concerning problems, suggestions for solutions to the problems and ideas for improvement and expansion should be forthcoming".

In January 1979, the USAID's Project Manager sent copies of the evaluation reports to various RTG officials. The USAID suggested a joint RTG/USAID review to discuss the

problems of the project and formulate solutions. As of the date of our audit, this joint review had not been held.

The RTG had, however, held meetings which discussed the evaluation reports. Copies of the minutes of the meetings were provided for our review. We found that generally the meetings discussed phases of the project, such as procurement of inoculum equipment and extension of life of project. Another meeting dealt with the findings and recommendations applicable to the foundation seed component.

As of the date of our audit, we were not provided copies of any meetings which developed concrete solutions to many of the project's problems. We understand that other meetings had been held but the USAID had not received copies of the minutes.

In summary we feel that in order for more effective monitoring to take place, regularly scheduled meetings between the USAID, the MSU technical advisors and RTG project officials need to be held to identify, discuss and assign resolution action to project problems. Further we feel that the USAID should follow-up with the RTG on the recommendations contained in the 1978 evaluation report.

Recommendation No. 1

USAID/Thailand should establish a system of regularly scheduled meetings between the USAID, the MSU technical advisors, and the RTG project officials to identify, discuss, and assign resolution action to project problems.

Recommendation No. 2

USAID/Thailand should follow-up with the RTG on the recommendations presented in the 1978 evaluation report.

Overloading of Project Manager's Responsibilities

The current Project Manager, due to an overloading of responsibilities, had been unable to devote adequate time to effectively monitor the project.

The Project Manager of the Seed Development Project has the responsibility for four other on-going projects. A fifth project is in the planning/project paper stage.

Project Managers were requested by the USAID to show the actual time they devoted to management of their projects, as well as the ideal time they needed to meet their responsibilities.

The Seed Development's Project Manager stated that the ideal time to effectively monitor the Seed Project was 150 days a year. He computed actual time devoted to his project to be about 65 days a year.

It is obvious that with a project as complicated as the seed project, a loss of about 57 percent of ideal project management time has had a deterrent effect on project monitoring activities.

A comment in one of the MSU technical advisor's annual report for the period March 1977 to March 1978 summed up the situation.

"USAID and the USAID Seed Project Officer could be of invaluable assistance to the Seed Project and to its timetable by staying in close touch with the Seed Project's leaders, knowing constantly what is going on, what the problems are, and how USAID's influence could smooth the way or speed them up."

Recommendation No. 3

USAID/Thailand should review the work load of the Project Manager, and determine if a temporary re-arrangement of project assignments is feasible to allow the Project Manager more time to adequately monitor the Seed Development Project.

The USAID had not requested project status reports to assess the actual accomplishments in the progress of the project. We believe these are essential because the 1977 and 1978 evaluations did not take an in-depth look at a number of objectively verifiable indicators for measuring project progress which were included in the Project Paper's (PP) logical framework. Therefore, the lack of detailed status reports inhibits the USAID from measuring the progress of the project.

Recommendation No. 4

USAID/Thailand should request periodic reports from the RTG summarizing project accomplishments. The objectively verifiable indicators in the logical framework should be the basis for these progress reports.

Project's Goals Should be Restructured

The project's goals need to be restructured to recognize the long delay and changing conditions in implementation of the project.

As far back as 1977 that year's evaluation report noted: "The Evaluation Team is of the opinion that the Project is generally well planned but that its goals are optimistic. Now, with one year of implementation completed, would be a good time to re-examine the Project in its entirety, and based upon actual experience, restructure or redesign the Project accordingly."

One of the MSU advisors stated that the project should never have been expected to perform as originally planned in so short a time. Further, he felt objectives should be redesigned to include what is realistically possible over a period of years with the concept of building on what has already been done each year.

We believe both of these views are still valid. As noted in various section of this audit report: a) the 6 to 18-month delay in the construction of three seed processing

plants, b) the failure of the RTG to initiate training programs, c) the lack of adequate staff at the Seed Centers and in the Seed Division, and d) the completely changed role of the MOF in the project - all have made invalid the goals of the Project as they exist in the logical framework.

We believe the USAID, the RTG, and the MSU technical advisor should assess the various project components and restructure project goals to recognize the vastly changed current conditions.

Recommendation No. 5

USAID/Thailand should meet with the RTG and the MSU technical advisor to reassess the status of the project and restructure the project goals, giving due consideration to changed conditions in the project as noted throughout this report.

Involvement of Private Sector in the Seed Development Project

The USAID and the RTG need to reassess whether the implementation of the project can be assisted by involving the private sector in some elements of the project.

The Project Paper (PP) brought out the reluctance of the RTG to the involvement of the private sector. The PP noted that the RTG had made a deliberate policy choice not to include private merchants as distributors of Project seed. The RTG pointed to the limited availability of seed supplies and a preference for not allowing the private sector to profit on public investment to the economic disadvantage of small farmers. This general position toward the private sector was consistently and strongly held by the MOAC, and most other RTG agencies.

Other rationale for not turning the plans over to the private sector is that with a return of around 6 percent, it would not be as profitable an investment as other alternatives. This assumed, of course, RTG preferential

pricing of the seed to farmers. If the plants were sold to the private sector, and with their own pricing policies, the plants could be very profitable.

An Asia Bureau memo in the USAID's files again raised the issue of private sector involvement. Some of the issues raised were:

- a) Does the RTG understand that seed development is really a commercial business and that it has to organize itself so that one office is accountable for and has the authority to make the project deliver effective results?
- b) The project file suggests that the RTG is treating this project as a series of coordinated RTG development efforts with no one fully accountable for the end results. Accordingly, it is not surprising that the RTG is remiss in such areas as market demand analysis, forward planning, payment procedures, decision making, moving of seed out of warehouses before it deteriorates and hiring of adequate sales staff. These are key elements of a seed development system, but no single office apparently has the oversight responsibility and authority to ensure that these elements were in place. It is clear that the RTG understands the importance of each of these elements, but it is not clear that the RTG recognizes the underlying cause of these problems.

The USAID's project files did not indicate a dialogue with the RTG to reassess the possible role of the private sector.

Recommendation No. 6

USAID/Thailand should reassess with the RTG the possible role of the private sector in the Seed Development Project.

Foundation Seed Component

The procurement of foundation seed for corn and sorghum

products has not been in accordance with the project's original design contained in its Project Paper (PP). As a result, the Department of Agriculture (DA) may have lost some of the benefits that would have accrued had the DA been called upon to provide the foundation seed. The USAID should urge the RTG to implement the foundation seed program for corn and sorghum in accordance with the PP.

The PP's discussion of the foundation seed component identified the DA as the supplier of the foundation seed. The DA had the capability (research stations) to produce the foundation seed for the seed multiplication program.

According to the PP the research base for the project crops was well developed and improving rapidly. Improved seed varieties developed through this research would be selected for release for commercial production. The project would enhance the Department of Agriculture's capability to take these small amounts of breeder seed and multiply it under controlled conditions, usually on a research station, dry and process it, and turn it over initially to the Department of Agricultural Extension (DOAE) and as the project evolves to the Marketing Organization of Farmers (MO). Through the project, personnel and facilities will be expanded to produce adequate foundation seed to meet project needs.

The designers of the project stated that the DA would have the specific operational responsibilities for breeder and foundation seed production.

An integral part of the entire project could be the strong participatory links between the proven research results and seed multiplication and distribution.

The 1978 evaluation report noted that as far as corn and sorghum were concerned, DOAE preferred to place the order for foundation seed of these two crops with the National Corn and Sorghum Research Center (NCSRC). DOAE would turn to DA as an alternative source only when the order placed with NCSRC could not be fulfilled. This practice, the report went on to say, was regarded as discriminatory

by personnel in the Corn and Sorghum Project of DA and may give rise to some coordination problems.

The evaluation report recommended:

"Unless there is concrete evidence to show that DA is not capable of producing foundation seed of any crops in accordance with the project requirements, DOAE should place orders for foundation seed of all project crops with DA. This is to insure the close coordination of development efforts of the two implementing agencies of the SDP."

During our audit we met with the Director and staff of the seed corn and sorghum branch of the DA. We were informed that the DOAE had not ordered foundation seed for corn and sorghum for the current year's seed multiplication program.

The Director indicated that the DA could supply good quality foundation seed for the corn and sorghum programs. The Director also stated that the DA would lose some momentum in upgrading its foundation seed capabilities because of the lack of orders for foundation seed for corn and sorghum.

Recommendation No. 7

USAID/Thailand should meet with the RTG to resolve the issue over DOAE's ordering of foundation seed for corn and sorghum from the National Corn and Sorghum Center rather than from the DA.

Seed Processing Component

Delays in Seed Processing Equipment Arrival at Project Sites

There have been significant delays in seed processing equipment arriving at project sites.

The seed processing equipment for the plants at Phitsanulok

and Korat was not available for installation at the plants until almost 20 months after the bids were opened. These delays were due to the need to (a) first work out suitable financing procedures and (b) later on to obtain seed processing equipment clearances from RTG customs warehouses.

Under Procurement Action DOAE-2, seed processing equipment was purchased for the expansion of the existing plant at Phitsanulok and the new plant under construction at Korat.

The DOAE issued the Invitation for Bids (IFBs) in February 1977. The bids were opened in April 1977 and the contracts with the suppliers were signed on July 20, 1977. Each contract included the name of the bank to whom the supplier wanted the DOAE to issue the Letter of Credit (L/C). The DOAE experienced considerable difficulty in the opening of L/Cs with individual banks. Finally the DOAE arranged for the Bank of America in San Francisco to accept the L/Cs which were issued in January 1978.

The long delay in issuance of the L/Cs had created problems for the suppliers. Several suppliers threatened to sell the equipment to other buyers if the L/Cs were not concluded immediately. Several other suppliers had sold their equipment and then experienced delays in acquiring new equipment to fill the orders. These suppliers had to be given extra time in making shipments to Thailand.

After the long delay in the placing of the L/Cs the suppliers began shipping the equipment and spare parts. Most of the equipment began arriving in March 1978 through July 1978.

The Express Transport Organization, an RTG agency which has the sole responsibility of clearing RTG commodities from the port customs warehouses, received the documentation on the early shipments but by the end of June 1978, no commodities had been cleared. Clearance of the first shipments was completed by the end of July 1978.

A factor in the slow clearance was that under the RTG law, commodities imported through loan financing must pay import

duties. These duties can amount to 50 percent of the imported value of the items. The RTG's Bureau of Budget, however, would not authorize payments of the duties. Apparently, the goods were finally released upon the promise to pay the duty.

The long delays in clearing all of the seed processing equipment from the customs warehouse resulted in the equipment not being delivered to the plant sites until late 1978. After this the inspection procedures took place.

Two significant problems were created because of the long delay between the shipments of the commodities as early as February 1978 and the inspections in late 1978 and early 1979:

1. The suppliers had to wait for the final 10 percent of their invoice prices until the Certificates of Inspection and Acceptance could be issued by the RTG.
2. Sellers experienced difficulties with insurance claims on damages and shortages due to the delays in getting the commodities cleared from the Bangkok port. The sellers were apparently forced to correct the problems on their own account.

The experiences learned on the procurement actions for DOAE-2 prompted the USAID to issue Direct Letters of Commitment to the suppliers under DOAE-3. This procurement action will provide the equipment and spare parts for the seed processing plants at Lampang and Chai Nat. The Direct Letters of Commitment were signed in January and March 1979. Under their terms, delivery of equipment must be within 120 days.

The DOAE had assured the USAID in April 1977 that "it has

a mechanism for obtaining customs clearance quickly, which will be further expedited by the receipt of copies of the shipping documents at the time of shipment. The arriving goods should be cleared and moved from the port of Bangkok within 7-10 days of arrival, that is, before port storage charges begin." These assurances, however, failed to materialize, and the seven to ten day period extended to as much as seven months.

The MSU advisors have expressed concern that the impending receipt of equipment and spare parts under DOAE-3 will be subjected to the same problems experienced under DOAE-2 in that DOAE has not taken the necessary steps to assure timely clearances of equipment and delivery to the plant sites.

The USAID had offered assistance to the Director of the Seed Division in order to accelerate clearance of the equipment procured under DOAE-2. The Director requested that the USAID not get involved. As the seed development project has suffered many delays in the past we believe that the USAID should take direct action with the RTG to ensure that the equipment for the seed plants at Lampang and Chai Nat will be cleared from the port customs warehouses and delivered to the seed processing plants in a timely manner.

Recommendation No. 8

USAID/Thailand should take direct action with high level RTG officials to ensure timely clearance of the future incoming shipments of seed processing equipment and spare parts.

Seed Processing Center Staffing

Staffing of the seed processing centers needs to be given more attention in order to assure that at least a trained nucleus of personnel is available when the three remaining seed processing plants become operational.

Staffing patterns developed by the RTG for operating the

four seed processing centers identified the Civil Service Commission (CSC) permanent positions for each plant. Temporary help would also be employed for the labor work in the processing plants. Exhibit A summarizes the staffing of the four seed processing plants.

As of our audit, there were no personnel on board and in training for the Lampang and Chai Nat plants which should be operational by late 1979.

According to the USAID's project files, the CSC had recently approved 52 new positions for the project's four seed centers. The RTG's Seed Division had begun recruitment to fill the approved positions. During our meeting with the Director, Seed Division of DOAE, we were told that personnel were being selected for the Lampang and Chai Nat seed centers. The positions were being filled by transfers from the provinces.

When the RTG submitted the project implementation plan to the USAID, a time-phased training program was shown in detail. The following scheduling was required to prepare staff for initial plant operations:

1. Select/Recruit Personnel - Nine months prior to test operation of plant.
2. Train management staff - To begin six months prior to test operations. The management staff would then be transported to plant site four months before test operations in order to recruit local staff.
3. Training of seed laboratory technicians, plant operators, and production officers - To begin five months before test operations. This staff was to be transported to the project sites two months before test operations.

It is obvious from this personnel selection and training plan that the RTG is behind schedule. This situation, if not corrected, would have a detrimental effect on the plant

operations at Lampang and Chai Nat. The MSU technical advisors and the RTG need to prepare a revised personnel selection and training schedule.

The reference point for the revised schedule should be the estimated date the test operations of the Lampang and Chai Nat plants will begin. Working backward, and following the procedures used in the original project implementation schedule, time frame dates should be established for (a) selection of employees, (b) training of management, (c) training of operating/technical personnel, and (d) recruitment of local workers. The USAID's Project Manager should then use this schedule in discussions with the RTG to assure that the minimum staff required to operate the two plants will be selected and fully trained when test operations begin.

Recommendation No. 9

USAID/Thailand should request the RTG and the technical advisors to prepare a revised implementation schedule showing the time frame for selection and training of seed center personnel.

Recommendation No. 10

The USAID/Thailand's Project Manager should review the implementation schedule and request the RTG to advise what actions they will take to ensure that the minimum staff required to operate the two plants will be selected and fully trained when test operations begin.

Non-Implementation of AID Marking Requirements

The USAID had not implemented AID's requirements for marking of commodities financed by AID.

Project files contained no memos, letters, or any other document on the requirement. No request for a waiver of

the requirement had been received from the RTG, nor had USAID requested a waiver from AID's Small Business Office (SER/CM/SB). The USAID had not complied with pertinent sections of Handbook 15, Chapter 2, issued December 16, 1974. Section 7 of the referenced handbook states that Missions are responsible for:

- (1) Assuring that the appropriate marking requirements are contained in Mission-issued authorizations.
- (2) Fully informing the borrower/grantee of AID marking requirements and the borrower/grantee responsibilities thereunder.
- (3) Monitoring performance, reporting violations, initiating corrective action, and recommending exceptions.

Further, the borrower/grantee is responsible for:

- (1) Preparing and issuing instructions to importers regarding AID marking requirements.
- (2) Developing procedures to ensure that importers transmit appropriate instructions to suppliers.
- (3) Monitoring compliance and instituting corrective action as necessary.

Our review of three issued IFBs, signed contracts with suppliers for two completed IFBs, and applicable Letters of Credit and Direct Letters of Commitment showed that none of these documents included requirements for marking.

Recommendation No. 11

USAID/Thailand should obtain instructions from the Area Contracting Officer and Regional Legal Advisor as to what AID Marking action the Mission should take on the equipment that has already arrived in Thailand and installed at two seed processing plants as well as on undelivered equipment on order.

Recommendation No. 12

USAID/Thailand should ensure that future procurement actions under the project include AID's requirements for marking as outlined in AID Handbook 15, Chapter 2.

Control Over Spare Parts

The RTG seed processing centers need to provide better security and inventory control over spare parts for the seed processing equipment.

Spare parts for the seed processing equipment at Korat were not adequately protected from damage and loss. No inventory records have been prepared for stock control purposes.

On August 30, 1977, the MSU technical advisor issued a recommended Spare Parts Storage, Supply and Records System. The two-fold purpose of the system was (1) to provide security and inventory control over the spare parts and (2) to make replacement spare parts readily available without delay. The RTG had not implemented the recommended procedures.

Recommendation No. 13

USAID/Thailand should request the RTG to provide adequate storage and inventory control for the spare parts imported for the seed processing equipment.

Damaged and Missing Commodities

The USAID had not made follow-up on a shipment of equipment in which there had been considerable damage and missing items.

The Seed Processing Specialist, in several trip reports

and a letter to the Chief of the Seed Division, DOAE, indicated that one shipment received from a supplier in the U.S. included considerable damaged equipment. In addition, there were a number of missing items. We quote some of his comments:

"Shipments, especially the New World Research shipments, were not in as good condition as previous shipments inspected. The New World Research shipment was received in terrible condition, for the most part. Some items shipped by New World Research were not even packaged. This resulted in considerable damage and shortages in the New World Research shipment.

"Inspection of these shipments was not completed. A partial list of damaged and missing parts was prepared but follow-up trips to both Seed Centers will be required before acceptance certificates can be issued. In some cases acceptance cannot be made until the damaged equipment items are repaired."

From the information available in the files, we were unable to determine if there was any attempt to identify responsibility for the damaged and missing equipment. We do not know if the commodities were packed and shipped in accordance with the contract terms. If so, the damage may have occurred on the ship, in the port customs warehouse, or in transit from the port to the plant.

We believe it necessary for the USAID and the RTG to have a complete report on this particular shipment for a determination as to possible claim action.

Recommendation No. 14

USAID/Thailand should (a) request the MSU technical advisor and the RTG to coordinate a complete report on the shipment from New World Research Corporation, and (b) submit the report to the Area Contracting Officer

and the Regional Legal Advisor for determination of any claims actions that should be taken against appropriate parties.

Quarterly Shipping Reports

The RTG had not submitted the quarterly shipping reports required by Section XV B of Implementation Letter No. 1, dated February 13, 1976. Procedures for this report were spelled out in Chapter 7 and Annex H of AID Handbook 15, AID-Financed Commodities.

The Mission had not followed up with the RTG on the missing shipping reports. As a result, the Mission and AID/W were not provided the information they needed to monitor compliance with AID's regulations.

When we brought this to the attention of USAID management, immediate action was taken. A letter from the Mission Director to the RTG dated March 16, 1979 requested the first report to cover the equipment received from inception of the project through March 31, 1979.

As a result of the USAID's actions, we make no recommendation.

Seed Distribution Component

The USAID should meet with the RTG to give immediate attention to the significant changes in project planning brought about by RTG decisions. The definitive new roles of the Marketing Organization of Farmers (MOF) and the Department of Agriculture Extension (DOAE) need to be determined. The USAID needs to seek assurances that necessary actions are taken to strengthen the capability of the MOF if the MOF is to continue to be responsible for the seed marketing component of the project.

Aspects of the Seed Distribution Component affected by the changing circumstances need to be redesigned. Further, there should be assurances that lower income farmers will have access to high quality seed.

The fourth component of the seed development project is the marketing of processed seed to the farmers. The seed distribution system must be in operation and performing efficiently by the end of 1979 or early 1980 when the three new processing plants are scheduled to be fully operational.

The Project Paper (PP) described the role that the MOF was to have during the implementation of the project as follows:

1. The MOF, a State Enterprise created by the RTG in late 1974, was to provide for the marketing of seed produced and processed within the project.
2. The MOF was to sell the processed seed to farmer associations, government agencies, and general small farmers.

During the early years of the project it was contemplated that the MOF would be responsible only for the seed marketing component of the project. During the fifth and sixth years, the MOF would also assume responsibility for the seed multiplication function, including contract farmer supervision, while continuing the seed marketing function.

According to the PP, after the sixth year the MOF would also operate the seed processing plants at Korat, Lampang and Chai Nat. The DOAE would retain operations of the Phitsanulok plant for training purposes.

The RTG, however, has now decided that the role of the MOF will be changed from that proposed in the PP.

In an April 7, 1976 meeting of the RTG's Implementing Committee for the Seed Development Project, an RTG official announced that the MOF would not take over the additional responsibilities beyond seed marketing. The official stated that the DA and DOAE were more technically qualified to administer the added responsibilities of seed production. Furthermore, new legislation would have to be passed to permit the MOF to assume responsibilities beyond the seed marketing aspects.

There is no evidence in the USAID files that the USAID and

RTG have met to discuss the impact of the RTG decision on the implementation of the project. Nor have determinations been made as to the degree of redesign of the project necessary to accommodate the changed circumstances. Further, it was not clear to us whether the MOF, without strengthening, could function effectively even in its limited role of seed marketing. And there are indications that the MOF may be consolidated into a new multi-purpose cooperative or that it may even be liquidated.

The MOF, because of the lack of adequate funds, had failed to establish distribution centers in the provinces as planned. As a result, the seed distribution activities had to be taken over by the DOAE personnel at the Phitsanulok seed center. This in turn interfered with DOAE's responsibilities for seed multiplication and seed processing.

We visited the MOF headquarters and were told that one or two MOF personnel will be stationed at each of the four seed processing centers to handle the seed marketing function. We believe that this small-sized staff cannot fully assume the duties that were originally to be the responsibility of 71 province branch and unit offices.

Recent developments indicate that the MOF may be amalgamated into a new multi-purpose cooperative to be established by the RTG. There is the remote possibility that the MOF may be liquidated.

In late 1977 the RTG became interested in expanding the use of cooperatives as one of the main instruments to approach rural and agricultural development in Thailand.

In FY 1978, the USAID entered into an Operational Program Grant arrangement with the Cooperative League of the USA (CLUSA) to assist the RTG in the development plan to vitalize its program for agricultural cooperatives.

In February 1979, the USAID noted that an overall plan which called for significant changes in RTG policy and organizational structure in support of agricultural cooperatives had been accepted in principle by RTG.

The plan called for a new multi-purpose apex organization to be created by amalgamating the Agricultural Cooperatives Federation of Thailand, the Marketing Organization for Farmers (MOF), and the Thai Rice Company. The new cooperative system is to be implemented in stages over the next five years.

We believe the USAID must give immediate and concerted attention to the seed distribution system. The probability that MOF's status will be changed complicates the situation. MOF's future status must be determined immediately in order to redesign certain aspects of the project and establish a revised seed distribution system. This is crucial when giving consideration to the three new seed processing plants that will be in full operation by early 1980.

Recommendation No. 15

The USAID should initiate high level discussions with the RTG as soon as possible to determine MOF's future status in the seed project.

Recommendation No. 16

The USAID should seek RTG assurances that necessary actions are taken to strengthen the capability of the MOF if the MOF is to continue to be responsible for the seed marketing component of the project.

Recommendation No. 17

The USAID, after determination of MOF's future status is made, should redesign those aspects of the seed project affected by MOF's and DOAE's changed roles.

The USAID needs to assess the seed distribution component of the project to ensure that lower income farmers will have access to high quality seed.

The PP and the RTG's response to Section 3.01(F) of Implementation Letter No. 1 contained the detailed policies and procedures for extending the benefits of the project to the poor, small farmers.

The MOF was to be the key agency that would provide processed seeds to low income farmers through farmers' organization, RTG agencies, and individual small farmers.

However, the failure of the MOF to establish a network of marketing offices throughout Thailand will delay achievement of the RTG's plan to assure that the poor, small farmers have access to high quality seed.

The 1978 project evaluation noted that the existing distribution system benefits the large or high income farmers more than small and poor ones. Farmers of relatively large scale operations or belonging to high income groups, can afford to travel a long way to purchase seed at either the processing plant or the MOF head office in Bangkok. It seems that small poor farmers also reaped benefit from the seed development project as they did receive the good quality seed through MOAE's demonstration plot program and other RTG agencies. However, the distribution of seed to small and poor farmers through these organizations is temporary in nature and is likely to shift from one group or one area to another. Without a good network of seed distribution at the village level, small and poor farmers can hardly be continuously accessible to seed produced under the seed development project. The 1978 evaluation report also noted that most of the farmers in those provinces selected for establishment of Seed Centers still use seed produced in their own farms and know very little about commercial processed seed.

We believe a new strategy needs to be developed which will ensure that project benefits will be extended to the lower income farmers.

Recommendation No. 18

USAID/Thailand should request the RTG to implement a marketing system that will ensure that the lower income farmers have easy access to processed seed.

The Mission, in reply to the above recommendation, stated that it had been advised that the MOF now plans to place personnel at each Seed Center to take over the marketing now being done by the Centers and to travel out from the Centers to make more farmers aware of the availability of processed seed and to provide a supply mechanism other than travel to the Center.

However, it is our opinion that sufficient action has not yet been accomplished to withdraw the recommendation.

Inoculum Program

The USAID needs to hold discussions with the RTG to work out procurement problems for inoculant production equipment to ensure as little further delay as possible. In addition, loan funds reserved for the procurement appear to be insufficient. Finally, determination should be made as to the extent of services to be provided by the suppliers.

The primary goal of the inoculum program is to provide quality inoculant to Thai farmers at minimal cost.

Leguminous crops, particularly soybeans, but also mungbeans and peanuts, require Rhizobium inoculation to bring about root nodulation or a nitrogen fixation capability. Inoculation of legume seeds before planting is desirable and usually has significant effect on the crop yield, particularly in areas where leguminous crops have not been previously grown.

Supplying inoculum for legume seed is, therefore, of critical importance in a program designed to increase the efficiency of legume seed production and provide benefits to succeeding crops. Inoculant is a required component in a successful legume production program.

The production capacity of inoculum was in existence at the time the PP was prepared. The primary supplier of inoculum in Thailand had been the DA's Bacteriology and Soil Microbiology Branch of the Division of Plant Pathology. For the period October 1977 through July 1978 the DA produced 8.8 metric tons of rhizobium inoculant.

The PP established an annual production goal of 20 metric tons of inoculant by the end of the project with a resultant 500 metric tons of soybeans inoculated with this production.

In order to meet the demand for inoculum, the RTG was to provide funds for the construction of a building for the production of inoculant. Project loan funds were to be used to provide equipment for production of inoculant. Additional loan-funded equipment was to be procured for inoculant research and quality control.

The completion of the inoculum production plant, including installation of the equipment, is now estimated to be sometime in late 1980 or early 1981. This will result in a significant shortage of inoculum for the expanding program involving soybean and other leguminous crops included in the project.

In June 1978, the USAID took over the responsibilities of procurement of the inoculant equipment from the RTG Department of Agriculture (DA). The DA lacked the expertise required to issue Invitation for Bids (IFB), review the responses, and contract for the equipment.

In November 1978, the bids were opened at the USAID. Upon the recommendation of the Area Contracting Officer, the bids were rejected because:

- 1) some of the bids were non-responsive as they did not conform to the requirements of the IFBs, and
- 2) the remaining bids were substantially higher than expected and an insufficient number of bids were received to ensure that the prices were reasonable.

During our audit, we met with an official of the DA's Bacteriology and Soil Branch. We were told that the RTG's delegation of authority to the USAID for the procurement of the inoculant equipment may be rescinded. If this is done the official anticipates extended delays in the bidding and contracting processes because of the inexperience of the DA in procurement and also because of the RTG's extended approval procedures.

The official predicted that the inoculant plant would not be operating until 1981. A delay of this length will completely invalidate the project's goals of inoculating 250 and 375 metric tons of soybeans in the 1979/1980 and 1980/1981 production periods of the project, respectively. The delay may also jeopardize the 1981/1982 goal of inoculating 500 metric tons of soybeans.

The loss of the capability of inoculating soybeans could result in a lower output for the farmers involved in soybean production. As stated in the PP, "It is very evident - strikingly so - in some cases that soybean production could be enhanced by 40-60 percent in some areas just by the use of suitable Rhizobium inoculum for nitrogen fixation."

We believe it is vital that the USAID and RTG minimize further delays in completion of the inoculum production plan.

Recommendation No. 19

USAID/Thailand should meet with the RTG to work out inoculant equipment procurement problems to ensure arrival of the equipment with a minimum of further delay.

Serious funding problems are ahead for the inoculum program of the project. When the 1978 unsuccessful bids were opened, the lowest prices for the research and quality control equipment and the inoculant production equipment, including the supervision of installation and training, on a combined basis, were about \$1 million. The most recent loan budget for the project shows about \$550,000 had been set aside for the procurement of the equipment.

During our meeting at the DA's Bacteriology and Soil Branch we were informed that the Seed Executive Committee advised the Chief of the Branch that the procurement of the equipment may have to be within the \$550,000 budget. The Chief indicated that the research equipment portion of the overall procurement package may have to be eliminated. The original plan to include research equipment was to ensure continuing research to discover better production methods, better carrier

materials, and better strains of rhizobia. In addition, research would be employed to ensure that the inoculum being produced is of superior quality.

Also, to reduce procurement costs, the provision for the suppliers of the equipment to furnish supervisory services during the installation of the equipment may have to be eliminated.

We believe this could present problems.

Improperly installed production equipment or poorly trained technicians could result in inoculum of such poor quality that it would have to be discarded.

Under the original IFB, the successful bidders would have been required to furnish a fully qualified mechanic or serviceman to (1) supervise the assembly, installation and initial start-up of all equipment provided by the supplier, and (2) training for Thai technicians assisting in these functions.

We believe that the cost/benefit ratio should be more fully examined before eliminating the requirement for the suppliers' services in installation of equipment and training of production employees.

The Bacteriology and Soil Branch Chief showed us a recent letter from the Microbiology Specialist, Soil & Water Management Division, Office of Agriculture in AID/W. The letter stated that inoculum production equipment prices were rising at about 20 percent annually. This inflationary increase will impact upon the project.

The USAID and the RTG need to come to grips with the problem of cost and services to be supplied in the procurement of inoculum equipment. The project's goals for inoculum production are in jeopardy if the original procurement package is not carried through to the new procurement action.

Recommendation No. 20

USAID/Thailand should meet with the RTG to resolve the problems of insufficient

loan funding for inoculant equipment procurement as well as the services to be provided by the suppliers.

Working Capital Fund (Revolving Fund) and the RTG's Matching Contribution

- The RTG entity which will have the responsibility for operation and management of the revolving fund needs to be identified and approved by the USAID.
- The accounting system for the revolving fund should be installed as soon as possible.
- RTG's financial reports need to be revised to identify types and amounts of expenditures.
- The Audit Council of Thailand had not performed audits of the revolving fund and the RTG's matching contributions.

The Seed Development Project loan included a provision for purchase of local currency with loan funds to establish a Working Capital Fund (revolving fund). The establishing of the revolving fund was to assure that adequate funds were available on a timely basis to finance the seed production, processing and distribution components of the seed development project. The revolving fund was to be drawn upon by the MOF and the DOAE.

Implementation Letter No. 1 required that the RTG submit a statement that a revolving fund account had been created and a detailed description of the operation and management of the account.

In satisfaction of the requirement, a statement from the Director of the Ministry of Finance (MF) was sent to the USAID. The letter and attachment indicated that the revolving fund would be under the control of the MOF.

Implementation Letter No. 1 also required the RTG to submit a statement on the revolving fund inputs showing (a) the timing and amounts of local currency disbursements to be requested under the Loan and (b) the nature, timing and

amounts of the RTG's expenditures for goods and services related to the project. These RTG expenditures will be attributed as the Borrower's contribution to the revolving fund.

The statement submitted by the RTG indicated explicitly that the DOAE would be responsible for the operation and management of the revolving fund from the outset of the project.

We could not find where the USAID followed up on the conflicting statements regarding MOF versus DOAE operation and management of the revolving fund. The USAID, in our opinion, should have issued another Implementation Letter which would have identified and approved the RTG agency that would control the revolving fund.

Recommendation No. 21

USAID/Thailand should issue an Implementation Letter which identifies and approves the RTG entity which will have control of the revolving fund and thereby eliminate the conflict in the RTG responses to Implementation Letter No. 1.

Technical Services

In June 1978 the RTG signed a contract with a local Thai firm to provide assistance to the MOF and DOAE. The firm was to develop an accounting and management system for the revolving fund, and an Operations Manual. Further, they were to provide assistance and instruction to RTG personnel.

In March 1979, the contractor submitted a proposed Operations Manual comprising three sections; Management Information System Manual, Manual of General Accounting and Inventory Control System, and Budgetary System Manual.

The MSU senior seed specialist advised the USAID that he felt that the proposed system was both comprehensive and complicated. He requested the USAID to review the Operations

Manual because he thought it was difficult to understand the system for which the records were designed.

The accounting system needs to be operating soon as almost 16 million Baht have already been provided to the revolving fund from the loan funds as of January 1979. Another semi-annual payment into the revolving fund will be due in April or May 1979.

Recommendation No. 22

USAID/Thailand should provide necessary assistance to the RTG to ensure that the accounting system developed by the local Thai accounting firm is installed as soon as possible in order to tighten up the controls over the revolving fund.

Revolving Fund Advances and Expenditures

The DOAE has submitted three requests for semi-annual advances into the revolving fund. Exhibit C summarizes the advances and expenditures.

The DOAE Working Capital Report of Expenditures and Funds as of September 30, 1978 showed that total expenditures were 10,162,494 baht. The report did not identify the components of these expenditures to compare with the requests for advances. The report should identify revolving funds spent for foundation seed, payments to contract seed growers, production supplies, or inoculum.

The Working Capital Report also showed RTG operating expenditures. Over the life of the project, the RTG is committed to providing goods and services which will match or exceed the baht equivalent of the loan funds provided to the working capital fund.

As of September 30, 1978, the DOAE reported expenditures of RTG funds for goods and services totaling 2,900,920 baht. The DOAE provided no detailed breakdown to identify the type of expenditures. As a result, the USAID was not able to determine whether the expenditures qualified as matching contributions.

Recommendation No. 23

USAID/Thailand should request the RTG to identify the types and amounts of (a) expenditures from the revolving fund, and (b) matching fund contributions.

Maintenance and Audit Records

The loan agreement and Implementation Letter No. 1 required the RTG to maintain books and records which would be available for audit by authorized representatives of AID. Also, there was a requirement that the books and records should be audited by the Audit Council of Thailand on an annual basis or at such intervals as AID may require.

No audits had been performed by the Audit Council. We believe that USAID should request an audit of the revolving fund and the RTG matching contributions.

Recommendation No. 24

USAID/Thailand should request the RTG to have the Audit Council perform an audit of the revolving fund and the RTG's matching contributions.

Technical Participant Training and Farmer Extension Education

There are indications that marginally qualified candidates will be selected for participant training in the U.S.

The USAID should monitor closely the selection of participants for the short term study tours and especially the Master of Science program.

Also, the USAID needs to monitor more closely the RTG's farmer-oriented and in-country training programs.

The PP stated that the success of the project, as well as Thailand's emerging seed program, will be determined by the expertise of the seed growers, skilled and semi-skilled

laborers, managers, and sales personnel to produce, harvest, dry, process, test, market and distribute significantly higher quality seeds. To achieve this goal, extensive training and educational programs were envisioned:

1. A technical training program for participants directly involved in the production, processing and marketing seed. Training was to be in the U.S. and third countries.
2. An in-country extension educational program directed to the farmers who utilize the seed and inoculant.

Exhibit D summarizes the technical training and the farmer extension education programs of the project.

U.S. and Third-Country Participant Training

The USAID and the RTG, acting through the Department of Technical and Economic Cooperation (DTEC), signed a Grant Agreement on June 4, 1976 in the amount of \$200,000 to assist in financing certain foreign exchange costs of U.S. and third country participant training to support the Thailand Seed Development Project.

The DTEC agreed to implement the training program under the procedures established by the November 13, 1975 USAID/RTG Agreement for the Transfer of Technology and Management Skill (TTMS Agreement). This agreement had transferred all USAID/Thailand training activities to the RTG.

The project provided for 33 key personnel to receive training either in the United States or in third countries over the life of the project. As of the date of our audit, only one participant had been involved in training whereas it had been planned that 20 participants would have been involved in various stage of training (See Exhibit D).

The primary reason for the delay in participant training was due to the lack of candidates. The RTG's Seed Division was severely understaffed and the Seed Centers were not in operation.

Availability of grant funding is also becoming a critical factor. Under the terms of the \$200,000 grant agreement, any funds advanced but either not used or committed by April 30, 1980 need to be returned to the USAID.

In March 1979, the RTG's Director of the Seed Division called a special meeting to discuss the training program of the project. Minutes of the meeting noted that:

1. Up to seven participants will be selected for advanced training leading to Master of Science degrees.
2. Up to twelve participants will be selected for short term training study tours in the U.S.
3. Up to eight participant will be selected for third country training.

The minutes further suggested that: Documentation for each academic candidate be officially submitted to DTEC for further processing; after processing of documentation, DTEC will submit it directly to Mississippi State University (MSU) with copies of such correspondence to DOAE and MSU contractor staff in Thailand; academic placement will not be handled through the normal channels in AID/W participant training since most candidates have marginal academic records.

The project paper indicated that trained professionals would be selected for the short term technical training. These professionals will be directly responsible for the immediate implementation of the project. The study tours, in the U.S. and in selected third countries, are to include the operations and management of the seed production, processing, marketing and inoculant components of the project. It is our view that it would be to the best interests of the RTG and the USAID to ensure that highly trained professionals are selected for the study tours.

Also the USAID should ensure that the prerequisites for training will not be compromised in order to meet a funding

deadline for selection of participants. The USAID needs to follow-up with the DTEC on the proper selection of candidates.

Recommendation No. 25

USAID/Thailand should ensure that the RTG selects properly qualified participants for training in the Seed Development Project.

In response to this recommendation, the USAID stated that when the USAID participant training functions were turned over to the RTG under the TTMS agreement of November 17, 1975, DTEC was given authority for selection of participants.

Part IV, A.2 of the TTMS Agreement however states that AID will monitor the project. We believe this monitoring should include a review of the procedures employed by DTEC for selection of participants. Where there are indications that marginally qualified candidates are being considered for selection we believe the USAID should make these concerns known to the RTG. Therefore, we have retained our original recommendation.

Farmer Extension Education

The accomplishments to date in the in-country farmer extension and demonstration program were not available from USAID's project records. Neither did the 1977 and 1978 project evaluations take in-depth looks at the farmer-oriented component of the general training scheme outlined in the PP. We saw no requests from the USAID to the RTG for information on the in-country training and the farmer extension and demonstration training accomplishments to date. Without this information, USAID's monitoring of the project's training component is definitely weakened.

Recommendation No. 26

USAID/Thailand should request the RTG to provide information on accomplishments of:

- (a) in-country training courses
- (b) farmer extension and demonstration training.

Recommendation No. 27

USAID/Thailand should request the RTG to outline the in-country training and the farmer-oriented training schedules for the project's fiscal year 1979/1980.

Mississippi State University Technical Advisory Services

Numerous recommendations made by Mississippi State University (MSU) technical advisers had not been acted on by Thai counterparts. The USAID in conjunction with the RTG needs to make a determination as to whether the MSU Seed Processing Specialist's contract is to be extended and if extended how the extension will be funded.

The RTG received advisory services under a contract with Mississippi State University (MSU) funded by Loan 493-T-017. A Senior Seed Specialist and a Seed Processing Specialist have been assisting the DOAE under the contract since March 21, 1977 and June 1, 1977, respectively.

The USAID's project files contained numerous trip reports, special reports, and semi-annual and annual reports submitted by the two advisors to their counterparts in the DOAE. We noted 33 special reports by the Senior Seed Specialist. The reports contained recommendations for operational and technical procedures he considered vital to an efficient seed development program. The operational and technical procedures were based on years of experience on similar seed development projects in India and Brazil.

We discussed each of the 33 special reports with the Seed Specialist to establish the degree of response by the DOAE. Most of the recommended actions have not been implemented.

Neither the USAID's project manager nor the Seed Specialist had maintained a control register to monitor the degree of implementation of the recommended actions.

We believe it would be highly useful to establish a follow-up system for recommendations. This follow-up system would also be available to the Evaluation Team during future annual evaluations. The Thai counterparts should be encouraged to implement these recommendations. Unless the RTG responds to the recommended procedures, the project will lose an important part of the expertise available through the technical advisors.

Recommendation No. 28

USAID/Thailand should (a) encourage the Thai counterparts to implement the recommendations made by MSU technical advisors, and (b) establish a follow-up system to monitor implementation of the numerous recommendations.

The DOAE had requested that the services of the Seed Processing Specialist be extended two additional years beyond June 1, 1979. The reason for the request was that the completion of the construction of two seed processing plants, including the installation of equipment, would not be until after the advisor's current tour of duty is scheduled to terminate. A number of duties included in his scope of work cannot be accomplished until the seed plants have been completed and staffed. Some of these include, a) monitoring the operations and maintenance of the plants, b) modifying the operational plan for increased effectiveness, and c) training seed processing personnel in operation and maintenance of seed processing equipment and facilities.

The USAID concurred with the request and wrote to MSU to solicit support for DOAE's request.

The request by DOAE appears justified. Extension of the contract of the advisor will preclude an abrupt end to his services just at the time they will be critically needed.

The USAID had estimated that it will cost approximately

\$87,000 to fund the additional two years, including the costs of home leave to which the advisor would be entitled to under the terms of the contract. The contract period for the Seed Processing Specialist ends on May 31, 1979.

We requested the MSU technical advisor to provide us with updated project costs. As seen elsewhere in this report (Exhibit B), revised projected project costs stand at \$3.7 million which is the full amount of the AID loan. We anticipate that the \$3.7 million will not cover fully the projected project costs because of the potential impact of the rising costs for the inoculum program of the project.

The USAID and the RTG need to determine whether the contract is to be extended, and if extended, how the contract extension will be funded.

Recommendation No. 29

USAID/Thailand in conjunction with the RTG should make a determination as to whether the contract period of the Seed Processing Specialist is to be extended and if extended, how the contract extension will be funded.

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Seed Development Project
Project Financial Plan Comparison

<u>Activities</u>	<u>Original Project Budget</u>	<u>Revised Project Budget ^{2/}</u>
Seed Processing Equipment	\$ 432,000	\$ 834,000
Technical Services Contract	455,000	564,000
Working Capital Fund	1,500,000	1,753,000
Inoculant Equipment	216,000	550,000 ^{3/}
Participant Training ^{1/}	245,000	200,000
Project Evaluations ^{1/}	<u>75,000</u>	<u>75,000</u>
Sub-Totals	\$2,923,000	\$3,976,000
Reserves for Inflation and Contingency	<u>1,022,200</u>	<u>- ^{4/}</u>
Total Project Costs	<u>\$3,945,200</u>	<u>\$3,976,000</u>

1/ Grant-funded activities

2/ Revised project budget prepared by the MSU Senior Seed Specialist

3/ Responses to the first IFB for equipment totaled about \$1 million. The costs of inoculant equipment may increase 20 per cent for each year of delay in procurement.

4/ Eliminated as most of the reserves have been reflected in revised project budget.

Seed Development Project
Summary of Revolving Fund Advances and RTG Expenditures
As Of March 31, 1979

<u>Planned Expenditures</u>	<u>Semi-Annual Advances to RTG (Baht-000's)</u>			
	<u>10/1/77 to</u> <u>3/31/78 1/</u>	<u>4/1/78 to</u> <u>9/30/78 1/</u>	<u>10/1/78 to</u> <u>3/31/79</u>	<u>Total</u>
Foundation Seed	1,214	100	392	1,706
Payments to Contract Seed Growers	5,156	2,000	5,338	12,494
Production Supplies	1,051	50	200	1,301
Inoculant	-	3	70	73
Total Advances	<u>7,421</u>	<u>2,153</u>	<u>6,000</u>	<u>15,574</u>

1/ As of September 30, 1978, the DOAE reported Baht expenditures to date:

Phitsanulok Plant	9,893,344
Korat Plant	<u>269,150</u>
Total:	<u>10,162,494 2/</u>

The difference between advances and expenditures as of September 30, 1978 was made up by reflows: sales of foundation seed, sales of processed seed, sales of cull seed, and sales of seed not suitable for human consumption.

2/ The financial report by DOAE did not detail the types of expenditures, therefore the USAID was unable to compare planned against actual expenditures.

Seed Development Project
Summary of Grant-Funded Participant Training

<u>Training Activity</u>	<u>No. of Participants Planned Through 3/31/79</u>				<u>Actual</u>	<u>Project</u>
	<u>1976/1977</u>	<u>1977/1978</u>	<u>1978/1979</u>	<u>Total</u>	<u>Thru</u> <u>3/31/79</u>	<u>Total</u> <u>(6 years)</u>
A. <u>Participant Training - AID Grant</u>						
1. Study Tour						
Processing Management	1	2	-	3	0	3
Marketing Management	1	1	-	2	0	2
Inoculant Production	2	-	-	2	1	2
Extension Seed Specialist	1	-	1	2	0	2
2. Degree Training (M.S)						
Seed Production & Certifica-						
tion	-	1	-	1	0	2
Seed Processing & Handling	-	1	-	1	0	2
Quality Control	-	-	1	1	0	2
B. <u>Third Country Training - AID Grant</u>						
Production Operations	1	1	-	2	0	2
Processing Operations	1	1	-	2	0	2
Marketing Operations	1	1	-	2	0	2
Certification Operations	1	-	1	2	0	2
C. <u>In-Country Courses - RTG Funds</u>						
1. Seed Technology	25	25	25	75	<u>2/</u>	150
2. Skills Development						
a. Processing and Handling	15	15	-	30	<u>2/</u>	45
b. Analysis and Testing	-	15	15	30	<u>2/</u>	45
c. Seed Inspection	15	-	15	30	<u>2/</u>	45
3. Seed Awareness	30	60	60	150	<u>2/</u>	330

<u>Training Activity</u>	<u>No. of Participants Planned Through 3/31/79</u>				<u>Actual</u> ^{1/}	<u>Project</u>
	<u>1976/1977</u>	<u>1977/1978</u>	<u>1978/1979</u>	<u>Total</u>	<u>Through</u> <u>3/31/79</u>	<u>Total</u> <u>(6 years)</u>
D. <u>Farmer Extension/Demonstration Training</u>						
Contract Growers	300	400	500	1,200	<u>2/</u>	2,900
Farmer Training	2,000	4,000	5,000	11,000	<u>2/</u>	25,000
Demonstration Plots	10	20	30	60	<u>2/</u>	210
Farmer Leaders	10	20	30	60	<u>2/</u>	210

1/ From inception of project to date of audit.

2/ USAID Project Files contained no statistical records on actual accomplishments as of 3/31/79.

SOURCE: Project Paper Annexes B-21 and C.

SEED DEVELOPMENT PROJECT
USAID/THAILAND

REPORT RECIPIENTS

USAID/Thailand	5
<u>AID/W</u>	
Deputy Administrator (A/AID)	1
Bureau for Asia:	
Assistant Administrator (AA/AO)	1
Deputy Assistant Administrator (Audit Liaison Officer)	1
Office of Philippine, Thailand, Burma/Indochina Affairs (ASIA/PTBI)	1
Bureau of Development Support:	
Office of Development Information and Utilization (DS/DIU)	4
Office of International Training (DS/IT)	1
Bureau for Program and Management Services:	
Assistant Administrator (AA/SER/W)	5
Office of the Auditor General:	
Auditor General (AG)	1
Executive Management Staff (AG/EMS)	12
Policy, Plans & Programs (AG/PPP)	1
Area Auditor General:	
AAG/W -	1
AAG/Africa (East)	1
AAG/Africa (West)	1
AAG/E	1
AAG/NE	1
AAG/Latin America	1
<u>OTHER</u>	
Auditor General, Inspections and Investigations Staff, (AG/IIS/Manila)	1