

**Evaluation of
Mae Chaem
Watershed
Development
Project**

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July 1983



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PREFACE

This evaluation of the Mae Chaem Watershed Development Project in Thailand was undertaken by three consultants from Development Alternatives, Inc. (DAI) and one consultant from Kasetsart University. The DAI team was composed of Dr. Alan Roth, team leader, who also provided the agricultural economics and project management inputs; Lynn Hewitt, agronomist; and Michael Carroll, sociologist. Dr. Kasem Chunkao, from Kasetsart University, provided watershed management expertise.

Field work was conducted during three weeks in May 1983. The team spent one week in Chiang Mai and one week in Mae Chaem, obtaining data and conducting interviews. The third week was spent writing a field draft that was then presented to the AID mission in Bangkok. The team spent one final week in Bangkok briefing AID staff and Thai government officials.

The draft report was then put into final form at DAI in Washington by Dr. Roth. He incorporated the information obtained during the team's last week in Bangkok and the comments he received from AID/Thailand after the mission had reviewed the draft.

The team was pleased by the assistance it received from both AID and the Thai government. The level of cooperation and candor was very high and was a strong indication of the interest all parties had in seeing a thorough and objective evaluation.

Alan Roth
Team Leader
July 1983

BASIC PROGRAM IDENTIFICATION DATA

1. Country: Thailand
2. Bilateral Project Titles: Mae Chaem Watershed Development
3. Bilateral Project Number: 493-0294
4. Program Implementation:
 - a. First Project Agreement: August 29, 1980
 - b. Final Obligation: Nine months after final Input Delivery.
 - c. Final Input Delivery: June 30, 1987
5. Program Funding:
 - a. A.I.D. Bilateral Funding: \$10,000,000
 - b. Other Major Donors: none
 - c. Host Country Counterpart Funds: \$11,000,000
6. Mode of Implementation:

Project Grant Agreement Between USAID/Thailand and Department of Technical and Economic Cooperation.
7. Previous Evaluations and Reviews: None
8. Responsible Mission Officials:
 - a. Mission Directors: Donald Cohen, Robert Halligan
 - b. Responsible Project Officers: Jerry Wood, Richard Flashpoler, Sara Schwartz.
9. Host Country Exchange Rates:
 - a. Name of Currency: Baht
 - b. Exchange Rate at Time of Project: 20.00

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EXECUTIVE SUMMARY

OVERVIEW

Thailand's Mae Chaem Watershed has received very little development attention. It has limited infrastructure, land, and water resources for agriculture. Its diverse cultural groups, isolated from one another and from the country's economy, live mostly at poverty levels. Their agricultural practices deplete the watershed's resources and cause flooding in the lowlands.

The Mae Chaem Watershed Development Project took seven years to plan and is in its third year of implementation. The project's objective, as understood by the evaluation team, is to achieve sustained growth of agricultural production in a manner that protects and maintains the watershed. Project implementation has been difficult and disappointing. Recently, however, considerable progress has been made in developing a project management and field operations strategy. This was coupled with a very positive attitude among field staff that this strategy and the current momentum that has been created will enable the project to achieve its objectives. The evaluation team found these conditions to be favorable to successful implementation, despite serious problems that have had to be overcome:

- Slow compliance by the Royal Thai Government to meet conditions precedent;
- A freeze on project funding by the United States Agency for International Development achieve compliance;
- Inadequate management structure to coordinate the work of the many line agencies involved; and
- A slow, cumbersome financial management system.

Although most of the solutions to these problems are new and have yet to be tested over time, they appear suitable to the project's administrative and cultural environment.

U.S. ASSISTANCE

U.S. assistance consists of a \$10 million grant, to be obligated in three separate, five-year, overlapping phases covering the project's seven-year life. The grant provides for 46 percent of the total cost, with the remaining 54 percent coming from the Thai government. The grant funds are to cover specified percentages of the costs of equipment and commodities, expatriate

technical assistance, government staff support, construction costs, watershed maintenance activities, credit, and evaluation and research. The grant funds also cover the total cost of the Project Operations Unit, interface (IF) teams, rice banks, and construction of a training center.

PURPOSE OF EVALUATION

This evaluation sought to determine if the project is working well enough to continue its activities and expand to the additional phases outlined in the project paper. The evaluation was also to identify which project elements need strengthening, which are not useful, and what, if any, new approaches should be incorporated. The total project design could be questioned if the evaluation determined that a fresh approach was required.

AID PROJECT STRATEGY

Little implementation has taken place, and no significant impact can be measured. AID does not have a direct implementation role but has taken the following actions to influence Thai government implementation:

- In the project design, AID incorporated a novel approach to facilitating line agency work at the village level. The strategy is to use special teams of project-trained field workers who have no institutional home outside the project. The teams help coordinate the actions of the line agencies and facilitate communications between government agencies and project villages. These IF teams are appreciated by both the villagers and the line agencies and could leave a sustainable level of activity at the village level.
- As a result of AID's efforts during implementation, the Council of Ministers now requires the Royal Forestry Department to issue land use certificates to hill-tribe people in the Mae Chaem watershed who are farming governmental property. This was a condition precedent in the project agreement, but was not complied with during the first 18 months of implementation. AID froze project funding for nearly one year, and the government complied. However, there was considerable damage to field operations and staff morale.

CONCLUSIONS

The evaluation team found that there was very little project implementation experience or data, no evidence of impact, and a relatively untried management structure. While these elements weighed against the project in an empirical analysis, other factors viewed from a qualitative perspective supported the project strategy and need for continued implementation:

- The project's emphasis on local participation is appropriate for increasing the capabilities and improving the conditions of the local population. ✓
- The project is likely to have an important and positive impact on the people and the watershed, but the benefits may take longer to occur than envisaged in the project paper.
- Many of the implementation problems that have hindered progress have been largely overcome, while the recommendations listed below can resolve most of the remaining problems.
- Like many remote, multi-faceted rural development projects, the Mae Chaem project will be difficult to implement. However, the importance of watershed development for protecting and preserving a critical natural resource, and the worthwhile benefits to the population of the upland areas as well as those living downstream, argue for its continuation.

THREE MAJOR RECOMMENDATIONS

- The project should be consolidated into two phases, extended two additional years to compensate for lost time, and cover a reduced geographic area that includes only five sub-districts of Mae Chaem. The recommended sub-districts and phasing are:

| | | |
|-------------|---|-----------|
| Tha Pha | } | Phase I |
| Chang Keong | | |
| Ean Thap | } | Phase IIa |
| Mae Na Chon | | |
| Mae Suk | } | Phase IIb |

- The project should focus on achieving changes in the ~~capability, attitude, and behavior~~ of the local population by the end of the project and on building the momentum for significant production increases to occur in the more distant future. These changes would be facilitated by reinforcing IF team activities with more in-service training and self-help project funding; by implementing more rapidly the land use certificate program to include a larger number of farmers during the life of the project; and by continuing to assist subsistence and cash crop farmers, allowing them to make a slow transition to cash crop farming.
- Coordination and sustainability of line agency activities should be improved by better integration of the operations of project and regular line agencies ~~at the district and provincial level~~, and by channeling grant and counterpart funds through the Chiang Mai governor's office for disbursement to line agencies in the field.

CHAPTER ONE

SCOPE AND BACKGROUND OF EVALUATION

PURPOSE OF EVALUATION

The project was divided into three overlapping phases, with an evaluation at the end of the first year of each phase to determine whether or how the project should continue into the next phase. During the first year of project implementation, however, a number of problems delayed operations. As a result, many activities scheduled for the first year were only begun after two years had elapsed. This first evaluation was delayed to allow time for a full year of regular project operations to take place. The United States Agency for International Development doubted the prospects for a second phase and requested that no Phase II pre-implementation activities be undertaken until the evaluation was completed.

The evaluation began in the eighth month of the project's third year. Project funds had been frozen through part of the second and third years. Although little implementation had occurred, and therefore the evaluation could not measure any impact, there was a critical need to examine the project's fundamental concepts and determine whether the strategy was workable. If not, the evaluation team was to recommend modifications or termination.

POLICY BACKGROUND AND SPECIAL INTERESTS

The evaluation took place against a background of political interests and policy re-examination. Mae Chaem was initially chosen because it was considered to be a politically sensitive

area with a security problem and a major opium production center. Since project start-up, the security problem has been significantly reduced, and opium production is thought to be less substantial. Yet there remains considerable interest in Mae Chaem.

In addition to opium and security, the project's implementation problems have attracted Thai attention. The most serious involved a condition precedent of the project agreement, the establishment of the authority and system to provide land security to the upland farmers of the watershed. A policy change by the Thai government was needed to meet this condition precedent, but was made only after AID had frozen project funds. AID was also dissatisfied during the early stages of Phase I with the lack of detail in project plans and withheld approval of funding for many activities until planning was improved.

The project has special significance at the Department of Technical and Economic Cooperation (D'TEC) in Bangkok as one of few grant projects. The appointment of the governor of Chiang Mai as the project director was an unusual move that indicates the special importance of the project to the Thai government. His strong interest in the project is partially due to the attention the project has received in Bangkok. The permanent secretary of the Ministry of Agriculture and Agricultural Cooperatives (MOAC), who is the chairman of the Mae Chaem Project Committee, has also taken a close interest in the project. In addition, the hill-tribes have long been of special concern to the king, and he has taken a personal interest in this project. The evaluation team found a sense of pride among Thai government officials in the way they had tackled these many problems and found solutions they saw as practical.

Overall AID policy in Washington has changed since the project was originally approved, and there is some question about whether it fits current guidelines. A newly appointed AID/Thailand director wants to review the projects he inherited. The presence of opium production in the area also brings increased State Department attention to the project.

PROJECT DESCRIPTION

AID provides funding not to exceed \$10 million as its grant contribution to the Mae Chaem Watershed Development Project. The project's stated objective is to increase real income and access to governmental services of the rural poor of the Mae Chaem watershed, while preserving and restoring environmental quality. The life of the project is seven years, beginning August 1980.

The project was planned as a multi-agency effort to supply services to the watershed population, with a Project Operations Unit (POU) in Mae Chaem as the main coordinating mechanism. Local participation and bottom-up planning were to be stressed, with field implementation facilitated by interface (IF) teams living in project villages for three years. The IF team members were to be recruited by the project.

Infrastructure development focused on construction of terraces and waterworks. Extension services were to provide a transfer of agricultural technology to improve productivity of both subsistence and cash crops, with initial emphasis on the former.

The project area was to be the entire watershed, which includes the six sub-districts of Mae Chaem District plus one sub-district in neighboring Hod District, an area of approximately

40,000 inhabitants and 4,200 sq km. Within this population, 45 percent are northern Thai, 47 percent are of the Karen hill-tribe, and the remainder are members of other hill-tribe groups.

An increasing portion of the northern Thais and most of the hill-tribe people use slash and burn agriculture to cultivate subsistence and cash crops in the upland regions of the watershed. As a result of inadequate land and water resources and a low level of technology, most farmers are unable to meet subsistence needs from their farming. The destructiveness of these practices is rapidly decreasing the watershed's capacity to support this population.

EVALUATION TEAM

The evaluation team was composed of a team leader, who was also the team's project management specialist and agricultural economist; an agriculturalist; a rural sociologist; and a watershed management specialist. All four had prior work experience in northern Thailand. The watershed management specialist is Thai. The team spent approximately three weeks doing field work in northern Thailand and about one week in Bangkok.

EVALUATION ISSUES

The evaluation team was asked to identify important issues to be examined. In addition, AID had identified a number of issues:

- Land security;
- Natural resource development;

- Production technology packages;
- Interface teams;
- Project management;
- Technical assistance;
- Project phasing; and
- Research activities.

Chapter Two reviews these broad issues, with the exception of technical assistance and research activities, which were integrated with the other issues. Financial management is included under project management.

Chapter Three discusses 21 detailed issues and makes recommendations. Chapter Four addresses project and program planning needs, answering special questions regarding watershed development projects.

DATA RESOURCES

The evaluation team had little data from which to work. However, this had little effect on the evaluation, because the main issues centered on the process of project implementation. The information needed was obtained through interviews with senior decision makers in Bangkok, project staff in Chiang Mai and Mae Chaem, district and provincial officials, staff of related projects, field workers, and villagers. One issue below deals with information systems and includes recommendations to resolve data problems.

CHAPTER TWO

MAJOR PROJECT ISSUES AND RECOMMENDATIONS

LAND SECURITY

Upland areas of the Mae Chaem watershed are part of the National Forest Reserve and therefore belong to the government. Those who cultivate this land do so illegally and are subject to losing its use as a result of a Royal Forestry Department (RFD) reforestation program. Current upland farming practices destroy the forest and hold little promise for long-term productivity and income to the farmers. Improved farming practices that are not harmful to the environment require an investment in the land that farmers are unwilling to make, since they do not enjoy secure access to the land.

The Royal Thai Government has initiated a program in Mae Chaem to award farmers special land use certificates. Farmers qualify by participating in the project's land development activities and agreeing not to continue slash and burn agricultural practices.

All of the Phase I land in this program will go to those farmers who are already cultivating the land. There is no new land to be opened. In the Phase II areas, it is possible that minimal amounts of new land can be found and allocated to farmers who now have no land of their own.

Land use certificates are currently being given for land that has been terraced as part of the project. Unterraced land planted in perennial crops that would protect the watershed is not part of the certificate program. Yet farmers would be more likely to invest in perennial crops -- which may need years of maintenance before they start producing -- if they had land security. The farmers who are scheduled to receive certificates understand and value them.

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Although the certificates stipulate that the land can be neither sold nor rented, the certificate holders could illegally rent out their land. The team did not see this as a major problem, as there was little evidence that this was an intention of the project farmers. However, even if the land were to be illegally rented out there would still be a good spread of benefits, because:

- The land is likely to be improved and be more productive;
- The watershed will be better protected;
- The certificate holder may have a short-term economic gain but will have learned better land use techniques; and
- The tenant is not expected to be wealthy and will need the productive land resource.

Mae Chaem is an exceptionally poor area of Thailand where the poorest of the poor may be beyond the means of the project to reach and benefit. However, even the average and above-average farmers are in great need of assistance.

Recommendations

- The land use certificate program should be implemented more rapidly to cover additional land and farmers.
- The project should explore offering land use certificates for unterraced land that is used exclusively for agro-forestry.

NATURAL RESOURCE DEVELOPMENT

The watershed is deteriorating at a rate that far exceeds that of improvements resulting from the project. RFD estimates that about 80,000 rai of forest is destroyed each year, while the reforestation program is able to reforest only 40,000 rai per year. The project's land development program is planned to improve about 22,000 rai during the life of the project.

The project seeks to improve agricultural practices in a way that protects and maintains the watershed. The main obstacles to the watershed's development are steep slopes, poor soil, and lack of water. For semi-steep slopes (up to about 35 percent grade), the project is promoting terraces to be used for both rainfed and irrigated land. The terraces are constructed with hand labor provided in part by the traditional user of the land, who will receive a land use certificate. The terraces will increase productivity, stabilize the agricultural system, protect the watershed, and by developing more intensive farming, allow more farmers to cultivate the land. The project will build water control structures to provide irrigation water and help manage water runoff.

Agro-forestry, promoted by the project in cooperation with CARE, will facilitate the viable agricultural use of marginal land. Less potential exists for woodlots, because people must receive direct economic benefits before they will consider activities that are mainly for watershed protection. They will not grow trees for firewood when there are still trees all around them.

Most of the roads in the watershed have been poorly constructed and cause environmental damage. Yet they provide access to schools, health centers, and markets, and facilitate fire fighting. Traditional trails and bush tracks are sufficient for marketing opium and other crops that have high value for their weight and can be easily transported. However, these other crops have yet to be developed significantly in the region for agronomic and economic viability. The government's road construction program will continue for security reasons and, if of sufficient quality, will help the project.

Project activities and resulting benefits may attract more people into the watershed, thereby providing the potential for additional stress on its fragile ecology. However, there will be room for more farmers if the project succeeds in developing and diffusing agricultural technology that is economically attractive to local farmers, is within their capacity to use, and results in intensive farming that protects and maintains the watershed. Moreover, it is likely the new farmers will adopt the improved agricultural practices.

Recommendations

- Project objectives should be modified to reflect the realities of the rate of environmental deterioration and the scope of project activities. The goal should be to reduce the rate of environmental deterioration during the course of the project. Environmental improvements should be saved for the long term.
- The woodlot program should be eliminated, and more emphasis placed on agro-forestry.
- An AID environmental specialist should undertake a detailed environmental analysis of the watershed.

PROJECT MANAGEMENT

Over the first two years of project implementation, many problems developed as a result of an inadequate management structure. Originally, authority was to be centered in the Projects Division of MOAC. The Projects Division is not an operating line agency, but a coordinating unit within the ministry. The implementing agencies were to be four departments of MOAC and the Bank for Agriculture and Agricultural Cooperatives (BAAC). The Projects Division in Bangkok and a POU in Mae Chaem were to provide coordination. However, the departments operate in a semi-autonomous fashion and were not responsive to the project

control structure. The project director in Bangkok was too far removed from field operations to manage effectively, and the field manager had neither the authority nor the rank to be effective.

The problems became so severe that the project was restructured. The governor of Chiang Mai was given responsibility as project director. As his deputy director, he appointed a well-respected former district officer of Mae Chaem. The ministry saw a need for a technically oriented deputy director to supplement the director and his deputy. The director of the Northern Agricultural Development Center (NADC) was named to this position. The field manager did not change, but he is now backed up by three strong, local senior directors, who appear to be working well together. This major change in management signals a strong commitment of the Thai government to make this project work. The director and the two deputy directors appreciate this commitment and have given the project very high priority. The evaluation team does not see any current need to change this structure.

Although the line agencies are more attuned to the director's leadership, they are still semi-autonomous and work through their line authority. Each line agency has its own management system for this project, using supervisors in Bangkok and/or at the regional level and avoiding regular staff at the provincial and district levels. This system will hinder the transition of project activities to regular agency operations when the project is completed. ^{Sustained}

Coordination among multiple line agencies implementing an integrated rural development project can be most effective when the emphasis is on informal systems. The project uses informal communications among the line agencies in a manner that promotes coordination and cooperation. The current system provides for flexibility in implementation, which is necessary given the

strategy of bottom-up planning. Also, sufficient coordination is occurring at the field level, especially through the IF teams in the villages.

The project had an expatriate adviser for two years, but he had difficulty relating to the project staff and was therefore unable to provide the technical assistance called for in the project paper.

Recommendations

- Line department field operations for the project should be integrated with line department regular operations in the province and district.
- One expatriate adviser should be assigned to the project on a full-time basis for two years.
- A short-term expatriate adviser should assist in refining current project management and information systems. The adviser should try to improve the existing system, emphasizing informal systems.

FINANCIAL MANAGEMENT

Since its start, the project has been plagued by poor financial management and budgetary delays. It receives financial resources from three sources: AID grant funds, DTEC counterpart funds, and regular government budget funds. DTEC counterpart funds have been used to finance the project when the government's regular budget funds were not available. The financial management system has recently been changed to provide financial resources in a more timely manner. However, the POU and line agencies have yet to fit their procedures to the new system. The line agencies receive all funding independently of the POU. As a result, the POU cannot exercise control to obtain greater coordination of implementation activities.

When AID froze project grant funds to achieve compliance by the Thai government in meeting a condition precedent, Thai regular budget funds kept flowing. Because of lack of project activity, however, they had to be returned to the Bureau of the Budget (BOB) and were not credited for future use. The result is that the line agencies are now receiving funds for future phases of the project, while AID grant funds are still being used for Phase I.

Recommendations

- MOAC should request all participating line agencies to channel their Mae Chaem project funds through the project director for disbursement. If they do not accede to the request, the current level of project coordination is high enough to merit continuing the project. Financial integration would be a desirable change but not a necessary one.
- DTEC should channel grant and counterpart funds through the project director for all project activities. This recommendation is more likely to be implemented than the previous one, but is also not necessary for continuation of the project.
- The Thai government and AID should coordinate the scheduling of their budgetary support.

PROJECT PHASING

As a result of delays in the project and the need for this evaluation, the Phase II start-up is almost two years behind schedule. Five years of the recommended Phase IIa and Phase IIb implementation will take the project two years beyond its seven-year life.

Tambon Ban Chan is too distant to be managed effectively by the POU, which is located in Mae Chaem town. Travel between the two points during the dry season takes over nine hours by vehicle and four days by foot. Managing the project in just the Phase I

area has already proved to be difficult. Tambon Bo Sali is in Amphur Hod. If the project is going to be integrated into the local administrative system, adding a tambon in another amphur would complicate this transition and cause difficulties for project management.

Recommendations

- The project should have only two phases with Phase II divided into two sub-parts, a and b. Phase IIa should include Tambons Ban Thap and Mae Na Chon, while Phase IIb should be Tambon Mae Suk. Tambons Ban Chan and Bo Sali should not be included in the project.
- Pre-implementation work for Phase IIa should start now; regular implementation should begin in FY 84. Phase IIb should start in FY 85 without a Phase IIb evaluation requirement.
- The budget should be modified to support evaluation recommendations for specific activities, but no major budgetary changes for the project as a whole are required. Funding from the AID grant and the Thai government regular budget should be coordinated to follow the revised project schedule.
- The project should be extended to allow for five years of Phase IIb implementation.
- A joint Thai government/AID review of project operations should be scheduled for September 1984. An AID in-depth evaluation should be scheduled for September 1985.

INTERFACE TEAMS

The IF teams are achieving their purpose of increasing villager participation in and understanding of the project. They facilitate communication between the villagers, project management staff, and line agencies. A strong peer group relationship between team members and line agency field workers is a major factor in successful implementation of terracing, water projects, and the land use certificate program. The IF teams have worked well with the line agencies to coordinate their activities at the village level, thus maximizing the effectiveness of bottom-up

planning. Although the initial training the teams received is appropriate, more technical in-service training would increase their credibility with villagers and government officials.

The degree to which the eventual withdrawal of IF teams will harm productive relations between government and villages will depend on a given village's developmental level. Villages with good resources and access to Mae Chaem town will be able to cope better than more remote, less progressive villages. For hill-tribe villages, a different standard must be used. For example, progress in gradual cultural assimilation of hill-tribe villagers into mainstream Thai society is one reasonable expectation. Hill-tribe villagers will require continuing government contact and follow-up extension services after the project terminates.

Recommendations

- In-service training of IF teams should be increased.
- IF teams should develop a project phase-out plan for each village. This plan should be developed after two years of service in the village.
- Mobile teams should be planned to facilitate removal of IF teams at the end of each phase.
- Self-help projects should be a regular part of the project.

PRODUCTION TECHNOLOGY PACKAGES

The evaluation team supports the project strategy of helping farmers increase their rice yields, while slowly introducing them to cash crops. This combination helps farmers acquire technical ability and better assess the risk of change over time. They are not technically ready to produce most cash crops, nor are they willing or financially able to take the risk at this time. Moreover, the cash crop marketing channels are not well developed, and the agricultural input supply system is weak. These

development problems provide the framework for project activities. By attacking these constraints now, the project will create a suitable environment for the significant production of cash crops in the future. Many hold strong agronomic and economic potential. Some are appropriate for diffusion now, while others will require more testing.

The project can facilitate the transition from subsistence to cash crops through:

- Use by extension services of IF teams as well as extension workers for technology transfers;
- Demonstration plots to give farmers experience with the new crops at low risk;
- Provision of timely market information so farmers can better see the economic potential and learn about market channels;
- Attraction of merchants to purchase new crops;
- Development of a credit service that will give farmers the financial capability to make investments in cash crops and attract agricultural input supply services; and
- Non-use of subsidies, to avoid creation of artificially inflated crop value.

Some unanswered questions remain about the viability of rainfed terraces, but these can be answered only after the farmers use them. The following areas also need attention:

- Inadequate applied research in the farmers' fields;
- Limited seed supplies for some cash crops; and
- Agro-forestry not receiving a high enough priority among project activities.

Recommendations

- Chiang Mai University should be contracted to provide assistance to the project in applied agricultural research, including farming systems, soil management, and seed multiplication technology.

- BAAC should be requested to provide credit services to project farmers, with AID helping to cover the risk with a 20 percent loan guarantee.
- ~~DOAE extension centers should not be used as training facilities.~~ *Why*
- Agro-forestry should be a major part of the project. *explain*
- The CARE agro-forestry project should be strongly supported by AID to provide agro-forestry development services to the project in collaboration with the involved line agencies.
- The project should depend on the private commercial marketing system rather than develop a cooperatives program.
- A marketing specialist who is a native of northern Thailand should provide periodic assistance to improve market communications.

CHAPTER THREE
DETAILED PROJECT ISSUES

1. SHOULD PROJECT OBJECTIVES BE CHANGED?

FINDINGS

The project was planned to achieve many objectives at the same time. Within both AID and the Thai government, officials appeared confused about the importance of particular objectives and where the project should be focused. The project's logical framework was not clear enough to resolve this problem.

CONCLUSIONS

The project's objectives do not need to be changed but rather clarified, and priorities established.

RECOMMENDATIONS

AID should consider the following changes in the project's logical framework:

Purpose Objectives

Project Purpose:

Sustained growth of agricultural production
in a manner that protects and maintains the
watershed.

The purpose is further defined by the following indicators
(end of project status):

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- Majority of project's irrigated rice farmers obtaining increased yields;
- Majority of project's upland rice farmers obtaining increased yields;
- Annual increase in area planted in rice and/or cash crops without use of slash and burn methods;
- Increase in number of farmers growing licit cash crops;
- Above indicators for areas where the project has not been operating for one or two years (Phases I and IIa) show only moderate drop in target levels since withdrawal of assistance;
- Discernible spread of use of improved cultivation technology to other farmers;
- Agro-forestry becoming a popular commercial activity (private nurseries, merchants plying area to obtain tree-crop product, etc.);
- A developed private sector marketing system to serve most of the watershed, reaching out into remote areas;
- BAAC (or other bank) operating a growing, active production credit program;
- Farmers independently transforming swiddens into terraces and/or planting tree crops;
- Area under swidden cultivation decreasing;
- Area destroyed annually by fire decreasing; and
- Fall in runoff and sediment yield.

Purpose Assumptions

The following assumptions are made to support the successful achievement of the above indicators:

- The Royal Thai Government sees the economic potential of area and commits sufficient resources to support growth rate, including:
 - Agricultural extension service,
 - Quality road construction and maintenance,

- Communications system,
 - Applied research, and
 - Land use rights; and
- No exceptional climatic conditions to destroy farmer confidence before sufficient experience with good yields is obtained.

Goal Objectives

Achievement of the purpose is expected to lead to the following long-term goal:

- Increased quality of life of Mae Chaem watershed population.

Achievement of this goal will be indicated by the following:

- Increased value of housing and household assets, including sanitary facilities;
- Improved nutrition;
- Improved health;
- Increased educational level; and
- Increased on- and off-farm employment (and thus more income).

Goal Assumptions

The following assumptions are made to support the achievement of the above indicators:

- New security problems in Mae Chaem do not arise;
- Increased wealth of people and better facilities attract health, education, and other services; and
- Other watersheds are also starting to develop so there is no surge in area population.

Output Objectives

The following output objectives are expected to be achieved during the course of the project:

- Terraces completed;
- Waterworks completed;
- New irrigated land;
- Informal village, sub-village, and farmer groups operating on their own;
- Rice banks independently viable;
- Farmers have knowledge of new agricultural technology;
- Agronomically and economically viable crops and varieties identified and extended for rice, field cash crops, and tree crops;
- Capability of amphur extension service improved;
- Farmers receiving production credit;
- Roads rehabilitated;
- Market communications improved;
- Farmers have land use certificates; and
- Teams putting out forest fires.

Output indicators should be developed as part of the project redesign.

Major Indicators of Project Success

Although the principal recommended objective is sustained growth of agricultural production, major increases in production will occur only after the project is completed. At that time, the best measures of project success will be those that indicate a sustainable upward trend in production.

The first indicator, increased productivity of crops that are economically viable and cultivated in a manner that protects the watershed, may be measured by obtaining time series data on selected crop yields. The qualitative factors supporting this indicator can be assessed at the end of the project.

The second indicator, a growing number of farmers changing their farming practices to achieve these increased yields, is quantifiable in regard to the number of farmers and will require time series data for measurement. Criteria should be developed to determine what constitutes an adequate change in farming practice. The evaluation team suggests that the farmer should be using soil conservation measures and improved varieties of seed. It would be helpful to compare the practices of farmers who have "graduated" from the project one year or more before its end with those who were still being helped by it. This comparison would indicate how well growth will continue without the project. The number of farmers switching to selected new crops that are cultivated in a manner that protects the watershed must also be considered.

The third indicator of project success is the degree to which land area is becoming available and being used for agriculture (including agro-forestry) in a manner that protects the watershed.

The targets for these indicators should be developed by the information systems specialist.

It would be helpful to have evidence that the project caused these indicators to be positive. One way to determine causality is to have a control group that is not affected by the project. However, the Mae Chaem environment is not homogeneous, nor is it similar enough to other watersheds in terms of population groups, marketing facilities, current agricultural practices, soil, and climate to allow a proper setting for a control group.

Causality will therefore not be measurable in a scientific manner. Causality should be assessed through observation within the project area and information available from agricultural services and projects in other areas of northern Thailand.

2. SHOULD THE GEOGRAPHIC PHASING OF THE PROJECT BE CHANGED?

FINDINGS

In the project paper, there were to be three phases; the first, in Tambons Tha Pha and Chang Kheong; the second in Tambons Ban Chan and Ban Thap; and the third, in Tambons Mae Suk, Mae Na Chon, and Bo Sali. The phases were to be overlapping during the first three years, with the first two phases each having a year of implementation followed by an evaluation before start-up of the following phase. The project was phased to provide for a gradual buildup of implementation capacity, reaching out into the more remote tambons as capacity increased, and as new roads were built (independent of the project) to provide easier access.

The Phase I area, close to Mae Chaem town, was easily accessible, but not representative of the rest of the amphur. The proportion of hill-tribe villages was smaller, and the area's agro-economy was more developed and connected to marketing systems. The project has successfully delivered services throughout the Phase I area.

The Phase II tambons were selected for their contrasting characteristics. Ban Thap has limited land potential, whereas Ban Chan has water and more potential for wet-rice land development. It was thought that residents of Ban Thap might relocate to Ban Chan.

The current route by vehicle from Mae Chaem town to Ban Chan takes 9.5 hours, with the 7-hour leg from Chiang Mai to Ban Chan taking up to 18 hours in the rainy season. The nai amphur (district chief officer) wants a direct road constructed between Mae Chaem town and Ban Chan, but approval is unlikely for

another year or two at best. For local residents who need to travel between Mae Chaem and Ban Chan and cannot afford to pay for transportation through Chiang Mai, the one-way trip by foot requires four full days.

Although the potential for developing land in Ban Chan is greater than in the other tambons of Mae Chaem, much of this land is already claimed by Ban Chan residents, and there is the potential for serious conflict if the land is allocated to others. A substantial development program is being undertaken in Ban Chan by the Royal Highlands Development Project, and this is drawing heavily on local line agency resources.

Furthermore, the project's field manager expressed interest in replacing Ban Chan with Mae Na Chon in Phase IIa. He sees a communications advantage working in Mae Na Chon over Mae Suk.

CONCLUSIONS

Ban Chan is too distant from Mae Chaem town to be managed easily from the project's headquarters in Mae Chaem town. The project's management system would not be able to handle the required communications and logistics. Local line agency services are limited, and there is also the potential for competition with the Royal Highlands Development Project, which is likely to have more success in obtaining these services.

Mae Na Chon has good access roads and no factors that weigh against early implementation for Phase IIa.

Bo Sali is located in another amphur, and does not fit in well with current United Nations Development Programme/Office of Narcotics Control Board (UN/ONCB) project activities in the intended project area.

RECOMMENDATIONS

- Following the new schedule recommended in Issue 3, Phase IIa should include Ban Thap as originally planned for Phase II, plus Mae Na Chon. Phase IIb should focus on Mae Suk. The phasing sequence should not be so rigid as to exclude villages in a sub-watershed village grouping where an official boundary cuts through the area, thus putting some villages in a different phase.
- Bc Sali should be dropped from the project despite its location in the watershed. Project resources should be used to provide extra support to the more difficult areas of the watershed that have the potential for development but have been less amenable to developmental efforts.
- Ban Chan should be dropped from the project.

3. SHOULD THE PROJECT SCHEDULE BE CHANGED?

FINDINGS

During the first two and one-half years of project implementation, problems occurred that delayed activities and the start of the planned Phase II operations (see Issues 4 and 6.) As a result, the project is near the end of its third full fiscal year, with the planned Phase II about to begin a five-year implementation period. If a third phase were to start in fiscal year 1985, the project would need a nine-year life, instead of seven, to complete the three five-year phases.

The original plan was to have one full year of Phase I implementation followed by an evaluation, before approving the start-up of Phase II for year two of the project. A considerable amount of pre-implementation work is required before field implementation can begin. Villages need to be surveyed, equipment ordered, and field staff trained. Ideally, pre-implementation work for Phase II should have been undertaken in year one of Phase I if Phase II were to start in year two. However, some of the pre-implementation work has been delayed, because there was doubt whether Phase II would begin. In addition, AID did not allow grant funds to be used for Phase II preparation (except for IF team training). The evaluation process also affects the start-up time of Phase II because the results of the evaluation have to be assessed and project plans revised accordingly.

CONCLUSIONS

There will be insufficient time to complete the five years of implementation for Phases II and III that were planned in the project paper.

Pre-implementation work for each phase cannot take place prior to phase start-up if the pre-implementation activities are held in abeyance until after an evaluation is done -- when the evaluation is to occur at the same time as phase start-up. If the evaluation of year one of Phase II implementation is done at the end of that year, Phase III start-up would be delayed due to the time needed for the evaluation process.

RECOMMENDATIONS

- Phase III should be replaced by a Phase IIB, following the geographic phasing recommendations in Issue 2. The project should be extended to nine full years, to complete the fifth year of Phase IIB.
- AID and the Thai government should conduct a joint review of the project at the end of the first year of Phase IIa, but the start-up of Phase IIB should not depend on the findings of this review. Pre-implementation work for Phase IIB should begin during Phase IIa, so that Phase IIB can begin field operations on schedule (FY 85). The review should be to improve project management and determine whether project activities are in line with project objectives. The next AID evaluation should take place at the end of the first year of Phase IIB, at a time when Phases I and IIa will be far enough along to provide indications of the project's effects.

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4. IS THE PROJECT MANAGEMENT STRUCTURE ADEQUATE?

FINDINGS

Structure During First Two Years

During the project's first two years, operational authority for the POU was in Bangkok. The lead implementing agency was MOAC, which houses the four departments that participate directly in project implementation:

- Royal Forestry Department (RFD);
- Department of Land Development (DLD);
- Department of Agriculture (DOA); and
- Department of Agricultural Extension (DOAE).

Within the ministry, the permanent secretary* has overall responsibility, and the Projects Division handles administration. In theory, the centralized authority within the ministry would provide coordination and integration. In practice, however, the departments have considerable autonomy and centralized control has been generally minimal at best.

The ministry appointed a project director, whose office was in the Projects Division in Bangkok. A field manager was to manage the POU staff in Mae Chaem and coordinate line agency activities in the field. However, the field manager did not have a high enough rank to have sufficient influence over the line agency field personnel. His decision-making authority was inadequate, and communications with Bangkok, where this authority

* The title of this office was changed from under-secretary to permanent secretary in early 1983.

lay, were difficult and time consuming. He was a staff member of NADC, but the center itself did not have a significant management role in the project.

Project financing in the form of an AID grant and Thai government counterpart funds went from DTEC through MOAC to the line agencies. The MOAC budget approval role was not structured to handle detailed budget and activity integration and coordination. Also, the Projects Division was too far removed from the field to perform those functions properly. In addition, the line agencies had their own budgets (the governmental contribution to the project) that were to be used in the project area as part of their overall operations, and the POU had no authority over these line agency funds.

Changes at Senior Level

In June 1982, AID wrote to the MOAC permanent secretary: "Field level coordination provided by the [NADC] is not working effectively. The Project Operations Unit, an extension of NADC, has practically ceased functioning."

The Highland Area Development Committee had responsibility for oversight of the Mae Chaem project, but the committee's mandate covered highlands in general, with Mae Chaem only a small part. In June 1982, a separate Mae Chaem Administrative Committee was set up in MOAC under the chairmanship of the permanent secretary to provide a forum for coordination among the implementing departments.

In July 1982, the permanent secretary asked the governor of Chiang Mai to set up a changwat (provincial-level) committee under the latter's chairmanship to oversee project field operations. He also asked the governor to recommend a field manager and three assistants. In August, the permanent secretary designated the

governor as project director, with full responsibility and authority for project implementation at the field level. The governor then appointed a deputy project director to represent him in the field. The new deputy director had been a nai amphur in Mae Chaem and in other districts in Chiang Mai before retiring, and was highly respected.

Change in Committees

The changwat committee holds bi-monthly meetings. Approximately 30 people attend, representing a number of ministries and departments, in addition to those departments having a direct role in the project. However, one of the casualties of the changwat-level authority is that this has replaced amphur-level meetings in which many non-project departments participated. Also attending the amphur meetings were kamnans (leaders) of the involved tambons and villages. The current semi-monthly meetings at the amphur are only for project-related agencies and POU staff. The project field manager wants MOAC to reinstitute field amphur meetings. He suggests that they be held the day after the nai amphur's official meeting when the kamnans are in Mae Chaem town.

The Role of Senior-Level Managers

Project Director

The governor showed his intention of taking control of the project by requesting to DOAE that its team leader be removed from the project because he had not been properly performing his job. DOAE asked that this person be given six months probation, and the governor agreed. However, at the end of the six months the governor reported that the person's performance was still inadequate and he now is being replaced. The governor views his position as project director as important for project success, as the position needs someone with his rank and personal connections to be able to talk directly with the line agency decision makers in Bangkok.

Deputy Directors

The governor's deputy director came to the job with good administrative skills and much respect. However, he lacked technical knowledge and the support of line agency personnel. The situation made technical communications difficult, and in a few months the need for further change became apparent.

The next restructuring took place in April 1983, when the director of NADC was appointed deputy project director for technical affairs and secretary of the changwat committee. The existing deputy director retained his title, but was to focus on administrative affairs. This new dual deputy director structure appears to be working well. The new deputy director's rank gives him considerable influence over the line agencies, and his first meeting was well attended.

The deputy director for administration is employed full time by the project and divides his time between the field office in Mae Chaem and the NADC office (temporary project headquarters) in Chiang Mai. The deputy director for technical affairs is still the full-time director of NADC and gives his attention to the project on an as-needed basis.

Field Manager

The field manager has been in the position since the project's start. He now reports directly to either of the deputy directors.

Project Priority

It is not clear whether the project director and the deputy director for technical affairs will have the time or interest to respond to project needs over the long term. Currently, political

pressures from Bangkok have made the project a priority item. As project implementation becomes routine, less attention may be required from the two senior people.

Project Coordination

The project director in the Projects Division was given the position of project coordinator when the governor was appointed director. The coordinator is to act as liaison between DTEC and MOAC, ensuring integration of project activities in Bangkok.

DTEC

Because DTEC controls AID grant funds and provides its own counterpart funds, its role in project management is strong. When these funds are used for work that is contracted out to a Thai company, DTEC supervises the bidding process. The contractor will generally be located in Bangkok and subcontracts to company in the north. The prime contractor is responsible for the work but is not on site. As a result, when problems develop with construction at the project site, it is difficult to get a timely response from Bangkok.

Field-Level Coordination

At the field level, the POU holds semi-monthly meetings to coordinate field-level implementation. Besides the PCU staff and IF team members, the heads of three of the four line agencies are expected to attend. DOA has not been attending because it has had little need for interaction with field personnel. The DOAE team leader occasionally attends the meetings; both RFD and DLD regularly attend.

Another forum for coordination is an annual three-day workshop to plan the next year's activities and budget. The POU has prepared forms for the line agencies to describe their plans.

The forms also are used in the preparation of a single budget document describing all project-related activities. The line agency field offices must still submit their own budget requests to their headquarters in Bangkok for their regular budget activities, as well as for the activities they will undertake using AID grant and DTEC counterpart funds.

Line Agency Management Structure

Each line agency has its own management structure. The agency team leaders report directly either to a regional office in Chiang Mai or to Bangkok, without going through a district or provincial office.

DOAE works through a regional office in Chiang Mai, and the DOAE project team leader reports both to the regional office and to the Crops Division of DOAE in Bangkok.

RFD maintains a regional office Chiang Mai, but the RFD project team leader reports directly to the head of the Watershed Development Division of RFD in Bangkok. The team leader works out of the regional office, making trips to the field to direct his staff.

DOA also has a regional office in Chiang Mai, but the team leader does not go through this office. Instead, he reports to the Horticultural Division at DOA in Bangkok. The team leader is also the coordinator for highlands research for the northern provinces and has assigned a staff member to coordinate project field work in Mae Chaem. The field coordinator draws on personnel resources from the provincial office.

A special DLD Mae Chaem Committee includes representatives from the department's four divisions:

- Planning;
- Land Classification;
- Land Conservation; and
- Engineering.

The team leader for the project heads the department's regional office in Chiang Mai, and reports to the secretary of the DLD Mae Chaem Committee in Bangkok. The team leader supervises two field officers in Mae Chaem, one working in land conservation and the other in engineering. The two field officers also communicate directly with their respective divisions in Bangkok.

Field Office Facilities

Line agency officers who work full time in Mae Chaem have inadequate office facilities. Office space for them has been built into the design of the Mae Chaem project headquarters (construction is expected to start in about three months and should be completed six to seven months later). Having offices in the same building will facilitate communications among the agencies and with the POU. All of the involved agencies have expressed interest in using the new headquarters.

Long-Term Institutional Viability

The project was to use line agency resources in the amphur in a manner in which these services would be likely to continue after the project is completed. However, each line agency has assigned personnel different from those who would (or do) normally work in the area. Agency plans are as follows:

- RFD will have sufficient personnel left in the area to continue the land use certificate program.
- DOA will continue its work at the Mae Chon Luang Highlands Research Station, but it will be less involved in the Mae Chaem villages.
- DLD will service the area from the regional office in Mae Rim.
- DOAE will increase its staff. At present, it has one extension worker for each of five of the amhur's six tambons. For Phase II and beyond, the department will assign one extension worker for every 500 families in Mae Chaem District.

CONCLUSIONS

The project has experienced serious management problems that have been detrimental to the achievement of Phase I objectives. Many of these problems has already been identified, and major changes have been made in the management structure and in personnel to improve the situation.

Senior-level officials in Bangkok (including the Council of Ministers) have shown strong interest in the project and have made it clear to their subordinates that the project is to have a high priority and continuing attention from above. Despite this high-level support and a strong and interested governor as project director, management problems still remain. The two deputy directors have just begun to work together. In addition, until the new project office in Mae Chaem is constructed, the central project office will remain in Chiang Mai, thereby separating field staff from the main office. Also, each line agency has its own different hierarchical structure, making unified management difficult.

The project gains from the special attention the line agencies are giving it, by assigning personnel different from, and in addition to, those who are there for routine operations. This

increases the level of operations in Mae Chaem during the project's life, but it is not clear whether the agencies will continue to pay equal attention to development of the watershed after the project terminates, or even to provide full, regular services to the project villages.

Recommendations

- The implementing agencies should decentralize their project operations so team leaders would be more responsible to provincial-level authority. This would promote more sustainability and coordination of line agency operations. (Note: the high quality of most agency field staff may be due in part to the direct role of Bangkok and the regional offices in supervising project activities. Decentralization should be encouraged but not to the point that the project gets lower priority and the quality personnel are pulled out.)
- AID and DTEC should complete contracting for the new Mae Chaem office as soon as possible.
- When the current governor is reassigned, MOAC should ask the new governor to be project director if he expresses interest in the project. If he refuses, MOAC should consider promoting the deputy director for technical affairs to project director. However, by the time a selection is required, leadership needs may have changed. The evaluation team sees the need for continued flexibility in this selection.
- The amphur-level, broad-based project meetings should be reinstated to facilitate better communication and coordination among all interested parties in Mae Chaem. The regular district officers of the participating line agencies should be included in the meetings. This will facilitate integration of services and improve institutional sustainability.

5. IS THE PROJECT STRUCTURE APPROPRIATE TO LOCAL GOVERNMENT AND LINE AGENCY OPERATIONS?

FINDINGS

Introduction

Determining whether the project structure is appropriate to local government and line agency operations should be a function of project monitoring and should be viewed as a developing process in itself. This includes an understanding of both the project's remote physical setting and the attitudes of the people involved.

Mae Chaem's Recent Development

Mae Chaem District, as a meaningful local administrative unit, began to function just three years ago with the completion of the first all-weather road to Chom Thong District and Chiang Mai provincial town. Mae Chaem's remoteness has been a major obstacle to its development. Local government institutions and agencies have traditionally been isolated from the provincial administration and immune to the development process that local agencies can undergo when they have the benefits of ready access. Close supervision is especially crucial in the recruitment, functioning, and development of quality personnel. Traditionally, the districts that require the most experienced and able government officers are least likely to receive them. As a typical remote district, Mae Chaem has had this experience. As a result, its government officers have not been experienced and able, and this situation has only recently begun to change.

The new road has been the catalyst for improving local administration. These improvements are critical to the sustainability of the project's goals:

- Increasing communication with the province;
- Clearer communications and more efficient functioning between the district office and the province;
- Upgrading the quality of indigenous local government officers through in-service training;
- Attracting higher quality officers;
- Relieving chronic staff shortages in local agencies; and
- Upgrading the leadership skills and educational level of the villagers to develop a capacity for self-help.

Characteristics of Mae Chaem

Nai Amphur

The nai amphur does not have a direct formal role in project management but can significantly influence project performance. He understands the project's goals and has a good working relationship with the POU and line agencies. He has frequent contact with the two deputy project directors, and they all seem to work well together.

Project Line Agency Relationship to Local Administration

Line Agency Administrative Structure

The project was structured to draw on line agency services at the district and tambon levels and to coordinate them. To handle the demands created by the project, new project units were established by the line agencies that are independent of regular operations.

DLD does not have a regular presence in the district, normally working out of a provincial office in Chiang Mai. It has set up an operational unit in the project area that reports to the

provincial office and directly to two DLD divisions in Bangkok. DOA also does not have a regular district presence, and DOA staff assigned to the project report to a Bangkok office.

RFD has a reforestation and road construction operation in the district, but this could not provide the services RFD was to provide to the project. A special RFD unit was established that reports to the Watershed Conservation Division of RFD in Bangkok.

DOAE has a regular district operation with one district chief and one extension officer for each of five of the district's tambons. Instead of increasing the size of this regular operation, DOAE set up a separate unit. The regular operation is under the control of the district officer and supervised by the provincial DOAE office, which is under the control of the governor. While these regular line agency operations have strong lines of communication with loyalty to their department in Bangkok, the provincial governor and the district nai amphur have considerable control over the assigned personnel.

The DOAE unit set up for the project, in a structure similar to the other line agency units created for the project, does not fall under the control of the nai amphur or the governor; instead, it reports to the regional DOAE office. This special DOAE unit is much stronger than the regular district operation. The special unit has 15 extension workers and five demonstration centers set up (or to be set up) by the project. They also have more agricultural input resources at their disposal than the regular extension workers. A new policy just developed by DOAE will increase the staff of the regular operation so that there will be one extension worker for each 500 families.

District/Provincial-Level Coordination

Project management would be facilitated if the nai amphur or the governor had control over field staff. This would be possible if line agency operations in the project were also the regular line agency operations for the district or province. The present structure hampers local project control, as the operational units are under the direct supervision of line officers at various levels above that of the province. There is no one level outside Bangkok where the senior officers would be congregated. The regional level does not have a unified administration, as each line agency has its own concept and central location for a "region." This would not be a problem for the project if there were a coordination authority at the POU that could directly control these operations. This lack of direct control also means that the special units created for the project will not be self-sustaining when the project terminates.

Line Agency Perceptions

It is possible that the decision makers in Bangkok set up special units because they doubted the capacity of regular local line agency operations to work well with the project. Or they may have felt that these units needed direct guidance from division headquarters. Nonetheless, the POU was set up to be the communicator, and its role is diminished by the extent that each division headquarters retains direct control.

If the project uses regular local line agency staff, the quality of personnel may be lower, as the line agencies may prefer to use their better people in situations where they are working with these people through direct lines of communication.

Project Line Agency Cooperation with the POU

Relationships are generally friendly between POU senior staff and line agency team leaders. Misunderstandings and tensions occasionally arise from budgeting and procedural delays, which have caused obstacles in local implementation and resulted in periods of low staff morale.

Local Agency Temporary Employees

Much of the responsibility for project implementation falls on the line agencies' 141 temporary employees. These positions include land surveyors, terrace construction foremen, agricultural extension workers, and crop experiment technicians. Most of their duties are concerned with in-field project implementation in the villages.

The most effective level of cooperation between line agencies and the project appears to be with the temporary personnel and the IF teams. Each group facilitates the work of the other. The line agencies are task oriented, while the IF teams are process oriented. The prime concern of line agency employees involves activities such as construction and planting. In contrast, the goals of the IF teams are targeted toward achieving goals such as villager participation in decision making.

The peer group relationship that exists between the temporary personnel and IF teams plays an important part in this cooperative interaction. As a result of similar age, education, salaries, and job responsibilities, as well as close contact in the field, a shared feeling of job insecurity, and the need to have friends, a strong bond has been forged.

The result of this peer group network is mutual assistance to accomplish goals. Improvisation and cooperation takes place in the field, based on personal peer group relationships. This was not an intended part of the project's administrative/management structure; however, it is a reflection of the way things are accomplished in Thailand. This component is a major positive factor in project implementation. It makes up, in part, for the difficulties in inter-departmental relations and budgeting procedures that occur at higher levels.

Interface Teams and Local District Officers

The IF teams gather village data, arrange meetings at the district officer's request, explain and monitor village projects, act as full-time contacts and coordinators between the government officers and the village, and help solve communication problems. Thus the teams serve as resources to government officers and facilitators for the accomplishment of their regular duties. The goals of the IF teams and government officials are compatible, and the villagers benefit from their mutual cooperation.

Regular Government Services in the Project Area

A central issue in assessing the appropriateness of the project structure is the complexity of the Mae Chaem District's population, namely, lowland Thais and hill-tribe peoples. As a result, significant ranges in the type of benefits the project can hope to achieve must be expected.

Most of the lowland Thais are receptive to development and to the risk involved in trying a new crop or a new method. For others groups, especially those in remote areas who live at marginal subsistence levels, participation in the development process is a long-term goal. Change may occur only after a generation, as their children benefit from access to educational

opportunities and health services. It is significant that regular government agencies in Mae Chaem are operational mostly in the tambons and villages that have Thai villagers. With incremental increases in the infrastructure and expansion of government services, the project's benefits may be sustainable.

Currently, the concept of development is elusive for the majority of the hill-tribe peoples of Mae Chaem District, including the Karen, Hmong, Luwa, and Lisu. The very idea of being Thai, with the implied self-concept of a nationality, an allegiance to some higher social order other than the tribe, the notion of citizenship with explicit and implied duties, responsibility, and rights, is incomprehensible.

Conversely, the implementation of the king's policy that the hill-tribe peoples are Thai is a major attitudinal change yet to be accepted fully in Thai society, and influences the way in which Thai development agency personnel approach them. It may take another generation for the royal policy to be internalized attitudinally within Thai society, as it is a major social change.

The acceptance of this change is crucial for the implementation of development schemes. The hill-tribe people must trust the sincerity of development personnel before they can be receptive to change. A positive approach will nurture a positive response, and this preconditions the behavioral change required to improve upland and highland agriculture.

The evaluation team visited more than 40 villages in each tambon (Mae Suk excluded) and observed the following:

- Certain Thai villages, especially in Tha Pha and Chang Koeng, are following a pattern of normal development, with the government services active to ensure project sustainability.

- Other more remote Thai villages in upland areas of Tambons Tha Pha, Mae Na Chon, Ban Thap, and Chang Khoeng are on the edge of subsistence with little hope for immediate change due to a lack of good farm land. This situation is compounded by little interest in change and a low level of skills.
- Certain hill-tribe villages of the Hmong and Karen have had sufficient governmental services and transactions with Thai society to enable them to identify as Thai and to accept development. These villages include the Karen villages at Ban Ba Dung (Tha Pha) and Ban Mong Luang (Chang Khoeng), where services such as schools, health stations, and agricultural extension are well established. Ban Pui (Hmong), Ban Mae Hae (Karen), and Ban Hawd (Luwa) in Ban Thap are further examples where the project could expect some change in traditional practices.
- At least 50 percent of the hill-tribe population live in remote areas as yet unreached by regular governmental services. It is unrealistic to expect them to move quickly into the Thai development process. Basic community development remains to be done. The Karen village at Ban Mae Luk in Tha Pha could be a good model for moving into this development process.

CONCLUSIONS

The district officer, deputy project director for administration, and field manager are personally compatible.

The project management structure is complicated by the special line agency units set up to implement the project, because these units report to a variety of supervisory levels that are outside the control of the nai amphur or governor. This diminishes control and coordination and reduces the potential for project self-sustainability.

The project structure linking IF teams with line agency field staff is appropriate and of great benefit to project implementation and coordination.

RECOMMENDATION

- The project implementation units of the line agencies should be unified as much as possible with the ~~regular line agency local operations~~. If the line agencies resist ~~this~~, they should be asked to draw up plans describing how they will transfer their operations when the project terminates. The plans should reflect the need for a gradual transition so that skills and experience are not lost when personnel are transferred out.

6. WHAT IS THE EFFECT OF THE FINANCIAL MANAGEMENT SYSTEM ON PROJECT OPERATIONS?

FINDINGS

First Year Financing

Burdensome financial management procedures have been a continual problem for the project. Before the project agreement was signed, MOAC, DTEC, and BOB agreed that regular governmental budget funds would be available for the first year of project implementation. However, those funds were not made available. DTEC kept the project alive by advancing the full 5.6 million baht needed for the first year. Since then, other financial problems, which are described below, have arisen, causing work slowdowns and delays in implementation.

Roles of the Three Funding Sources

The project is financed from three separate sources (an AID grant, DTEC counterpart funds, and regular Thai government budget funds), and each has its own procedures for disbursement. The AID grant finances a percentage of specified project activities of the line agencies and the operations of the POU. DTEC counterpart funds finance local costs for technical assistance and project activities, when the line agencies have not obtained their regular financing. In the project agreement, the counterpart funds were scheduled to be placed out during the first three years of implementation. The project advisers were scheduled only for the first three years; minimal evaluation costs were to be covered during the fourth year. This current fiscal year is the last year that DTEC counterpart funds are scheduled to be used for covering budgetary gaps of the line agencies. The counterpart funds that have already been used to finance line agency activities do not have to be repaid.

DTEC also uses its own money as a revolving fund to finance advances for project activities that AID will later cover under the grant. DTEC has been allocated from BOB 300 million baht to be used for the revolving fund and counterpart fund for AID projects. The fund is annually replenished by BOB without going through the normal governmental disbursement procedures.

Complicated Financial Procedures

The Blacka Report

Until late 1982, when financial procedures were modified, delays in disbursement of grant and counterpart funds resulted from a complicated financial approval process. In mid-1982, DTEC initiated a study of the project's financial management, focusing on procedures for using grant and counterpart funds. The study was undertaken by Thomas Blacka and Prasadhi Ornprasert. It was found that approximately 22 separate functional action steps, many of which were unnecessary, were required from the initial request to receipt of funds. The turnaround time averaged 55-60 days.

DTEC Grant Fund Advances

AID grant fund advances from DTEC to the POU and line agencies that were to be reimbursed by AID were also speeded up. Under the old procedure, a financial report and all vouchers had to be submitted monthly for auditing by DTEC. A 100 percent audit had to be finished and AID approval obtained before the next advance was made. DTEC had been making a three-month advance to the project and would audit the vouchers each month, trying to make the next advance before money ran out at the POU. However, the POU was slow in submitting its vouchers and financial plan. DTEC was slow in auditing the vouchers, so the POU and line agencies were regularly running out of funds. In the new system, DTEC advances grant funds based on a AID-approved annual financial

implementation plan, eliminating the monthly financial plan from the procedure. DTEC will audit vouchers submitted on a monthly basis but will make the next advance based on the vouchers before audit. If there are any expenses later disallowed, that amount will be deducted from the following advance. DTEC will make the same three-month advance as in the old system but will be replenishing that advance every month, so that the amount of money in POU and line agency hands at any one time should be more than needed. However, if there are unusually heavy expenses for any one three-month period, an agency can request that more money be advanced.

The change in the voucher/advance procedure has not yet had much effect because the POU and the agencies have not fully understood how the process works and have been slow in submitting vouchers. Several proposed strategies are being considered for familiarizing POU and line agency staff with current DTEC procedures and documentation requirements.

DTEC Counterpart Fund Advances

The line agencies depend on DTEC counterpart funds to be available when their own agency cannot provide timely budgetary support. DTEC procedures are easier for counterpart funds than for grant funds because they do not depend on AID review of expenses.

The annual counterpart support budget for each agency is divided into three equal trimester advances. An agency can request more of the annual budget for a trimester that needs more than the one-third allocated. The agencies must submit their vouchers to DTEC on a trimester basis for auditing.

Line agency personnel complain about slow response time from DTEC. DTEC has expressed interest in channeling the line agency counterpart fund advances directly to the Chiang Mai governor who

is also the project director. DTEC cannot legally send the funds for the line agencies to the project but can send them to the governor, so having the governor as project director is serving a dual purpose. Since the counterpart funds will no longer be used for financing line agency activities after the current fiscal year, this may be a moot point.

Lack of POU Control

The channeling of counterpart funds from DTEC through the departments in Bangkok has not been a major obstacle to protect scheduling. The turnover time in the Bangkok departments averages only two weeks. Counterpart funds then are sent to the department offices in Chiang Mai for use in the project. While the POU provides some general guidelines to the line agencies for preparing annual budgets, it does not have any authority in line agency budget preparation. It also does not have any role in the disbursement of funds for line agency use. Since the POU does not have any purse-string control over the regular governmental budget or other project funds used by the line agencies, its ability to influence the operations of the line agencies in the project area is minimal.

Uneven Flow of Grant Funds

The flow of grant funds into the project has been uneven and has created management problems for the POU and the line agencies. This uneven flow was caused by difficulties in meeting conditions precedent of the project agreement.

Requirements for Detailed Implementation of Financial Plan

One of these conditions (Section 4.2[b]) is the acceptance by AID of a detailed implementation and financial plan for Phase I and general implementation and financial plans for

Phases II and III. Grant funds for implementing Phase I could not be disbursed until AID approved the plans. The plans were late in preparation, and AID was not able to approve them and release the funds until May 1981. The approval was only provisional, allowing Phase I funds to be used only through FY 81 (through September 1981). More detailed plans for Phase I were required before approval could be made for FY 82 Phase I funding. The plans for each agency were to:

- Reflect the linkage of its component activities with the activities of the project's operating units;
- Originate from the field level;
- Reflect realistic scheduling that would allow adequate lead time, especially as related to procurement of materials and equipment;
- Outline procedures for adjustments in the field that might be required to deal with unforeseen requirements; and
- Be reviewed, adjusted, and cleared by the project field manager to ensure congruence with the project's overall operational plan.

These criteria were justified, according to project implementation letter (PIL) No. 5 of May 20, 1981, in that "the Project Agreement called for a unified budget process as the driving mechanism for a multi-agency strategy coordinated in the field through a Project Operation Unit." The evaluation team did not find reference to this unified budget process in the project agreement. Among the criteria above, the last one assumes that the project field manager can review, adjust, and clear the plans of the line agencies. However, the project agreement does not indicate such authority. Moreover, evidence from other projects in Thailand show little willingness of line agencies to accept this type of outside authority. Although this PIL was agreed to by DTEC, and AID eventually approved a more detailed plan (see below), a unified budget has yet to be achieved and the field manager has had little to say about the line agency budgets.

Condition Precedent for Land Use Rights

In February 1982, AID decided to halt temporarily the use of grant funds in the project, except for continuing support for non-line agency operations, because the condition precedent regarding land use rights was not being met. AID suggested that the government continue to use its own funds if a satisfactory solution could not be found. In August 1982, AID approved of the solution to the land use rights issue and resumed project funding.

Effect of Funding Freeze

Grant funds for FY 83 (to start October 1982) could be released only upon AID approval of detailed Phase I plans. Because of the freeze in AID grant funds, the project's implementation agencies were unsure how their plans should reflect the AID freeze. Planning activities during this period were thus stymied, and it was only in December 1982 that the planning workshop was held in which the agencies' plans could be put together. The plans were approved by AID in February 1983.

Since so little implementation could be carried out in FY 82, grant funds that had been approved for use that year were not fully spent. The remaining money could be carried over for implementation in FY 83, covering the period before the FY 83 plans were approved. However, when the grant funds were frozen, the regular governmental budget funds continued to be disbursed. Since the line agencies could not carry on many of their activities without the grant funds, much of the regular budget funds could not be used and had to be returned at the end of the fiscal year.

The grant freeze also delayed the construction of the POU office in Mae Chaem. The freeze was announced just days before the construction contract was to be awarded. The bidding

process was so disrupted by the freeze that it had to start over again. As a result, the contract has still not been awarded.

Lack of Congruence Among Funding Sources

Due to these delays in implementation, the third year is now the first full year of implementation for Phase I. AID has not decided to go ahead with Phase II (that decision depends on the results of this evaluation), and has insisted that no grant funds be used that would directly support implementation of Phase II. However, the regular Thai governmental budget has been approved for each year following the original scheduling. The FY 83 budget included funding for Phase II, and the FY 84 budget will include Phase III. Some of the line agencies have started work in the Phase II area using their own budget funds. With the AID budget funding behind the original schedule, Thai governmental budget funds will be depleted before those of the AID budget, if the project is extended to make up for the implementation delays.

Line Agency Resource Capability

The evaluation team interviewed each of the participating line agencies in an effort to determine their resource capability to meet their project obligations and to expand operations into Phase II. They appeared ready to expand to the extent that their headquarters released the necessary funds. The agencies were having some trouble receiving disbursements from BOB.

The line agencies can perform as required if senior decision makers in Bangkok continue to give the Mae Chaem project a high priority. However, the treasury is low on funds and BOB disbursement for this fiscal year has been considerably behind schedule. This lack of funds puts a greater premium on the priority level of the project.

DLD was lacking trucks for expansion into Phase II. The trucks are needed to haul materials for construction of waterworks.

The lack of office space in Mae Chaem is a constraint to expansion. The line agencies do not have sufficient office space in the temporary buildings they now use. This problem will be resolved when the new project office is constructed, but it underlines the need to have this construction done on a priority basis.

CONCLUSIONS

Financial management problems that had troubled the project over the first two years of implementation have been partially resolved by establishment of a new streamlined system. The effects of the new system are still not at the desired level, as the POU and line agencies are not yet familiar with it.

The POU was set up to be the central coordinating unit in this project, but most of the funds needed by the implementing agencies do not pass through the POU, thereby reducing its influence over the line agencies.

AID, in its efforts to see that conditions precedent were met, used its authority over budget releases to force action it saw necessary. As a result, implementation was delayed, and financial management has been complicated because funding sources now have different implementation schedules. The benefit was to achieve a process for granting land use rights and to promote more detailed and coordinated planning.

The line agencies have the resources to expand into the Phase II area, and these will be allocated to the extent that the project continues to have a high priority. The exception is a lack of DLD trucking equipment and office space. The latter problem will be resolved when the new project office is completed.

RECOMMENDATIONS

- All counterpart and grant funds should be forwarded directly from DTEC to the project director to be disbursed by the POU to the line agencies. The POU will have more influence if it periodically disburses funds and assesses line agency performance. The disbursements should be made for work that is to be performed, but only if the agencies are performing properly.
- The line agencies' budget proposals should be integrated by the POU with agency participation, and submitted through the MOAC Projects Division as a unified budget to BOB (with each department in Bangkok calculating its component of the unified budget as part of its program). BOB should review this budget as a unified package and release the funds to the POU, which in turn would manage the disbursement to the agencies. The line departments should be requested to allow the project director to have authority over disbursement of their regular budget funds.

This recommendation is likely to meet resistance from the line agencies. This extra control is desirable but not necessary for successful implementation. Coordination has already been improved by the recent changes in project management structure and the influence of the project director. Any additional POU authority, obtained through purse-string control, would be positive if the agencies agree to it. If it is forced upon them, they might assign less qualified staff to the project and reduce their support. DTEC had expressed willingness to channel grant and counterpart funds to be used by the agencies through the governor. This could boost the influence of the POU without the regular governmental budget going through it.

- The Thai government and AID should reorganize the scheduling of their budgetary support to be parallel with each other. This should follow the phasing schedule recommended by the evaluation team.

- BOB should be invited to participate in project committee meetings in Bangkok, to understand the financial needs of the project better and to help establish a disbursement schedule that fits implementation plans.
- AID should work out with DLD the trucking requirements for planned project expansion. The trucks should be supplied to DLD as a supplement to the equipment and commodities component of the project budget.

7. WHAT IS THE QUALITY OF ON-GOING PLANNING AND INFORMATION SYSTEMS?

FINDINGS

Top-Down Planning

Planning is currently undertaken in a mixed system of top-down and bottom-up. Each line agency has its own objectives regarding the type of activities to be undertaken and targets to be achieved.

These activities and targets are based on preliminary area surveys and general project strategies. Changes may be made as a result of experience. Equipment, personnel, and other support are budgeted for each activity. The annual plan has a program budget for the inputs required by each department, but is not broken down by activity. The program budget is prepared in Thai, and the line item budget in Thai and English.

Bottom-Up Planning

Top-level planning is then matched with bottom-level planning. Village planning is undertaken with the help of the IF teams, which work with the villagers to determine what interests them in the range of project services that might be available. The village headman may plan a role in this dialogue. However, in some villages, the headman was found to be a serious barrier. He either wanted all of the services for himself or did not want any because he feared that this would bring in government officials who would put an end to his and other villagers' illegal commercial activities, such as teak logging or poppy cultivation. The IF teams have tried to make the headmen feel important, but have also looked for other village leaders who would assist in working out village development plans.

The villagers set up a priority list of services they would like to receive (and also indicate their willingness to make their own contributions to the development effort). The Community Development Department is mandated to work at the village level to develop annual and five year plans, and the IF teams have drawn on the assistance of community development workers to put these plans together.

Matching Top-Down to Bottom-Up

~~The next chore of the IF teams is to match the village's priorities with the department's activity plans. Team members act as salesmen for their village and sell the ideas of a project to an interested agency. This has been done through individual discussions between IF team members and agency staff. These match-ups have not occurred at a specific time in the year or point in the planning process, as the dynamics and readiness of each village have differed. In addition, the project planning system has been in disarray due to budgetary and management problems.~~

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needs

Once an agency has agreed to provide a service to a village, the agency's field workers will draw on the assistance of the IF teams to enter the village and do the detailed planning for the activity. For a terracing project, for example, the DLD survey team will ask RFD to examine the land with them to obtain RFD approval on land use. The survey team then goes over the land with the farmers to map out territories for them, producing a boundary and contour map for each area.

When there is a dispute over land, DLD and RFD will jointly decide with the help of the headman and the tambon kamnan. DLD will then work with the IF team to plan the schedule and obtain agreement from the farmers on labor inputs. The other agencies will work in the same way with the IF teams and villagers

to obtain their participation. The IF teams prepare work plans for each month, indicating for each day the activities to take place, where, and with what line agency.

Formal Information Systems

The formal information systems are helpful for general project review. The reports summarize progress, compare the planned targets with actual achievement, and provide information to explain the differences. Each agency is required to submit to the POU trimester reports that break down progress and problems for each month during the trimester. While these agency reports are not helpful for timely resolution of problems and adjustment of project schedules and activities, they are supplemented by frequent detailed reports from the IF teams and cover much of the work being done by the line agencies (to the degree that the IF teams are involved).

The IF team reporting system includes daily, weekly, and monthly reports. The daily performance record reports on the activities undertaken each day and is submitted at the end of each month. The weekly report includes information on who, what, where, when, and how for each activity and requests identification of problems and possible solutions. The monthly progress report for each IF team summarizes the information in the weekly reports. When the IF teams were doing self-help projects, they had to submit a detailed monthly report that described the project, and listed materials received from the central project and those provided by the villagers, labor provided by the villagers, problems, constraints, and expected benefits. The evaluation team was not able to ascertain with confidence the degree to which ^{weekly} these reports were used by project management for on-going operational decision making, especially due to the dominant role of the information system.

Reporting to AID

The project reporting system is operated almost entirely in Thai. This has been made it difficult for AID to monitor the project. The line agency trimester reports are in Thai, as are the weekly and monthly IF teams reports. AID has received some of the planning documents in English, but the more important program planning documents have been produced only in Thai.

The expatriate adviser selected by AID reads Thai (his reading speed may be slow). To some degree, he will be able to use the current Thai language system.

AID has used its own staff to monitor project activities. The Thai staff member who AID has assigned to the project has been with it during both the design phase and throughout its operational life. He is familiar with all aspects of project operations and spends a considerable amount of time in the field. He has a good relationship with project staff and also communicates well at the village level, both with the villagers and the IF teams.

AID has a full-time project officer in Chiang Mai, who has been in there since March 1983. He has developed a good relationship with senior project managers.

The evaluation team used reports by project officers as well as by other AID staff. The team also had reports from the former expatriate adviser and a financial systems consultant. Project implementation letters and other correspondence between AID and the Thai government were important information inputs for the evaluation. The current project officer contended that many problems that had occurred during the course of project

implementation were not well documented by AID, as corrective action was mostly through telephone conversations and meetings that were not written up afterwards.

Technical Information

Technical data on agriculture is inadequate in terms of variables, area, and quality. The IF teams have been undertaking socio-economic studies in their villages and monitoring agricultural development work. They provide data on agricultural production but may lack the technical skills needed to assess yield and production for evaluating progress (see Issue 11).

Informal Information System

The informal information system appears to dominate the formal system in daily operations. For village-level problems, the line agency field staff prefer to talk directly with IF teams in the field rather than go through formal communications channels via the POU. Since the POU has good informal communications with most line agency staff and with the IF teams, the POU does not object to IF teams and line agency staff maintaining these informal communications links. The IF teams have supervisors (two for all Phase I teams together) with whom they discuss their problems when the supervisors visit them in the field. Progress and problems are also discussed at the monthly meetings in Mae Chaem, although little time is given for IF teams to report and comment. The informal system is further discussed in Issue 5.

CONCLUSIONS

Planning is both top-down and bottom-up.

Yearly implementation plans of the line agencies are broken down by activities and by line items, but do not detail where and when within the project area the activities are to take place. This is because that must depend on village-level planning and sufficient funding.

IF teams assist in village-level planning, which reflects the needs and interests of the village and its readiness to accept development activities and actively participate in them. The collaboration between the villagers and IF teams appears to produce plans that the villagers understand and support. The line agency field staff, IF team members, and villages work together to plan in detail work that is to be done in the village.

The formal information system used between the POU and line agencies does not provide timely detailed information for decision making at senior field management levels and above. The informal systems appear to be working well, given the current small size of the project and the opportunities for informal discussions. This system may not work as well as the project grows and spreads into more distant areas.

The IF teams have considerable reporting requirements that are comprehensive and well formulated for keeping records of process, achievements, and constraints. This formal reporting system is not action oriented and has less value while the project operation is relatively small (Phase I). As the project expands into other areas, this system will become more useful, as the

informal system will not be capable of comprehensive coverage. The major weakness in this formal system is the lack of action reporting to signal problems before they reach crisis stage.

AID has had difficulty reviewing plans and field operations because most planning and reporting documents are written only in Thai.

RECOMMENDATIONS

The planning system should retain its flexibility to respond to specific village needs and requests that cannot be identified in a pre-determined schedule. The top-down planning needs of the line agencies should not override the need to operate with the uncertainties characteristic of bottom-up planning in villages where there is little experience with development activities.

The expatriate project adviser should monitor the project's reporting system to see that the information is accurate and reliable. He should be helped in information systems development by an expatriate technical specialist who should spend one month with the project to review current system operations and make improvements. The orientation of the technical specialist should be to use as much of the current system as possible, refining it for more efficiency as the project expands, and developing an action reporting component to deal with problem resolution on a timely basis. The specialist should also improve the reporting of indicators that will be used for future evaluation.

The POU should produce a summary of the line agencies' trimester reports as well as of POU operations. This trimester summary report should compare planned with actual achievement, and explain any differences between the two. The report should discuss any management problems that have developed and other issues that affect progress. The report should be brief (maximum of 10 pages) and immediately translated into English for AID review. The report should be produced as quickly as possible at the end of each trimester. The evaluation team recommends trimester reports over quarterly reports because this schedule fits into the Thai government system better. However, if the line agencies can change to

quarterly reports for this project without unduly upsetting their routine, then the team would favor this change.

- Management systems improvements should be made to facilitate communications. The information systems specialist can recommend such improvements, but they should be made with consideration of the value of the current informal systems.

Cautionary Notes for Future Systems Development

The evaluation team was impressed by the level of coordination within the project. This coordination and the necessary cooperation of the line agencies to achieve it had apparently been lacking until the recent restructuring of project management. While the management systems being used are not formalized and depend largely on the good will of all involved parties, they seem to be favorable for good coordination. Continued success of this informal management system may depend on the strong leadership the project now has and the pressure being placed on the line agencies by MOAC. Nonetheless, it is working. Attempts to develop more formal management systems may disrupt the coordination capability that now exists.

Development Alternatives, Inc. has recently completed a study of project management systems being used in integrated rural development projects in 19 countries. This study confirms that informal management systems can be used effectively for managing these complex projects, while legalistic, overformalized, and rule-oriented management styles are major impediments to organizational performance. It concludes that successful implementation of IRD projects is invariably related to a manager's ability to recognize and utilize informal procedures, relationships, agreements, and communications channels.

The team sees room for improvement in communications and management systems, but not in a way that replaces the current informal system with a formal command and reporting system.

8. HOW MUCH EXPATRIATE TECHNICAL ASSISTANCE IS NEEDED?

FINDINGS

The former expatriate adviser had difficulties working with the POU and was unable to provide the technical assistance that was expected during the first two years of project implementation. His final report provides a very detailed and comprehensive description of the Mae Chaem agricultural environment and the project's development strategy. The evaluation team found this report to be very valuable during the course of the evaluation.

Neither the project director nor POU staff object to a new expatriate adviser.

Management problems continue to trouble the project, although the more severe problems of the first two years have been eased by a new management structure. Nonetheless, coordination of line agencies is not systematized, and financial management systems, especially regarding the reporting of expenses to and the request for advances from DTEC, are not operating well.

CONCLUSIONS

The POU lacks technically sound project coordination and financial management systems. The development of systems could improve coordination, but the capability to develop them does not exist within the POU. The former expatriate adviser's personal problems in dealing with the POU are not expected to carry over to the next adviser.

RECOMMENDATIONS

- At present only one long-term adviser is needed, and that person should have a management systems orientation. The expatriate adviser AID has selected for the project should be hired as soon as possible. This person should spend one to two weeks in Bangkok to familiarize himself with DTEC and line agency procedures, reporting forms, and management plans before moving to his post in Mae Chaem. His first priority should be to assist the POU and line agencies to process funding requests to DTEC more efficiently and rapidly.
- A number of short-term expatriate advisers should be contracted by AID to assist the long-term adviser in specific technical areas:
 - A specialist will be needed for refining the current project information system. This task would also include the improvement of reporting on important project indicators, development of an action-reporting system, and recommendation of management systems for improved project coordination. This will require one month on site in Mae Chaem. The specialist should work closely with the long-term adviser, who would provide follow-up and help make further refinements to the systems over time.
 - A specialist will be needed to make an environmental assessment of the watershed. This task would take approximately three weeks and should be repeated at the time of the next project evaluation.
 - A training specialist will be needed to set up the in-service training program, develop the curriculum with Chiang Mai Teachers College and Chiang Mai University for training the IF group for Phase IIB, and assist the line agencies in developing training strategies for project farmers. This task will require three months of work in FY 84 and one month in FY 85, if the same person can do both. If the FY 85 work is done by someone new, two months will be required.

9. HOW EFFECTIVE ARE THE IF TEAMS (ACTUAL AND INTENDED)?

FINDINGS

Intended IF Team Roles and Objectives

The findings of the evaluation team on this issue are mixed, due to the various expectations and role definitions for IF teams contained in the project documents or held by field and project staff.

According to the project paper (June 1980), the teams are to:

- Ensure close contact with the beneficiaries to promote effective beneficiary participation; and
- Help to establish a self-sustaining pattern of social and economic progress (p. 25).

Furthermore, in discussing the qualifications of IF team members, the project paper states:

Interface team members will have sufficient educational attainment that they can deal successfully with both RTG officials and villagers and will be credible to both. Sufficient education is also necessary to ensure the team members can provide a level of expertise and assistance that will benefit both villagers and officials to understand the problems involved at different levels of sophistication, and to provide independently well-conceived advice to both villagers and officials. (p. 25)

Project officers and field staff hold varied expectations regarding IF team performance, some of which appear to be contradictory. For example, some project personnel see the IF teams as non-operational motivators. However, the highly successful self-help projects completed by the IF teams this past year clearly made them operational, to the project's great credit.

Another project document, in defining the functions of the teams, calls for them to assist the villagers to use local government officers as resource persons. The IF teams are to function as community workers in support of government technicians. Unfortunately, the reality of the working situation in Mae Chaem does not make this practical. For example, in the DOA project operation, two local staff are responsible for 12 experimental plots in each of the six tambons of Mae Chaem -- a considerable logistics feat given the distances and poor quality of roads, if in fact roads exist. The District Agriculture Office has only one extension officer for each of the two Phase I tambons, Chang Khoeng and Tha Pha, which have 34 and 51 villages respectively. The Community Development Department has four officers to cover six tambons, with two officers responsible for 108 and 77 villages respectively. These responsibilities are seven to ten times greater than in typical smaller districts in northeast Thailand in easier terrain. Staff shortages, the required in-office time, and difficult logistics make frequent visits by government extension workers impossible. To make even a monthly visit to each village was a considerable accomplishment. In contrast, the IF teams are present 24 hours a day in the villages, an extraordinary resource for village development.

Project personnel also thought that:

- IF teams should be conducting more training programs in the villages; and
- The teams should be aware of and understand how the government works, a most ambitious goal that many civil servants never achieve.

Constraints

Consider the plight of most farmers in Mae Chaem, living in remote villages with uncertain transportation, who encounter crop and vegetable pest problems or poultry and pig diseases. The IF

team member contacts the appropriate government technician to come and solve the problems. However, these technicians have limited time, and instant service may be impossible. Correct identification of the pest or disease may also prove difficult as the extent of knowledge of the IF team is limited. This also holds true for the local district/tambon agricultural officers. Pest samples and diseased poultry or pigs often have to be sent to Chom Thong or Chiang Mai town for correct identification and treatment prescription. This takes time and depends on availability of transportation and on road conditions.

Insecticides, livestock poultry vaccines, and medications are limited in their availability. Special orders may have to be made, and many serums and vaccines (if available) require refrigeration/ice-packing for transportation. The time between problem identification, technical analysis, supply procurement, field delivery, and resolution may be great and more often too long.

In Mae Chaem, the time involved from the first to last step may well mean that the crop is already lost or the chickens or pigs have already died. The extent to which the IF team can shorten the time between problem identification and resolution will improve its credibility in the eyes of the villagers and officials. This is in accordance with the project paper.

At this point in the project, the intended functions of the IF team in the original proposal documents are not very important. What matters more is what has been the working experience so far and how can that experience be regularized, structured, and sustained to achieve the project's objectives.

Interface Teams Actual Roles

Education/Literacy Teaching: teaching students and adults basic Thai where there are no government schools or supplementing the understaffed educational program of government schools. At Ban Mae Luk, the IF team started an unofficial literacy training program to which the Department of Non-Formal Education later assigned a teacher.

Agriculture Services and Extension: wide-ranging roles, including villager meetings with agriculture extension agents; maintenance and monitoring of village experimental plots (DOAE); maintenance of DOA compost demonstrations; requests for government seeds, fertilizer, and insecticide; supervision and training of villagers to use these inputs; and dispensing information on new farming techniques.

Community Development/Organization: organizing community leaders to improve their communication with the government. IF teams assist leaders to prepare documents and conduct meetings. They encourage villager discussion about problem solving, and assist in monitoring and implementing both official and unofficial community development programs. (Community Development Department operates only in Thai villages.)

Land Development Program Coordination: assisting DLD to explain to villagers and prepare them for participating in such project activities as terracing and terrace maintenance. IF teams also help DLD recruit fairly the casual laborers.

Water Resources Program Coordination: assisting the DLD to explain to villagers water resource projects, and organizing the village to cooperate in the construction.

Government Liaison: coordinating government activities in the village so the villagers understand them, and ensuring that government operations proceed smoothly. Government officers typically go to the IF teams as an information resource on village program status.

Construction and Carpentry Activities: organizing and coordinating the villagers to construct village self-help projects, such as newspaper reading rooms, small libraries, roadside shelters, house construction, and timber bridge repairs, plus community activities such as temple construction, 4-H fairs, and boxing matches.

Road Rehabilitation/Maintenance: assisting the villagers to organize self-help activities for repairing village access roads (some of which require continuous maintenance) and culverts, reinforcing roadsides, and during the rainy season, reconstructing washed out roads. When government agencies such as RFD or Accelerated Rural Development (ARD) are responsible, the IF teams assist the villagers to make requests to the appropriate agencies for information regarding follow-up activities and implementation schedules. The IF teams organize the community to assist the agency during road rehabilitation and maintenance, for example, volunteer laborers and food and lodging provision for agency workers.

Nutrition and Health Training/Information: this role is limited because government regulations require certification of personnel before certain health-related activities can be carried out. However, IF teams train housewives in nutrition, hygiene, baby care, and general health. Other programs included assisting government health officers to identify problems during periodic visits to the village, referring sick people to local health clinics and hospital, and assisting villagers to assess medication needs and supplies from health agencies.

Villager-Operated Unofficial Rice Banks: there are 18 unofficial rice banks of this kind in Mae Chaem -- a majority of which are in IF villages. In several villages, especially Karen, the IF teams have introduced rice bank schemes. This is a village resource of great potential and an explicit condition for End of Project Status (p. 12). District agriculture and community development workers identified the success ratio of these farmer-started and operated rice banks as 80 percent effective, whereas the government-operated rice bank at Tambon Mae Suk is failing.

Village Data Collection: the IF teams provide a valuable service in the coordination and collection of data on village agriculture, land and water resources, and socio-economic conditions for utilization by government offices and the project.

Some teams (Ban Mae Luk) have collected and displayed impressive data for which the reliability appeared high because of the trusting relationship between the team and the villagers. Systematic collection of this data would be a valuable resource for project monitoring and could be used by the various agencies.

Livestock and Poultry Treatment, Vaccination Service: several teams have initiated this service to the villages in cooperation with agricultural extension. The level of service is limited due to the technical limitations of the teams and shortage of livestock specialists. However, the service is highly valued by the villagers, and several teams plan to introduce it as part of the self-help projects if they are again funded. The inherent risk in this sort of program (usually under-estimated by the teams) is that involved in treating the villagers' animals when the teams are not technically qualified in this discipline. If the villagers' chickens or pigs die, the team member may be seen as liable for blame and the IF team's credibility could be undermined. However, if a sick animal is treated and then dies, the treatment would be viewed as ineffective, but the IF team's

attempt to save the animal may be appreciated. The expertise of the teams is not high. In Mae Chaem, farm animals often function as the villagers' only form of "banking"; thus, care is very important.

Farm Bookkeeping, Marketing, and Budgeting Skills Training: most IF team members informally provide this training to villagers by working together with them to assist in marketing produce by dispensing price and marketing information and helping farmers to budget some farm activities. The quality of these services, provided by team members, varies according to their education and experience.

Village Coordination of Project Activities: the teams prepare the way for the line agencies to implement activities. These include terrace and water resource construction, agricultural experiments, and crop demonstrations in the villages. The teams also perform essential preparation and follow-up to agency activities. For example, at one village, the IF team prepared the villagers for DLD terrace construction and organized an available labor pool. After terrace construction, the team assisted the DLD survey team to allocate the terrace to village owners. The team then organized the meeting for DOAE agents to bring in supplies of seed, fertilizer, and insecticide. This good personal, peer group relationship, which exists between line agency workers and IF teams, provides coordinated implementation at the village level.

Land Certificate Allocation Assistance to RFD: the teams, in cooperation with the RFD, convey critical information to villagers regarding the meaning of the certificates. The teams assist RFD to measure land boundaries and to collect the information and complete the documents to issue the certificate in accordance with regulations.

Forest Fire Control Information: as a service to both RFD and the villagers, the teams provide informal training to the villagers regarding the hazards of forest fires. The teams also supply RFD information about which locations have been burned by forest fires.

Village Defense Volunteer Program Cooperation: acting as village resource personnel by assisting in organizing and aiding village level defense and patriotism training courses. In so doing, the teams provide a valuable, although indirect support in the consolidation of government security. As this is a sensitive issue, in which failure to cooperate could be misinterpreted, the teams are careful to provide support just short of direct involvement.

Their roles must not be misunderstood by the villagers. Security must be the prime concern of the government, and the project director made this clear to the evaluation team. Cooperation given is appreciated.

Secretary to the Village Headman: the teams provide important informal training to the village headman and village councils. This helps village leaders increase their understanding of the methods involved in making requests to the government. IF teams also help the headman to fill out government documents and supply requested information when needed. The language and format of the government forms are often puzzling, especially for hill-tribe headmen. The services of the IF teams are most appreciated because the headmen know that someday they must do this for themselves. An IF team member may also accompany a headman to large official meetings called at the village, tambon, or amphur. Items on the agenda may be discussed so rapidly that it is difficult for the headman to follow. The language used is often central and official Thai, and therefore might be difficult to understand. In this situation, the team member acts as both

translator and commentator, and helps the headman develop his comprehension skills in an official environment. This service is especially valuable for the hill-tribe headmen. He develops communication skills and can report back to his own villagers with some assistance from the IF team members. This leadership training is long term. It is worth noting that although a majority of the district is composed of hill-tribe peoples, only one hill-tribe person (a Karen at Tambon Ban Chan) has risen to be a kamnan.

Self-Help Projects: the history of this program has already been documented and evaluated. The projects were generally well-conceived and -executed. The participation of the IF teams in these projects was a significant change in their role.

CONCLUSION

A major role of the IF teams is to promote effective beneficiary participation -- therefore, real projects with tangible results that are meaningful to villagers, are needed. The self-help projects provide the IF teams with their community crucible wherein developmental process goals and behavioral changes in the villages will have a place to grow. It gives the villagers an opportunity to learn to work together to achieve an end result.

The IF teams have performed effectively according to the guidelines set out in the project paper.

The role of the teams has expanded into more operational and technical areas than planned, but this has facilitated project implementation, coordination, and cooperation among the line agencies in the field.

The operational/technical roles adopted by the teams are necessary to facilitate the process goals of the project, including villager decision making, participation, leadership development, and self-help capacity, by providing realistic experiences with satisfying rewards to nurture and induce these behavioral changes.

The need and variety of roles played by the teams in hill-tribe villages are greater than in the Thai villages, especially as agents for stimulating the hill-tribe people's assimilation into Thai society.

Technical expertise in the villages is not readily available from the governmental sector due to staff shortages and logistics problems. The IF teams should have their technical skills upgraded according to their need and abilities.

RECOMMENDATIONS

- The IF teams should have frequent in-service technical training seminars. The trainers should be the skilled line agency personnel assigned to the project. The subject matter should be relevant to tasks the IF teams can perform over the following month or season.
- The self-help projects have been effective and should be continued. A decision needs to be made as soon as possible regarding funding. Planning should begin soon. Self-help projects should be undertaken in each of the first three years of each phase of the project.
- The POU should increase management support for the self-help projects by recruiting a special supervisor for them. Chiang Mai Teachers College should be contracted to formulate an in-service, continuing training program for the IF teams, focused on village dynamics and local participation. The training should be done in Mae Chaem and should include, to the maximum extent possible, the locally hired line agency field staff who would also benefit from such training.

10. WHAT ARE THE ROLES AND FUNCTIONS OF THE IF TEAMS
IN THE VILLAGE AND WHAT IS THEIR POTENTIAL TO BE SELF-SUSTAINING?

FINDINGS

Evolving Roles

The work of the IF teams has become more technical and involves a wider variety of activities than was originally intended. The evaluation team regards this as a natural development. The project has done well to allow for this type of flexibility and innovation in the field especially as it benefits the villagers.

IF teams roles are described in Issue 9. Of their many roles, three are dominant:

- Village Community Development Workers. IF teams are developing villager capabilities for self help, initiative, organization, group problem solving, as well as to conduct transactions with the government. IF teams require a credible level of technical skills to undertake these activities.
- Village Government Activities Coordinator. The IF teams facilitate communications and information between the village and government sector, coordinating government and project activities. These activities also require a credible level of technical skills.
- Self-Help Projects Coordinator: The IF teams assist the villagers to organize themselves to construct small water resource projects, shallow wells, and latrines. They help in construction-carpentry, road and timber bridge repair, and tool making. Technical knowledge is required to determine project appropriateness, write proposals, get them approved, and implement them.

Risk of Overdependence Through Institutionalization

The villagers and local people understand that the IF teams will be present only for three years and are not permanent. This is reinforced by the fact that so many of the team activities are

closely related to assisting in the implementation of the short-term line agency activities.

Moreover, local district authorities are neither jealous nor threatened by the teams' presence and activities. The fact that the teams are temporary is also well understood by the team members themselves who often refer to their "three-year contract." In fact, this is so well understood that it is a morale problem among many Phase I team members, who worry about the fact that they will be unemployed.

Sustainability

The teams play some roles that are not intended to be sustained. These roles relate directly to the implementation of project line agency activities, for example, coordination and synchronization of land surveys, terrace construction, final allocation and certification of land holdings, flume and weir construction, and agriculture demonstrations and experiments.

There are scheduled one-time activities that are marginally sustainable, such as the development of village leadership, and group decision-making and problem resolution. These are process goals as opposed to product goals. These behavioral changes are slow to introduce, agonizing to nurture, and difficult to internalize and sustain. Different villages (both key and satellite) will develop at different rates.

The evaluation team observed a pattern of stages of villager and village development. A number of lowland Thai villages were following a normal course of development. These villages in Tambons Tha Pha and Chang Khoeng are meeting the project's goal of preparing the village leadership for the time when the IF teams will not be there. For example, at Ban Nong Lae village in Chang

Khoeng, the village elders indicated that they would be able to do without the assistance of the team at the end of Phase I, even though they had grown to love the team members and wanted them to stay.

At the same time, it could not be easily determined if the village leadership in the project's satellite villages had been prepared to the extent of those in the key villages. For example, at the satellite village of Ban Tung Yeow, the villagers complained that the IF team at the key village at Ban Mae Taen (Tambon Tha Pha) had neglected them. It could not be determined if this was typical.

Protecting and Consolidating Phase I Progress

The project has already achieved some tangible results in the Phase I area. Villages that have received new land terraces, water weirs and flumes, and agriculture extension will need some continuing monitoring and maintenance assistance. This is especially crucial in the area of land certification. If problems arise in Phase I villages that have received land certificates, the whole project could suffer.

In addition, experience has shown that it is one thing for people to receive improved land, water resources, and agriculture extension and quite another for them to learn how to make proper use of these inputs. It is too much to think that they will quickly learn these things and unrealistic to expect that local government will be able to provide quickly all of the required support services. Mae Chaem District currently lacks the required levels of manpower and technical ability. These services will take several years to institutionalize.

The line agencies should also be monitoring the results of their work in Phase I. These agencies are an available local resource with an interest in providing continuing technical

services to maintain what they have done. They are willing to provide maintenance advice and services, if transportation were to be provided.

Local government agencies and the present project structure are not equipped to monitor Phase I activities after the initial three-year period.

Sustainability and Transfer of Technical Inputs

The line agencies are providing a considerable number of technical services that the district offices are not providing to other tambons or under regular programs. The technical expertise of the line agencies, for example DLD, is much more sophisticated than is available locally. The district agricultural extension office is also severely limited in number and quality of staff. However, future plans call for increasing the number of extension agents to achieve a 1:500 household ratio (current ratio is 1:1000 households). Recruitment and scheduling are uncertain.

At the same time, the project has anticipated this to some extent, but the phase-out experience is nonetheless sure to prove disappointing to the villagers if current local government staffing levels are not improved. Planning and preparation are required to identify what can be reasonably sustained and transferred to local government functions. This sort of planning does not seem to be occurring within the project, although it is necessary.

Sustainability and Transfer of Community Development Work

The community development aspect of the IF teams' work is difficult to assess with respect to sustainability and transfer to the regular government sector. The district Community Development Department office is understaffed -- four workers for six tambons. The capability for expansion of their work is problematic because,

by its nature, it involves a critical element of human trust and understanding that takes time and experience to build. Planning for transfer and sustainability of the community development work is not apparent. However, it is hoped that the villagers will develop their own capabilities for self-development with minimum work needed by government. The Community Development Department is developing a community development volunteer (a villager) for each tambon; this could double its staff, if implemented. Setting up procedures for the villagers to contact the tambon volunteer could be a useful step in transferring and sustaining the community development component. A question remains about how the Karen would adapt to this system.

CONCLUSION

The roles of the If teams have necessarily expanded in order to facilitate project implementation.

The community development skills that the teams are nurturing within the villages show good promise of sustainability, especially in Thai villages that are in the normal development mode. Specifically, Tambon Chang Khoeng shows the most promise. Tambon Tha Pha shows less because the villages are more remote; poorer; and have more Karen villages, which are quite underdeveloped. This does not negate the need to start working in these villages.

The governmental sector is more likely to be able to sustain project activities in the agricultural area than any other. This is preconditioned on an improved performance of the project's DOAE extension section and its ability to coordinate activities with the district agriculture extension office.

If the district agricultural extension office can achieve its goal of doubling the number of extension agents on a timely schedule synchronized with project phase out, sustainability and transfer of significant project agriculture improvements are possible.

Sustainability of a high level of technical inputs and expertise in the areas of land development and water resources is unlikely to occur. However, DLD project staff moving into Phase II expressed willingness to provide follow-up in maintenance and problem resolution in Phase I, if they are informed of problems.

The district office at present lacks the technical expertise in land and water resource projects that DLD is presently providing in the project. This is a problem in sustainability, but it is also a nation-wide problem and Mae Chaem is no different. Maintenance is the biggest question.

The Community Development Department at Mae Chaem is severely understaffed at present and plans for expansion could not be determined. The department is a resource that could be utilized in considering ways in which the IF teams' community development work could be sustained. The work of the community development workers and the teams is quite similar.

The need for a continuing monitoring presence in the Phase I villages has been established, to maintain what has been accomplished and to prevent problems that could adversely affect operations in Phases IIa and IIb.

The IF teams are the only available resource at this time to monitor, protect, and consolidate the progress made in Phase I. The regular local administration is understaffed and under-qualified to take on this monitoring responsibility.

There is no risk of the villages developing an overdependence on the teams, nor is there risk of institutionalization. All parties concerned think in terms of three years.

A question remains about the degree of project sustainability in satellite villages as opposed to key villages. There are indications that a problem exists in some satellite villages, but this needs to be studied.

RECOMMENDATIONS

- Phase I IF teams should complete their three-year assignment in Tambons Chang Khoeng and Tha Pha as scheduled. IF mobile teams should be created and assigned for two additional years (FY 85 and 86) to monitor and maintain the project activities implemented in the Phase I area. Posting levels are recommended at one team to Tambon Chang Khoeng and two teams to Tambon Tha Pha with one mobile supervisor assigned.
- Each IF mobile team should be composed of four persons, including two men and two women. At least one hill-tribe team member should be included on the team in hill-tribe village areas.
 - One motorcycle should be assigned to every two persons to facilitate mobility.
 - Each tambon with mobile team units should also have a supervisor with a motorcycle.
 - Primary duties of the teams include monitoring of project activities completed in the initial phase; preventing problems that might develop in the project area, especially with regard to land certification; acting as a resource persons to bring in technical assistance; and working with local government agencies to transfer these duties after two years.
 - The mobile team motorcycles should be given to the local government agencies to which these monitoring responsibilities will be transferred after two years. The district agricultural extension office and Community Development Department seem to be the most likely agencies.

- The IF teams recruited for Phase IIa should be assigned to their new posts in Tambons Ban Thap and Mae Na Chon, and to villages 5, 6, and 7 in Tambon Mae Suk beginning August 1983. They will thus have enough time to synchronize IF activities with the project line agencies, which are scheduled to begin their work in October 1983 (FY 84). This means extending the initial contracts of Phase II team members to four years, allowing them three full years in their villages.
 - A project suboffice should be created at Ban Thap near the forestry station at Ban Hin Fon and at Mae Na Chon at Ban Mae Na Chon, to coordinate IF team and line agency work in Phase IIa. One supervisor should be attached to each of the suboffices to assist in coordination and logistics work in these mountainous and remote tambons.
 - Four IF mobile teams should be assigned to the Phase IIa area in FY 87 and 88, with posting as follows: two teams to Tambon Ban Thap; two teams to Tambon Mae Na Chon (also covering villages 5, 6, and 7 of Mae Suk); and two mobile supervisors, one for each tambon. This means that some members of the Phase II group can have a total of six years under contract. The mobile teams may use the suboffices already in place or live at separate locations in the tambon, as suitable to the working situation.
- Phase IIb should be implemented in the remainder of Tambon Mae Suk beginning in FY 85. The usual three-year periods should be allowed. A suboffice should be established in the tambon at a central location. The IF team staff for Phase IIb should be recruited by special selection from the retiring Phase I members. A salary promotion and new three-year contracts will be awarded to the six new teams (18 persons in total plus one supervisor).
 - In the Phase IIb area, one IF mobile team should be recruited from the Phase IIb or IIa group, depending on qualification, and should be assigned to Mae Suk for FY 88 and 89, with one supervisor. The mobile team should also receive a salary promotion and a new contract.
- The following manpower staffing plan changes in the IF supervisory section within the POU should be made, to implement the recommended phasing changes:
 - IF team field supervisor (presently on duty);
 - IF team manager (presently on duty);
 - IF team in-service training chief - one person (new);

- IF team self-help projects coordinator - one person (new);
- IF team office manager/public relations - one person (new or in combination with other); and
- IF team logistics-support section chief - one person (new or in combination with other).

NOTE: It is strongly recommended that one field supervisor per tambon be available for regular, scheduled site visits to IF teams in the villages on a full-time, exclusive basis.

- A short-term expatriate training adviser (as provided for in the project paper) should be contracted in view of the expansion of work recommended in Phase II and the recommended upgrading of the project's component.
- The following transportation budget is recommended as a guideline in formulating a budget for the implementation of the IF mobile teams:

- 20 heavy-duty (125 cc) motorcycles x baht 30,000 = baht 600,000;
- 20 motorcycles' fuel x baht 2,000/month x 24 months = baht 960,000;
- Safety and maintenance training course for vehicle users - cost not known;
- Insurance for users and vehicles - cost not known;
- Vehicle maintenance - costs not known;
- Cost summary:

| | | |
|--------------------|---|----------------|
| 20 motorcycles | = | baht 600,000 |
| Fuel | = | baht 960,000 |
| Insurance/training | = | ? |
| Maintenance | = | ? |
| Total (incomplete) | = | baht 1,560,000 |

- The team is not prepared to recommend a total budget for the IF mobile teams, but offers the following estimates for reference/consideration

- Phase I mobile teams -

| | | |
|---------------------------------------|---|-----------------------|
| 12 persons x baht 3,700 x 24 months | = | baht 1,065,600 |
| 1 supervisor x baht 4,000 x 24 months | = | baht 96,000 |
| Total | = | baht <u>1,161,600</u> |

(excludes personnel support cost)

| | | | |
|--|---|------|----------------|
| -- Phase IIa mobile teams - | | | |
| 16 persons x baht 3,700 x 24 months | = | baht | 1,420,800 |
| 2 supervisors x baht 4,000 x 24 months | = | baht | <u>192,000</u> |
| Total | = | baht | 1,612,800 |

(excludes personnel support cost)

| | | | |
|------------------------------------|---|------|---------------|
| -- Phase IIb mobile teams - | | | |
| 4 persons x baht 3,700 x 24 months | = | baht | 355,200 |
| 1 person x baht 4,000 x 24 months | = | baht | <u>96,000</u> |
| Total | = | baht | 451,200 |

(excludes personnel support cost)

| | | | |
|---------------------------------|---|------|-----------|
| -- Total costs all mobile teams | = | baht | 3,224,200 |
|---------------------------------|---|------|-----------|

(excluding personnel support cost)

- The team is unable to offer a budget for recommendations concerning staffing, due to insufficient information regarding budget and staff limitations. It is recommended that staff increases in the IF teams' supervisory and training section be matched with appropriate transportation, as needed.
- The transfer of functions to local government administration should be closely coordinated with the project director, who as the governor of Chaing Mai is in a unique position to design a realistic plan for implementation, in close coordination with the district officer of Mae Chaem.

RECOMMENDATIONS

- The Community Development Department's tambon community development volunteer program could provide a means for sustainability, but linkages must be created before IF team withdrawal.
- The project should be planning and helping the district to assume the monitoring responsibility.

11. IS INTERFACE TEAM TRAINING APPROPRIATE TO FUNCTIONAL ROLES?

FINDINGS

The evaluation team was impressed with the performance, result, and potential for future development of the training component. Three areas of training were identified:

- Formal training conducted by the Chiang Mai Teachers College, Curriculum Development Section, for the first and second teams;
- Short course in-service training sessions conducted by specialized agencies for IF team members; and
- IF team staff supervision by the POU as a form of on-the-job training.

Recruitment, Qualifications, and Selection of IF Teams

Announcements were published and posted in Chiang Mai and other northern provinces to recruit applicants for the program. Special announcements were sent to agricultural, technical, commercial, teacher, and physical education colleges. Chiang Mai University was also notified. Nearly 800 persons applied for each of the two groups.

The only qualification for Thai applicants was a junior level college certificate (Pau Wau Chau and Paw Kau Sau) and for hill-tribe applicants a minimum of three years of secondary school (MS 3). These were minimum standards. Recruitment goals were set at one woman member per three-person team. For teams working with hill-tribe people, it was mandatory there be at least one hill-tribe member.

Team screening and selection were handled by the selection committee, which comprised the following agencies and personnel:

- AID representative;
- Chiang Mai Teachers Training College representative;
- National Security Council representative;
- District officer of Mae Chaem;
- Chief of police of Mae Chaem District;
- Office of Narcotics Control Board representative; and
- Tribal Research Center - Thai specialists of Karen and Hmong for selection of hill-tribe staff.

The procedure was for selection of two committee representatives to each test 200 applicants in written expression and general knowledge plus a brief oral interview. Based on these procedures, 100 people were selected from each group for referral and consideration by the full committee, which made the final selection from the 350-400 candidates.

The method for final selection was for interviews to be weighted at 70 percent and a written test at 30 percent. Academic record was not a special consideration but realistically could not be ignored, bearing in mind Thai social attitudes toward qualifications. Emphasis was placed on identifying individuals with the following characteristics:

- Character;
- Intelligence;
- Adaptability to rural living;
- Initiative;
- Flexibility;
- Maturity;
- Personality;
- Attitude; and

- Ability to get along with villagers and government officials.

Applicants finally selected were automatically admitted to employment status prior to beginning training. There was no idea of having to complete the training program satisfactorily to gain final selection. During the training for both groups, 10 people dropped out and 1 was dismissed. In keeping with Thai custom, there is a strong propensity not to dismiss anyone from employment except for gross misconduct.

Educational Backgrounds of the IF Team

Educational backgrounds of the teams tend to be of a generalist nature, with graduates predominantly from physical education college, secondary school (for hill-tribes), and teachers college. A total of 84 team members are currently assigned to Mae Chaem (Group Two doubling up with Group One). The educational breakdown is as follows:

- Teachers college - 22 persons;
- Secondary school certificates - 22 persons;
- Physical education college - 14 persons;
- Commercial college - 12 persons;
- Bachelors degree (university) - 6 persons;
- Technical college - 5 persons; and
- Agriculture college - 2 persons.

Group Two is considerably younger than Group One, their average ages are 23.3 years and 25.6 years respectively.

A number of team members have also had other experiences and training that have been useful to their work, including previous employment, military service, short course health training.

Formal Interface Team Training

The first training program was held for 48 trainees over a period of four months, and was almost entirely conducted at the Chiang Mai Teachers College. Side trips to various rural development sites in Chiang Mai and some field training in Mae Chaem were included. This program ran from December 14, 1980, to April 9, 1981.

The second training program for Phase II IF teams was conducted from December 19, 1981, to April 9, 1982. The training took place in Chiang Mai. The teams spent about half their time at Chiang Mai Teachers College and another half at Mae Chaem.

The first group was developed without firm parameters, much in keeping with the rather ambiguous understanding of the roles the teams would be playing. This is understandable with any project just starting up, especially when innovative ideas are being initiated. Accordingly, the initial curriculum emphasized theoretical concepts in rural development, and de-emphasized skills and technical training. In addition, the site at Chiang Mai was removed from the working situation, even though two field training trips to Mae Chaem were included. Nevertheless, the first training course was successful in preparing the team to go to work.

The trainers evaluated the first curriculum to prepare for the training of the second group. The trainers made changes based on the first group's nine months of working experience. Among the changes incorporated into the second curriculum were:

- Increased practical training for working;
- Changing the site to Chiang Mai Teachers College; and
- Emphasis on in-field training at Mae Chaem.

It was agreed that the changes increased the value of the training, but that additional changes were needed, should there be a third group:

- The selection process of trainees should be more rigorous and specified.
- More technical/skills training should be added.
- Training should be directly related to the work.
- Community development activities should be emphasized.
- The role of Mae Chaem District officers and line agencies staff in the training should be increased to facilitate early friendship and good working relations.
- Ways to instill love for the work should be found.
- The training should try to incorporate some government employee training requirements so that the training might lead to post-project employment.

Although these suggestions were to be applied to the curriculum of another large training group (Phase III), the principles outlined would also be useful for in-service and on-the-job short courses.

The staff of the teacher college is personally committed to the Mae Chaem project and the IF teams. They know the individual team members, having formed the Thai teacher-to-student bond during the training.

Short-Course, In-Service Training

According to the original proposal, the POU is responsible for providing three to four days per month of short-course, in-service training for the IF team members. These courses are scheduled and operated by the POU, with the field supervisor taking responsibility for course selection and training.

Short-term courses in the fields of agriculture, nutrition, public health, and livestock vaccination have been conducted by government agencies such as the NADC and the Public Health Department. About 30 team members take these courses at any one time, on a rotating basis.

In addition, 20 IF team members went to the Chom Thong District RFD office for two weeks of training and one month of field practice to learn how to process land certificates similar to those that will be distributed under project auspices in Mae Chaem.

No substantive short-term training has been conducted by RFD or DLD.

Officers of DLD (both land construction and water resources sections) indicated an interest and willingness to arrange IF team training in their areas of expertise at their regional center in Chiang Mai. RFD indicated a similar willingness to conduct training, as did IF team members.

Appropriateness of Education to Functional Roles

It appears that generally team members are performing roles for which most of them have had little formal education or skill training. At one village, the team members present consisted of a university physical education graduate and two MS 3 graduates who were operating a number of agriculture, teaching, and water resource/use projects, areas outside their educational experience. But they were operating effectively.

Tambon community development workers stressed the need for the IF team members to be dedicated and active to self-start their own program and take initiative in the field. Technical skills were also valued, but secondarily. This was the general viewpoint expressed by all government sectors visited.

At the same time, every district office, line agency, and IF team indicated interest in receiving further in-service training to upgrade their skills according to the needs of their villages and the project activities under their responsibility.

No person or agency consulted had serious disagreements or major recommendations to make concerning the appropriateness of the basic training to working conditions. Rather, the value of further in-service and on-the-job training was emphasized as a useful addition to a good basic beginning.

Supervision of Interface Team as On-The-Job Training

The IF teams are supervised by the IF division chief and field supervisor who report to the deputy director for administration and the project field manager. The supervisors make weekly site visits, although they usually cannot visit every site every week. IF teams also contact their supervisors at the project office in Mae Chaem. The supervisors submit and monitor project reports. They also meet with the IF teams at a monthly meeting held at the district office and at informal get-togethers.

Much of the supervision involves on-the-job training. The supervisors function as teachers and counselors, teaching and assisting the teams to work effectively in the village. Since both team supervisors are professors on loan from Chiang Mai Teachers College, they are viewed by the teams as teachers and are referred to by the title of "achaan" (revered teacher). The team members are mostly recent college and secondary school graduates

who are familiar and comfortable with the student/teacher role relationship in the Thai social hierarchy. They understand and function within the rules of this hierarchical relationship. This bond with the supervisors is further reinforced by the fact that both supervisors were instructors in the original training course and have known everyone from the beginning.

Communication and familiarity between supervisors and the IF teams are good. However, logistics, shortages of vehicles (often due to breakdowns), and poor communications from the villages to the POU office make it difficult for the supervisors to make regular scheduled visits to the villages, and still spend the necessary time in the POU office. For example, both supervisors have responsibilities at the Teachers College and at the project. This means that usually one supervisor is in Mae Chaem while the other is in Chiang Mai. Each supervisor schedules 15 days in Mae Chaem and 15 days in Chiang Mai. Their time is divided between the office and the field. They are often called on urgent business to a village or to assist in coordinating line agency work. A good deal of time is also devoted to simply arranging for supply and transportation of team members in the villages to meet the staggered, monthly off-duty schedules of the teams.

The comfort and ease with which the IF teams communicate with their direct supervisors contrasts to their relations with the deputy director for administration and the field manager. The team view these positions as quite high and are not certain how to approach them. The IF teams prefer the familiar relationship with their direct supervisors. This is also in accordance with the line of administration as they understand it, and they are reluctant to break that line. Since communication between the supervisors and the deputy director and field manager is very good, their understanding of the IF teams is also very good.

The types of on-the-job training that are part of the supervisory process include:

- Completion and review of written monthly work plans, monthly progress reports, weekly activities report, daily record, and special self-help project reports;
- Counseling role to help members adapt to their living and working situations;
- Coordination and classification of IF team duties and responsibilities toward line agencies and other government offices;
- Weekly site visits to each IF team for supervision contact;
- Administration of personnel matters for the teams; and
- Monthly staff meetings at the district.

These activities, while supervisory in nature, all involved different types of on-the-job training. Much of this on-the-job training follows up and adapts the formal four-month training course that each group completed before beginning to work.

Group Activities as Training

IF team members do not seem to participate in structured situations in which they could gain experience in group discussions, participatory decision making, group dynamics, and self-expression. These activities are process goals that the teams are supposed to be passing on to the villagers. These induced developmental changes in villager behavior go directly to the question of project sustainability. The IF teams can hardly be expected to impart skills and induce changes that they themselves have had little experience in practicing. These experiences should be a part of project operations. For example, the only available time when all team members are together is at the monthly meeting, which usually lasts less than two hours. The meetings are conducted in traditional Thai style, consisting of

one person lecturing and the others listening with little opportunity for discussion, group activity, idea sharing, or joint problem solving.

Inter-Communication as a Form of Training

The project office has no reference library or collection of technical information pamphlets or books for the teams to study. There is no bulletin board for the teams to use to communicate with one another, nor is there a team-sponsored newsletter or newspaper. There seems to be no structured means whereby one team can learn from the success, failures, or experiences of the others, except by informal contacts and conversation. The formal team reports are not circulated to other teams. However, teams do join in support of community-sponsored events such as the one the evaluation team witnessed during a visit to Ban Nong Lae village in Chang Khoeng. The IF team was helping to sponsor a 4-H Club dance. Proceeds were to go toward building of a Bhuddist temple. IF team members from at least six other teams joined in the effort. This sort of activity builds team spirit and friendship, but its uses are limited.

The project office, even through temporary, did not seem to communicate a sense of progress, although progress is being made. Attractive visual displays in Thai and English are lacking.

CONCLUSIONS

The formal training programs for both groups of IF teams have been successful to the extent that they have prepared the teams to begin field work.

The formal training programs for both groups were not sufficient to prepare the teams for the functions they perform that require some technical knowledge and skills.

The short-term training programs made a good beginning, providing the type of supplementary skills needed in the field.

Line agencies and numerous government offices are happy to provide support to the project by conducting short in-service training courses.

The Chiang Mai Teachers College is a valuable training and project resource.

IF team supervisors who hold positions as professors are particularly suited to the close supervision of the teams because of the teams' youth and familiarity with the student-teacher role relationship.

The number of supervisory staff is not sufficient to provide adequate supervision, on-the-job and in-service training, and logistical support presently required. It will be even more difficult as the project moves into Phase II. The teams have limited opportunities to practice the participatory problem solving and group decision making that they are supposed to be teaching the villagers.

The IF teams lack an effective means of communication and experience and information exchange such as a newspaper, team bulletin board, or other devices for building team spirit.

The project office lacks a technical or skills library and resource center where team members can informally increase their technical skills while on the job.

The project office lacks visual displays that communicate a sense of progress and enthusiasm for the teams and visitors.

RECOMMENDATIONS

- In-service training programs should be resumed as soon as possible, even if this means adding another supervisor to administer only this program.
- A logistics and supply unit should be formed to relieve IF team supervisors of having to use their time in non-supervisory tasks. This will allow them to keep to a regular schedule of weekly site visits.
- One supervisor should be available all the time in the POU to handle personnel matters, to meet with IF team members, and to solve problems.
- The structure of team supervision should be reviewed as the project moves into Phase II. Consideration should be given to establishing a tambon sub-office to be used as a local contact point for the teams.
- An assessment should be made of each village and team member to identify their technical needs. The results should be used to determine what types of in-service training are needed, where, and for whom.
- The monthly meeting should be restructured to allow for more small group discussion, group problem resolution, and exchange of ideas. The meeting should probably take a full day. The IF teams should themselves be responsible for as much of the meeting as possible to gain experience in methods to transfer decision-making techniques to their villagers. The IF teams cannot hope to transfer a methodology that they themselves have not experienced. The IF team monthly meeting should be held on a different day from that of the POU line agency meeting. This will allow the POU staff to spend the whole day with the teams. The POU staff should participate in these meetings by both speaking and listening.
- The IF team should be encouraged to start a team newspaper and bulletin board for inter-team communication.
- A technical resource library should be established in the POU office where team members can increase their knowledge according to their interests. Such materials could also be used by villagers.
- A major effort should be made on visual aids/project progress displays in the POU office to create enthusiasm and a sense of movement among the teams and project staff. This could be an IF team project. Thai and English, as much as possible, should be used for the benefit of visitors.

- Communication and excitement should be encouraged by the IF teams by means of contests, such as "Team of the Month," with small rewards given for exceptional work.

12. WHAT ARE VILLAGER ATTITUDES AND VALUES REGARDING ALLOCATION AND CERTIFICATION OF NEW LAND UNDER THE PROJECT?

FINDINGS

Under the terms of Phase I, approximately 4,000 rai of uplands are scheduled for land terracing and distribution. Nearly all of the land suitable for terracing is in fact already being farmed by the local villagers who are the traditional users of the land. These areas were being farmed using agricultural practices that result in loss of soil fertility, soil erosion, low productivity, and decreasing yields. The project, by providing terraces, water resources, and agriculture inputs, is making significant progress in correcting these problems. Almost no farmers, except those with paddy rice fields, had any form of land certification.

The pattern of farmers cultivating land without official documentation is a common feature of rural, remote Thailand, especially in the north and northwest. It must be remembered that in most of these areas, including Mae Chaem, local people were farming before local government was established. Traditional land use without official documentation is more of a rule than an exception in many remote areas. Local officials, especially in sensitive areas (areas with communist insurgency), are reluctant to take issue with or cause controversy among the villagers. Officials fear that provoking the anger of the villagers will cause them to become sympathetic with the communist cause. The situation in Mae Chaem fits this pattern.

One very important feature of this project is the allocation of land use certificates to farmers who are participants in the land development program. After their land has been terraced, the farmers can each receive a land use certificate for up to 15 rai.

The farmers are given a five-year trial period to see that the land is used properly; then a permanent certificate is awarded. However, the first certificate does not say it is provisional.

The first land scheduled for distribution and certification in the Phase I area is as follows:

| <u>Village/Area</u> | <u>No. Families</u> | <u>No. Rai</u> | <u>Remark</u> |
|---------------------|---------------------|----------------|----------------|
| Ban Tan | 40 | 157 | Tambon Tha Pha |
| Ban Pa Souie | 25 | 90 | Tambon Tha Pha |
| Ban Au Ming | 60 | 300 | Tambon Tha Pha |
| Total | 125 | 547 | |

In a meeting of the POU on May 16, 1983, the responsible officer for RFD reported that the documentation for families and land areas listed above had been completed. The land use certificates (saw tau gaw) still needed to be approved by RFD and signed by the governor of Chiang Mai. The RFD official also reported that the process of validating the information from the families was time consuming, because the department had never before issued land use certificates on Class 1 forestry lands. The IF teams took a lead role in assisting RFD to compile the correct information from the villagers for documentation, and villagers to understand the meaning and terms of the certificates.

The terms of the certificates are as follows:

- The certificate is not valid for more than 15 rai.
- The land and certificate must not be rented or sold.
- The land must be used for agriculture only (implies only legal agricultural use -- poppy cultivation would not be allowed).
- The certificate and land may be kept in the family in perpetuity and passed on to the children.

- The villagers must not have any other land elsewhere.
- Any changes to the above conditions must be reported promptly to the appropriate government officers.

The stipulation regarding having land elsewhere needs to be thoroughly checked. Various interpretations were given to the evaluation team, including no other land far away and "insufficient" land. One document indicated that the farmer could not have 5 rai or more of legally owned land.

In the remaining months of the current fiscal year (FY 83), the responsible agencies and POU agreed on the following targets for additional land certification:

| <u>Month</u> | <u>No. Families</u> | <u>No. of Rai</u> | <u>Remark</u> |
|--------------|---------------------|-------------------|----------------|
| June | 25 | 120 | Tambon Tha Pha |
| July | 25 | 120 | Tambon Tha Pha |
| August | 25 | 120 | Tambon Tha Pha |
| September | 25 | 120 | Tambon Tha Pha |
| Total | 100 | 480 | |

The agencies present at the amphur meeting were confident that they would be able to meet the above targets, if there were no major obstacles in their work. It was reported that villagers generally understood the meaning of the certificates but there had been some problems. For example, when the DOAE agriculture demonstration center first opened, someone put up a sign in English announcing "Thai-American Project," so some of the villagers understood that a U.S. company was moving into the area. Still other villagers misunderstood the original concept of land distribution and thought they would all be given free land. They were disappointed when this was not the case. The clarifying role

played by the IF teams in the villagers' understanding of the project was crucial in solving these sorts of problems.

Site Visit - Land Terracing Under Construction by DLD

The evaluation team spontaneously visited the village of Ban Or near Ban Daek in Tha Pha on May 11, 1983. DLD field staff were on duty supervising 122 villagers hired to construct about 60 rai of terraces for 43 families. Of the 122 laborers, 30 persons were Karen from Ban Mae Luk. In this area the lowland Thai were farming the lower land, and the Karen were farming the uplands. Laborers were receiving 40 baht per day, with first opportunity given to those families whose land was being terraced. In fact, the "owners" of the land were constructing their own terraces. After offering equal opportunity to all the nearby villagers to work as day labor, 30 Karen were also given jobs.

The work activity was proceeding well, but DLD supervisors reported that the slowness (two to three weeks) in payment for the laborers caused hardship to the villagers who could not finance their extra food needs for more than a week at a time. The people are very poor, and when they work they eat more than if they were staying at home idle. As a result, they must buy extra food such as dried salted fish or small vegetables. DLD staff were powerless to change this procedure, but explaining this to the villagers was difficult. Still they reported that this area was much easier than others where the competition for wage labor was intense, resulting in hard feelings by those who could not be chosen. The opportunity to do wage labor was given to one person per family in the villages where the terracing was being done. DLD staff did not anticipate that the coming rains would reduce the availability of labor because the very poor who were landless had no land to till and so were always available for terracing work at the current wage rate.

The assistant village headman was also present and reported that the villagers were happy with the terracing and certification program. It offered them the security that the government would not expel them from the land. The villagers were also happy that their children would have the use of this land for a long time. The assistant headman expressed disappointment that RFD was not willing to open up other areas for land development and certification.

The IF teams were identified as the group that orchestrated line agency activity in the village, starting with DLD survey work and continuing to after-terracing agriculture extension. The headman also stated that sometimes villagers make unreasonable requests to the IF teams, such as asking that fertilizer be delivered in one day. This viewpoint was confirmed by DLD field staff, who also identified the IF team as the community "preparer" for their work and link with the follow-up agency activity.

Site Visit - Village Receiving Land Certificates

The evaluation team paid a spontaneous visit to the village of Ban Tung Yeow (nearby Ban Mae Taen) in Tambon Tha Pha on May 12, 1983. The village consists of 43 families who are scheduled to receive 70 rai of terraced land under the Mae Chaem project in the initial distribution. The land has been terraced and final measurement completed. DLD still must make the allotment, but this should be done soon. On this morning, a sample of six village households were chosen. The villagers are all lowland Thai who are lifetime residents of the area.

The villagers expressed great satisfaction and relief to be receiving the land use certification. They were sure that the land use right would be passed on to their children. They understood the terms of the certificate and agreed to abide by them. Ten families in the village also have some amount of paddy

land, some of whom hold green-type (naw saw) certificates for paddy field. They realize they may be subject to land taxes for the land, but the risk of having to pay taxes is more than offset by the value of the land certificate. A very minimal tax is paid by farmers owning more than 5 rai. The villagers agreed that the land certification would give them an incentive to stay in this village permanently.

The villagers reported the following land ownership/usage patterns:

| <u>Family</u> | <u>Paddy-No. Rai</u> | <u>Terraces-No. Rai (under project)</u> | <u>Upland Farms No. Rai</u> |
|---------------|----------------------|---|---------------------------------|
| One | None | 1.00 rai | 3 rai |
| Two | None | 4.00 rai | 6 rai |
| Three | None | 2.00 rai | 1 rai |
| Four | 4.5 rai | 1.00 rai | 3 rai |
| Five | 5.0 rai | 1.50 rai | 4 rai |
| Six | 2.0 rai | 1.00 rai | 1 rai |
| Total | 11.5 rai | 10.50 rai | 18 rai |
| Average | 3.8 rai | 1.75 rai | 3 rai |

One issue brought up by the villagers, which is a typical request, is to seek permission from RFD to open up additional, sufficient land for terracing and certification so that they may be secure in their farming and not have to trespass or rotate their swiddens. The villagers promised that if they could be sure of sufficient, certified land for their livelihood, they would not have to move their swiddens.

The villagers were very poor, and while not all were landless in the legal sense, they were without legal land, forcing them to change their swiddens periodically out of fear of prosecution.

The evaluation team was impressed with the amount of land that had been terraced (despite delays in project implementation), although maintenance would be a continuing need.

Villager Attitudes on Land Certification

The terms and value of the land use certificates were generally understood and more appreciated by the villagers who would shortly be receiving them.

In villages that were not scheduled to receive land use certificates, especially Karen villages in Tambon Tha Pha, land certification was not well understood. People in these villages expressed interest in some type of certification, but it was still too unreal to them. Others preferred to wait and see the results of the first distribution of the land use certificates before reaching any conclusions.

The evaluation team did not find the issue of Thai identification cards to be a major consideration in the Phase I area, as nearly 100 percent of the Karen in the villages visited had Thai identification cards (equivalent to citizenship). Karen IF team members living in Mae Chaem stated that roughly 70 percent of all Karen in Mae Chaem already had Thai identification cards. Thus this issue may not be as significant for linkage to land certification as originally outlined in the project paper.

Equity and Fairness in Land Development and Water Projects

In general, project activities and benefits were designed and implemented in a fair way so as not to exclude any particular income group by design or intent. The project benefits are not necessarily equitable, but they are fair.

For example, in the Phase I area, terraces constructed under the project have been distributed to the traditional users of that land. It happens the most suitable land for terracing already had traditional users and these rights have to be respected in order to avoid creating even greater problems, such as resistance to land redistribution. It would be socially provocative to even think of expropriating villagers' land to give to others. The project made a successful beginning by legally ratifying that which has been done customarily. This is a major change in itself, which may open the way for further changes, more equitable in nature, but probably beyond the specific bounds of this project.

The very poorest and the absolutely landless derive benefits from the project as day laborers. This is important for a family that has no food, no money to pay the children's school expenses, or needs to buy clothing for the winter.

Other tambons in the project area such as Ban Thap may have a potential for land distribution to the landless, but this must be studied. The project has done well to help first those willing to help themselves, to provide a model for the others to follow. Assuaging the potential community jealousy and group competition in the beginning is a wise and necessary means of building community support for the project as a whole. This condition also makes it convenient for local government administration to support the project and sustain it.

It is too early to assess the actual impact of water resource projects. This will have to wait until after the first rainy season when the water will really be used. However, the shortage of both agriculture and drinking water seemed so acute in so many areas that anything that could be done to alleviate it would be in the community's general interest.

The self-help water resource projects seemed particularly well suited to providing equitable benefits for the village as a whole, especially in the construction of shallow wells and water for gardening.

The evaluation team was impressed with the experiences of several other rural development projects in northern Thailand whose conclusions about equitable distribution of benefits were depressing but realistic. Many concluded that for various reasons, including opium addiction, low education, and general lethargy, there would always be about 20 percent of the population who would not respond to most development schemes. These organizations wisely decided that it was a waste of time to concentrate on this group, and that efforts were better directed to helping those most willing to help themselves. It was hoped that the others could follow.

The evaluation team also found a high correlation in most villages between those identified as being not receptive to change and those addicted to opium. This was particularly true for Karen and other hill-tribe villages. This indicates the importance of the health care programs that the Thai government has introduced in many of these villages.

The Social Contract

The project paper envisioned extensive use of the social contract theory of development, with the villagers supplying their labor as their contribution to project activities such as bench terrace construction. The evaluation team found instances of the social contract being implemented but often not fully and in different ways than perhaps was originally intended.

- Terrace Construction - The terraces are constructed by villager labor. Villagers are paid 40 baht per day. Much of this money goes toward the purchase of extra food so

that the workers have the strength to do the hard physical labor of terrace construction. The poverty of the people is so extreme that they are unable to finance this extra food for more than a week without hardship. The money buys extra rice, dried fish, vegetables, and chili, which the people must have to satisfy their hunger. The villagers must also provide their own shovels and hoes as well as work clothes. These may be damaged or ruined during the work, so some of the money goes for replacements. Another part of the money is spent as the villagers see fit.

- Sense of Belonging - Another aspect related to the social contract is that the villagers are constructing their own bench terraces, thus giving them an incentive to do a good job. By making their own terraces, they are instilled with a sense of responsibility to care for and maintain that which they themselves have made. All villagers receiving terraces said they would gladly keep them under repair. The person-hours spent in this kind of maintenance may in the long term be more than the cost of the original construction. This is consistent with the social contract.
- Skill Training Multiplier - The construction of the terraces has an added benefit of keeping the skill in the village so that it may be passed on to others, for example, the children who will receive the land use certificate as their inheritance. The villagers have learned a skill that they may use elsewhere or may even be encouraged to terrace other areas themselves. Having gained the experience in construction and ideally reaping the benefits of intensified production, they will be encouraged to expand terrace farming in other areas.
- Self-Help Projects - The area of project activity where the social contract theory is being directly practiced is in the self-help projects, sponsored by the IF teams. The villagers happily donate their labor and time for the implementation of this part of the program, along with locally available construction materials according to the terms of the project.

It should be added that the concept of the social contract seemed to have been damaged by the government's employment generation project, whereby the government pays the villagers to perform similar tasks being done by the line agencies in this project. This is a factor to consider in the working environment. The Mae Chaem project has avoided this problem mostly because of the IF team activity.

CONCLUSIONS

The villagers understand and value the land use certification program, but would like to see it extended to meet their farming needs for self-sufficiency. It is limited to the amount of land that can be terraced.

The terrace construction and land use certification are likely to provide the villagers with real incentives to reduce or not to return to swidden agriculture. This is dependent upon the agricultural extension component to stimulate rising yields and benefits through use of the terraced land. It will take two to three years to measure results in Phase I.

The IF mobile teams can play a useful role in following up on project activities in the Phase I areas, especially in monitoring the proper use of the land use certificates.

The situation of the Karen villages is less predictable than in those of the Thai. The implementation plan may need to be adapted to meet the Karen's special needs. The IF teams can help to identify these needs.

Intensive use of terraced land, perennial crops, and agricultural extension shows good promise of reducing swiddens in the project area.

The social contract theory is served in the project by the villagers' ongoing maintenance of the terraces and waterworks. The sense of ownership that comes with having constructed them (even though paid) and the multiplier effect of the skills they have learned will stimulate further activities.

The social contract theory is totally satisfied in the implementation of the small self-help projects supervised by the IF teams.

The project is providing opportunities to benefit all economic groups fairly in the project area, especially those who are willing to help themselves. About 20 percent of the villagers show little interest and ability to help themselves or respond positively to the opportunities the project is providing.

There may be a high correlation rate among the very poorest and those addicted to opium. This is especially true for the hill-tribe villages.

The villagers respond positively to the project, and community support is strong. This is a most hopeful sign as the project moves into the Phase II area. In fact, a sort of social demand is developing as villagers in other tambons are anxious for the project to begin.

RECOMMENDATIONS

- The self-help projects should be continued as the most direct way to implement the social contract theory in the project.
- The villagers' understanding of the land use certification program must be monitored to ensure smooth project continuation and sustainability.
- The promise and hope raised in the villages by terrace and water resource construction must be followed up by intensive implementation of agricultural extension to produce perceived progress by the farmers. This progress will give them real incentives to abandon traditional swiddening practices gradually.

- The rate of implementation of the land use certificate program should be increased to cover more land and people during the time frame of this project. This program should be started as soon as possible in Phase II.
- If cultivable land can be found in the Phase II area that is not already being traditionally used (including land in fallow), the project should allocate this land to those who have no land to farm. These people should be carefully screened by the IF teams to exclude opium addicts and those whose ability or interest to farm the land is questionable.
- Each village that has a terracing program should develop a land use certificate allocation system and schedule as soon as possible.
- The project should explore using the land use certificate program for land that is not terraced but used exclusively for agro-forestry.
- The project should concentrate on the most active farmers in the villages to use as models, and hope that the others will become interested.

13. HOW CAN CASH CROP VARIETIES, PRODUCTION, AND MANAGEMENT BE IMPROVED?

FINDINGS

Very little information was obtainable in Mae Chaem with respect to cash crop production. The information that was available was limited. Yield and production data differed considerably from source to source.

Leguminous Crops

The Mae Chon Luang Highland Research Station, Tambol Mae Na Chon, Mae Chaem, in association with the Kung Wang Research Station (in Chom Thong District -- not far from the Mae Chaem watershed), is involved in long-term research on a variety of crops. Emphasis has been given to soybeans, peanuts, and mung beans. The principal objective is to find varieties that are disease resistant and adapted to the upland areas. Tests have indicated that the SJ-5 soybean has the best promise for the highlands. This variety is being tested in four sites per tambon. The results are repeated in six sites per tambon for verification. Paul Liou, agronomist to the Highland Agriculture Marketing Project (HAMP), reports that soybeans are being successfully tried throughout the upland area with good results.

Trials are being conducted with mung beans in a similar program to that of soybeans. Liou reports that mung beans appear to be the next best alternative to soybeans. Trials with peanuts are also carried out on a similar basis with the Tainan 9 variety being recommended. All tests incorporate the use of rhizobium to ensure nitrogen fixation in the soil.

Farmers in the area presently encounter difficulty in securing improved seed or good local seed. IF teams and district agricultural officers indicated that they had difficulty obtaining rhizobium on a timely basis. Both IF and extension personnel concluded that there were significant results with improved seeds, especially when used with rhizobium.

Seed reproduction for soybean, mung bean, and peanut is done largely by DOAE on its demonstration plots and seed reproduction fields in the same manner as rice. For 1983, DOAE planned 510 rai of soybean demonstrations in 24 villages, 1,000 rai of peanuts in 15 key villages, and 10 rai of mung beans in Tambon Chang Kheong. Discussions with IF teams and extension personnel indicate that improved seed or good quality seed was often in short supply and unavailable on a regular or timely basis.

Other Field Crops

Farmers were producing corn, onions, tomatoes, chili, and garlic. Yields were generally considered sufficient to continue growing them profitably. Farmers are accustomed to growing these crops in a traditional way, and extension is directed to improved varieties and techniques. Corn seed of the better varieties is difficult to secure.

Rupert Nelson, hill-tribe agronomist with the Baptist mission, following his 1979 work with the Thai Australian Project at Pa Kia, devised a system that might be acceptable to the hill-tribes, shortening the swidden cycle as an intermediate step to more permanent agriculture. Following the first rice crop after swiddening, pidgeon pea is planted on the area. Since it is a perennial, it is allowed to grow for two to three years, after which it is swiddened and the rice cycle repeated. In the intervening years the pidgeon peas are harvested annually and the peas are combined with traditional pig feed, adding a much needed

protein supplement. After harvesting the seed, the two meter plants are cut back to a height of 60-70 centimeters. These cuttings may be used for cattle feed or mulch. The mulch reduces the evaporation of soil moisture, which in turn increases vegetative growth.

The CARE pilot project has been working on the introduction and development of perennial field crops that would have a high price for their weight and volume and good market potential. Their focus is on medicinal herbs, spices, and essential oil plants. They have most recently been giving attention to stevia grass.

Tree Crops

The Karen and Luwa tribes (approximately 50 percent of the Mae Chaem watershed population) have practiced an elementary form of forest crop management for many years. Their traditional system of agriculture is to rotate crops with natural forest in a forest fallow system. This system established a rotational basis for subsistence crops. The population pressure on the highlands has considerably reduced the amount of land available for fallow. Since the people understand crop management within a forest environment, it may be easier to substitute new and more intensive forms of agro-forestry to this segment of the population.

Dr. Phisit Woraurai, former vice rector for agriculture of Chiang Mai University, is involved (through the border patrol police program) with the establishment of an agro-forestry system of natural resource management for the steeper slopes of Mae Hong Son Province. This system incorporates cash crops with fruit and other trees. The program includes the establishment of tree reproduction centers. These centers are to provide plant materials, training, and supervision of an extension program to encourage hill-tribe peoples to adopt agro-forestry systems. Principal emphasis will be on trees suitable for charcoal and/or

firewood production and fruit trees in combination with a wide variety of cash crops for intercropping. The CARE project in Mae Chaem may work with Dr. Phisit on the seed production portion of the project.

The CARE pilot project has an agro-forestry component that includes fruit trees, eucalyptus, cashew nut, mieng tea, coffee, kapok, bamboo, and cinnamon. CARE is working with RFD to develop and introduce these crops to the project area.

In 1983, varietal research began at the Mae Chon Luang Highland Research Station on a wide variety of temperate and sub-tropical tree crops. The present program includes the following:

- Apple -- 50 rai;
- Pear -- 50 rai;
- Japanese Apricot -- 100 rai;
- Persimmon -- 50 rai;
- Peach, plum, nectarine -- 100 rai;
- Nut crops -- 100 rai; (walnut, chestnuts, macadamia, native walnut)
- Tea (leaf) -- 50 rai;
- Camphor -- 1 rai;
- Coffee -- 20 rai; and
- Mushroom (Che Tae Gae variety -- one unit).

The main emphasis will be on developing promising tree crops to be distributed to farmers throughout the nine provinces of the northern region, as well as supplying material to the project. A part of the program is to screen new crops introduced into the area. This screening research is to eliminate or reduce introduction of undesirable or unproductive varieties.

In addition, the station will serve as a training center for all project line agencies, as well as leading farmer groups in the Mae Chaem. The farmers will be chosen by the IF teams. The station's program will include an upland crops extension information center. The evaluation team was told they can call upon the resources of the San Pa Tong and Maejo research/training centers as well. This project is so new, one can only estimate its impact. It is a long-term project with a long start-up time.

The CARE pilot project includes cash crops to be used in an intercropping system with local varieties of trees. It is also establishing demonstration tree nurseries in schools, and private nurseries with one or two families per village. Local varieties of fruit trees, shade trees, and flowering trees are being grown in mini nurseries. Villagers are also encouraged to plant fruit and other trees in temple compounds and around private houses.

According to researchers at Chiang Mai University, HAMP, and NADC, the introduction of fruit tree crops requires a strong commitment of time, training, technical inputs, and effort on the part of researchers, extension services, and farmers. Considerable technical research has been carried out on varieties, cultural practices, and management systems in the controlled atmosphere of research stations. There has been very little extension of these findings or techniques to the farmer. It takes well-trained extension technicians to convince farmers to accept the program. Farmers need a lot of time to learn proper techniques, such as for grafting. In addition, from time of planting until trees come into production requires cultivation of annual crops for which the farmers will need training and other support.

Coffee was introduced in the highlands through several projects, but without enough extension personnel to train, supervise, or provide needed expertise and technological inputs.

Farmers, seeing the planting and hearing of the potential profits from coffee, began rapidly planting coffee throughout the hill area. Planting material soon became scarce, so any variety, in any condition, was planted. It is unknown how many thousands of trees were planted, nor how many thousands died due to poor plant stock, improper planting techniques, and poor management skills. The loss, however, was substantial (possibly 80-90 percent).

Vegetables

Most vegetable seeds, including potatoes, are imported from other countries. Local improved seed is rare. Dr. Wivutrongrana of the Horticulture Department of Chiang Mai University is involved in a refinement of production technologies for in- and off-season fresh vegetable production in the highlands, including tomato, sweet pepper, cantalope, leek, brussel sprouts, celery, parsley, and chicory. Another project in the same department is for the production of vegetable seeds, including tomato, lettuce, sweet corn, chinese radish, and leaf mustard.

IF teams and agricultural extension workers use demonstration plots as a means of introducing vegetable growing to the villagers. Their efforts appear to be directed mainly to the village living area (small household gardens). A limited number of demonstrations were carried out on upland terraced land. Two plots were encountered by the team in Tambons Chang Koeng and Tha Pa. Personal observation and discussion with IF teams, farmers, and extension personnel indicated that much training is needed for both extension personnel and farmers.

Fertilizer

The use of fertilizer in both tree crops and vegetable crops by farmers is a relatively unknown practice. The data on fertilizer experimentation, like that for rice and other field

crops, indicate the work was done at a research station under very controlled conditions using a very high level of management.

No reliable data were available from the project area with respect to fertilizer use. Some farmers use manure, compost, and in some cases, chemical fertilizers on vegetables. Information on types or amounts of fertilizer used was not available. IF teams and DOAE extension workers also promote the use of fertilizers for vegetables and tree crops in much the same manner as for rice. It is a minor part of their program compared with upland rice, soybeans, and peanuts.

To the farmer who adds only chemical fertilizer without other improvements, it does not appear to be a very profitable alternative to his present system of management. The farmer is already faced with the possibility of no rain and loss of his crop to disease or insects. The additional risk of losing the money required to purchase fertilizer is more than he appears willing to bear.

Farmers seem to be aware of a potential value from the use of natural fertilizer. In Ban Pa Tong (Mae Chaem), Karen farmers use manure on their fields as well as soybean residue and compost. This, they explained, was free so it was acceptable to them. As for chemical fertilizer, they were not sure when to apply it to get the best results. They felt it was best to continue following their traditional system.

The project's agricultural extension teams promote the use of compost and animal manure, as well as animal manure combined with chemical fertilizers. The program includes training as well as some free agricultural inputs, especially to supply urea and a bacterium mix for compost making.

Insecticides and Fungicides

Data on the use of insecticides and fungicides are limited. In research stations where all inputs are available, they appear to be used whenever needed. IF and extension personnel claim that they lack both knowledge and materials to carry out a proper training program -- a very similar situation to pesticide use on rice.

Extension and Training

DOAE has allocated 15 extension workers and 5 agronomist supervisors for Mae Chaem. The extension workers are to provide technical support to farmers on newly developed land and link them with research activities that are being carried out by DOA. The extension workers have been active in setting up demonstration plots in the Phase I area. The DOAE team leader has not cooperated well with the POU and is scheduled to be replaced. DOAE has yet to establish an active working relationship with DOA research operations for the project area.

Training at the DOA facility at Mae Chon Luang appears to be sufficient to meet the training needs for organized group training sessions, although the facility is geographically remote. It also does not provide an environment that the farmer can compare to his own situation. Training centers in general have highly sophisticated programs that tend to be a showplace for outsiders, rather than focus on strictly practical agricultural practices. Equally important, they keep extension workers at a single location rather than out working with farmers for the continuing support they need.

CONCLUSIONS

Cash crops are feasible to promote, as the project strategy (together with evaluation recommendations) can deal effectively with identified constraints.

There appear to be a number of cash crops available at experimental sites in northern Thailand that have potential agronomic viability in the project area. These could be put in place if the right combination of factors was utilized.

Some area farmers are growing field crops such as soybeans and mung beans. Marginal improvements in productivity of these crops can be achieved through simple measures that can be extended by both the extension workers and the IF teams. Some changes in farming practice in villages the evaluation team visited are already apparent.

A major constraint to expansion of cash crop production is the difficulty in obtaining suitable quantities of quality seed. Attempts to produce seed for many cash crops by using demonstration fields will not produce the quality of seed needed.

Seed multiplication requires good site selection, quality foundation seed, close supervision of production and harvest, proper storage conditions, and orderly handling and distribution. For the rice, soybean, mung bean, and peanut crops, seed multiplication is somewhat simplified. These crops are all largely self-pollinated, so large isolation distances from the same crops grown for consumption are not required.

Growing practices, roguing, harvesting, drying, storage, and distribution demand personnel with good knowledge of the techniques to be used. Even experienced extension staff usually

do not have a background in seed production. Practical, hands-on training is advisable. Plant breeders who are intimately familiar with the varietal characteristics of the high yielding varieties are often the best sources for training in this area. They have developed the varieties and have had to master seed production techniques that maintain quality at very high levels.

The project strategy of slow transition from subsistence crops to cash crops appears sound. Introducing and/or improving cash crop systems, including trees and vegetables, is an extremely complex and long-term process. If done in a rapid and large-scale manner, the cost of implementation and the high level of technology required for such an undertaking demand a strong, well-trained extension service. This may be beyond the capabilities of the present extension service personnel available to the project. Even if the resources were available, the risk of failure is very high. This rapid, large-scale approach has been tried in several well-funded hill-tribe development projects, and the result was a high failure rate of the introduced crops.

Many of the farmers in the project area will be adverse to risk and unwilling to invest in cash crops. The planned slow transition to cash crops will give these farmers a chance to improve their technical capabilities with subsistence crops and better understand how to handle cash crops before they are ready or feel compelled to change.

A considerable amount of unpublished research has been done with spices, essential oils, and flowers, with emphasis on bulb production and other exotics. Initial results appear to be good. Very little extension of these crops has occurred to show how they fit into the present agricultural system. Many of the crops require extensive training, plus close supervision and support for production. There seems to have been very little awareness of

market potential, including future demand for the product, future competition, and the vagaries of market prices, during the selection process of many of these crops.

CARE's Mae Chaem pilot project partially funded by AID is oriented toward introducing and developing new cash crops. The focus is on agro-forestry and perennial field crops that would have a high price for their weight and volume and have market potential. RFD is working with CARE on the agro-forestry component. DOA will be screening new tree crops and will be supplying material from the Mae Chon Luang Station.

RECOMMENDATIONS

- There is an urgent need to do relevant research and get it into the hands of the extension people and down to the farmers. The research being conducted by DOA at the experimental station is important, but this should be supplemented by applied research done in farmers' fields. Chiang Mai University should be contracted to do the applied research. It should be done in a manner that is in keeping with local potential capability and in collaboration with the farmers, and not just use their fields and labor. CARE should continue working with the project on its cash crop program, collaborating with DOA, DOAE, and Chiang Mai University; it should work closely with RFD for tree crops.
- The project's extension service should be integrated as much as possible with the regular district extension service. IF teams should have their agricultural skills upgraded by in-service training, and farmers should be trained as much as possible in their own village area.
- The type of crops introduced should be based on long-term familiarity with the crops, and on-site conditions to match technical demands with local capabilities and conditions.
- DOA, Chiang Mai University, and CARE should work together to assist the project in determining which cash crops to extend to the farmers. Crops should not be extended simply because they grow well under experimental conditions.

- DOAE extension centers should be used only for the dissemination of materials and as a base from which extension would go to the farmers' fields. They should also serve as a communications center, to which farmers can report their problems and request assistance. These centers should not be used for training.
- While the team recommends that most farmer training be done on the farmer's fields, and that the only training center be the Mae Chon Luang Station, the project should also use special trips as a form of training. These trips would take farmers from one area of the watershed and show them successful farming operations in another area of the watershed. Farmers new to the project or not progressing well would visit farming operations of those who were successful project participants. Farmers could communicate with one another about what brought success and how constraints were overcome. The new farmers would see that people like themselves could succeed in doing what the project was asking of them. The farmers could also visit areas outside the watershed if there were not suitable operations in the local area. (The Thai Australian Project has had considerable success with this type of program.)
- Chiang Mai University should provide assistance to the project in planning and supervising a seed multiplication operation. The university should first undertake a study of the seed supply situation in Mae Chaem and assess the demand for seed that cannot be met by existing services. It should then determine the most effective and efficient manner to provide suitable quantities of quality seed for project farmers. Seed production should be viewed as a long-term venture that would continue on a commercial basis when the project is completed. This could entail contracting area farmers to produce the seed under close supervision and developing a system for these farmers to market the seed to other farmers in the area.
- The university should provide plant breeders to instruct the project personnel who will be managing the seed multiplication operation. The university should also furnish individuals to monitor the initial few years of performance, taking corrective action and giving follow-up instructions when needed.
- Multiplication of open-pollinated crops such as corn requires a highly organized and supervised operation. If composite varieties are to be promoted, close attention has to be paid to maintaining the selection procedures used by breeders to produce true to variety seed. If

there are any significant snags in the input distribution channels, there should be no attempt to introduce hybrid corn varieties.

14. HOW CAN RICE VARIETIES, PRODUCTION, AND MANAGEMENT BE IMPROVED?

FINDINGS

Variety Research

The Mae Chon Luang Research Station in Amphur Mae Chaem, in association with the Kung Wang Research Station in Amphur Chom Thong, is involved in a long-term upland rice improvement program. The main focus of upland rice research is to find varieties suitable for the highland areas above 900 meters. Researchers interviewed there did not have any varieties that were showing exceptional promise at this altitude.

When a new variety is introduced it usually takes five years to determine its production capacity. A number of varieties are being field tested in the project area. Upland and paddy rice are planted at four sites per tambon. These trials are then repeated in six sites per tambon for an additional year to confirm the results. After one year, preliminary results from Mae Chaem District show varieties 25A and Chow Haw the most promising, with Muey Long and RD 10 being continued. .

The dean of the Faculty of Agriculture, Chiang Mai University, has screened more than 1,000 IRRI upland varieties. Silehwa and Kee Chang varieties show promise of being good yielders at higher elevations. They lack resistance to brown spot. The university has a strong ongoing upland rice breeding program.

Farmers in the area presently rely on local varieties obtained through a revolving system within the village. They do this largely because a local variety can be obtained easily and at a reasonable price. The extension service will supply seed for new improved varieties to a limited number of farmers -- the first

item at no cost. Improved seed is difficult to obtain on the open market, on a timely basis, or at low cost thereafter. Prices on the open market for the improved seed vary from double to triple the price of the local variety.

Extension workers and IF teams use the demonstration plots to show the farmers the benefit of using improved seed. Farmers accept the new varieties readily the first time, as the seed is available and free of charge. They willingly cooperate in supplying information about the variety to the extension people. When they have difficulty obtaining seed on the local market, they tend to lose interest. According to the dean of the Faculty of Agriculture, the farmers may reject new high-yielding varieties because the taste is different from that they like and use. He indicated this was a major problem.

These demonstrations showed that improved varieties did result in substantial increases in production. No reliable data were available, but conversations with both extension workers and farmers indicated that the increase was substantial enough to induce the farmer to pay the higher price for improved seed if he could obtain it.

The research station at Kung Wang, in conjunction with the San Pa Tong Rice Center and Maejo Center, can offer training to farmers in all aspects of rice production. Training, although basically organized for the farmers who participate in the demonstration plots, is also offered to other interested farmers.

IF teams can request this type of training assistance. Group training for IF teams and leading farmers can be programmed for groups of 20 or less. Lack of facilities will limit the group size. To date no actual training has been given.

Seed reproduction is carried out largely by DOA on its demonstration plots and seed production fields. No data were available on how much seed was produced or distributed. Extension workers, farmers, and IF teams indicated that improved seed seemed to be always in short supply and was difficult to obtain on a timely basis.

Fertilizer

The results of fertilizer use remain inconclusive and often contradictory. According to many of the research reports, yields achieved in research station conditions have greatly exceeded those carried out in the farmers' fields. Dr. Tiyawallee and others found good responses to nitrogen and phosphorous on selected varieties. Most data show poor response from traditional varieties.

The data available on fertilizer experimentation indicate that the work was done largely under highly controlled conditions, that is, small plots, level fields, soil treatment, weed control, and usually complete fertilizer application. While these plots have value as indicators of potential yield, they are exceedingly difficult to transmit to the farmer.

For project farmers, no reliable data are available on fertilizer response in their fields. Most swidden farmers do not use chemical fertilizer, and few use organic materials. Yields are low -- 12-16 tang per rai. Yields on the same swidden and old, terraced land decline rapidly over a three to four year period, indicating a loss of soil fertility.

A few respondents indicated they had secured a noticeable increase in yield from a small amount of chemical fertilizer. No specific types of fertilizer or amounts applied could be ascertained.

Some farmers were using animal manure and/or compost. Chemical fertilizers used in conjunction with these organic materials gave the best results; information on specific amounts was not available. This would confirm that the extremely acid soils low in organic material do not respond well to chemical fertilizers.

Project extension teams promote the use of compost and manure as well as animal manure combined with fertilizer. The program includes training as well as financial assistance to supply urea and bacterium mix to reduce the time for composting to approximately two months. IF teams report a good response to this operation.

In villages where cattle or buffalo are penned at night, manure is available for spreading on fields. In most villages, the majority of small animals are allowed to run free, making it difficult to collect manure for fertilizer use.

IF and extension personnel are training farmers to utilize crop residues on their fields, both as a moisture-conserving mulch and as a fertilizer.

Insecticides and Pesticides

Data on insecticide and fungicide use are very limited, and the chemicals appear to be used only in research centers. The team found no evidence of pesticide use in the villages. IF and extension personnel confirmed this is true throughout the Mae Chaem area. Farmers are given limited training in the use of pesticides, but it requires a major change in their farming practices. The change is difficult, given their current level of technology and is not accepted by them.

IF and extension personnel find it difficult to promote pesticides, as often sprayers, chemicals, or even water are not available at the farm level. The cost of pesticides is very high in relation to an unknown benefit from its use (from the perspective of the farmer). The HAMP project agronomist has extended, at no cost to farmers in his project, some granular fungicides and insecticides for selected experimental and demonstration plots.

Terracing

The project is supporting a program promoting the development of terracing, both rainfed and irrigated, as an alternative to swiddening. Research from Thai Australian Land Development Project and the Mae Sa Project indicates that given a reliable source of irrigation water, farmers will readily build and use terraces.

Almost two-thirds of the planned land development in the project is for rainfed terraces. Little conclusive data are available on the economic feasibility of rainfed terracing. Agronomically, it has been demonstrated that terracing, as a soil conservation and environmental protection practice, has strong possibilities. Under proper management, it can stabilize agriculture and increase upland rice yields as well.

Terracing can increase the land area under cultivation at any one time because most of the swidden area can be used (depending on slope). The result will be an increase in production from both the added land under cultivation and the increased yield.

Conservation farming practices -- taking land capability and soil types into consideration -- have demonstrated that erosion can be effectively controlled by various types of terracing. The Mae Sa Project uses four basic types of terraces, depending upon

the slope and financing available for construction. Using the bench terrace as 100 percent effective, a comparison of the others follow:

| <u>Type</u> | <u>Slope</u> | <u>Person-Days to Construct/Rai</u> | <u>Effectiveness</u> |
|----------------------|--------------|-------------------------------------|----------------------|
| Bench terrace | 35 to 50% | 81 | 100% |
| Contour bund | up to 35% | 18 | 92% |
| Intermittent terrace | up to 35% | 27 | 82% |
| Hillside ditch | up to 35% | 20 | 81% |

These are average figures obtained in discussion with a staff member of the Mae Sa Project -- person-days to construct will vary with width and slope. Bench terraces can be used up to 50 percent slope but will be very narrow.

These systems have proved to be relatively stable under recommended management practices. Terraces that can be irrigated are readily accepted. Information from the Mae Chaem project area indicates that acceptance of rainfed terracing takes considerable education and explanation. Farmers are not yet convinced of the viability of the system but may become so as they gain familiarity with actual results rather than just the arguments of the IF teams and extension workers.

The project is supporting a program of terracing being carried out by DLD. This program pays villagers to build the terraces by hand. When completed, the farmers can receive land use certificates. This, plus promised extension inputs, appears to be sufficient inducement to get farmers to respond positively. No contact is maintained with university or other researchers to incorporate their findings to help solve problems arising on the project.

Very little data are available on soil management practices in the Mae Chaem area, especially in relation to rainfed terraces. Soils vary widely in structure, texture, fertility, and organic content. Much of the swidden area, and the terraces formed from them, is extremely acidic and low in organic material and does not generally respond well to chemical fertilizers. Hand terracing, in contrast to mechanical terracing, is more likely to cause less displacement of topsoil. The project plan maximizes the use of hand labor in terrace construction.

Timely planting of recommended varieties becomes imperative, especially when the rice is part of a multiple cropping system. Dr. John Schiller found that along with timely planting, a mulch of crop residues on the surface of the soil immediately after planting resulted in very successful germination and growth of seedlings. The ultimate result is a significant increase in yield.

No data are available from the Mae Chaem regarding the ability of the farmer to maintain rainfed terraces once they are completed. The project's terracing program includes training in maintenance of terraces. Experience from other areas indicate a continuing need for a strong extension presence.

Crop Management Technology

Improving upland rice production especially on terraced land requires a relatively high crop management technology system.

Research at several highland research stations is directed to exploring various combinations of crops that can be grown in sequence with rice. The head of the NADC field station at Mae Hia has carried out a cropping system using upland rice, tung bean, and lab beans:

| <u>Crop</u> | <u>Time to Plant</u> | <u>Time to Harvest</u> |
|-------------|-----------------------------|------------------------|
| Upland rice | Late May - early June | October |
| Mung bean | June - when rice germinates | August |
| Lab beans | August - after mung bean | March |

This system gives a viable cropping system with weed control, nitrogen-fixing properties, and crop residues for mulching or fodder for cattle.

As experience and data accumulate, most will be available at the NADC information center. Cropping system data in the project are very limited. The team encountered farmers growing upland rice followed by soybeans, peanuts, and vegetables. The data received from IF teams and farmers are meager and inconclusive.

Weeds are a major problem, especially with soybeans and peanuts. Weeds became more of a problem on swiddens and terraces that have been farmed for a few years. Some areas, although harvested, showed evidence of heavy weed infestation. Various research stations and TWALD show that hand weeding at 15 days and a second weeding at 60 days gave good weed control. Weeding dates may vary, as different species of weeds are found. Significant increases in yield were observed in all cases. No economic analysis was made to determine if the labor expended was justified.

TWALD at Hang Chat found that using soybean residues on top of the soil, immediately after planting, not only conserved moisture, but also acted as a deterrent to weed growth.

Extension people are generally aware of the need for improved management techniques but unable to address the problem or feel it was nearly impossible to put all of the necessary inputs in place. Since many of the required inputs in crop management are unfami-

liar to the farmers and usually add cost to their operation, they are very reluctant to adopt them. Response has been slow.

CONCLUSIONS

Reports from upland stations forecast significant yield increases with improved varieties of upland rice, cropping systems, and other technology. This, coupled with an increased land area under cultivation -- due to expanded terraced land and new techniques to reduce the fallow period of swiddens -- points to significant progress toward increasing productivity and overall production.

While some of the research findings appear suspiciously high, every indication points to significant increases as this technology is transferred to farmers.

The current terracing program has been oriented toward bench terraces. These are much more costly and time consuming than contour bund and hillside ditch, which are almost as effective. Local farmers would be more prepared to do their own terracing if they saw the benefits in these lower cost alternatives.

Given the low level of technology now used by these farmers, many unanswered technical questions, and difficulty in transferring new technology to the farmers in the short time frame of this project, it is unlikely that the watershed will attain self-sufficiency before scheduled project termination. It is likely that the farmers will never achieve rice self-sufficiency as they may shift more to cash crops as their technical ability and risk perceptions change over time.

There seems to be a lack of formal contact between the project, and the university, and other researchers, thereby bypassing much relevant data.

RECOMMENDATIONS

- Emphasis should be placed on getting the research results for improved rice technology, and the necessary inputs to implement it, into the hands of the farmers. Formal integration of university researchers into the project (as recommended in Issue 13) will do much to assist this endeavor.
- Increased rice production, working toward increased yields and increased production, should continue to be the major focus of the project.
- While extension efforts to irrigated rice farmers will result in significant returns, the land available for irrigated rice is minimal. Rainfed areas should be receiving more technical attention as they require more applied research and more intensive and extensive extension efforts.
- The project should examine the cost-effectiveness of using contour bond or hillside ditch in place of bench terraces and constructing the most cost-effective land structure. DLD should draw upon the findings of RFD in the Mae Sa Project to use as guidelines.

15. SHOULD THE PROJECT SUPPORT RICE BANKS?

FINDINGS

Rice Banks in Northern Thailand

Rice banks are already a common practice in a number of villages in Mae Chaem and throughout northern Thailand. Some of these were started by missionaries, and others by the border patrol police, agricultural extension agents, and field staff from other governmental agencies. The UNDP/ONCB HAMP project has established rice banks in many of its project villages. In 1980, the ONCB sponsored a study of rice banks in northern Thailand. The study concluded that "rice banks established by governmental agencies or organizations without having people participation do not work well because the villagers do not feel involved or responsible, so they do not care to repay the rice loan...." However, the study found a number of rice banks that were functioning well after several years or more of operation. A wide variety of management systems are being used for these rice banks, and terms of repayment differed. Some of the rice banks also served as a marketing facility for the village people.

Mae Chaem Rice Banks

The IF teams, in their small village projects self-help program, provided construction support for 10 rice banks that were already in existence but in poor physical condition.

The village provided labor and local materials, and the project provided materials from outside the village such as metal sheeting and nails. These rice banks were either self-started by

the villagers or had some initial help, but all have been operating on their own. The evaluation team visited one village where the IF team had helped to start a rice bank by providing some of its own money for the initial supply.

Eighteen rice banks have been started in Mae Chaem with management support from the Community Development Department. The Mae Chaem District Community Development officer reported that those rice banks initiated by the villagers are successful, and the repayment rate for the 18 rice banks averages about 80 percent. A critical factor in the success rate of each bank is the strength and ability of the village leaders. The banks have been operating for two to three years. They use an interest rate of 30 percent. A problem they have had is that the villagers donate their own rice and there may be an overall shortage of rice in the area, limiting the rice available to donate.

Karen Rice Banks

Among the local hill-tribe groups, the Karen have the best reputation for managing their own rice banks. One Karen village (in Ban Thap), visited during the evaluation field work, has had a rice bank for several years that was operating successfully without close management assistance from outside. A missionary had initially provided a small amount of rice to start the bank. According to the headman, any villager needing rice can request it from him or from any one of several village leaders who can authorize the loan. There were about 10 households in the village, and none was self-sufficient in rice production. The heads of more than half of the households are opium smokers, and most of the men in the village must find work outside the village to meet 30-50 percent of their food needs. Yet the headman reported that there have not been any defaults on repayment to the

rice bank and that the interest rate of 30 percent continues to increase the total stock. The missionary visits the village once a year, and the village appears to be doing most of the management of the rice bank on its own.

Missionaries who are familiar with some Karen rice banks contend that there is a strong chastisement by the villagers for a villager who does not repay his loan.

Other Examples

At one village the team visited, the headman described how the village started its own rice bank. To become a member, one had to contribute three tang (45 kg) of rice and could borrow 10 tang at a 30 percent interest rate. A poor person who did not have rice at the time the contributions were made could borrow 7 tang and would have to pay back 10 tang plus 2 tang interest. This worked successfully as the poor wanted the rice bank to be available to them in the future, and they managed to make their repayments.

At another village, a rice bank was set up by the border patrol police, and the bank functioned well as long as the police were present in the area. When they moved out, the headman did not have the ability to discipline the members. Enough of them did not make their repayments, and the bank failed.

Project Funding for Rice Banks

The project currently has a revolving fund budget for FY 83 totaling 5.2 million baht to use for rice banks. This money comes from the governmental budget; if it is not used by the end of this fiscal year, it must be returned to BOB. The plan was to use this money for the rice bank component of the BAAC/cooperative credit program, which has yet to be approved.

Repayment in a Rice-Deficit Area

BAAC has argued that rice banks in the area cannot be successful because the district has a rice deficit and the farmers, lacking rice self-sufficiency, would not be able to make the repayments. The farmers, however, must still buy rice for their families or borrow it using credit from their next rice harvest. If the loan is from a merchant, the interest rate is likely to be considerably higher than the rice bank would charge. The rice bank therefore provides a buffer between the rice-deficient farmers and the very high interest rates of the merchant. The farmer's off-farm employment is the key to his ability to feed his family and pay back a rice bank loan with interest. The rice bank is used in some villages to purchase rice at wholesale prices and make it available for sale to villagers at low cost. This could help overcome any possible difficulty of purchasing rice for individual needs in a rice-deficit area. The rice bank would have a sufficient economy of scale to make the wholesale purchase and arrange for delivery from the Mae Chaem market or more distant locations where rice can be purchased at wholesale.

CONCLUSIONS

Rice banks appear to be viable over the long term when the villagers see the bank as their own and understand how to manage it.

The rice banks serve a useful purpose, providing a needed commodity at a reasonable rate and thereby protecting the rice-deficient farmers from the high interest rates charged by the merchants.

The rice banks are also useful in developing group decision making. They may be especially helpful in getting project activities started in hill-tribe villages.

The sub-subsistence farmers can pay back the rice loans from both their farming and the money they earn as laborers outside the village.

RECOMMENDATIONS

- The project should support the development of rice banks.
- A rice bank should be supported only if a village or a farmers group within a village has requested assistance, has made a commitment of its own resources, and is considered potentially capable of managing it independently.
 - The project should provide a matching fund to lend an amount of rice equal to the amount that is contributed by the rice bank members.
 - The loan from the project should be paid back over a four-year period with 10 percent interest per year.
 - For the storage facility, the project should provide any necessary metal sheeting and other outside materials at no charge; the villagers should provide their labor and local materials at no cost to the project.
- The rice bank assistance should be provided directly by the POU (through a revolving fund) and IF teams and not through the BAAC or cooperative. The production credit program proposed for the BAAC should be independent of the rice bank program. The IF teams should help develop the management capability of the villagers so that the rice bank can be managed by the villagers themselves. The rice banks should be developed to operate without the need for any outside management assistance. A rice bank should cover no more than one village, but could cover only a sub-village group if that group showed it could provide

more cohesive and viable management than the village as a whole. The key should be the group or village potential for a viable, long-term management system.

- Interest rates that the rice banks charge should be the decision of the rice bank members, but should be enough to repay the loan to the project and at least replenish the stock each year.

16. WHAT IS THE STRATEGY FOR PRODUCTION CREDIT?

FINDINGS

Original Plan

The project paper had the production credit component of the project tied in with rice bank loans. The implementing agency for both was to be BAAC. According to the project paper, BAAC was to supervise credit operations in the watershed, including:

- Managing rice banks;
- Providing cash credit, as appropriate; and
- Training of IF teams in assessing villager credit needs and preparing requests.

The project agreement also gave the role of loan disbursement and collection manager to BAAC.

New Proposal

Despite the intention of giving BAAC the credit role in the project, the bank was not convinced that it could or should offer such credit to project farmers. After the Mae Chaem project began, BAAC sent a study team to Mae Chaem and reported back that the bank should not provide credit for rice banks, nor should it operate on its own to support the project. Instead, it should work through the Mae Chaem Agricultural Cooperative Association Ltd. BAAC then developed a plan with the Department of Cooperative Promotion to set up jointly a credit operation, wherein the cooperative would handle the rice banks plus use BAAC money to lend to its members. This proposal was prepared for AID

but was written in Thai, and both DTEC and AID insisted on an English version before it could be officially received. The English version had not been submitted during the course of the evaluation.

Description of BAAC Regular Operation

BAAC only offers credit directly to:

- Individual farmers (through informal farmer groups);
- Official cooperatives; and
- Official farmer associations.

Short-term, seasonal loans to individual farmers have a high repayment rate. Individual farmers must use a system of joint liability, grouping 5 to 30 farmers together. The bank charges these farmers 14 percent annual interest. It does not use a collateral system requiring assets to guarantee loans but instead relies on the farmer groups to exert pressure on their members. Eighty percent of the loans are repaid on time, and there is only a 2 percent default rate. This low default rate is attributable to the groups in which non-repayment by a farmer generally elicits strong response (social pressure) from the other members. Each farmer in the group is individually approved by BAAC and must have surplus production, which is calculated per farmer and not by group average. Loans to the group are for specified crops. This facilitates the internal oversight factor, as farmers growing the same crop are better able to watch one another.

The official cooperatives can borrow from BAAC at an annual interest rate of 11 percent for money that is onlended to members. The cooperatives manage to get only a 50 percent repayment from their members. The repayment rate from the cooperatives back to

the bank is a dismal 43 percent. Thus an additional 7 percent default rate is attributable to cooperative mismanagement. The farmer associations have the worst record, with a repayment rate of about 33-35 percent.

In 1981, BAAC disbursed short-term loans totaling approximately \$265 million to client farmers. The bank's client farm families in 1981 totaled over 1 million and represented 20.5 percent of the farm families in Thailand. The cooperatives channeled BAAC credit to an additional 791,483 farm families, and farmers association credit services went to an additional 230,728 farm families.

BAAC was not established as a profit-oriented bank, but nevertheless attempts to maintain viability through efficient management and a business-like policy. Approximately 40 percent of the bank's funds come from commercial banks. The government requires that all commercial banks channel a percentage of their total deposits into loans to farmers for agricultural purposes. That percentage stood at 11 percent for 1979-1982 and is now at 12 percent. Those banks that cannot meet this target must place the unlent portion of the allocation on deposit with BAAC. The bank borrows from the Bank of Thailand, the general public, and foreign sources. Of the foreign sources, the Japanese government loans total about \$80 million, the U.S. government about \$10 million, and the World Bank about \$6 million.

BAAC has been able to borrow at relatively low rates, and in 1981 its total cost of funds amounted to only 9.5 percent. The bank's operating costs were 5.23 percent, bringing the total cost to 14.73 percent. In addition to the bank's loans to farmers, the bank generated income from funds on deposit with other banks and from loans on the local market. Total earnings in 1981 came to 15.63 percent, giving the bank a profit of 0.9 percent.

The cooperatives are rated by BAAC according to their assessed capabilities, and the loan levels match the grades. The cooperatives are graded one, two, or three, with three being the lowest capability. The Mae Chaem Cooperative is rated three. BAAC officials said they prefer not to work with cooperatives because of the low repayment rate, but they agreed to the joint proposal for Mae Chaem because they could not independently support the project's rice banks. They thought that the performance of the Mae Chaem cooperative could be improved if the project were to provide support for it.

Surplus Production Requirement

If BAAC were not to work through the cooperative but rather provide direct support to farmers for production credit (putting aside the question of rice banks), BAAC regulations would dictate which farmers could receive credit. BAAC officials were very clear that their operation is not intended to provide credit to farmers who are poor risks or to subsistence farmers. One criterion for participating farmers is that they have surplus production that can be sold. The officials contended that without surplus production the farmers would be unable to repay the loan. They do not acknowledge off-farm income as a sufficient financial resource to enable repayment. This would eliminate most of the farmers in the project area.

The officials were asked if they could provide credit to farmers who are not surplus producers but who have the potential to be if they could obtain credit for purchase of the inputs that would boost their production to an acceptable level. They replied that maybe they would, dependent on an assessment of this potential and the degree of risk involved. BAAC is not prepared

to take unnecessary risk. It has a new project being planned to provide credit-in-kind to potentially viable farmers in the northeast, but the risk is being covered by the International Fund for Agricultural Development in Rome.

Experience with Upland Farmers

BAAC has provided credit to upland farmers (including hill-tribes) in the north for the FAO-funded Mae Sa Watershed Development Project and the HAMP project. The risk for the Mae Sa project was covered by a 20 percent loan guarantee from FAO, and the HAMP project also provided a 20 percent guarantee, backed up by an extra 30 percent if needed.

BAAC also provides credit to farmers in a project operated by the border patrol police in Mae Hong Son Province. The repayment rate in that project is about 80 percent with the success attributed to close supervision by border patrol police field staff. The HAMP project has had a repayment rate of about 86 percent. Its success is mostly attributed, according to BAAC, to the fact that HAMP field staff control the money by doing the marketing for the project villages.

Marketing Assistance

BAAC officials felt they would have more confidence in being repaid by the Mae Chaem farmers if the cooperative or the project were to do the marketing for them. They expressed concern that there would be too little surplus production in many project villages to interest merchants and that some of the villages were too remote to motivate merchants to make the trip.

Natural Informal Groups

Another concern of BAAC was the makeup of the informal farmer groups. The bank has denied requests for credit from projects where the groups are formed by the decree and selection process of the project officials. The only farmer groups BAAC accepts are those formed by the farmers themselves. If it is not a natural, social grouping, according to BAAC officials, the peer pressure factor is not strong enough to promote repayment.

Citizenship

Another BAAC criterion for farmer participation is that the farmers be "juristic persons," that is, Thai citizens or holders of identification cards. A large majority of the hill-tribe farmers in the project area have identification cards. The governor of Chiang Mai (the Mae Chaem project director) has expressed his intention of stepping up the program to give hill-tribe people ID cards.

Land Ownership

An additional criterion, and a difficult one for project farmers to meet, is that they not be squatters, that is, farming land they do not own or rent. Most of the upland region is government-owned land, and most farmers are cultivating the land illegally. RFD administers the use of the land, and does not employ law enforcement methods to stop farmers from this illegal use (although it does try to reforest land left in fallow). The upland villages have their own system for respecting land use rights on this government property, but because it is not recognized by the government, the farmers are considered to be squatters.

The project's land use certificate program is intended to give the farmers a legal right to use the land. The program is only just starting, and the first group of farm families will soon receive certificates. While many farmers will eventually benefit from the program, progress is expected to be slower than the expected demand for credit.

Loan Guarantee

BAAC officials expressed their interest in providing more credit for hill-tribe farmers but want to do so within the parameters of bank policy. They do not see much chance for change in the constraints regarding non-juristic persons and squatters, but they expressed a willingness to be flexible with regard to non-surplus producers. However, they are not willing to take on the additional risk without a back-up fund from the project to cover them. They were concerned that if this back-up were a 20 percent loan guarantee, and if this were made known to the credit recipients, there was a possibility (based on their experience elsewhere) that the farmers would only pay back 80 percent of the loan and consider the 20 percent to be a gift from the U.S. government. They suggested that any loan guarantee be either confidential or disguised by using other terminology.

Number of Field Offices

BAAC officials also expressed interest, if project support were forthcoming, in setting up a field office in Mae Chaen. Normally a minimum clientele for a field office is considered to be 500 families, and these would be served by a single credit officer. However, due to the scattered nature of the project villages, their remoteness, and the poor condition of area roads, they see a necessity of two to three officers to cover 500

families, although this number could be reduced during the IF team implementation period if the IF team members could be adequately trained to assist a credit officer.

Loan Facilities

The officials requested some assistance from the project, in addition to the loan guarantee (or facsimile), for initial housing, office space, and transportation. They are aware of the facilities provided to the other agencies working in the project.

BAAC is operating an agricultural input credit program that uses vouchers instead of cash. A participating farmer would receive a voucher and be able to redeem it for agricultural inputs with a registered merchant. BAAC selects merchants for the program and supplies them with low cost inputs (through national purchase). They monitor the program to keep it honest and try to have a sufficient number of merchants to supply an area adequately. They dictate the markups that the merchants can charge and calculate into these real transportation costs, which would be an important factor in the Mae Chaem area. They do not insist that farmers be limited to this voucher system and provide a cash alternative when there is an inadequate registered merchant capability in an area.

BAAC does not provide credit for merchants or for agricultural processing operations.

Bangkok Bank

Bangkok Bank has also provided credit to upland farmers, and the evaluation team heard indirectly that the bank was interested in expanding its agricultural credit program. Although Bangkok Bank was the first commercial bank in Thailand to offer credit to farmers, it has never made a strong commitment in this sector.

Bangkok Bank provided a credit service for the Thai Australian Project between the years 1978 and 1980. The program was very successful, given the 100 percent repayment rate that was achieved. When project assistance was withdrawn, the bank ceased its operation despite its previous success. It may have done so due to lack of confidence that the high repayment rate could be sustained without the project's services and presence.

CONCLUSIONS

The BAAC restrictions on which farmers can receive credit limit the extent to which the bank can assist project farmers. Most of the farmers will not qualify for loans because of at least one of the following conditions:

- They are at sub-subsistence levels;
- They are non-citizens and do not have identification cards; or
- They are illegally farming government-owned land.

The sub-subsistence farmers borrow from money lenders or merchants at very high interest rates at the expense of much of the value of the next harvest. They pay the interest but then must earn that much more through off-farm labor to afford the loans. The low-interest (12 percent) BAAC credit would give them more of the value of their crop, and off-farm labor would enable them to repay the loan even if they were at a sub-subsistence production level. This would hold true for farmers who were interested and capable of improving their economic condition. Many of the area's poorest people are not capable of such improvement due to opium addiction or other factors that would have to be considered in participant selection. Yet sub-subsistence farming alone does not appear to be the only determining factor in loan repayment capability. Their

participation in the agricultural production improvement program would be a positive factor in their selection.

BAAC appears willing to be flexible in offering credit to farmers who are not currently surplus producers but, with the help of the project, have the potential to produce a surplus. The bank wants the project to assist in covering the risk of such loans and in providing initial office, housing, and transportation facilities (which the other participating agencies are already receiving).

The project's land use certificate program will give farmers a legal farming practice to meet this BAAC requirement. The governmental program to give hill-tribes identification cards will also help to make more farmers eligible for loans.

BAAC has had considerable experience working with upland farmers in development projects (with high repayment rates) and should be capable of managing a credit program for the Mae Chaem project with initial help from the IF teams.

BAAC lends to credit-worthy farmers who form groups of 5 to 30 farmers to provide collective liability. These groups must be natural, socially cohesive groups. The groups that are being formed with the help of the IF teams would meet this criterion.

The Mae Chaem cooperative is not currently capable of providing effective credit services to project farmers.

Some project villages may not have sufficient surplus production to be able to market the surplus efficiently (relative also to road facilities and distance from market), and therefore not qualify for BAAC credit.

Bangkok Bank is a potential alternative to BAAC as it has the experience and possibly the interest to undertake the credit service, but may not maintain the operation after the project is completed.

RECOMMENDATIONS

- BAAC should be requested to provide production credit to project farmers without using the Mae Chaem cooperative and without involvement in the rice bank program. It should be asked to be as flexible as possible in its criteria for selection of farmer participants. The project should help BAAC by covering the risk with a 20 percent loan guarantee, and work with BAAC to develop a mechanism whereby the loan is not seen by the farmers as a direct grant to them.
- The project should expand the land use certificate program as much as possible to enable more project farmers to qualify for loans. The IF teams should help expand the ID card program for this same reason.
- The project should view the BAAC operation in Mae Chaem as the start of a long-term service to the area. This means that the project must prove to BAAC that even non-surplus producers can be credit worthy or that there is sufficient business in the area, using current criteria and procedures, to merit a long-term operation. Although the IF teams will have to supervise the loans during the first few years, project loan support services should be withdrawn before the end of the project to demonstrate to BAAC that its credit program can stand on its own. Otherwise, BAAC may withdraw when the project terminates.
- Bangkok Bank should not be asked to provide credit for the project unless the bank clearly intends to stay in the area after the project terminates (given an adequate market for loans). Even if the bank states its intention to provide long-term service, the project would be an experiment, which is very different from the bank's regular service. It may therefore decide against a small farmer credit operation in general, even though it achieves success in Mae Chaem.

Any other credit institution would also be risky to use if small farmer credit were not part of its regular operations (an institution may agree to provide a broader, more comprehensive service to project farmers with project back-up than would BAAC -- but it would be a disservice to the farmers if the service would not be continued after the project terminates; the institution must have the interest and capability to continue).

- The project should provide office space, housing, and transportation as an incentive to encourage BAAC to move into the area and feel comfortable working there. (The line agencies are assisted by the project, and BAAC should be assisted equally.)
- BAAC should provide special training for the IF teams so they can effectively assist the credit officers.

17. CAN THE MAE CHAEM MARKET HANDLE UPLAND CROPS?

FINDINGS

The Thodey Study

During the planning phase of the Mae Chaem project, a marketing study was undertaken by Dr. Alan Thodey. His report describes the private merchant marketing system that operates in Mae Chaem. The report concludes that the system is efficient for marketing traditional upland crops such as maize, soybeans, mung beans, onions, garlic, and sesame, but not well developed for fresh fruits and vegetables or for new highland crops that have been recently introduced as replacements for opium.

Transportation was the main constraint for fresh fruits and vegetables, while an inadequate economy of scale was the constraint on new highland crops. Dr. Thodey recommended improvements in the infrastructural environment of the market, including more and better roads and transportation and communication facilities, and more complete market information and analysis.

The evaluation team found no strong signals that the private marketing system was not meeting local needs for traditional crops. Since Dr. Thodey's study, not much has changed in the marketing infrastructure for the link between Mae Chaem and Chiang Mai. The road trip takes two and one-half to three hours. No telephone communication between the two towns has been established, and this continues to be a barrier to timely price information.

Road Construction

The construction and rehabilitation of roads from Mae Chaem into the project villages will greatly improve the marketability of crops but will also facilitate the entry into the uplands of lowland Thais who will compete for scarce agricultural land. The roads also increase the rate of destruction of the forests, but they will be built anyway as the government wants them for security reasons. The marketing benefits will be a by-product of the road construction program.

Agricultural Inputs

Agricultural inputs are supplied by both the private sector and government agencies. The DOAE program provides free fertilizer seed and other inputs for farmer demonstration plots. There is no evidence that the private sector cannot supply adequate quantities of agricultural inputs.

Farmer Groups

The DOAE project plan for FY 83 included the establishment of 15 farmer groups, one in each of the project's key villages. Many of the farmers in the project area produce at below subsistence level and participate in the market economy only as rice purchasers. They will need assistance in understanding marketing practices and entering the market. The farmer groups represent an efficient means to provide this assistance.

Mae Chaem Cooperative

The Mae Chaem Agricultural Cooperative Association, Ltd. was set up in June 1977 and provides marketing services, credit, and input supplies to its 306 members in Tambons Chang Khoeng and Tha Pha near to Mae Chaem town. The cooperative was operating until

early 1983 without a trained manager or a credit officer, accountant, and supply clerk, although the Department of Cooperative Promotion was supervising its operations. The cooperative was recently evaluated as part of a nationwide survey of cooperatives and received one of the lowest scores. The members had been depositing their savings in the cooperative and much of this money disappeared, with the manager being suspect. A new, well-trained manager has taken over and improved the operation of the cooperative, but this has happened only recently. The long-term capability of the cooperative to provide efficient and effective services to its members has yet to be proven.

During the period the evaluation team had been in the field, the Department of Cooperative Development of MOAC unofficially proposed to AID to expand the Mae Chaem cooperative to service the project's villages.

The record of cooperative development in Thailand shows few successes and many failures. The latter are due to the strong role of government officials in managing the cooperatives. These officials have much less motivation to maximize efficiency in contrast to private sector entrepreneurs. Mismanagement of funds has been a problem. The cooperatives often have higher overhead costs compared with those of private merchants. Marketing studies in Thailand have shown that merchants working in a competitive environment (which is often the case) operate at very low overhead and profit margins.

Experience with cooperatives in Thailand shows that members need to be able to protect their own interests and to understand and oversee the cooperative's management. It is possible that the Mae Chaem cooperative can be managed in a way that protects the interests of the members, and may do so while the project is in place. Over time, however, the potential for abuse is strong. The educational level of many Mae Chaem farmers is very low, and there is considerable evidence that lowland Thais have little

respect for, and may take advantage of, hill-tribe people, who would represent a sizable proportion of the membership.

Fresh Fruits and Vegetables

The marketing of fresh fruits and vegetables is problematic, as they are subject to rapid spoilage and often have such a low price per kilogram that transport costs would price them out of the market. Some upland crops mature at a different time than those same crops mature in the lowlands, and a better price can be obtained in this off-season market.

Agro-Forestry

The CARE Agro-forestry Project is the main resource for agro-forestry development in the Mae Chaem project area. The crops they are extending are new to the area and do not have an established market. The CARE project includes assistance in marketing these crops and creating marketing channels that would continue to operate after the project has terminated.

Coffee has received considerable attention in hill-tribe projects in northern Thailand over the last 10 years, and production levels are now high enough to attract local merchants. An adviser of one hill-tribe project estimated that production at any one location would have to reach about 10 metric tons (about 25 rai) before a merchant would come in. The adviser of another hill-tribe project thought that even lesser amounts would attract merchants.

CONCLUSION

The private sector marketing system appears to be well enough established to handle most of the traditional field crop production in the Phase I and II areas. The private sector also

appears capable of supplying sufficient quantities of agricultural inputs.

Fresh fruits and vegetables may not find easy markets if they spoil rapidly or the cost of transportation is too high relative to the price per kilogram in the market. The marketing capability for new cash crops is inadequate and will have to be developed through improved communications with merchants.

While the project could support the Mae Chaem cooperative to market traditional crops and supply agricultural inputs, there is a risk that over time it would be subject to mismanagement. In addition, it may not treat the hill-tribe members properly.

The existing communications system linking Mae Chaem with Chiang Mai, and the capability to provide timely marketing information to project area farmers, are inadequate.

The marketing of new cash crops introduced through the CARE Agro-Forestry Project (which supports the Mae Chaem project) appears to be receiving proper attention in the project. The CARE project manager has been personally making contacts with agricultural processing companies and other commercial establishments, including exporters.

RECOMMENDATIONS

- The POU should obtain the services of a marketing adviser for critical harvesting and planting periods (a total of three months per year for two years) to obtain price information from Mae Chaem and Chiang Mai markets. The adviser would estimate future market prices for crops the project area farmers want to plant. He would also set up communications with many of the area merchants to respond to the needs of farmers, farmer groups, and IF teams. There are many merchants ready to respond to project marketing needs, but they do not have adequate information. Better communications will also facilitate the timely supply of agricultural inputs. The adviser

would preferably be a native of northern Thailand with a degree in agricultural economics and practical experience in marketing crops through the Chiang Mai market.

- The project should continue to develop and promote farmer groups to obtain greater economies of scale for marketing and for purchase of agricultural inputs. It should not create a dependency of farmers on the Mae Chaem cooperative; instead it should encourage development of the private sector to provide marketing services as efficiently as possible.
- Crops should be chosen for extension that would not be easily damaged during transport and not too costly to transport.
- The CARE project should continue to be supported by AID and include in its program a marketing information system and market development for new cash crops it introduces.
- The in-service training program for IF teams should include training in marketing.
- The extension program should provide agricultural inputs for demonstration plots. For regular production, no farmer dependence on subsidized government supplies should be created if these cannot be continued after the project is completed. Subsidized or free supplies should be used only in a way that does not create an artificial support system that cannot be maintained.

18. WHAT IS THE POTENTIAL FOR INSTITUTIONAL AND FARMER BENEFIT SUSTAINABILITY?

FINDINGS

Institutional

Line Agency Resistance to Integration

The project has an institutional home in MOAC, but its Projects Division, which oversees the project, is not an implementing agency. The agencies that implement the project are part of MOAC but in practice have very independent operations. The Thai government and various donor attempts at integrating the activities of these agencies at the regional, provincial, and district levels and for specific projects have shown that they resist integration. It appears that the agencies give attention to projects for which they have full responsibility and will receive credit for their achievements. For projects that they are asked to share the credit among many implementers, they have less incentive to dedicate quality resources, if they have to provide resources at all. When agencies do work well together, it is often because of an already existing personal relationship between the people in the leadership positions.

Political Pressure

This project had coordination and integration problems resulting from a poorly conceived management structure. Steps were taken to strengthen field management, and coordination improved. The project is unique because the governor is project director, and has taken a very active interest in the project. Assisting him is a well-respected former nai amphur of Mae Chaem District and the director of the NADC, who is also well-respected. They provide strong leadership and political clout. In addition, the project has received the attention of the Council of

Ministers, the king, and the American Embassy. It is also being supervised closely by the permanent secretary of state of MOAC. With all this attention and pressure, the line agencies have been willing to provide adequate support to the project in spite of their subordinate roles.

Lack of a Lead Agency

The project was not set up to have a lead implementing agency. The idea was that if the coordinating unit were neutral, the implementing agencies would be more likely to work with it than if it were another agency. AID had originally planned to have a lead agency and reviewed proposals from Thai government agencies before deciding on this neutral coordinating unit strategy. This process of searching for a lead agency and then planning the project without one took a number of years. Some of the problems with the potential lead agencies are described below.

RFD is the agency most involved in watershed management, but it has focused on reforestation rather than on providing development benefits to farmers on the land they now cultivate. RFD was seen to have an important role to play in the project but did not have the development strategy that AID wanted in this project. RFD is expanding its capacity to handle a wide range of development activities, but its focus is still reforestation, sometimes at the expense of the farmers.

DLD has one of the biggest roles in the project, but its orientation is on completing water control structures and land contouring and is less attuned to bottom-up planning and local participation, which were important to AID. DLD would prefer to do land terracing with bulldozers than hand labor using local farmers (an important input in the project strategy).

DOAE was not favored as lead agency because it had not yet developed a strong enough field implementation capacity and had done very little work in the highlands.

DOA was not favored because it is oriented toward research, and this project has only a minor research component.

Agencies outside of MOAC that might be likely candidates for the job of lead agency are:

- The Public Welfare Department, which has a long history of hill-tribe development work but is spread very thin supporting the Thai Australian Project;
- ONCB, which had an implementing role in the UNDP-supported HAMP project but is now backing away from implementation (the agency could be a coordinator but has had difficulty drawing on the resources of MOAC agencies. It also has an opium crop replacement focus, which is only of secondary importance in this project); and
- The Community Development Department, which can provide good village-level, people-oriented workers but has almost no experience in hill-tribe areas. It has trouble drawing on the resources of MOAC agencies and does not achieve the intensity of development that is desired in this project.

Sustainability at the Field Level

Project field management is centered in the POU, which is financed mostly by the AID grant. When the project terminates, the POU operation is likely to cease as it does not have a line agency home. It is possible that NADC could take the POU role, but this would be at odds with the concept of decentralization where district and provincial-level authority prevails.

The issue of line agency sustainability is examined in Issue 4.

Farmer Benefits

The strategy of the project is to have the farmers participate in the planning of the development activities that will affect them. It also attempts to have them contribute to these activities so that they take pride in the results, have made an investment in their operation, and will take responsibility to maintain it. The land use rights they will receive will make that ownership more tangible and the investment more long lasting. The training of the farmers in better agricultural techniques, and the development of better village organization and farmer groups for creating better economies of scale for linkage to markets, will give them more strength to care for themselves. The project assistance in developing a continuing government-assisted production credit service, the provision of rice banks to remove some of the debt burden of the poorer farmers, and the project strategy of developing a competitive, private, commercial marketing system will give project farmers more capability to help themselves and result in more strength in the market.

The above strategy is starting to be applied, and some of the evaluation recommendations are directed at maintaining the strategy across a wide range of project activities. The evaluation team recommends slow withdrawal of IF teams from each area to give farmers a start in working without assistance but still having minimal support as they become more comfortable with the changes that have occurred. Mobile teams will provide a means to give this minimal support.

CONCLUSIONS

Institutional Sustainability

Institutional sustainability does not appear to be a primary objective in this project. The focus has been on how to make the project manageable, even if there is little hope of replication for future projects. The characteristics of the project area (remote uplands), the target population (a mix of Thai and hill-tribe groups living at different altitudes and in different conditions), and project strategy make it difficult to identify a proper lead agency for this project. However, coordination is occurring without a lead agency. Using the governor as project director and the changwat administration for coordination could be a step forward in demonstrating the efficacy of decentralized development. However, the situation is not replicable due to the atypical strong role of MOAC in Bangkok and the exceptionally strong interest of the governor. The project could evolve into a better experiment in decentralization as pressures from Bangkok wear off and implementation becomes more routine. Yet there is still not enough authority over the project's line agency units at the provincial level to ensure that a reasonable level of coordination would occur without the special attention that the project is now getting from Bangkok.

The AID grant supports the POU operation, and when the project terminates, the POU operation will cease. To the degree that line agency operations are decentralized to the provincial or district level, however, the POU function could be in the hands of the governor or nai amhur.

The institutional strategy may provide some lessons for other projects to follow. A sustained governmental institutional capacity appears to be elusive in this project, but there is a

strong likelihood that development efforts in the northern watersheds will continue to be strongly supported by other donors, if not AID. The institutional strategy used in this project may prove to be valuable for other donors.

Farmer Benefit Sustainability

There is a possibility that a significant level of benefits can be sustained in the project area, given the project's strategy of promoting self-help and local participation. One important factor will be the type of technology transferred, that is, whether it is simple enough for the local people to master without an exceptionally high level of continuing support and whether their training is adequate. Until the farmers have confidence that they can continue using new technology at low risk (without constant outside assistance), they will be reluctant to carry on with activities the project has started.

Providing the farmers with land use rights, linking them into the commercial marketing system with appropriate credit facilities, and improving their technical capability will ensure a greater level of benefits.

RECOMMENDATIONS

- The project's line agency operations should be integrated with the regular district and provincial operations of these agencies during the course of the project.
- The project's farmers should be slowly weaned from the project by slow withdrawal of IF teams and the use of mobile IF teams before the project has ended.

19. HOW DO PROJECT COSTS COMPARE WITH PROJECT BENEFITS?

FINDINGS

The project paper estimated the benefit/cost (B/C) ratio of the project to be 1.30. In addition, non-quantifiable benefits were also identified and were considered to have a substantial effect on raising the B/C ratio. These non-quantifiable benefits were thought to be:

- Road rehabilitation and erosion control;
- Non-agricultural fire control;
- Woodlot and enrichment plantation;
- IF team activities; and
- Outside research.

The project paper included a breakdown of the B/C ratio by individual project activities. Waterwork development showed a B/C of 2.94, and land development a B/C of 4.83. The B/C ratios were calculated using estimates of increased rice and second crop production on improved land. The evaluation team found that yield estimates for the improved land were realistic. However, the team had doubts about the number of farmers who can be effectively reached by the project in a way that significantly changes and improves their farming systems by the end of the project. The information provided in the project paper's back-up tables and assumptions for the B/C calculations was not comprehensive enough for the evaluation team to assess completely the B/C ratios. The team's recommendations for changes in the project will affect the B/C ratios both positively and negatively.

If Ban Chan is eliminated from the project, there will be a sharp decrease in the amount of land available for water development and terracing. In the initial estimates, this tambon had 49 percent of the potential wet rice land in the project. It also had 29 percent of the potential upland fields. Development of this land also had a cost involved that will no longer be incurred, but the high B/C ratio calculated in the project paper for these activities will be lost. The evaluation team assessed a prohibitive cost for such activities conducted in Ban Chan due to the remoteness of this area.

The team has also recommended changes in the woodlot and agro-forestry components of the project, eliminating the former and increasing the latter. It was not clear in the project paper's B/C calculations how these were valued. The team views the benefits from agro-forestry to be very strong, but it will take more time to develop than other cash crops and may not be substantial until after the project has ended. Agro-forestry will provide benefits not only in terms of increased return on land that is currently cultivated. By stabilizing agriculture and allowing for more land to be used at any one time, production can also be considerably expanded. This will also be the case for upland terraces that can be used annually for subsistence and/or cash crops.

B/C analysis has been used during project implementation to decide whether specific sub-projects should be undertaken. One road rehabilitation project was cancelled when it was determined that the cost outweighed the potential benefit, given the small number of farmers who would use the road.

CONCLUSIONS

The quantifiable benefit/cost ratio of the project, at the time of project termination, will be lower than that estimated in the project paper. However, it is expected that the longer term benefits will be relatively high because of the long-term potential for agro-forestry, which takes time to develop. For the long term, benefits should be substantial, because the farming systems being introduced by the project will eventually result in more intensive farming, more land in production at any one time, and agricultural use of the land in a manner that will protect and maintain the watershed. The project will provide the means for these to get started by developing a capacity of the farmers to help themselves. At the end of the project, it will be more important to measure this capacity and the momentum that has been created by the project, than just the increase in production at that point in time.

RECOMMENDATION

- The project's monitoring system should specifically provide information on the capacity of farmers to help themselves. This will be qualitative-type information that the IF teams should be developing. The expatriate adviser and an information systems specialist should work with the IF teams to identify ways in which this information can be developed and compiled. It will require identification of indicators and reporting schedules that shows progress over time (see Issues 1 and 7).

20. WHAT EFFECT DO PROJECT ACTIVITIES HAVE ON OPIUM POPPY CULTIVATION?

FINDINGS

The evaluation team did not attempt to quantify land under opium poppy cultivation in the project area. Some poppy is cultivated in the Phase I area. However, the amount is not extensive, given the almost negligible presence of Hmong villages, which usually signal a poppy cultivation area. In areas where the Hmong cultivate poppies, other ethnic groups are increasing their poppy cultivation activities.

In one Karen village it was reported that roughly half of the village farmers had their own opium poppy plots. This village is at a higher altitude than most Karen villages (the opium poppy is a high altitude crop). A number of Karen farmers interviewed in the course of this evaluation reported that some men in their villages found employment in opium poppy fields near the border between Mae Chaem and Chom Thong districts. These men were not able to grow sufficient quantities of rice to feed their families and had no other alternative but to look for labor opportunities elsewhere. Many of the Karen who work as laborers outside their village are opium addicts who work the poppy fields for 40 baht per day plus a daily allowance of rice and opium.

The proposed Phase IIa area has four Hmong villages and the likelihood of opium poppy cultivation in nearby fields. In one Hmong village, Ban Pui, the United Nations has been operating a crop replacement program for more than 10 years. The village extension worker (Public Welfare Department) who has worked in the village for 10 years estimated that the village farmers would decrease their cultivation of replacement crops (kidney beans) and increase their poppy cultivation this year by about 300 rai, due

to a recent rise in the price of opium and lack of confidence in the replacement crops. The extension worker reported that in this area, lowland Thais have at least as much land under poppy cultivation as the Hmong.

The project agreement includes a special covenant under which the Thai government has agreed that:

...Assistance provided under the project will not be used in any manner for cultivation of poppy crops or opium and further covenants that it will effectively monitor and enforce such prohibition and take appropriate steps to terminate benefits to individuals using such assistance for the cultivation of poppy crops or opium.

The evaluation team did not find any evidence that project assistance was being used for cultivation of opium poppies. As the project operations are moved into areas where poppy cultivation is more prevalent than in the current Phase I area, the possibility of project assistance to be so used will be much greater. The need for more concerted monitoring will also be greater. Since poppy cultivation is limited to higher altitudes, and project land and water development activities are in circumscribed areas, monitoring will not be difficult for these specific land areas.

Project beneficiaries may be able to use project-supplied credit and agricultural inputs to cultivate poppies in fields separate from those developed by the project. These fields may be distant from both the village and the project-developed fields and therefore difficult to monitor. Experience in other projects indicates that opium poppy farmers do not readily give up their poppy cultivation when starting to plant alternative crops. Some Hmong and lowland Thai poppy farmers have established commercial farming techniques that utilize hired labor. For example, one Hmong farmer in the Phase IIa area has 200 rai on which he has 27 laborers working. He claims that he plants only kidney beans and

coffee on this land (for which he obtains credit from the HAMP project). Since his fields can be located over a wide area and he is not personally farming the land (nor is the land registered), it would be difficult to know whether part of this land, or additional land of his, was being used for poppies.

While this may complicate attempts to monitor how project assistance is being used, it should not be a reason to reduce or eliminate assistance to farmers who might also be cultivating poppies. It is only by establishing the cultivation of alternative crops that opium production can be eventually stopped. The Thai government argues that it cannot enforce the ban on poppy cultivation as long as the hill-tribes do not have a viable alternative means of livelihood. Without enforcement of the ban, farmers will take advantage of the high price of opium. While alternative crops may not be able to compete with opium in the marketplace under current conditions, enforcement of the ban would increase the risk to farmers, and the price of opium would have to be much higher than alternative crops to be attractive. At that point, other crops could compete, but these must provide an adequate income and farmers must have confidence in that income.

CONCLUSION

It is unlikely that the project can have a direct and immediate effect on the quantity of opium produced in the area, as replacement crops are still being developed and take a long time to extend to these farmers. The activities of this project will help to identify and extend crops that have the potential to replace opium poppies over the long term.

The replacement crops will successfully compete with opium only when the poppy farmers are confident that these crops can provide a reasonable return from their land and labor. This situation has yet to be achieved. The Thai government will not

enforce its ban on poppy cultivation until there are adequate replacement crops. Until the ban is enforced and the risk factor increased, opium will continue to have an economic advantage over most replacement crops.

The evaluation team did not see any evidence of significant opium poppy cultivation in the Phase I operating area. For Phase II areas where poppy cultivation is more prevalent, the project will be able to monitor whether poppies are grown in fields receiving land and water development assistance and can prohibit this illicit cultivation. However, project beneficiaries may be using credit and agricultural inputs for poppy fields as well as project fields, and adequate monitoring of this use may not be possible. AID and the Thai government should assist opium farmers to grow alternative crops and monitor whether they are doing so, realizing that they may also be clandestinely growing poppies. Once viable alternative crops can and do provide significant returns to the farmers, the ban that the government has been unwilling to enforce can be enforced.

RECOMMENDATION:

- There should be no change in the project objectives or strategy regarding opium poppy cultivation. The project paper states that the Mae Chaem project "is not primarily a crop replacement project oriented to the sub-cultivation of remunerative cash crops for opium poppy. In its concern for raising the income and overall welfare of the watershed population, including the opium poppy cultivators, the Mae Chaem project will also advance RTG and USG Program objectives."

**21. HOW MUCH PROGRESS HAS BEEN MADE IN PROTECTING AND
MAINTAINING THE WATERSHED?**

FINDINGS

One of the major objectives of the project, as stated in the logical framework of the project paper, is to reverse the environmental deterioration of the watershed. Much of the forest land has been destroyed by farmers clearing the land for slash and burn, swidden cultivation. It has also been lost through forest fires that have spread uncontrolled from slash and burn sites. Additional land is lost as a result of poorly constructed and maintained roads, local fuelwood needs and illegal logging, and fires started by hunters to force animals out of the underbrush or by negligence. RFD estimates that about 80,000 rai of forest land are lost each year in the Mae Chaem watershed.

At present, the major effort being made to save the watershed environment is the RFD's program to reforest denuded slopes. The strategy is to plant pine trees on open upland fields. The department is reportedly reforesting about 40,000 rai per year, which means that the watershed is losing, net, about 40,000 rai given the 80,000 rai gross loss.

The project paper targets the number of rai to be developed over the course of the project at about 22,000. Yet at the current rate of destruction, the watershed will lose an additional 280,000 rai during the project's seven-year life. The project is also planned to reduce the rate of forest destruction by establishing and supporting fire control teams that will use new fire towers to spot fires. The teams will then be sent to extinguish them. There is no target given for the number of rai that can be saved by these teams.

The rehabilitation of 100 km of roads and the establishment of woodlots in project villages are other project activities oriented to watershed protection.

The evaluation team examined current and planned project activities and assessed their merit in achieving project objectives.

Road Construction

Many of the roads in the watershed are poorly constructed and are causing considerable environmental damage. Surface materials were often too erosive and not well compacted. Proper drainage facilities were not constructed or are not adequate to handle runoff, and road slopes and gradients were not properly designed. There have been problems with roads built by all three agencies doing road construction (highway department, RFD, and ARD). The result is that the roads need considerable maintenance, and the cost of this is apparently prohibitive. Approximately 400 km of roads have been built in Mae Chaem by the these three agencies.

The Thai government has been constructing roads, mainly for security. According to the governor, this security objective would override any environmental arguments against the roads.

The roads are important for marketing agricultural produce from the project villages. The viability of many of the cash crops that are being extended by the project depend on low-cost transportation to markets. Without a good road, many merchants will be unwilling or unable to reach an area that could support a reasonable level of production. Annex A-2 of the project paper states that 35 percent of the population of the watershed lives

within 5 km of all-weather roads at the present time. Recent road construction has probably increased that percentage but not significantly. This lack of roads will affect the types of cash crops that the project can extend.

The project's road rehabilitation work was delayed by the AID freeze and financial management problems. The latest start date was May 1983. Twenty-six km of road are to be rehabilitated over a nine-month period. A contractor has been selected and has sent equipment into Mae Chaem (the company is located in Lampang Province), but the contract was not yet signed in early May as the funding had not yet been allocated from BOB.

In-migration

The rate of environmental degradation has increased due largely to population pressures. In the traditional slash and burn agricultural system, a swidden would be used for 2-3 years and then left fallow for 5-10 years. This system needs a considerable amount of land for each farmer. As a result of population growth and a limit on the amount of land available, the fallow cycle has been reduced, thus putting added stress on the land being cultivated. In addition, more land is under cultivation at any one time. The population pressure comes not only from increases in the number of hill-tribe farmers, but also from the lowlands where lack of land is forcing many lowland farmers into the hills to use slash and burn agriculture.

The project activities may attract new people into the watershed, putting further pressure on scarce land resources. The people could be attracted by new infrastructure, improvement in extension services, and a stronger local economy. However, the evaluation team found no evidence that in-migration has started to occur. Nor did the team find evidence that the project activities would be likely to draw significant numbers of people into the watershed. Mae Chaem still has a long way to go before it reaches

a level of development that makes it attractive compared with many other areas in northern Thailand. Also, other projects have not had an in-migration problem unless there were many giveaways (this happened in a Mae Sa resettlement village) and unless the benefits were something the people wanted. There are several examples of projects where development services were offered but were rejected by the intended beneficiaries. Many hill-tribe people remain suspicious of the government and do not want to be involved in government projects.

If the project succeeds in promoting widespread use of terraces and agro-forestry, the result will be more intensive use of watershed land. This will make some of the currently used land available to new farmers. Some in-migration may take place if this happens. However, since the land is being used in an environmentally safe manner, further destruction of the watershed is avoided. In fact, adoption of these technologies will improve watershed conditions, even if many more farmers are using the land. Moreover, to the extent that farmers have perennial crops that can be destroyed by fire, they will see the direct benefits in controlling forest fires.

Forest Fire Control

During the burning season which lasts from February to May, the project's fire fighting teams reported many fires each night and successfully fought an average of five to six fires per night. In the Phase I area, RFD has constructed 10 towers from which local villagers are paid to spot forest fires. There are three fire fighting teams, each with 15 members. Two of the teams work at night while one works during the day. The team members are paid 45 baht per day. They use four radios borrowed from the Mae Sa Project to communicate with the towers. Each team has an RFD

Landrover to transport them to the fires. At night they will walk up to two hours from the road to reach a fire. However, to poor road conditions and very few roads, many fires cannot be reached by the teams.

Woodlots

The woodlot component of the project is mainly intended to provide a controlled source of fuelwood to reduce the use of the forest as a source of fuel. Fast-growing tree varieties have been selected that are well suited to making charcoal. These varieties are:

- *Eucalyptus camaldulensis*;
- *Docynia indica*;
- *Acacia auriculasformis*;
- *Cassia floribunda*; and
- *Leucaena leucocephala*.

There may be some economic potential in producing charcoal for the lowland market. This was tried in several hill-tribe projects without success. The team heard conflicting stories about potential viability. One major problem would be transportation. Even if charcoal were a viable product, it would not necessarily make woodlots viable as the wood for charcoal is still available in the forest.

In 1982, RFD used its own budget to grow 300,000 seedlings in their nursery. The budget to plant these seedlings in project villages was to come from AID, but this money was frozen before it could be used and RFD did not have the means to distribute the seedlings to the villages. Finally, CARE helped RFD distribute them to lowland schools and local people who requested them. Some are being used for experimentation on about 30 rai in the uplands.

This year, the plan is to distribute 300,000 seedlings on 375 rai in seven villages. The upland farmers will be told how the trees help hold water and they will be paid to plant the trees next to their village. This activity appears sound from an environmental standpoint but does not have a good economic base.

The hill-tribe people can now obtain their forest materials from the many trees that still remain near their villages. They do not see the value of cultivating trees when there are sufficient numbers of trees all around them. Unless the people appreciate the need for the woodlots, they will not provide adequate assistance in planting them (unless the project offers them a trade-off with other benefits or straight payment which is the current strategy), nor will they adequately maintain them. The value of the woodlots, for the watershed as a whole, will depend on many watershed inhabitants seeing the benefits and planting them on their own. In other words, the spread effect is the critical factor.

If the forests continue to be destroyed at the current rate, eventually the watershed inhabitants will not have a sufficient number of trees left to meet their fuelwood and construction needs. At that point they will see the value of woodlots and want to plant them. Unfortunately, by that time it may be too late. For some villages in the high altitude areas of the watershed where poppy cultivation has destroyed much of the forest, there may be some near-term interest in woodlots, but this represents only a very small percentage of the project villages.

Farmer Education

The IF teams have developed good communication with villagers and are in a position to educate them about watershed protection principles. They could be taught how fire destroys first the forest and then, by exposing the land to erosion, the agricultural

potential of the watershed. They could be taught how the trees protect the soil and that the trees must therefore be protected. They could be taught how terraces and other water control structures reduce the speed of water runoff and therefore reduce the potential for erosion. The evaluation team is unsure how much of this they already know and how much such education will help. It would be unlikely that they are ignorant of many of these principles since they have long experience with agriculture on steep slopes. Their behavior more likely reflects the reality of their situation: they are at poverty levels and must make the most out of what they can accomplish today without the luxury of time and energy to plan for tomorrow. Activities that do not have a direct and immediate economic gain have very low priority. People that have minimum land security and must devote all their energy just to survive will have little appreciation for most watershed protection activities.

Changes in Agricultural Practices

The project is promoting changes in agricultural practices that can have a positive effect in protecting the watershed. Terraces can reduce water runoff and soil loss while increasing productivity. The farmers can therefore gain an economic advantage while protecting the watershed. However, the number of rai that can be terraced during the life of the project represents only a small proportion of watershed land that needs to be protected by terraces.

Agro-forestry provides another means to protect the environment with a viable economic practice. There are many tree crops that can be grown in the watershed but they are not well known to the farmers, planting material is difficult to obtain, or the technology is too difficult for them. The length of time needed to establish nurseries, provide adequate extension services, and maintain the trees until they start producing is long enough that only a limited spread of tree crop production in

the watershed is possible over the timeframe of the project. Yet with sufficient exposure to these tree crops over time and better understanding of the technology as well as better extension services, the potential exists for widespread cultivation of tree crops covering a substantial portion of watershed land.

CONCLUSIONS

The project will not achieve its stated purpose of reversing the trend of environmental deterioration before the end of the project or even soon thereafter. The indicators for this objective are a reduction in runoff and sediment yield over the life of the project and a steady increase in natural vegetation ground cover. The team sees a more likely objective in reducing the rate of increase in runoff and sediment yield and of loss of natural vegetation ground cover. This change does not diminish the importance of this project. Deterioration of the watershed is occurring at a rate that seriously affects flood levels in the lowlands and reduces the potential for hill farmers to survive in their environment. The original project objectives can be achieved over the long-term (15-20 years) if the effort is made now to transfer the necessary technology and start to change attitudes and behavior.

Poor road construction methods and inadequate maintenance have resulted in environmental damage. Given scarce resources, there is a trade-off between spending money now for quality construction and saving later on maintenance, and saving money now on construction but incurring much greater costs for maintenance later. The road construction program is oriented toward security, and not development benefits. Nor is it very sensitive to environmental issues. The project's road rehabilitation program is a way to improve the benefits from existing roads.

In-migration does not pose an important threat to the watershed as the project has not attracted outsiders and may not do so for a long time. If it eventually does, the environmentally sound agricultural practices extended by the project will reduce and possibly reverse any potential damage.

Project farmers are motivated by economic return and will devote their energy and attention to activities that promise economic benefit. For this reason they are not interested in woodlots as long as other trees are available nearby. Yet terracing and agro-forestry, both of which provide an economic benefit and protect the watershed, receive farmer support. The long-term benefit to the watershed and to many of the area farmers will come from the spread effect of these agricultural practices. The project cannot directly affect all of the necessary farmers, but the value of the changes the project promotes and the potential for farmers to adopt these techniques on their own, or with only minimal support, will be the critical factors in project success. This will all take time, especially for the tree crops that take years to mature, and the project benefits must be measured over this long time frame.

The team found a need to update technical data on watershed conditions and to use them to analyze the direction of the project as it relates to watershed protection and maintenance.

RECOMMENDATIONS

- Project objectives should be changed to reflect the realities of the rate of environmental deterioration and the scope of project activities. The new objectives should be to reduce the rate of environmental deterioration during the course of the project with improvements in the environment saved for the long term.

- The woodlot program should be eliminated, while increased emphasis should be placed on agro-forestry. Some extension of woodlot-type trees should be a part of the agro-forestry program and offered when there is a direct economic benefit to be gained. This may occur at the higher elevations where deforestation has been greatest. Since the woodlot program for this fiscal year is already under way, the team recommends that it be continued for those villages that have already agreed to participate. The IF teams in those villages should monitor the attitude of the villagers toward those trees and the degree to which the villagers are maintaining them. The results of this monitoring should be used for planning any resumption of the woodlot program in the future.
- Education of villagers in watershed protection principles may be beneficial, but the emphasis should be on using direct and immediate economic incentives to promote behavioral change rather than appealing to their long-term need to protect the environment for future benefit. Many of them are too poor to look ahead.
- An AID environmental specialist should undertake a detailed environmental analysis of the watershed to obtain more specificity on the rate of environmental degradation, the ways in which this degradation is occurring, and the amount of class 1, 2 and 3 watershed land that is available for terracing and agro-forestry.

CHAPTER FOUR

SPECIAL QUESTIONS REGARDING WATERSHED
MANAGEMENT PROJECTS

- What is the rationale for formulating a watershed management project rather than a farming systems or off-farm employment project, to address poverty constraints?

The reason for formulating a watershed management project rather than one that has a more focused objective is that the watershed project can encompass a wider range of activities, including farming systems or off-farm employment. The main question is whether this broader approach is needed to address the poverty constraints. There are many factors that would have to be considered to answer this question.

One critical factor would be the population conditions in the watershed. A watershed project is oriented toward protecting and maintaining a watershed's ecology. One way to accomplish this is to remove the current inhabitants from the watershed and reforest the area with trees that may or may not be used for short- or medium-term economic gain. Protecting a watershed often has as a rationale the avoidance of dangerous flooding in the lowlands or loss of water levels in the dry season. If the poverty constraints to be alleviated are those of the lowlands where the flooding or low water levels affect economic activities, then removing people from the watershed and planting trees both protects the watershed and achieves a poverty objective. If the current watershed inhabitants can be placed in a productive environment outside of the watershed, then this project strategy can also be helpful to them.

A major problem arises when the current inhabitants of the watershed cannot be easily removed. This can occur when there are population pressures in the lowlands and therefore no room for the

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upland people. It can also occur when the watershed inhabitants are members of ethnic groups that cannot be easily assimilated in the lowlands. In the Mae Chaem project, both of these factors exist.

The objective of the Mae Chaem project has two major facets: creating better economic conditions for people in the watershed and halting destruction of the watershed ecology. It is accepted that the watershed approach does not separate the people from the land, both literally and figuratively. By labeling the project a watershed project, and looking for ways to help both the people and the land, and a multitude of activities can be justified. A limiting factor may be the government's inability to provide a wide range of services. While they may be needed, it may not be administratively possible to involve a number of agencies at the same time. The Mae Chaem project has experienced problems in this area but has developed some field-level mechanisms that facilitate interagency coordination.

- Are there generic problems that AID missions face in developing watershed projects?

Two major problems were incurred in planning the Mae Chaem project that may be generic to AID watershed projects. These were: (1) getting those concerned with protecting the environment to also consider the needs of the watershed inhabitants, and (2) integrating or coordinating the activities of the many agencies that are to provide services to the project.

In northern Thailand, the Royal Forestry Department (RFD) has a reforestation program in which pine trees are planted on land left fallow. The farmers intend to return to farm this land in the future and are not pleased that the land has been planted with trees and is not to be used for agricultural purposes. RFD has shown very little concern for the welfare of these upland farmers.

Most of the watershed land is owned by the government, and the farmers are considered to be squatters. They do not have rights to cultivate this land, but have no alternative but to do as no other land is available to them. One objective of the Mae Chaem project is to give land use rights to these people. The project is trying to use RFD for people-oriented services and has achieved some progress, but the change is not an easy one for RFD.

Because the watershed development strategy requires many different inputs and these must be supplied by a number of agencies, coordinating these inputs has become a major project function. There is no one agency in Thailand that is suited to the role of lead agency for this project. Nor is there an agency that can provide a preponderance of the needed inputs. This resulted in the establishment of a Project Operations Unit that is not part of an implementing agency and must coordinate the work of the four implementing agencies now operating in the project.

In Thailand, as in many other countries, it is very rare to have agencies working together successfully, and this project has been no exception. In Mae Chaem, the participating agencies have apparently found that the project's interface teams (field personnel hired by the project to live and work in project villages) provide a useful service. Agency field staff have been willing to let these teams coordinate activities at that level. Also, the project has recently had considerable political exposure, and this has created pressures that promote better coordination, at least over the near term.

- What are the requirements for developing sound watershed projects?

The Mae Chaem project took seven years to plan. One of the major problems was the lack of an appropriate lead agency. Administrative considerations have therefore been of paramount

importance in setting up the project. The coordination of a wide range of activities is a task that no one line agency appeared ready or able to handle. The watershed approach calls for this wide range of activities, and there is no simple solution to developing an appropriate administrative strategy. The Mae Chaem project planners failed to establish an appropriate coordinating mechanism in the design, but a new management structure, developed after two years of project implementation, appears to show some potential. Yet this structure does not appear to be easily replicable in other projects. It is atypical in that the project has received an unusual amount of political attention, thereby motivating line agencies to act differently than they normally would. Also, the project director is the governor and he is taking an active leadership role, an unusual occurrence in a development project.

The problem remains that in the Thai government structure there is no easy solution to developing a management formula for a complex watershed project. Perhaps one of the more important lessons from this project is to not be tied into any one management structure at the start, but rather provide flexibility to develop the structure during implementation. To do this well would necessitate incorporating a learning process into the project.

Another requirement for watershed project design is consideration of agronomic potential. In the Mae Chaem, water is scarce, the soil is mostly poor, and much of the land is too steep for agriculture. While there is very limited agronomic potential, the project has merit because the land is currently being farmed with very low productivity and the farming methods are causing considerable destruction of the environment. Marginal improvements will have a double effect, protecting the environment while increasing productivity.

The critical issue is whether there are potential technologies that can be viable in this environment. Only recently have varieties of selected crops been found that have the potential to raise yields. Other projects had introduced new crops into some highland areas of northern Thailand over the last 10 years, but there had not been sufficient experimentation and the premature extension of these crops created serious problems for the farmers. These projects suffered from a lack of sufficient agronomic potential under existing agricultural technology.

The agronomic potential also needs to be matched with the potential for economic viability. The Mae Chaem watershed is in a remote area with relatively poor transportation links to important markets. Although there are many new roads being built in the area, their quality is poor. The cost to build a sufficient amount of quality roads for economic penetration is prohibitive (from a cost-benefit viewpoint). The lack of good roads increases marketing costs, limits the types of crops that should be grown, and increases the cost of providing development services in the area. At the pre-design stage, these factors should be considered to judge whether there should be a project at all.

- Has this evaluation provided any information with respect to project design strategies that emphasize institution building, technology transfer, the private sector, and policy dialogue? What other major issues should be considered by project designers?

The Mae Chaem project has had considerable problems with administrative structure, but it has not become involved with institution building. Technology transfer is an important component of the project. The method of using interface teams to prepare villagers for technology transfer is new to Thailand, and its success may be significant for other project design efforts.

The project does not directly assist the private sector but has focused attention (through the design and the evaluation) on the need to maximize the use of the private merchants in the area rather than use a government-supported cooperative to provide the same marketing services.

Policy dialogue has been a critical component in this project. A condition precedent in the project agreement was the establishment by the Royal Thai Government of a program to provide land use rights to watershed farmers. This would include hill-tribe farmers. The Thai government has never before granted such rights, so a major policy change was required. It did not act quickly enough for AID, and project grant funds were frozen. Proper action then ensued through a Council of Ministers decree, and the project funds were unfrozen. This strong action by AID resulted in the policy change, but by freezing project funds, field staff were temporarily demoralized and a number of project activities were harmed. It is difficult to assess a cost-benefit ratio to this policy reform strategy.

An important issue in the Mae Chaem project has been the ethnic makeup of the watershed. The hill-tribe groups have different cultural and linguistic characteristics from the lowland Thais, who represent not only a large proportion of the watershed inhabitants but are also the people managing the project. Experience in Thailand indicates that Thai civil servants have little interest in hill-tribe welfare. The lowland Thais in the watershed do not respect the hill-tribe people and view them as foreigners illegally trespassing on Thai territory. The project strategy has been to start off by providing services to the lowland Thais so they see the project as a means to provide assistance to everybody and not just the hill-tribes. Each interface team has a hill-tribe member, and the teams have so far worked well together and with all the villagers.

- Would it be feasible and practical to build a "learning process" or an integrated monitoring and evaluation system into the Mae Chaem Project? Do counterpart staff have any interest and capability in this area? If so, what would be the institutional arrangements through which such an approach could be developed? What are the major indicators that should be monitored to provide data on project performance and impact?

The evaluation team found a form of learning process already being used in the project. The process is informal and is occurring without much discussion about its existence. It has been developed as a result of several factors. One is that the project is phased, and each phase was to be started only after a year of experience with the previous phase. It was assumed that there would be lessons learned in each phase that could be applied to subsequent phases. This put attention on the problems encountered in undertaking project activities. Periodic evaluations were scheduled that could modify the project to reflect the lessons learned. However, the evaluation schedule was too tight to allow for a timely start-up of each phase. The evaluation team has recommended a change in the scheduling and phasing of the project to allow for smoother implementation.

Another factor in the development of the learning process was the presence of the interface teams and their involvement in village-level planning. The teams work with the villagers to develop plans over time as the villagers develop a self-help capability. This is an evolutionary process that is necessarily flexible and draws on the experience of each team. The lessons learned by the teams are shared among them through informal group discussions and applied to future development activities. However, to the extent that the learning process is informal, it is limited to those individuals who are part of the informal system. The line agencies also participate in the learning

process as part of this informal system, but it is not clear how much of it they use or will be able to take with them to other projects.

The potential exists in the Mae Chaem project to create a more systematized learning process where a conscious effort would be made to identify and describe the lessons learned and how these are then applied in future project activities. There are two important elements needed to implement such a process. First, a flexible planning process is needed throughout the course of the project - and this exists although the higher level planning activities have not been well coordinated to date. Second, an information system that can be used to record and analyze the implementation experience is also required. The project's current information system is described below.

The project already has a formal monitoring system that includes daily, weekly, and monthly reporting by the interface teams. These reports include information on line agency activities in the teams' villages. The informal monitoring system has been predominant due to the project's small size and many opportunities for a continuing dialogue between field workers and project managers. As the project grows in size, there will be more need for dependence on the formal system. This evaluation report recommends technical assistance to upgrade the project management system and help refine the formal monitoring system for the planned project expansion.

An information system for the purpose of evaluation has not been established although some components have been developed. For example, the project has undertaken socio-economic studies in each of the Phase I villages. These studies are used for planning purposes but will also be helpful later for impact evaluation. There are likely to be accuracy and reliability problems with the data.

The evaluation team recommends that an impact evaluation for this project be more qualitative than quantitative and that the socio-economic studies (in time series) be used as general guidelines rather than as a basis for sophisticated quantitative analysis. Since increased productivity is an important objective of the project, steps should be taken to improve the accuracy and reliability of yield data using a combination of extension workers (for technical expertise) and interface teams (for their constant presence in the field).

Since an important objective of the project is to develop a capability among the villagers for self-help, process will be an important consideration for an evaluation. This would entail the way in which the interface teams work with the villagers and how they respond, and then continue to undertake the same activities without the interface team presence. The current monitoring system will provide some information, but more important will be field visits by supervisors and evaluators for more qualitative assessments.

- Do the findings of this assessment have implications for AID policy in the watershed area?

Some of the difficulties of watershed development are described above. This project has merit in that its strategy encompasses development of both the people and the land in a way that is compatible. However, the conditions of the watershed are such that it may be atypical and therefore provide only minimal lessons for AID policy development.