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IRRIGATION SYSTEMS MANAGEMENT PROJECT
MIDTERM EVALUATION REPORT

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IRRIGATION SYSTEMS MANAGEMENT PROJECT MIDTERM EVALUATION REPORT

Prepared to the USAID Mission to Sri Lanka
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by

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ACRONYMS

ADB	Asian Development Bank
A.I.D.	Agency for International Development
ARTI	Agrarian Research and Training Institute
cfs	cubic foot per second
CIO	Community Institutional Organizer
COP	Chief-of-Party
CWM	Command Water Management
DAC	District Agricultural Committee
D Channel	Distributory channel (3-50 cfs)
DCO	D-Channel Farmer Organization
DDI	Deputy Director, Irrigation Department
DOA	Department of Agriculture
ESI	Essential Structural Improvement
FAR	Fixed Amount Reimbursement
F Channel	Field channel (less than 3 cfs)
FM	Financial Management
FO	Farmer Organization
FOS	Farmer Organization Specialist
GA	Government Agent
GITI	Galagmuwa Irrigation Training Institute
GSL	Government of Sri Lanka
HVC	High Value Crop
ID	Irrigation Department
IDO	Institutional Development Organizer
IE	Irrigation Engineer
IIMI	International Irrigation Management Institute
IMD	Irrigation Management Division
INMAS	Integrated Management of Major Irrigation Schemes
IO	Institutional Organizer
ISMP	Irrigation Systems Management Project
ISPAN	Irrigation Support Project for Asia/Near East

LHI	Lanka Hydraulic Institute
LOP	Life of Project
Maha	Principal rainy and cultivation season (October-March)
MARD	Mahaweli Agriculture and Rural Development Project
MEF/ME&F	Monitoring, Evaluation, and Feedback
MLIMD	Ministry of Lands, Irrigation and Mahaweli Development
OFC	Other Food Crops
O&M	Operations and Maintenance
PACD	Project Assistance Completion Date
PIL	Project Implementation Letter
PM	Project Manager
PP	Project Paper
PR	Pragmatic Rehabilitation
PSS	Polonnaruwa
RBE	Ridi Benda Ela
Rs.	Sri Lankan rupee (39.4 = 1$)
SAI	Sheladia Associates Inc.
SLIDA	Sri Lanka Institute of Development Administration
TA	Technical Assistance
TA	Technical Assistant (Irrigation Department)
TAT	Technical Assistance Team
TNA	Training Needs Assessment
TOT	Training of Trainers
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WB	World Bank
WS	Work Supervisor (Irrigation Department)
Yala	Second rainy and cultivation season (April-September)

EXECUTIVE SUMMARY

This report summarizes the findings, conclusions, and recommendations of the midterm evaluation of the Irrigation Systems Management Project (ISMP) sponsored by the government of Sri Lanka (GSL) and the U.S. Agency for International Development (USAID). This evaluation, conducted at the approximate halfway-point of project life (57 percent), was carried out to assess project progress and to propose detailed, specific recommendations intended to provide guidance and direction for the remaining project activities.

Project Description

The ISMP Project Agreement was signed on August 25, 1986 and the project assistance completion date (PACD is June 30, 1992. The total project cost is $28.3 million, of which $9.7 million is the host country contribution in cash and in kind. USAID's contribution is $18.6 million ($6.9 grant and $11.7 loan).

ISMP was conceived to implement the second phase of a water-management program begun in 1979 under the USAID-financed Water Management Project. ISMP's goal is to increase agricultural productivity, expand rural employment opportunities, and raise net farm-family income on existing irrigated land in Sri Lanka. The purpose of ISMP is twofold: (a) to develop GSL institutional capacities at national, district (range), and system levels to operate and maintain major irrigation systems on a "sustained renewal" basis, i.e., without recourse to periodic major rehabilitation; and (b) to test and demonstrate the effectiveness (cost vs. benefits) of different combinations of management and structural improvements carried out in selected irrigation systems.

ISMP was designed to accomplish these purposes in seven irrigation schemes using six separate but highly interrelated elements: (a) farmer organization development; (b) operations and maintenance improvement; (c) financial management improvement, (d) monitoring, evaluation, and feedback; (e) training capacity enhancement; and (f) research.

The Ministry of Lands, Irrigation and Mahaweli Development (MLIMD) is responsible for overall project implementation, with the day-to-day implementation resting within the Irrigation Management Division (IMD) and the Irrigation Department (ID). Technical assistance for project implementation is provided by Sheladia Associates, Inc. (SAI), an 8a consulting firm. SAI technical assistance staff have been in Sri Lanka since August 1987. The International Irrigation Management Institute (IIMI) in Sri Lanka manages the ISMP research component through a cooperative agreement with USAID.

Methodology

At the request of USAID/Columbo, the ISMP midterm evaluation carried out in March 1990 combined the traditional evaluation approach with a project review workshop held during the evaluation. The centrally funded Irrigation Support Project for Asia and the Near East (ISPAN) identified the evaluation team and workshop facilitators. The evaluation team consisted of an agricultural economist, a training and institutional development specialist, a civil engineer, and a Sri Lankan institutional development specialist.

The team spent the first two weeks in Sri Lanka interviewing key ID and IMD managers, USAID staff, SAI consultants, IIMI staff, and other individuals located in Columbo. The team also traveled to the field to interview technical assistance team members and project managers. Relevant project documents were also reviewed.

Findings and Conclusions

ISMP has been instrumental in strengthening government commitment to increasing farmer participation in decision-making and planning, in integrating technical and institutional development, and in institutionalizing participatory management. Due to ISMP support and motivation, irrigation laws and policies are, for instance, being evaluated

to ensure that they are consistent with the country's new participatory water-management strategy. ISMP has also provided a base for improved relations and reduced conflict between government and farmers and among farmers themselves.

ISMP implementation is closely followed by GSL decision-makers. Irrigation personnel at the field level are equally appreciative of its approach and potential impact. Organized farmers are beginning to enthusiastically experiment with their pioneering role and responsibilities.

In all ISMP area target schemes, well-organized distributory-channel farmer organizations (DCOs) are being formed through intensive IMD efforts. The DCOs' role has, in many instances, gone beyond mere consultation to include setting construction priorities and water schedules, and taking steps to guarantee land security to poorer farmers. DCOs have also influenced major policy decisions such as the desirability of using secret ballots in electing farmer leaders, the importance of making all farmers voting members of both F- and D-channel groups, and the need to federate farmer organizations at the project level to provide them with greater independence and influence.

Other areas where significant progress has been made include financial management and training. The financial management system is, in effect, pilot-tested and ready to be implemented, and the project's training element has provided valuable skills for those involved in project implementation.

The monitoring, evaluation, and feedback (MEF) system has yet to make meaningful contributions to project goals. The original MEF strategy was both defective and unwieldy. A new program, currently under review, is unlikely to realize the potential of the MEF function. The research component has had mixed results. Four research studies have been completed to date. While some of these studies were well received and proved highly useful to ISMP, other studies (still at the draft stage) do not identify specific lessons that would enable the project to adjust or to improve its strategy. To the credit of IIMI, the studies have all been undertaken by local firms, a major contribution to local institutional development.

Although behind schedule, the operations and maintenance (O&M) component is advancing at a brisker pace. New O&M tools and procedures are almost ready for ID to use in managing the reservoirs and the main and branch channels. The rehabilitation program, a major project activity, is also ongoing and well organized.

ISMP is behind schedule mainly due to negative factors beyond its control, including widespread civil disturbances; inaccessibility of the Gal Oya until late 1989, where a significant portion of project resources were planned; considerable turnover in professional and technical staff of many government and nongovernment organizations due to civil unrest; and periodic shortages of construction material, which should no longer be a problem with the end of the disturbances.

Recommendations

Considering the unavoidable adverse circumstances, the project has made commendable progress and is now poised to begin those activities that will determine its effectiveness. With over 50 percent of the project life past, it is clear that, due to the widespread civil unrest experienced earlier in the project area, the essential systems improvement and pragmatic rehabilitation program cannot be completed before the end of the project in mid-1992.

ISMP's underlying principles are characterized by a balanced consideration for technical as well as social, economic, and other factors. Program sustainability and long-term achievements would be inhibited if the remaining timetable were rigidly imposed on its activities. A two-year time extension is, therefore, recommended. As an option to an extension, the expected outputs of the O&M element should be scaled down to reflect the early delays. The project goal of sustained renewal would not, however, be met as the system will still require significant improvement at the distributory and field channel levels. Similarly, the project would not have sufficient opportunity to help DCOs develop their O&M and self-help capability.

Under a two-year extension, additional long- and short-term technical assistance is estimated at $1.8 million, which includes a provision for research and other services. Under a no-extension scenario, only about $0.6 million will be needed. If there is no extension, additional resources will be needed to compensate for the considerable early delays and allow appropriate implementation of the specific recommendations suggested in this evaluation.

Regardless of whether the project ends as scheduled or whether an extension is approved, ISMP should continue to maintain a balance between its institution-building objectives and its preoccupation with timely completion of the physical structures. To establish a clear policy of system ownership by beneficiaries, ISMP should also continue to allow farmers ample opportunity to participate from the initial phases of system development, including construction. A central goal of ISMP is to establish a balanced coordination of physical upgrading and management improvements. It is, therefore, essential that research be conducted to generate optimal approaches to effective water management. Only then would lessons learned be successfully replicated in other locations throughout Sri Lanka—a fundamental ISMP objective.

1

INTRODUCTION

1.1 Background and Project Description

Irrigated agriculture has played a major role in Sri Lankan agricultural development. Restoration of ancient irrigation works and construction of new systems under state sponsorship have provided the basis for new peasant settlements in the country's dry zone. Despite these development efforts, however, productivity of irrigated lands has remained low.

Such low productivity is largely due to the lack of adequate water supply, which results from inefficient irrigation infrastructure and ineffective water management. Major constraints to improved water management include poor maintenance of control structures, canals, and field channels; inadequate monitoring, data collection, and analysis systems; and shortages of experienced or trained personnel in water management and water-use practices.

The Irrigation Systems Management Project (ISMP) was conceived to carry out the second phase of a water-management program begun in 1979, under the Water Management Project financed by the U.S. Agency for International Development (USAID). ISMP goals are to expand rural employment opportunities, increase net farm-family income, and increase agricultural productivity of existing irrigated land. The project purposes are (1) to develop local institutional capacities at national, district, and system levels to operate and maintain major irrigation schemes on a sustained renewal basis, i.e., without recourse to periodic major rehabilitation; and (2) to test and demonstrate the effectiveness (costs vs. benefits) of different combinations of management and structural improvements carried out in selected irrigation systems.

The project seeks to accomplish these purposes by implementing a package of seven separate but interrelated components:

- Farmer Organization Development
- Operation and Maintenance Improvement
- Financial Management Improvement
- Monitoring, Evaluation, and Feedback
- Training Capacity Enhancement,
- Research
- Procurement

ISMP activities under these components are being implemented with USAID assistance (loan and grant funds), supplemented with Government of Sri Lanka (GSL) counterpart funds.

The Ministry of Lands, Irrigation and Mahaweli Development (MLIMD) is responsible for overall project implementation, with day-to-day responsibility resting with the Irrigation Management Division (IMD) and the Irrigation Department (ID). Sheladia Associates, Inc. (SAI), a U.S. 8a consulting firm, provides technical assistance for project implementation. SAI technical assistance (TA) staff have been in Sri Lanka since August 1987. The International Irrigation Management Institute (IIMI) in Sri Lanka manages the ISMP research component through a Cooperative Agreement with USAID.

1.2 Methodology

At the request of the USAID/Colombo mission, this midterm evaluation combined the traditional evaluation approach with a project-review workshop held during the evaluation. Such an approach provided a unique opportunity for the evaluation team to interact with project implementers for three consecutive days.

The Irrigation Support Project for Asia and the Near East (ISPAN) selected the evaluation team and workshop facilitators to carry out the ISMP midterm evaluation and review workshop, conducted in March 1990.

The evaluation team included an agricultural economist, a training and institutional development specialist, a civil engineer, and a Sri Lankan institutional development specialist. Before leaving Washington, D.C., the three U.S.-based members participated in a two-day team planning meeting at the ISPAN office. The objectives of that meeting were to review the scope of work for the evaluation, clarify specific roles and responsibilities of the team members, and identify the expected outcomes of the assignment.

The team spent the first two weeks in Sri Lanka interviewing key ID and IMD managers, USAID staff, SAI consultants, IIMI staff, and other individuals located in Colombo. The team also traveled to the field to interview TA team members, project managers, irrigation engineers, ID technical assistants, institutional organizers, and farmers about their involvement in and reaction to the project. Relevant project documents were also reviewed during this time.

During their third week, team members spent one day with the workshop facilitators to outline key areas of concern that had been identified during the first two weeks of work. Together, the evaluation and workshop teams formulated issue statements and questions for participants to discuss at the project-review workshop. The three-day workshop, held near the end of the third week of the assignment, allowed the evaluators to hear how the ISMP team planned to deal with the key project issues identified during the initial data-gathering process.

The evaluators concluded that the review workshop provided them with a valuable opportunity to test their assumptions and preliminary findings before finalizing their first draft. They were also able to see first-hand how the project team (ministry, TA team, and USAID) worked together and to hear discussions of possible solutions to the issues the evaluation team had raised.

The evaluation team integrated and incorporated many of the workshop outcomes into their findings and recommendations. However, the team did differ with workshop outcomes on four major issues:

- ISMP's approach to solving the monitoring, evaluation and feedback question
- Level of farmer organizations' involvement in construction work
- Level at which ISMP has been, and should be, used as a learning laboratory—as stated in purpose (b) of the Project Paper
- The newly introduced crop diversification program

Two days after the workshop, the team submitted a first draft of their report to USAID, IMD, ID, and SAI for review. A review meeting was held two days later, after which team members modified and completed their report before leaving Sri Lanka.

The report contains eleven chapters including this introductory material. Chapter 2 analyzes ISMP impact on irrigation policies in Sri Lanka. The project's seven components, including the newly introduced crop-diversification program, are discussed in Chapters 3-9. Overall project management is assessed in Chapter 10, and a summary of major conclusions and recommendations appears in the last chapter. Each major chapter is divided into four main parts: project rationale and objectives, a detailed analysis of pertinent issues, a summary of major findings, and a set of recommendations. Additional supporting material as well as a detailed list of all recommendations are provided as Appendixes A-G.

2

POLICY

Sri Lanka is one of the first Asian countries to recognize the need for adequate irrigation-water management. It is also one of the first to form institutions to specifically address farmer participation in the improvement and management of irrigation systems, assessment and collection of user fees, and interaction of water-user organizations with local authorities and government irrigation agencies. ISMP has been instrumental in strengthening government commitment to increased farmer participation in the decision-making and planning processes, in integrating technical and institutional development, and in institutionalizing participatory management.

2.1 ISMP and National Irrigation Policy

High-level government commitment to the principle of increased farmer participation is critical to the success of a sustainable irrigation policy. In addition to mobilizing considerable financial and human resources, such a strategy entails willingness of high-level officials to alter existing procedures, test new and unfamiliar approaches, and provide guidance, encouragement, and support. Not only has ISMP played a catalytic role in enlisting the support and involvement of government officials at the highest level, it has also provided the necessary financial resources and technical assistance to overcome budgetary constraints and motivate decision-makers and local personnel to persevere in their pioneering efforts.

Due to ISMP support and motivation, irrigation laws and policies are being evaluated to ensure that they are consistent with the country's new participatory water-management thrust. Notable progress has also been made in institutional development and in institutionalizing participatory management.

2.2 ISMP as a Learning Laboratory

The social, economic, and technical complexity of ISMP calls for a multidisciplinary approach to decision-making and problem-solving. Thus, specialists from disciplines such as engineering, agronomy, training, and agricultural economics have collaborated and facilitated the close integration of technical and institutional activities. As a result of this multidisciplinary orientation, ID and IMD have experimented with innovative and nontraditional approaches and have gained valuable experience and skills at the central, district, and scheme levels.

The different combinations of structural improvements established in the various irrigation schemes, together with alternative approaches for involving farmers, will serve as a pilot program for testing assumptions and refining results. Lessons extracted from field situations can then be replicated in other projects or locations throughout the country. ISMP experience has, for instance, demonstrated that farmer organizations (FOs) can be used not only to develop MLIMD capacities to operate and maintain irrigation schemes on a sustained-renewal basis, but also to serve multipurpose organizations through which cultural, social, and income-generating activities can be promoted or *shramadanas* (voluntary labor) for maintaining local infrastructure organized.

2.3 ISMP and Participatory Development

There is widespread recognition in Sri Lanka of the need to improve water management through farmer mobilization, participation, and organization. The motivation for promoting farmer participation stems from the realization that, given current economic conditions, the government will be unable to sustain current and planned rates of expansion in irrigation development and the associated responsibilities for system management.

ISMP has provided an opportunity to identify appropriate forms of local organization that will facilitate farmer involvement, including the respective roles that farmers and government agencies should play and the contributions that should be expected from each. Some farmer organizations on distributory (D) channels have, for instance, begun to collect funds on their own, independent of IMD direction. Similarly, in Polonnaruwa, many D-channel farmer organizations (DCOs) are already carrying out voluntary maintenance of irrigation structure through *shramadanas* or voluntary labor.

Farmer participation under ISMP activities has, in many instances, gone beyond mere consultation. In addition to their involvement in operations and maintenance (O&M) construction, farmers have played a significant role in setting construction priorities and water schedules. DCOs have also influenced major policy decisions such as the desirability of secret ballots in electing farmer leaders; the importance of making all farmers voting members of both field (F)- and D-channel groups; and the need to federate FOs at the project level to give them greater independence and influence.

DCOs in several ISMP schemes have emerged as strong pressure groups that influence decision-making at various levels. For example, several DCOs have taken steps to address land issues and guarantee land security to poorer farmers. Other DCOs have persuaded the district administration to allocate unused government buildings for their use.

Understanding the opportunities for farmer participation and the support that the public sector can provide is a necessary condition to an effective farmer-participation strategy. Lessons learned under ISMP activities will define an overall participatory intervention approach that will be implemented throughout Sri Lanka.

2.4 ISMP and Institutional Development

ISMP has increased the interest and confidence of high-level officials and implementing agency personnel in the participatory program; it has also (through personnel training and expansion) helped ID and IMD to begin building their own capacity to actively promote and sustain farmer participation. In addition, ISMP has played a facilitator role in improving the coordination among the various government agencies involved in irrigation, water management, and agricultural development.

Cooperation is essential among agencies sharing responsibility for developing the irrigation sector. Rivalry, competition, or hostility among these agencies can undermine efforts to promote effective water management. One objective of ISMP is to close the gap in perspectives and communication between ID and IMD officials and personnel, and between these two organizations and other institutions involved in water management and agricultural development.

Progress to date shows that significant steps have been taken to reduce areas of overlap and potential conflict and to improve coordinating procedures between ID and IMD. ISMP multidisciplinary activities have facilitated close consultation and exchange between the two organizations. From both departments, representatives at all levels—from top management to field level—participate in a variety of joint committees and workshops, including the Central Review Committee, Steering Committee, Project Management Committee, monthly review meetings, annual project-implementation workshops, and various training workshops at the district and scheme levels. Other government institutions such as the Department of Agriculture (DOA) are also represented in ISMP committees, meetings, and workshops.

ISMP activities have provided a base for improved relations and reduced conflict between government officers and farmers, and among farmers themselves. Frequent meetings and consultations within the DCOs and between DCO representatives, government representatives, and ID and IMD personnel have provided mechanisms for ventilating grievances and settling differences through a non-confrontational process. A key element in this process has been the use of institutional organizers (IOs) who, in addition to helping farmers manage community resources collectively, have helped farmer groups develop their ability to articulate local needs and interests and to interact effectively with the government sector.

3

FARMER ORGANIZATIONS

3.1 Background

The program to develop FOs has been an integral part of ISMP. ISMP was to build on the principles of organization and methodologies derived from the experimental institutional-organizer program conducted by the Agrarian Research and Training Institute (ARTI) in the Gal Oya Left Bank system as part of a previous USAID-funded Water Management Project (1980-1985).

The basic objective of the farmer-organization program under ISMP is to create effective and responsible farmer participation in operating and maintaining major irrigation systems in the project area. The need to encourage farmer participation is closely linked to the need for sustainability of physical improvements in irrigation systems. Past experience with agency-managed irrigation systems has shown a gradual deterioration of the physical structures after each major rehabilitation because of inadequate maintenance and upkeep. While irrigation system managers complain about insufficient state funds for operations and maintenance, the situation is further exacerbated by the virtual absence of user (farmer) support in terms of material contributions or communal labor.

ISMP's expected overall project output is for a farmer-organization program capable of being extended to all major systems in Sri Lanka. Specific project objectives are (a) to create informal F-channel farmer groups, (b) to establish intermediate-level organizations, and (c) to achieve effective participation of farmers in the system-level project committees that act as governing bodies overseeing an entire irrigation system. These project committees were initially established by the Integrated Management of Major Irrigation Schemes (INMAS) program of IMD.

The establishment of FOs is expected to result in better communications between farmers and irrigation systems personnel within the project area and in proven methods for creating and sustaining farmer organizations that participate in the O&M of major irrigation schemes, methods that can be applied nationwide.

3.2 Progress to Date

ISMP's farmer organization program was initially guided almost totally by the experience at Gal Oya, but the program has been further developed and strengthened through new experience gained over its first two years. New experiences have led to considerable modification and refinement of the original ISMP plan. These modifications and refinements, which were incorporated into the farmer organization manual entitled *Guiding Principles on Farmer Organizations in Major Irrigation Schemes*, include the following lessons:

- the need to follow hydrological boundaries in establishing farmer organizations
- the desirability of using secret ballots in electing farmer leaders
- the advisability of recruiting IOs from the local area
- the importance of making all farmers voting members of both F- and D-channel groups
- the need to federate farmer organizations at the project level to provide them with greater independence and influence

These lessons have helped to formulate and strengthen the present farmer-organization program.

3.2.1 Present Status of DCOs

The establishment of FOs and their gradual incorporation into the decision-making process has brought about better communication and dialogue, thus narrowing the gap between farmers and government officials.

Even though ISMP has not yet formulated clear guidelines on DCO functions and their role and responsibilities (pending legal clarification), some DCOs are taking a lead in setting their own direction, with positive results. Here are some examples:

- Some DCOs have begun to collect funds on their own independently of IMD direction.
- In Polonnaruwa, many DCOs are already carrying out voluntary maintenance of irrigation structures through *shramadana* or voluntary labor.
- Many DCOs are already resolving disputes concerning water rights and allocations, in consultation with ID/IMD officials.
- DCOs are beginning to take on essential structural improvement (ESI) and pragmatic rehabilitation (PR) contracts—the result of a growing recognition of their capability by government and other officials, and of their own emerging self-confidence. The value of contracts given to DCOs has increased from Rs 75,000 in 1988 to Rs 250,000 in 1989, and is expected to rise to Rs 750,000 in 1990.
- DCOs in several ISMP schemes have emerged as strong pressure groups, influencing decision-making at various levels. For example, several DCOs have persuaded the district administration to allocate unused government buildings to them.
- Some DCOs have taken steps to address significant land issues, such as the release of mortgages, guaranteeing land security to poorer farmers.

3.2.2 Recruitment and Development of Institutional Organizers

Based on the Gal Oya experience, the project adopted the principle of using institutional organizers to work at the local level to organize farmer groups. It is intended that, after being organized, farmer groups will be responsible for the operations and maintenance of D- and F-level canals.

The IO position under ISMP is not considered a permanent and continuing element within the farmer-organization program. IOs are expected to play a catalytic role in facilitating the development of self-reliant, nondependent FOs. The presence of IOs beyond a certain point can, in fact, even be counterproductive and detrimental to the process of FO development. So, the expected gradual withdrawal of IOs is an integral element of that program.

ISMP had estimated that the ratio of required IOs would be one to 300 acres during the program's intensive first phase (year one), followed by one IO for every 600 acres during phase two (years two and three). During the final withdrawal phase (year five) when farmer organizations were expected to be operational, the project estimated the need at one IO for every 2,000 acres.

It was soon realized that an IO could cover a much larger area than originally estimated—particularly in the areas where INMAS project managers were already in place and farmer awareness of ISMP goals was higher. During the initial intensive phase, an IO covered 1,000 acres rather than 300. Accordingly, the acreage to be covered by an IO during the second and third phases was revised to one IO for every 3-4,000 acres in phase two and one IO for every 5,000 acres in phase three.

As in Gal Oya, the formation of DCOs in most ISMP areas has closely followed the hydrological boundaries. This approach has contributed to better water distribution and control. The project implementers also realized that the area to be covered by an IO is not the same throughout the project area. The differential is mainly due to the fact that the number of farmers in each DCO area varies according to the size of the allotment. For instance, allotment size at Kaudulla varies from one to three acres, which means that farmer density is greater and more IOs are required than elsewhere where farmer density is lower.

As with other project components, the delayed start of ISMP, due in large part to Sri Lanka's unsettled security situation over the past several years, led to a delay in the implementation of the farmer-organization component. This situation was

compounded in the initial stages by problems with IO recruitment and retention. For these reasons, the intensive phase that was expected to last for one year has actually lasted to the present time.

Initially, ISMP attempted to recruit, train, and deploy university graduates for the IO positions, but this approach proved unsuccessful. The rationale for hiring university graduates was that they would form a pool from which to draw administrative, supervisory, training, and research personnel for the IMD farmer-organization program. However, the project experienced a high rate of attrition with the graduates because the IO position was not a permanent government position. Those graduates recruited as IOs tended to see their position merely as a form of employment and were concerned more about future career prospects. This was clearly evident in the fact that, with the first opportunity to secure stable employment, they left their positions. (The first group of university-graduate IOs resigned en masse, shortly after their training and deployment, when the government instituted a large-scale recruitment of graduate teachers for permanent employment.) Of 97 graduate IOs assigned to various project areas in 1988, only 10 remained in their positions by September 1989. Most of the remaining graduate IOs have been appointed as institutional development officers (IDOs), who are currently coordinating the work of the IOs. When the IOs are eventually phased out, IDOs will continue to provide a direct link between farmer organizations and project management.

The project then took steps to recruit qualified G.C.E. (advanced level) young people from the project areas, rather than university graduates from outside the region. So far, the new recruits appear very promising. Because they are sons and daughters of the local farmers, these IOs are committed to the ideal of farmer participation. They seem to be more dedicated to their work and do not treat their position as simply a source of remuneration.

The data in Table 1 indicate that the farmer-organization program is still in its intensive phase. In fact, in most systems the current number of IOs is even greater than the number estimated for the intensive phase, namely one IO for 1,000 acres. It is only at Polonnaruwa (PSS) and Rindi Bendi Ela (RBE) that the figures approximate the number estimated for the intensive phase. It should be noted that it has been impossible to deploy any IOs in Gal Oya because of the unsettled political situation there.

Table 1

Recruitment and Deployment of IOs*

Irrigation System	No. of Acres	No. of IOs Current	No. of IOs Needed	Ratio**
PSS	24,000	26	24	1,088
Giritale	7,500	8	10	755
Minneriya	22,050	22	25	880
Kaudulla	12,500	24	22	545
RBE	7,000	7	7	1,000
Gal Oya-LB	65,000	-	0	-
Gal Oya-RB	32,000	32	0	-
Total	170,050	119	88	-

* As of March 1, 1990 (Source: ISMP office, Polonnaruwa).
** Number of acres per IO.

3.2.3 Formation of Farmer Organizations

The primary task of the IOs is to facilitate the formation of FOs in the area assigned to them. Progress made so far in most systems is quite encouraging.

Table 2 summarizes the formation of FOs in the project areas. Except at Gal Oya, FO formation has progressed satisfactorily. Handing over of D canals to DCOs for O&M has also progressed rapidly in the Polonnaruwa systems.

3.3 Outstanding Issues

3.3.1 Legal Recognition of Farmer Organizations

Formally constituted DCOs are currently registered with the IMD and the Deputy Director of the Irrigation Department (DDI). While the registration with IMD gives the DCOs official status, registration with the DDI allows them to be considered for construction contracts. Certain amendments to the Irrigation Ordinance of 1946 and the Agrarian Services Act of 1978 are currently being drafted with a view to giving farmer

Table 2

Formation of Farmer Organizations under ISMP

System	DCs	FO Groups Formed	DCOs Formed	DCOs to be Formed	DCs Handed Over*
PSS	110	226	26	0	21
Giritale	2	137	7	0	25
Minneriya	45	258	18	3	27
Kaudulla	42	365	22	0	42
RBE	-	164	9	1	-
Gal Oya-LB**	-	419	40	30	-
Gal Oya-RB	-	0	0	20	-
Total	199	1,569	122	54	115

* 3rd Quarter 1990

** Formed during the Gal Oya Water Management Project.

organizations the necessary legal authorities and statutory powers as corporate bodies to undertake public contracts. Inclusion of amendments in the relevant legislation will mark a turning point in the history of FOs in Sri Lanka. However, given their rapid development, FOs in most ISMP areas are likely to run into serious legal problems unless provisions and judicial procedures are established in the near future.

Lack of legal recognition seems to have already foreshadowed the handing over of D canals to DCOs because the handing over is not guided by a clear division of legal authority, specifying rights and duties of the parties involved (farmers and government agencies). Informal recognition of DCOs as potential contractors has enabled them to undertake ESI and PR contracts; however, since the DCOs are not yet legally empowered to do this, they may soon encounter difficulties with regard to assets and liabilities and control and disbursement of finances. Moreover, owing to the lack of formal recognition, the ID cannot properly administer contracts with DCOs.

3.3.2 Resolution of Disputes

The DCO's assumption of O&M responsibilities has other legal implications as well. Proper O&M requires farmers in the relevant area to adhere to minimally accepted practices with regard to water allocation and distribution, and maintenance of channels and other irrigation structures. If some water users violate internal DCO agreements, FOs will find themselves in a difficult position if they cannot deal effectively with such violators.

Disputes and conflicts over water rights and responsibilities may be reduced once the rehabilitation program is completed and FOs established. It would, however, be unrealistic to expect irrigation systems to be totally free of such problems, for it would be unreasonable to expect FOs to amicably settle all disputes and conflicts in their respective areas of authority. Elsewhere, this situation has been addressed by establishing a legally constituted body empowered to adjudicate the disputes and conflicts that cannot be amicably settled by the FOs themselves. It is not yet known whether such an approach would be most effective and appropriate for the project area.

With their growing responsibilities for O&M in the irrigation systems, including undertaking rehabilitation contracts and taking over D channels, FOs are now entering such a critical phase that this transition may mark the beginning of an irreversible movement toward participatory management. Since little is known about how FOs will cope with these new responsibilities, this new growth and maturity phase will prove to be more critical than the earlier period and will certainly provide an opportunity to study the impact and effectiveness of farmer groups to manage the maintenance of their channels.

3.3.3 Staffing

In the context of the farmer organization program, the project manager (PM) plays a key role. While the IOs who act as catalysts in the process of farmer mobilization are expected to gradually withdraw from the field, the PM—assisted by the institutional development organizer (IDO)—will continue to play an important part in the process of participatory management. Given this situation, it is vital that the PM's role and responsibilities be clearly defined. Otherwise, a new dependency syndrome may develop around this position, posing a threat to the very concept of farmer self-management and self-reliance.

The absence of an intermediate position between the IMD and the PM has created an administrative vacuum and caused serious problems of coordination among PMs. This is particularly the

case in districts such as Polonnaruwa where there are several large irrigation schemes. If an IMD assistant director could be placed at the district level, this situation might be remedied.

Two issues relevant to IOs also deserve early attention. First, their transport problem should be resolved. Those still without bicycles should receive them immediately. Second, MLIMD and others should develop strategies to give IOs a greater sense of job security. Attempts should be made to identify future employment opportunities, either within or outside the irrigation sector. Their lack of transport and temporary employment status demotivate IOs and affect their performance.

3.3.4 Monitoring, Evaluation, and Feedback

The project's monitoring, evaluation, and feedback (MEF) system that relates to the farmer-organization program is poorly developed and does not currently play any significant part in the process of institutional development. (Chapter 5 will discuss the MEF system in depth.)

Although some monitoring forms have been developed, they do not pay enough attention to qualitative data collection, such as how well-represented are communities and how effective are meetings and other activities. Nevertheless, IOs have been using these forms to send information to their supervisors relating to their own work and to the functioning of FOs. However, PMs and the IMD have not been able to process and analyze the information, primarily because no arrangements have been made to do so, either at IMD headquarters or at the PM offices.

3.4 Conclusions

1. Already, valuable lessons have been learned in implementing the ISMP farmer-organization program. These documented lessons have helped to further strengthen ISMP's DCO program of participative management and will undoubtedly influence future farmer-organization development throughout Sri Lanka.

2. Even though ISMP has not yet formulated clear guidelines on DCO functions, role, and responsibilities (pending legal clarification), some DCOs are taking a lead in setting their own direction, with positive results.

3. DCOs are beginning to take on ESI/PR rehabilitation contracts, as a result of a growing recognition of their capability by government and other officials, and of their own emerging self-confidence. This positive trend is an indicator of program success.

4. ISMP's decision to recruit nongraduate IOs from the project area, in place of university graduates, has had a positive impact on the program. IO progress in facilitating the formation of FOs in the areas assigned to them has been quite encouraging.

5. Since the DCOs are not yet legally empowered to take on public contracts, they may soon encounter difficulties with regard to assets and liabilities and to control and disbursement of finances. This situation has not been helped by the fact that handing over of D canals to DCOs is not guided by clear agreements specifying rights and duties of the parties involved (farmers and government agencies).

6. Because the PMs will continue to play an important part in the process of participatory management after institutional organizers are withdrawn, their roles and responsibilities in support of FOs must be clearly defined.

7. The absence of an intermediate position between the IMD and the PMs has created an administrative vacuum and has caused serious coordination problems among PMs.

8. The lack of transport available to IOs and their temporary employment status have adversely affected IO performance.

9. The project's MEF system relating to the farmer organization program is poorly developed and currently plays no significant part in the institutional-development process.

3.5 Recommendations

1. ISMP should organize a one-day workshop to provide an opportunity for DCO chairmen to share ideas and achievements. This workshop could also be used to begin formulating—with DCO chairmen participation—clear guidelines on DCO functions, role, and responsibilities. ISMP's farmer organization specialist (FOS) should take the lead in organizing this workshop.

2. Legal recognition of FOs is a task that must be accomplished soon in order to formalize and encourage them. Ways and means to expedite the process of amending relevant legislation should be explored and followed by ISMP management.

3. ISMP should develop written guidelines and procedures for handing over D canals to FOs. Moreover, ISMP should develop an agreement format specifying the rights, duties, and obligations of the parties involved. The FOS should take the lead in organizing the development of these guidelines and procedures and the agreement format.

4. ISMP should explore ways to establish an appropriate district-level mechanism to adjudicate conflicts between individuals and groups over water rights. A possible starting point might be the expert report on the establishment of Jala Sampath Palaka Sabaha prepared as part of the Gal Oya project.

   DCOs should continue to be encouraged to play a key role in settling disputes. To facilitate this process, a one-day workshop that includes DCO representatives and IMD staff should be conducted to establish a framework for a code of ethics to guide the conflict-resolution process. The FOS should take the lead in organizing this workshop.

5. The two-week management skills training course recommended in Chapter 10 should address project managers' roles and responsibilities in support of FOs and participatory management.

   ISMP should develop a definition of the project manager's role that emphasizes the PM's responsibility in preventing FOs from creating new dependency relationships that hinder the growth of DCO self-reliance and independence. As was recommended at the 1990 ISMP Project Review Workshop, PMs should always work through the FO structure in solving farmers' problems.

   Pre-service and in-service training for technical assistants (TAs) and work supervisors (WSs) should address their roles and responsibilities in support of farmer organizations.

6. ISMP should help identify career opportunities for IOs, either within or outside the irrigation sector. For instance, those IOs who are phased out may be transferred to other projects where their services are needed. Similarly, as was agreed in the 1990 ISMP Project Review Workshop, PMs may take the lead in recommending outstanding IOs for advancement.

7. All IOs and IDOs under ISMP should receive appropriate transport to perform their tasks.

8. Many active DCOs have initiated activities outside water management, such as community fund-raising, road-development work, establishment of women's groups, and income-generating projects. These activities should be encouraged under ISMP because they enable FOs to be more self-reliant and more responsive to community needs.

9. The FOS should take a proactive role in documenting constraints and lessons learned and in developing dissemination models for applying these lessons in other irrigation schemes. The FO Think Tank recommended at the 1990 workshop should be established to help identify these lessons and dissemination models and to identify critical concerns facing FOs as they take on their new responsibilities for O&M.

10. A FOS position should be created within the IMD to help support ISMP and other farmer organization programs.

11. IMD should translate the farmer organization manual into Sinhala and Tamil and make it available to relevant officials in the implementing agencies. ISMP should seek ways to expedite the translation.

4

TRAINING ENHANCEMENT

This chapter assesses the training enhancement component of ISMP. It should be noted that in its assessment the evaluation team had to rely almost exclusively on existing documentation, since the two SAI team members responsible for training during this period (the training specialist and the former chief-of-party) have both left the project. (See 4.5.)

4.1 Objective of the Training Component

As stated in the Project Paper (PP), the basic objective of this component is "to produce trained personnel to carry out all activities in the other project elements, while at the same time enhancing local training capacities."

To this end, training was envisioned in three forms: training conducted by entities within MLIMD; in-country training conducted on a contractual basis by organizations outside of MLIMD; and overseas training for MLIMD and outside trainers. However, further definition of specific training needs in the last year has had two major results. First, the project is conducting IO pre-service training in-house (see 4.2) rather than contracting this training out to ARTI and Galagmuwa Irrigation Training Institute (GITI). Second, the project has placed a heavy emphasis on training DCO farmer representatives and farmers.

Furthermore, a new Asian Development Bank (ADB) project designed to strengthen national training institutions has enabled ISMP to discontinue line-officer training (and avoid duplication of effort), for ISMP line officers now have access to ADB-sponsored courses at no cost.

4.2 Activities

The 1990 Work Plan summarizes the training completed in 1987 1988, and 1989, and identifies planned activities for 1990. These activities are briefly reviewed below, as are their costs.

4.2.1 Overseas Training Completed in 1987-89

ISMP overseas training includes both long-term and short-term grants. IMD, ID, GITI, DOA, and ARTI have been the primary beneficiaries of ISMP overseas training, although eight farmer leaders participated in a study tour to Thailand in late 1988. Six individuals are currently in long-term advanced degree programs in the U.S. and third countries; fifty-nine benefitted from short-term training activities in 1988 and 1989.

4.2.2 In-Country Training Completed in 1987-89

In-country ISMP training activities in 1987 and 1988 focused primarily on midlevel project officer training—PMs, TAs, and WSs—and on pre-service training for new IOs. These training activities were contracted to GITI and ARTI. There was also some farmer awareness training that occurred in 1988; these short "orientation" sessions, conducted in-house by PMs and other project and SAI staff, were to inform farmers of ISMP activities, in particular the development of FOs.

In 1989, ISMP made the decision to conduct all IO pre-service training in-house: IO training by ARTI and GITI was seen as too expensive, too general, and not always available when needed. However, GITI continued to provide the project with technical training for TAs and WSs.

Although farmer awareness training and ISMP awareness training for project officers and GSL line officers did occur in 1989, the security problem significantly curtailed these programs and proved disruptive to the in-house project support training conducted for institutional organizers. The

inadequacy of the facility for in-house ISMP training—both session-room size and facility location—was also cited as a problem area.

4.2.3 Projected Activities for 1990

ISMP training planned for 1990 is primarily in-country; one person is proposed for long-term overseas training in the U.S., and eight people attended a six-week course (Micro-Computer Use in Irrigation and Drainage) at Utah State University from January to March 1990.

4.3 Selection of Programs and Participants for Overseas Training

USAID documentation files for ISMP overseas training indicate that USAID and SAI have taken a very active role in identifying appropriate long-term and short-term courses for IMD consideration. Documentation also indicates that USAID approval for overseas training was based on careful case-by-case consideration of both program and candidate appropriateness, following consultation with the SAI training specialist or chief- of-party.

IMD documentation—in particular, the 1988 and 1989 *Overseas Training Program ISMP*—also indicates that IMD selected courses and candidates based on careful consideration of MLIMD institutional needs and ISMP program needs. The long-term advanced degree programs and proposed candidates represent a range of appropriate disciplines, including irrigation engineering, sociology, water management, and agricultural extension/water management. Candidates for these programs included trainers from GITI, ARTI, and DOA.

The short-term training IMD proposed for 1988-89 included three types of activities: short courses, international workshops, and study tours. Participants selected for these activities included senior and midlevel officials of ID and IMD (who support or work within ISMP) and farmer leaders. Interviews with recipients of short-term training—including an interview with a DCO chairman (farmer leader) who participated in the Thailand study tour—indicate a high degree of satisfaction with the training; however, ISMP has no training-evaluation mechanism in place to determine the project benefits or applicability of each short-term activity. Moreover, ISMP has provided no formal opportunities for training recipients to share what they learn with other project officers or farmer leaders.

4.4 Appropriateness and Applicability of ISMP In-Country Training

The decision to conduct IO training in-house was appropriate not only because it assures a more project-specific training design, but also because it helps build institutional capability at the scheme level to design and conduct training activities.

The emphasis on DCO farmer-representative training is also appropriate given ISMP's institutional-development objectives. However, according to interviews, ID technical assistants should take a much stronger training role in these activities, especially in providing field training in water management, in the gravity of the water shortage, and in preventive maintenance at D- and F-channel sites.

As detailed in Chapter 9, the advantages of having ISMP project staff and SAI consultants provide crop-diversification training to farmers are, in contrast, highly questionable.

Even though ISMP's current emphasis on strengthening in-house capability of PMs and other project staff to deliver training is generally appropriate, its training approach is not based on modern adult-learning theory and methodology (see 4.4.2). In this regard, ISMP's training-enhancement component falls far short of its potential.

4.4.1 Training Needs Assessment

To date, ISMP has not conducted a performance-based training needs assessment (TNA). Its in-house training programs are informational in design and based primarily on what SAI consultants and project staff judge to be participant needs.

TNA is a widely recognized and valued procedure for developing irrigation-training strategies and programs (see, for instance, *Irrigation Training in the Public Sector: Guidelines for Preparing Strategies and Programs*. World Bank/USAID 1989). A needs assessment would greatly benefit ISMP training activities directed at TAs, IOs, and DCO representatives by helping to define performance shortcomings—gaps in skills and knowledge—and by helping to set performance and skill standards.

4.4.2 Training Design and Delivery

ISMP in-house training design and delivery consists primarily of lectures and expert panels. As one project manager said, "We talk to participants, and they listen and go home without saying anything."

ISMP training sessions need to do more than impart information and build awareness. They also need to help participants acquire specific skills and develop strategies that improve their ability to carry out tasks. Needs assessments will help identify the skills and strategies needed to improve job performance.

Although providing information through lectures is an appropriate and acceptable learning methodology, it should not be used exclusively. Training methodologies such as case studies, role plays, simulations, problem-solving groups, and hands-on field work help participants *practice* new skills and develop new strategies in an interactive way. Participants are able to learn through doing and experiencing. Moreover, they have an opportunity to learn from one another, to give feedback to one another, and to recognize their own resourcefulness in solving problems and developing strategies. The trainer using these methodologies is a facilitator of learning, not an expert who tells people what they should be doing.

It should be noted, however, that the new ADB project has already affected the project positively in the area of training design and delivery. Two ISMP project managers attended an ADB course (Training as a Function of Management) in January 1990, and four project managers attended another ADB course (D-Channel Management Committee Training) in February 1990. The consultant trainer who conducted both courses used participative training methodology, according to a project manager who attended them, and the concept of training based on participant needs was also discussed. These two courses helped ISMP project managers who attended to recognize the benefits this methodology could bring to their own training programs. However, at the 1990 ISPAN-facilitated ISMP Workshop, project managers stated that these two courses alone were insufficient to prepare PMs to identify needs and design and deliver training sessions.

4.4.3 Training Evaluation

Training evaluation is taking place during and at the conclusion of IO training courses. However, ongoing evaluation of training impact at the work site is not occurring; training design based on behavioral training objectives would permit this kind of evaluation.

4.5 Staff and Training Capability

Although the SAI training specialist assigned to the project for seventeen months (beginning in 1987) was effective in developing the overseas training program, he did not develop an in-country training program based on modern adult-learning theory and methodologies. This conclusion was reached on the basis of interviews and upon reviewing USAID documentation and the training specialist's End-of-Tour Report.

It should be noted that the ISMP project design document emphasizes and clearly describes a participatory, needs-based training approach to the training-enhancement component. At a minimum, SAI should have provided short-term technical assistance to supplement what the training specialist was unable to achieve in this area.

After the training specialist's assignment ended, the chief-of-party took over that project component until he departed in June 1989. In November 1989, the SAI local consultant responsible for MEF and financial management was given the additional responsibility for training. Although the SAI local consultants who have been involved in supporting in-house ISMP training through the PMs are

qualified in their areas of specialty and very committed to the project's training component (and recognize its impact on FOs), they do not have training expertise.

4.6 Coordination with Other Institutions and Departments

Coordination with other institutions and departments is occurring at both national and district levels. At the district level, the government agent (GA) has played a very important role in this coordination.

The GA chairs the District Agricultural Committee (attended by ISMP project managers) and attends the ISMP monthly meeting. According to people interviewed, the GA has also been instrumental in getting district-level line officers from other GSL departments (e.g., DOA) to attend PM project committee meetings and to assist in ISMP's in-house training programs.

ISMP coordination with other institutions, departments, and donor programs at the national level takes place largely through the efforts of ISMP's project director, deputy director for institutional development and training, and the state secretary and secretary of MLIMD. These individuals, according to people interviewed, are very active in promoting better coordination at this level. However, a need was identified for a training specialist at IMD/Colombo to coordinate the development and dissemination of training modules and materials among donor and IMD programs.

4.7 Conclusions

1. USAID approval for overseas training has been based on careful case-by-case consideration of both program and candidate appropriateness, following consultation with the SAI training specialist or chief-of-party.

2. IMD selection of both courses and candidates has been based on careful consideration of MLIMD institutional needs and ISMP program needs.

3. ISMP has no training-evaluation mechanism in place to determine the project benefits or applicability of each short-term activity. Moreover, ISMP has provided no formal opportunities for training recipients to share what they learn with other project officers or farmer leaders.

4. The decision to conduct IO training in-house was an appropriate decision, not only because it assures a more project-specific training design but also because it helps build project-level institutional capacity to design and conduct training activities.

5. The heavy project emphasis on DCO farmer-representative training is appropriate given ISMP's institutional- development objectives. However, the cost-benefit of crop-diversification farmer training by ISMP project staff and SAI consultants is questionable.

6. Although ISMP's current emphasis on strengthening in-house training capability (of PMs and other project staff) is appropriate, its training approach is not based on modern adult-learning theory and methodology. In this regard, the ISMP's training-enhancement component falls far short of its potential.

7. Training facilities used for past in-house training programs have been inadequate.

8. Good coordination with other institutions and departments is occurring at both national and district levels. At the district level, the GA has played a very important role in promoting this coordination.

4.8 Recommendations

1. Within the next six months, ISMP should contract a master trainer for at least ten weeks to—

   - Carry out a needs assessment for training directed at TAs, IOs, and DCO farmer representatives.

- Develop training designs (based on behavioral training objectives) for key in-house training programs.

- Conduct a two-week training-of-trainers (TOT) workshop (centered on these new designs) for 15 to 20 project-level ISMP trainers (PMs, TAs).

2. Additional short-term technical assistance—at least ten weeks per year by a master trainer—should be provided throughout the life of the project to—

   - Conduct additional TOTs and follow-up TOTs.

   - Develop ongoing training evaluation skills and procedures.

   - Provide training workshops for management skills (see 10.6).

   Such short-term technical assistance would significantly strengthen ISMP institutional-development efforts.

3. The master trainer selected for these assignments should have at least five to ten years of experience *designing and delivering* needs-based, participatory training programs. (University teaching experience in and of itself does not qualify under this definition.) USAID could ask ISPAN to help identify an appropriate individual and to help develop the specific scope of work.

4. PMs who will be designing and coordinating in-country training should attend the six-week basic TOT that the U.S. Department of Agriculture (USDA) will hold in Washington, D.C. in August 1990. This short course should be in addition to their attendance in the project-specific TOT (see recommendation 1). With these two training courses, PMs will have the basic skills and credibility to serve as assistant trainers to the short-term master trainer in subsequent years.

5. A training specialist position should be created within IMD/Colombo to coordinate the development and dissemination of training modules and materials by donor and IMD programs. When selected, this individual should also attend USDA's yearly August TOT.

6. A nonresidential facility for in-house training should be established in Polonnaruwa to accommodate up to 60 participants. Training equipment and materials should be provided to this facility.

7. ID technical assistants should take a much stronger training role in ISMP by providing field training in water management, the gravity of the water shortage, preventive maintenance, and other pertinent topics at D- and F-channel sites.

8. ISMP should establish formal opportunities for short-term overseas training recipients to share what they learn with other project officers or farmer leaders (for example, a debriefing at ISMP monthly meetings).

5

MONITORING, EVALUATION, AND FEEDBACK

5.1 Rationale, Objectives, and Design

5.1.1 Rationale and Objectives

ISMP is both a physical-delivery project and a people-centered project. Four central themes underlie its objectives:

- an emphasis on improving irrigation-water management through enhanced institutional capacities at all management levels and through farmer mobilization, participation, and organization;
- formulation of the roles that national and local institutions need to play in improving water management, including elements of successful approaches to promoting greater farmer participation;
- establishment of alternative approaches for involving farmers and identification of optimum combinations of structural improvement and management intensity; and
- formulation of findings and conclusions so that lessons learned from field experiments can be applied to other irrigated areas.

It is apparent from these objectives that ISMP management personnel at central, district, and system levels need timely and relevant information to undertake these intricate tasks. The routine need for physical and financial data common to most development projects is augmented under ISMP by a considerable requirement for data pertaining to the linkages between physical inputs and the target population. Hence, there is a strong need for a sound MEF system that integrates the various activities under the separate but highly integrated project components.

Monitoring encompasses collation of recorded project data and collection of supplementary data for the analysis and interpretation required to make decisions concerning project functioning. *Evaluation* then draws on the data supplied by the monitoring process, supplements them as necessary with data on project impact, and periodically reviews the combined information to assess achievements. With appropriate *feedback*, suitable program adjustments can be made in ongoing or planned activities to ensure efficient and effective use of physical and human resources.

5.1.2 System Design

Provision for constructing, maintaining, and using an MEF system was made in the Design Report and the Project Paper. The two documents incorporated a "blueprint" approach and a "process" approach. While the organizational plan specified system objectives, personnel requirements, organizational placement, data requisites, and budgetary needs, it took an evolutionary view by giving planning responsibility to project managers and staff and allowing for considerable flexibility throughout the implementation process. The MEF design requirements can be divided into two broad categories: personnel needs and data collection, analysis, and dissemination requirements.

Personnel Needs

- Appointment, at the *head office level*, of an MEF deputy director at IMD, who would serve as ISMP's deputy project director for MEF. The deputy director would be assisted by an agricultural irrigation engineer, an agricultural instructor, and an economist/sociologist.

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- Two three-person teams composed of an agricultural economist, an agricultural instructor, and an economist/sociologist would be based in Polonnaruwa and Amparai to oversee data collection at the *district level*. The INMAS project managers in the project-assisted irrigation schemes would each be assisted by three MEF officers and three WSs to collect and analyze data under the guidance of the district teams.

Data Collection, Analysis, and Dissemination Requirements

Data collection should be based on performance indicators regarding—

- Internal operation of systems such as water control and delivery, efficiency of physical structures, farmer participation, and personnel performance.

- Ultimate outputs of the systems such as agricultural production, employment generation, income, equity and environmental concerns, health, and land tenure.

Data pertaining to internal system operation should be analyzed for monitoring, evaluation, and planning purposes. These activities include weekly assessment of how well the system operates relative to the weekly discharges, the amount of crop-water stress noted on sample fields, and the number of complaints received from users. Seasonal evaluation can take place in a workshop once simple operational analysis is completed. Weekly and seasonal feedback brings information back to managers and may lead to the design and implementation of a new action plan. Evaluation criteria related to personnel and structural performance as well as to the ultimate outputs of the systems may be analyzed with a varying comparison time. Information dissemination includes seasonal cultivation meetings, development and dissemination of seasonal water-issue plans, and distribution of information on adjustments in water issues in response to crop growth, rainfall, and/or water availability.

5.2 Assessment of Activities to Date

5.2.1 Implementation: Personnel, Output, and Future Plans

ISMP's project director under the present management structure is assisted by a deputy director for MEF. Project managers are responsible for data collection at the district level. An MEF assistant is assigned to each PM, and an MEF specialist from the TA team provides technical guidance to each PM's office.

Four questionnaires containing more than 500 indicators were developed by the original MEF specialist on the TA team. Data have been collected from the irrigation engineers (IEs), the PMs, and from post-harvest surveys. Extension agents from the DOA were trained in 1988-89 in data-collection methods used in the post-harvest surveys. These surveys have covered the Maha and Yala seasons in 1987-89, using a "10 percent stratified random sample."

The MEF program as outlined above was implemented on a pilot basis for one DCO in each irrigation scheme in Maha 1987-88 and Yala 1988. The implementation area was increased to cover 34 DCOs in 1988-89; the targets for 1990 and 1992 are 68 and 174 DCOs, respectively.

During the ISPAN workshop held in April 1989, a decision was made to review and refine the MEF data-collection effort. In an MEF workshop held in February 1990, certain deficiencies were noted that prompted the following decisions:

- Reduce the number of indicators to approximately 200.
- Design a Farm Record Book from which data could be directly collected.
- Train the IOs in data-collection methods so that they can assist the DCO members who will be involved in data collection.
- Design a scheme-level report and a range-level report summarizing data collected for each scheme.

- Reduce the sample size to 5 percent of the population.

5.2.2 Issues

As pointed out in the February 1990 MEF workshop, selecting the proper indicators to be measured is crucial to effective monitoring. Indeed, failure is assured when managers incorporate all the indicators that come to mind. As the list grows larger, so does the number of inappropriate indicators. The decision, in the February 1990 MEF workshop, to eliminate a large number of irrelevant or ambiguous indicators is a step toward more effective monitoring. However, past and planned MEF activities raise the following issues:

1. A sample based on a percentage of the population will continue to be used, and all DCOs will be sampled. However, it is well known that a sample does not depend on the size of the population studied and, therefore, does not need to be any particular percentage of it. It is equally well known that a sample can be drawn from as narrowly defined a group as is desired by PMs. It does not have to be drawn from an entire population.

2. A large number of indicators will be used to evaluate ISMP's long-term impact on agricultural production and farmer welfare; these indicators do not need to be monitored seasonally.

3. The standards of data accuracy and reliability should not be as demanding for ISMP's MEF system as for academic research or experimental studies. Considerations such as cost-effectiveness, sustainability, relevance, and timeliness are at least as important.

4. As a project designed to serve as a learning laboratory where different strategies would be tested and refined in field situations, ISMP requires that MEF be an integral part of project management. Consequently, the success of the MEF system lies in its ability to supply succinct, regular outputs of progress, to detect unexpected developments, and to draw the emergence of these developments to the attention of those who can respond. Generating considerable raw data and producing monthly, quarterly, and annual reports that may go largely unread by decision-makers represent superficial and ineffective responses to these requirements.

5. Data collection under ISMP should be pragmatic. MEF staff can, for instance, gain highly useful insights about water or other issues by talking to DCO water users or other participants and summarizing these comments. This quick, inexpensive method can very effectively identify problem areas, even if it does not rely on a representative sample. More in-depth case studies may also be developed as necessary to gain an understanding of problems facing beneficiaries. Such investigations may be carried out through detailed, open-ended questions and probes rather than through structured questionnaires.

6. A major objective of the MEF system is to identify and analyze constraints to implementing project components. Project implementation can be made more effective by conducting diagnostic studies that identify problems, determine contributing factors, and develop alternative solutions. These studies should try to produce empirical information that will help solve problems identified by PMs and MEF assistants. Since diagnostic studies emphasize speed and flexibility, mainly qualitative information should be collected. Such studies must be conducted within weeks rather than months if they are going to contribute to the decision-making process.

7. A number of the shortcomings outlined above may be explained in part by the fact that survey data have yet to be analyzed. It is also important to note that no provision for data analysis was made during the February 1990 MEF workshop.

8. Even though reports under the present MEF system have been mere computer printouts, no provision was made in the MEF workshop for effective reporting requirements, including content and timeliness. Nor were modes of information-sharing determined. A critical part of the monitoring system is, in effect, to convey messages so that they can be easily understood.

It is self-defeating to meticulously gather potentially significant data and then develop bulky and laboriously prepared reports that conceal, rather than reveal, main messages. Failure to present timely data in a form that conveys their meaning to users impedes assessment of project activities and optimal adjustment to project constraints.

9. A major weakness of the MEF system is inadequate staffing both at the head office and at the scheme level. Contrary to the specifications outlined in the PF, no assistants for the deputy director for MEF have been assigned. Similarly, support to PM assistants for MEF has been lacking. Not only has the lack of IMD counterpart personnel impeded MEF activities, but it has also prevented institutionalization of the MEF system.

5.3 Conclusions

ISMP project management accepts the importance and usefulness of a sound MEF system. However, due to lack of professional guidance, inadequate staffing, and ineffective implementation, the potential of the MEF function has not been realized.

The program's central objective is to *develop* and *institutionalize* ID and IMD capabilities to utilize an MEF system that will provide essential information to managers on the performance of the activities under their responsibility. Measured against this objective, the MEF program is one of the ISMP components where considerable improvement is needed.

5.4 Recommendations

An in-depth assessment of the existing MEF system should be immediately initiated. The assessment should be carried out by a highly qualified professional with demonstrated experience in developing and implementing information-management programs at the national and project levels. His/her expertise should combine experience in both physical-delivery projects and people-centered projects. Knowledge of O&M irrigation systems and farmer organizations would be highly desirable.

The assessment would be carried out in three stages:

- In the first stage, relevant project documents would be reviewed and interviews conducted with pertinent personnel at the central and project-site levels. Based on literature review, interviews, and field visits, a detailed outline of issues and constraints would be prepared.

- The issues statement would be used in a second stage to design and conduct a workshop involving ID and IMD officials, project managers, monitoring and evaluation staff, and other potential information users. The workshop would investigate, with the assistance of the MEF professional and a workshop facilitator, the information needs of the various users, identify specific information items, define staffing and training requirements, determine staff location and respective responsibilities, and formulate formal and informal communication and feedback strategies.

- Details of technical issues—such as the formulation of indicators, sampling techniques, statistical analysis, survey methodology, and reporting procedures—should not be discussed in the workshop. These would, instead, be examined in a third stage by the technical staff in light of the agreed-upon strategies. An appropriate number of smaller workshops would be conducted to carry out these tasks.

Once the revised MEF system starts functioning, an annual workshop should be held to review progress and schedule necessary changes in light of experience and new needs. Work schedules may be formalized within an MEF committee that would periodically review information flows to ensure that appropriate facts are available to relevant users in a timely fashion and in the desired formats.

6

RESEARCH

6.1 Objectives and Design

As stated in the PP, the research component has two objectives: to increase Sri Lanka's institutional capacity to conduct research and to find causes and solutions to problems that must be solved if ISMP's overall objectives are to be accomplished.

Specifically, the research component was to focus on major policy issues for future GSL investment, practical questions for ISMP implementation, and database accumulation for future utilization. The project design team envisioned this research being conducted by various national and international institutions.

6.2 Implementation

In June 1987, USAID provided the International Irrigation Management Institute (IIMI) with a $395,150 grant through a direct Cooperative Agreement contract, which will end in June 1990. Under this grant agreement, IIMI took responsibility for ISMP's research component. An extension of the Cooperative Agreement is presently being considered by USAID.

6.2.1 IIMI Scope of Work

IIMI, an autonomous, nonprofit research organization, seeks to strengthen national capacities to improve irrigation management and performance in developing countries. Its scope of work under the Cooperative Agreement is to identify national research organizations in Sri Lanka for specific ISMP research projects and to backstop these projects in all phases of research design, analysis, and presentation.

The decision was made early in the project to solicit research proposals from Sri Lankan universities and institutes and to exclude the private sector. Subsequently, several institutes and universities were approached by IIMI in late 1987, and encouraging verbal and written responses were received. However, proposals were not forthcoming. In 1988, IIMI recommended to USAID that Sri Lankan private-sector firms be included as possible participants, and USAID concurred.

6.2.2 Research Advisory Committee

At ISMP start-up, the Research Advisory Committee was established to oversee research activities carried out under the USAID Cooperative Agreement with IIMI. The committee is chaired by the IMD director and includes the USAID project officer, the ISMP project director, the SAI chief-of-party, and the IIMI project manager for the Cooperative Agreement. The committee has met intermittently; however, at the 1990 ISMP/ISPAN Midterm Evaluation and Review workshop, it was agreed that research activities would be discussed at ISMP monthly meetings. At those meetings, it would be decided whether the Research Advisory Committee needed to meet that month. If so, it would then be decided when the meeting should occur, who should attend, and what the agenda should address.

6.2.3 Contracting Procedures

To identify private-sector firms capable of carrying out ISMP research studies, IIMI advertised in a national newspaper (August 1988) for "calls for expression of interest" in irrigation management research. The advertisement identified several topic areas, including the following: farmer organizations, system-rehabilitation strategies, irrigation system O&M costs, and performance monitoring and feedback.

Following discussions with firms that responded to the advertisement, IIMI invited three firms to submit proposals. One firm was selected for two topic areas, and a second and third firm for two others.

6.2.4 Inventory of Research Papers

Four research projects initiated in 1989 are expected to be completed in 1990:

- *Study on Water Delivery Systems in ISM Project*, Lanka Hydraulics Institute Ltd.
- *Study on Institution Building Under ISM Project*, TEAMS (Pvt) Ltd.
- *Study of Farmer Organizations in Nagadeepa and Pimburettewa*, Associated Development Research Consultants (ADRC).
- *O&M Cost Study*, TEAMS (Pvt.) Ltd.

According to IIMI, the security situation in the country during the last year caused some delays in implementing these studies. Nevertheless, next-to-final drafts have been completed for the first two projects listed above.

6.2.5 Issues

1. Selection of Research Topics

How research topics were selected was raised as an issue in several interviews. IIMI representatives noted that ISMP seemed to have little interest in identifying and proposing study topics. Some people interviewed, however, felt that IIMI-initiated studies were of more interest and benefit to IIMI than to ISMP. Regardless of which viewpoint is more accurate, at issue here is the need for more consultation, discussion, and debate in the final selection of future research studies. The questionable benefits to ISMP of two of the four studies (see below) would further support this conclusion.

2. Suitability of IIMI

Without question, IIMI is an appropriate organization to manage the ISMP research component. IIMI's own research program puts considerable emphasis on developing methodologies both for research purposes and for improved management of irrigation systems. Moreover, IIMI takes a lead role within Sri Lanka in facilitating the exchange of lessons learned in irrigation policy and water management. As an institution, IIMI is highly regarded in Sri Lanka.

3. Suitability of Firms Contracted

This evaluation team attended the next-to-final draft presentation of one of the four research topics, and had several discussions with one of three consulting firms currently under subcontract to IIMI. Based on this first-hand experience and on interviews with USAID, IIMI, SAI, and ISMP representatives, the three consulting firms were suitable choices for three of the four studies. However, the suitability of the consulting firm selected for the O&M cost study was not agreed upon by all parties; the firm's first draft would suggest that it was indeed an unsuitable choice, although the final draft is still pending.

4. Quality of Research

Summarized below are brief assessments of three of the four studies that this evaluation team had access to (all three were still in draft form).

Study of Institution Building Under ISM Project

This study reviews the institution-building process in the Polonnaruwa and Ridi Bendi Ela schemes. The report is still in a draft stage, so a final assessment of the study's usefulness cannot yet be made.

The December 1989 Interim Report is well-written and quite informative to an outsider, although this question needs to be asked: What conclusions or lessons does it provide for ISMP (or for other projects in Sri Lanka for that matter)? People interviewed who are familiar with the interim report describe it as too general, providing no specific conclusions or lessons that would enable ISMP to adjust or improve its strategy. However, it does indicate some interesting areas where applied research could be done.

There is merit to IIMI's proposal in its 1990 Work Plan that further action-oriented research on this topic be done at ISMP project sites, especially for the purposes of providing innovations in the specific areas they identify—such as revisions of the methods used by IOs in working with farmers, revised

training of project staff (PMs, IEs, TAs, and IOs), and revised contractual relationships with farmers.

Study on Water Delivery Systems in ISM Project

The next-to-final draft of this research project has been well received by ISMP. It provides extensive hard data on flow measurement and other structures, which should prove useful for developing the project computer operations model.

O&M Cost Study Under ISM Project

Although the objectives for this research project are valid, the consulting firm's response in its first draft to these objectives was very disappointing, according to people familiar with the project. The draft is difficult to read and relies too much on anecdotal information. A second draft is still pending. The research paper studies two ISMP systems: Giritale and Ridi Bindi Ela.

5. Relevancy

The specific relevancy to ISMP of the available draft studies (see No. 4, "Quality of Research") is questionable at this time. The studies are relevant to general areas of project components (the water-delivery systems study perhaps more so than the others), but they have not as yet identified lessons that can be applied in specific ways to ISMP implementation.

The studies' low relevance to ISMP may be explained by the weak links between the research and MEF components. An appropriate and functioning MEF system would have identified specific problem areas in ISMP implementation that the research component could have addressed. And given that the MEF system is still inappropriately designed (see Chapter 5), it is unlikely that it will provide much direction in selecting future areas for applied research.

Final judgment on the relevancy of the four nearly completed research projects will depend on the following questions: What lessons have been learned from the research papers? To what extent are the papers being summarized and summaries disseminated? To what extent are the research results applied? Several recommendations were made at the 1990 ISMP workshop, which, if followed through, should help improve their relevancy.

6. Comparative Analysis of Systems Improvement Study and Project Implementation Letter (PIL) No. 27

One of the two purposes of ISMP as defined in purpose (b) in the PP is to "test and demonstrate the effectiveness (cost vs. benefits) of different combinations of management and structural improvements carried out in selected irrigation systems." The 1988 Project Assessment challenged the validity of this purpose and officially modified both its wording and intent as part of Project Implementation Letter (PIL) No. 27.

PIL No. 27 suggested "removal of the terms 'cost/benefit,' 'essential structure improvement,' and 'pragmatic rehabilitation'... and focusing on finding the most long-term cost effective (emphasis not added) methods and techniques for system rehabilitation and sustained maintenance, building effective farmer organizations and institutions, and linking these elements to work together for a common goal." PIL No. 27 also directed the TA team to design a methodology that would lead to a cost-effectiveness study under the new interpretation of the Project-Paper purpose statement.

Comparison of purpose (b) of the PP and PIL No. 27 and other evidence (interviews with USAID personnel and a memo to this evaluation team) indicate that PIL No. 27 challenges the validity of the PP on several grounds:

- Cost-benefit analysis is an inappropriate tool to assess the interdependence of the physical and institutional elements of a complex project such as ISMP. Inadequacy of cost-benefit analysis stems from the fact that costs can be accurately measured, but benefits from project interventions will depend not only on project inputs, but also on a multitude of exogenous factors such as climate, supply and demand conditions, and political environment.
- Each system and each part of a system will require a different combination of management and structural improvements, and no single combination can be used as a planning tool for replication.

- Comparing a few schemes in selected areas to make countrywide policy decisions is a futile and even dangerous exercise.

Substitution of PIL No. 27 for purpose (b) of the PP and the rationale for this substitution as outlined above raise the following issues:

- An inadequate methodology to achieve an objective does not imply inadequacy of that objective's intent.
- The assumption that benefits from project interventions cannot be measured with any reasonable degree of accuracy, owing to the multiplicity of extraneous factors and the diversity of project inputs, is questionable. Agricultural economic research has developed a range of quantitative and qualitative indicators and other tools that have been successfully used to assess project impact on beneficiaries of complex projects in many developing countries.
- The fact that each irrigation system and each part of an irrigation system require a different combination of management and physical inputs does not imply that a single combination should be used for replication throughout the country.
- Comparing a few schemes in selected areas can yield important results that may prove useful in guiding policy interventions in other areas. The objective of a research study is not only to provide a list of results, but also, and more importantly, to determine whether and under what circumstances these results are likely to be replicated.
- The O&M system was designed to accommodate a comparative analysis of "varying rates of expenditure per acre on irrigation system improvements, ranging from sole reliance on management improvements to mixes of management improvements plus varying levels of expenditure for physical upgrading/rehabilitation." Provision of varying levels of O&M expenditure ranging from *no* expenditure to Rs.2,500 was made in the PP. These rates were also to be studied against a higher expenditure rate anticipated in other systems.

  As noted above, PIL No.27 challenged the validity and usefulness of the comparative analysis. However, to be consistent the PIL should have also questioned the O&M system design to accommodate the analysis. It is important to note that, although the per-acre figures may vary widely between different subprojects, the O&M system is generally being implemented according to the guidelines of the comparative analysis that has been challenged.
- PIL No. 27 elected to focus on "finding the most *long-term cost effective* methods and techniques for system rehabilitation and sustained maintenance, building effective farmer organizations and institutions, and linking these elements to work together for a common goal." Yet, the PIL failed to define key concepts in the objectives to be achieved—such as "long-term cost-effectiveness" and how project elements should be "linked" to work together for a common goal.
- PIL No. 27 directed the TA team to design and carry out a cost-effectiveness study under the new interpretation. Interviews with several persons familiar with both the study and ISMP activities indicate that the cost-effectiveness study as designed by the TA team is highly questionable. The evaluation team concurs with this assessment.

In summary, the 1988 internal assessment of ISMP and PIL No. 27 challenged the validity of one of the two project purposes because the methodology suggested to achieve that purpose was deemed ineffective. A new interpretation of the purpose statement was proposed, and the TA team was directed to design a research study based on this interpretation. The present evaluation notes that the new proposal should have also questioned the design and current implementation of the O&M system and that the approach suggested in the PP was rejected without being tested. This evaluation also concludes that, although well intentioned, the shift in focus will not enable the project to achieve one of its two main purposes and that implementation of the comparative study outlined in the PP will be highly desirable.

6.3 Conclusions

1. Selection of the first four research studies should have been based on more consultation between IIMI and ISMP representatives.

2. IIMI is an appropriate organization to manage ISMP's research component.

3. The three consulting firms were suitable choices for three of the four research studies currently underway. The O&M study has, thus far, been disappointing.

4. The three available research studies—still in draft form—are relevant to general areas of project components (the water-delivery systems study perhaps more so than the others), but they have not as yet identified lessons that can be applied in specific ways to ISMP implementation. This low relevance of the studies to ISMP activities may be explained by the weak links between the research and MEF components.

5. Although well-intentioned, USAID's redirection of the comparative analysis study described in the Project Paper will not permit ISMP to achieve one of its two main purposes, thus limiting the original vision of the project.

6.4 Recommendations

1. IIMI should be given an extension to its Cooperative Agreement with USAID to continue implementation of the ISMP research component.

2. Future research studies should be linked to specific problem areas identified through analysis of MEF data.

3. A workshop for ID technical assistants should be held to identify ways that the water-delivery study can be used in developing the operations model.

4. The Research Advisory Committee should give further consideration to IIMI's proposal in its 1990 Work Plan that action-oriented research related to the institutional-development study be done at ISMP project sites.

5. The 1990 ISMP workshop recommendations related to the research component should be acted upon. If a Sri Lankan institute cannot be identified to develop a research dissemination newsletter, USAID and IIMI should consider subcontracting such a newsletter to a Sri Lankan private-sector firm.

6. As soon as possible, IIMI should initiate a comparative analysis study as outlined in Part II, Section 6 of the Project Paper. In implementing the study, IIMI should carefully examine the methodology suggested in proposals received to assure that outcomes will meet the study objectives. Due to this study's importance, it is imperative to solicit proposals only from highly qualified, well-experienced public institutions and private firms.

7. The usefulness of the cost-effectiveness study designed by the TA team is highly questionable and should not be continued, although work completed to date should be reviewed and used appropriately.

7

OPERATIONS AND MAINTENANCE

7.1 Introduction

This major project element is designed to "test and demonstrate" improved operations and maintenance and rehabilitation procedures in the eight irrigation systems targeted for project assistance. The stated purpose of introducing the improved procedures is to convert the existing O&M process from the construction-deterioration-rehabilitation-deterioration pattern to one of sustained renewal. The concept of sustained renewal is the central theme of this project element.

The improved O&M and rehabilitation procedures to be tested and demonstrated under ISMP fall into three categories:

- improved system operational practices
- improved system maintenance practices
- structural rehabilitation practices

The structural rehabilitation of five project irrigation systems, a major project investment activity, is divided into two categories: essential structural improvement (ESI) and pragmatic rehabilitation (PR).

The difference between these two approaches is the intensity of the rehabilitation in terms of expenditure per system acre. The four Polonnaruwa systems are planned to be rehabilitated through ESI (Rs.1,800/acre), while the Gal Oya Right Bank system is planned to be rehabilitated under PR (Rs.2,700/acre). Rehabilitation through the ESI approach will attempt to demonstrate the effectiveness of providing improvements at a lower cost per acre than pragmatic rehabilitation. Initial per-acre cost estimates were made in 1984 (see p.18 and Tables 1-2 of Annex A in PP).

7.2 Implementation

7.2.1 Essential Structural Improvements/Pragmatic Rehabilitation

As listed in the 1990 Work Plan, this task involves constructing water measurement and control structures; improving and rehabilitating channels by desilting; stabilizing channel banks by retaining walls and/or dry-rubble packing; and improving or constructing enough irrigation structures to effectively operate and maintain the system.

Appendix D lists output achievement to date by project activity areas. As can be seen in the appendix, work in the Polonnaruwa main and branch channels is almost complete. In Gal Oya, work is now progressing well and, according to those familiar with the ID there, the work should progress at a faster pace than in Polonnaruwa.

During 1986, prior to the arrival of the technical assistance team (TAT), the ID formulated a six-year plan to carry out the entire ESI/PR program in the project areas. This plan is still in use for scheduling work for each project year, with the exception of the Gal Oya work, which was postponed until the Maha 1989 construction season due to civil disturbances that occurred in that area until late 1989.

Fixed amount reimbursement (FAR) is used to fund 67 percent of the rehabilitation costs. Procedures, approvals, and fixed reimbursement amounts have been arranged by the Mission with the TAT and ID; these are detailed in PIL Nos. 5, 26, 38, and 41. The TAT provides the program preliminary review process and certifies completed construction prior to USAID approval and reimbursement.

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On a demonstration basis, the TAT has also introduced the design and construction of previously unused structures—vertical fall drop structures and nongated weirs—which are more cost-effective than those now in use by the ID.

7.2.2 Operations

These are specific project outputs:

- development/implementation of a weekly operations model for water delivery for the Ridi Benda Ela system
- development/implementation of a weekly operations computer model for water delivery for the four Polonnaruwa systems and the Gal Oya Right Bank system
- development/implementation of a daily operations computer model for water delivery for the Gal Oya Left Bank system

With TAT assistance, the ID has carried out operational surveys and both field and model tests to identify and calibrate control and measurement structures. An effective short training course on calibrating flow rates for structures was recently delivered to ID technical assistants located in the four Polonnaruwa systems. Utah State University, a TAT subcontractor, conducted the course. The remaining data for the system operations models are being collected by ID. Using the data gathered thus far, a computer modeling specialist from Utah State is now developing a systems operations model in Polonnaruwa. These operational models are projected to be in Polonnaruwa and Ridi Benda Ela by April 1990 (the Yala season). For Gal Oya Right Bank, the system is planned to be on-line in October 1990 (the Maha season). Conversion of the existing weekly computer operations system to a daily-operated system at the Gal Oya Left Bank system is under review. Instead of introducing the daily model as called for in the PP, the model now being installed in Polonnaruwa may be equipped with the new computer hardware.

The ID will continue to update issue trees (detailed F-channel water allotment/measurement plans), mark identification information on structures in the systems, complete the installation of basic flow-measurement equipment, and calibrate flow-measurement structures.

Two other outputs, seasonal water reports and reservoir operations models, are being introduced at all systems but the Gal Oya Left Bank, which already employs them. Both applications are computer-based D-Base 3 applications. Seasonal water reporting is ongoing in Giritale and will be started in the five other systems in 1990, after the ID completes data input to the programs now installed in the ID computer centers. Available meteorological data have been collected and analyzed for the reservoir and seasonal water reporting models. The ID still needs to complete the installation of the rain-gauging network.

7.2.3 Maintenance

The ID designed the detailed and complete plan for carrying out the activities in this component, with considerable TAT input. The plan was adopted in August 1988 and for each of the seven systems revolves around an annual cycle of inspection/survey, planning, implementation, and reporting. The output from this cycle is the *annual maintenance plan* for each system. This plan is to be the forerunner of the *preventative maintenance plan*, which is to be completed by the end of the project for each system. The schedules and cost estimates developed under the maintenance plan will be the basis for the preventative plan. The annual maintenance plan will be developed over the life of the project for all seven systems. After completion of ESI or PR works on each type of canal, canal surveys will be conducted and cost estimates prepared to determine the actual annual maintenance cost required to sustain the system. The annual cost will be divided into two categories: main and branch canals to be maintained by the ID, and distributory, field, and drainage canals to be maintained by the DCOs. For the work identified each year under the annual maintenance plan, GSL will fund that carried out by the ID on main and branch canals; funds for distributory, field, and drainage canals are eventually to be generated within the DCOs.

Thus far, surveys and plans have been developed on the four Polonnaruwa and Ridi Benda Ela systems,

main and branch channels only, while the work in Gal Oya has just started. The surveys require considerable field work for the TAs and the TAT engineer. The plan preparation is currently done by hand in offices of the irrigation engineers (IEs).

The ISMP has also agreed to fund part of the work identified in the surveys as priority-deferred rehabilitation. Needed work identified as priority-deferred rehabilitation is then incorporated under the next year's ESI/PR program for implementation.

7.3 Major Issues

1. *Sustained renewal.* ISMP is making good progress achieving the specific outputs of this element. However, it has not as yet begun to test and demonstrate the effectiveness of different combinations of management and structural improvements carried out in the selected irrigation schemes. The PP states that two principal themes underlying ISMP's sustained-renewal objective are an emphasis on irrigation management and the search for appropriate levels of intensity in terms of rehabilitation expenditure per acre of irrigated land (see p. 12 of PP). Improved management and structural-rehabilitation activities were intended to be mixed throughout the seven project area systems. The different combinations could then be studied and compared to help define the concept of sustained renewal. It is important to note that mixed approaches are being implemented and that existing data can be used for the original purpose of studying their effects. However, as explained elsewhere in this report (see Chapter 6), implementation decisions have been made without sufficient consideration for this purpose.

2. *Farmer organizations.* It is planned that DCOs be totally responsible for the future O&M of D and F channels, including recurring costs. The required level of responsibility can best be achieved when farmers are active participants in the original construction process and not merely providing day-to-day labor on contracts managed by others. Only a small percentage of D- and F-channel work was allotted to DCOs in 1988 and 1989, while the majority was contracted to ID-managed private contractors. The same trend is expected to continue in 1990, one not conducive to developing among farmers a sense of ownership of these channels and structures. Unless farmers manage and carry out construction work themselves, it is doubtful whether the required level of farmer responsibility will be achieved to sustain a widespread DCO-managed/funded maintenance system.

3. *Project time constraint.* With more than 50 percent of the project period past, it is clear that the ESI/PR program cannot be completed before mid-1992. The remaining rehabilitation work, mainly in the D and F channels, will actually take much longer than the time spent on work already done in the main and branch channels. Not enough time remains in the project to complete this work regardless of who undertakes it, private contractors or DCOs. It is also doubtful if enough time remains to achieve institutionalization of the improved O&M procedures within the ID or the DCOs.

4. *ESI/PR on F channels.* The focus of the ESI/PR structural rehabilitation work is now mainly at the D- and F-channel level, with most main- and branch-channel work completed or, in the case of Gal Oya, to be completed in 1990. There is some debate whether DCOs will be willing to take on future ESI/PR F-channel rehabilitation contracts, as ISMP does not reimburse earthwork costs in these channels irrigating a command area below 60 acres. The farmers are rightly expected to freely contribute the labor for this work. The ISMP ESI/PR program does allow reimbursement for structural work in F channels with command areas below this 60-acre level. The profit on structural work is marginal whereas the profit on earthwork, for farmers, is considerable. This attitude is symptomatic of the problem ISMP must overcome: farmers perceive the ID as responsible for maintaining these D and F channels. Under the current method of carrying out ESI/PR, this means the ID will contract this work to private contractors. However, this method will not contribute to the

project goal, as farmers will not develop the sense of ownership necessary for them to assume independent management and funding of O&M activities on D and F channels.

5. *The crucial role of the ID technical assistant.* TAs are the ID interface with DCOs. In strengthening DCOs, an important consideration is the level of trust that exists between the DCO and those responsible for delivering water and representing the ID, the overall O&M authority for the system. IMD institutional organizers have rightly paid much attention to the importance of the critical interaction with DCOs at this level. However, in some areas TAs are still not well regarded by many farmers.

6. *Water delivery.* Some of the systems observed employ rotational flow with D and F channels operating at small freeboard allowances. Some D channels were observed carrying an estimated 35-45 cubic foot per second (cfs) with overtopping banks. Information from several sources suggests one of two possibilities for this phenomenon:

   - With the additional command acreage added to these systems earlier and farmers cultivating on unauthorized land (D- and F-channel easements and in drainage channels), the additional water is needed to obtain the required coverage.
   - The ID releases excess water when the reservoirs are water-rich.

7.4 Conclusions

1. Output achievement is behind schedule. However, considering the delays beyond project control, progress has been acceptable in the ESI/PR program and in the development of improved O&M procedures and tools. The ID, IMD, and TAT have all performed commendably.

2. Considering their day-to-day workload, ID staff responsible for project implementation are conscientious in undertaking their tasks and responsibilities as they perceive them. The TAT engineers are qualified, experienced professionals. They are also playing a key role in assisting the ID in achieving O&M element outputs. The GSL/IMD project director and the AID project officer play strong leadership roles in this project element and make real and constructive input to the engineering and management aspects of the work involved.

3. Construction quality is good throughout the works inspected. Problems with structural backfilling are pervasive, however, as is erosion around completed structures. Where employed, rubble-packing is an effective embankment erosion-control measure.

4. All ID TAs do not have the required transport to effectively monitor all ISMP construction sites, which are located over large areas.

5. Although DCOs are now *allowed* to take on contracts to carry out D- and F-channel ESI/PR improvements, DCO participation is not yet sufficient. The ID somewhat encourages DCO involvement in the structural rehabilitation program, but their involvement remains limited. DCOs are incorrectly perceived as being unable to carry out certain works, and the ID believes that there is a lack of control on works undertaken by them. A major constraint to DCO's accepting rehabilitation contracts is their lack of funds at the initial construction stages. The ID has tried to address this constraint by providing materials, if requested by DCOs taking on work.

6. The project irrigation systems already function on a rotational basis, even though they were originally designed for continuous flow. Preliminary observation (requiring further tests) shows they are laid out for irrigation in such a way that they could support irrigated field crops without major modifications if a conversion from paddy agriculture were ever desired by farmers (see Chapter 9).

7. The practice of allowing water issue with little or no freeboard is indicative of operational problems. It also brings into question ID's logic in using the original system hydraulic design as the basis for designing new structures or repairing old ones.

7.5 Recommendations

1. The TAT should assist the ID in keeping well-organized records of structural-rehabilitation construction activities and costs for use in future cost/benefit studies under the project.

2. Emphasis now on structural rehabilitation (ESI/PR) should shift to O&M. It is recommended that the TAT work more intensively to institutionalize the use of the operational tools and preventive maintenance plan within the ID. This includes helping develop the required changes in internal day-to-day work routines, developing job descriptions for ID staff, and developing ID record-keeping capability, an essential item in effectively undertaking a preventative maintenance program. This strategy will require an on-the-job training approach. In order to promote this shift, it is recommended that the TAT hire two local construction engineers over the remainder of the project to take on the majority of the field and office work done by the TAT in support of the ESI/PR program. These engineers must have the required means of transport to carry out field work. This scenario will allow the three existing engineers much more time to devote to O&M improvements.

3. Emphasis also needs to be placed on adding to the bank of knowledge on sustained renewal. Are the approaches to improve irrigation-systems management sustainable that are being tested within project systems? Do ID and IMD have sufficient capability to continue them after the project? Can the GSL continue the support required to sustain them in the future? The project management team needs to take specific action to answer these questions through studying ongoing activities. Based on the results of these studies and observations, O&M improvement activities should be altered so as to be sustainable after the project.

4. DCOs should do all remaining 1989 and future D- and F-channel structural rehabilitation (ESI/PR) work under the project, to the maximum extent possible. The project should, as soon as possible, adopt the following policies for D- and F-channel construction:

   - All D channels below a 20 cfs flow rate should *only* be done through DCOs. For channels above 20 cfs, private contractors can do the work when DCOs are unable to accept such contracts, but they should maintain greater coordination with concerned DCOs than in the past.

   - The ID will have to work closely with the DCOs to ensure adequate construction-quality control, a difficult and intensive yet not impossible task.

   - After DCOs complete the work, they should be made responsible for all future O&M costs and for carrying out all maintenance activities, with technical assistance from the ID on an as-needed basis.

   Adopting these policies should also have the additional benefit of alleviating DCO reluctance to do ESI/PR F-channel work, as they will have sufficient earthwork on the D channels. F-channel work would then become more attractive, as part of an overall contract package. To encourage DCOs, the project should institute a mobilization advance for DCOs and should help them with materials.

5. With the handing-over of D and F channels proceeding rapidly, the TAT should focus on developing and implementing an O&M plan model for the DCOs as well as for the ID. The DCO plan should incorporate the *project awareness record*, developed under the financial management (FM) element of the project (see Chapter 8).

6. With the large number of rehabilitation projects underway and planned, a more effective system to monitor contract and quality control would help to complete work faster. It is recommended that the ID and the TAT—

   - Convert the existing ID manual program-recording document and the TAT spreadsheet reporting document to a single database application, which is updated with standard information after each inspection. This will serve not only as an ongoing

contract- and quality-control tool but also as a reporting mechanism that will allow the ID and TAT to streamline their approach to construction program management.

- In conjunction with this new database management/reporting tool, develop and use standard construction inspection forms that are disseminated and recorded. All ID/TA and TAT inspections would result in a completed form. Four or five indicators of quality and progress would be included in the form. These indicators would immediately be entered into the database, allowing an up-to-the-day record of the construction program.

- Hire a local programmer for a three-month period to design an appropriate software program to implement these tasks.

7. Motorcycles should be procured as soon as possible for those TAs in both Polonnaruwa and Gal Oya without the means to effectively monitor ISMP construction. Each TA should have a motorcycle for this purpose.

8. Computers and spreadsheet software be used to develop and implement the annual maintenance plan.

9. The ID should take steps to increase channel freeboard during operations, so as to decrease channel-maintenance costs. It is recommended that this be considered an objective of the improved operations plan. The ID should also ensure that observed water-surface profiles during actual system operations are used as a design criterion.

10. ID technical assistants should be brought into the project mainstream through workshops and short courses that make them more aware of their critical role in strengthening FOs by building their confidence and trust in the ID.

11. In all ISMP systems, the ID must work quickly to complete the updating of issue trees, installation of flow measuring equipment, and structure marking so as not to delay implementation of the computer operations systems.

8

FINANCIAL MANAGEMENT

The basic objective of this project element is to establish a sound financial management system that will make O&M funds available at the proper time and in the appropriate amounts. This objective translates into designing and implementing an O&M cost-recovery and disbursement system.

The ISMP Project Paper states that the TAT will be requested to continuously monitor and search for implementable system improvements. The PP also identifies as a constraint GSL capability to recruit the required staff to carry out proper accounting and analysis procedures. Project efforts to improve IMD/ID accountability at all levels are intended to improve farmer relations and farmer acceptance of the program. Computer-based operations are also a planned output.

8.1 Implementation

With significant input from the TAT, a pilot FM system was developed, modified, and approved by the IMD, and field-tested in 1988. The pilot FM system utilizes several aspects of the previous fee-collection system employed by the GSL prior to ISMP.

8.1.1 FM System as Developed in 1988

The system was designed to increase DCO and IMD field office accounting capability. It attempts to establish a cost-recovery system for D- and F-channel O&M costs, improve record keeping, and train DCO farmer representatives to carry out O&M procedures for D- and F-channel systems. The records and registers to be used in the plan are computer-based Lotus 1-2-3 applications. The system uses the following record and register forms for each DCO:

- *O&M project awareness record.* DCO officers, IEs, and PMs meet annually to review and decide upon actual maintenance projects to be completed during the upcoming year in each DCO area. Once agreed to, these plans, including cost estimates, are entered into the record. The total cost estimate of the work plan is compared to collection totals for the previous year to determine funding availability and priority. The record is used to keep DCO members aware of the need for funds, their specific use, and how they are disbursed.

- *Specification register.* This register serves as the basis of all farmer-identification data, including information pertaining to individual landholdings for each farmer in a DCO. User assessments are determined from this information.

- *Current year and five-year payment record.* This record notes all payments made by individual farmers three times each year and over a five-year period.

- *Address record.* This is a simple farmer address book to be used for assessment notices mailed to farmers.

- *Unauthorized irrigated land O&M fee payment record.* This record separately notes all user charges to be made for cultivation on unauthorized lands.

All records, except the project awareness record, are kept at the IMD field office or the GA's office and are open to the farmers. The project awareness records remain with each DCO.

8.1.2 1988 Pilot Program

In 1988, the pilot FM program was set up within five PM offices and field-tested with five DCOs in Polonnaruwa and Ridi Bende Ela. The exercise consisted of training the IMD staff to enter data in the records and work with the DCOs. DCO staff were also trained to use the project awareness

record. As no user-fee collections were being made in 1988, ID contributions were used as a model for the O&M project record. The exercise successfully introduced the forms and seemed to gain acceptance from those who were part of the test.

8.1.3 1989 Activities and 1990 Plan

During 1989, the system of records was further extended in the four Polonnaruwa systems and Ridi Bende Ela as follows:

- 29 DCOs were targeted for the program.
- 25 address records were completed.
- 19 specification records were completed.
- 16 O&M project records were completed.
- 11 of the above records were computerized.
- 17 DCOs were exposed to FM training.

In 1990, the system is projected to cover 62 DCOs, including the Gal Oya Right Bank system; to become operational after determining O&M fund requirements at the D- and F-channel levels; to subsequently begin collections; and to continue training for FM/MEF assistants within IMD and for DCO officials.

8.2 Major Issues

1. The system is still in the pilot stage and still unproven, even though registers are being prepared for DCOs. Until full-scale operation of the system begins, it is not known whether the system as designed is viable and can be institutionalized at the DCO level.

2. The present FM system focuses on D- and F-channel O&M cost recovery and does not address the issue of recovery from the users for reservoir, main, and branch channel O&M costs. The successful implementation of the system as it is currently planned would be a solid achievement but would fall short of the project objective for the FM system, as it does not now propose the user-funding of *total* system O&M costs.

   The planned D- and F-channel O&M cost-recovery program, by and for DCOs with IMD assistance, is not the same as the GSL fee-collection system, now inactive though not officially suspended. The GSL system, envisioned to be strengthened by the Project Paper, is designed to recover all O&M costs from users for the entire system, with funds retained and later programmed by IMD. This fee-collection program was suspended by the GSL after 1987 and has not been resumed, even though there is still a legal requirement to collect "fees" from farmers. The GSL is also now considering a policy that would rescind the fee-collection system countrywide and institute a D- and F-channel cost-recovery system along the same lines as that now planned for the project. The ramifications of this action are beyond the scope of this evaluation; however, the PP objectives may need to be changed in light of developments on this issue. Specifically, the training of IMD and ID staff to implement the fee-collection system would no longer be required as envisioned in the PP. Some training of IMD staff will still be necessary to implement the D- and F-channel cost-recovery system.

3. The Project Paper identified IMD and ID staffing as a potential constraint. It did so in the context of an IMD-managed fee-collection system. As the system is in question and IMD operations in this regard on hold, the constraint envisioned by the PP is no longer relevant. However, at present there may be insufficient field-level IMD staff to manage the DCO system. According to the current SAI financial management consultant, at least one FM assistant for each scheme will be required for full implementation and institutionalization of the FM program.

   It has also been difficult to retain staff in the IMD FM/MEF posts, although the IMD recently transferred promising IOs to these vacated posts. This inability to retain staff was also an issue raised in the 1988 internal Mission assessment.

8.3 Conclusions

1. Although user-fee collection became inactive under the GSL program (not an ISMP activity) after civil unrest in 1987, the evaluation team found that many of the newly formed DCOs were now undertaking user collections for maintenance costs within the D- and F-channel command area.

2. The planned D- and F-channel system seems somewhat cumbersome and may require more IMD personnel to implement it than is currently planned.

3. The planned system of records and registers is designed to account not only for the new DCO cost-recovery plan, but for the fee-collection program as well. If fee collections are reinstated, the IMD and GA office will use the records to account for fees collected.

4. There is currently no activity planned to train IMD and ID officers in the accounting of fees collected.

8.4 Recommendations

1. Full-scale implementation of the DCO financial management plan should be accelerated by the IMD, as DCOs are already engaged in collecting their own maintenance funds. The TAT should help the IMD prepare a *detailed* activity-flow diagram, schedule, cost estimate, and manpower and transport plan to implement the FM system. It is recommended that additional staff be hired on a contract basis to implement the system. The IMD should hire one FM assistant for every fifteen DCOs. Implementation should also include checking and updating records and information concerning farmers.

2. Once the FM system is in operation, it should be reviewed quarterly until the system is operating properly. At the review meetings, decisions can be made to modify the system so that it responds to program needs. These modifications might include adding manpower, simplifying forms, fine-tuning institutional linkages, and identifying further training requirements.

3. The GSL policy debate on user cost-recovery should be monitored by the project. If the now-suspended fee-collection system is rescinded, the project inputs and outputs should be revised accordingly.

9

CROP DIVERSIFICATION

This chapter reviews the ISMP rationale for developing a crop-diversification component and assesses the soundness of this rationale and the proposed program activities.

9.1 Rationale and Objectives

ISMP's decision to establish a crop diversification component is primarily in response to GSL's identification of crop diversification as a priority need in the agricultural sector. Crop diversification is not included as a component in the Project Paper, nor is it included in the TA team's Scope of Work.

Specific objectives of the crop-diversification component are—

- to increase cropping intensity by promoting a third crop between the Yala and Maha rice crops.
- to increase farmers' income through higher cropping intensity.
- to improve water management by providing an incentive (in the form of a third crop) to plant and harvest earlier, and, thus, conserve water.
- to encourage farmers to diversify by replacing the Yala rice crop with dry-land food crops, permitting construction without significant loss of income.
- to demonstrate that other food crops can be more profitable than rice, while also demonstrating the benefits of crop rotation in increasing soil fertility and productivity.

Research information does indicate that during the dry season the soils in Polonnaruwa are more suitable for food crops other than rice. Moreover, research in the irrigated Mahaweli H and G areas has demonstrated that farmers could earn higher income from food crops other than rice.

9.2 Implementation

Although the crop-diversification component did not receive GSL funding prior to 1990, an SAI local consultant (agronomist) has been working full-time with ISMP since September 1989. In 1988 and 1989, the consultant researched crop-diversification possibilities and approaches, and developed a strategy for ISMP. (See *An Inter-Disciplinary Approach to Crop Diversification in Polonnaruwa District*, May 1989.) This strategy received funding for 1990 at Rs.1.2 million (US$30,000), 50 percent of which is earmarked for training—primarily for farmers who take part in the trial demonstrations—and for farmer field days to trial sites.

According to interviews and to the 1990 Work Plan, crop-diversification activities are planned in 1990 for three districts: Polonnaruwa, Ampara, and Ridi Bendi Ela. The activities include three district-level planning workshops, training sessions on crop diversification for 400 field officers (including IOs), awareness and subject-matter training sessions for an anticipated 300 trial farmers, and field days and field tours for an estimated 1,000 farmers. The DOA has major responsibility for conducting the training sessions.

In March, a district-level planning workshop (one day) was carried out in Polonnaruwa, and two more workshops are planned in April for Ampara and Ridi Bendi Ela. The purpose of these workshops is to identify roles and responsibilities for ISMP crop-diversification activities. Fifty people attended the first workshop, which was facilitated by the ISMP project director. Participants included the government agent and district representatives from the Department of Agriculture, Cooperative Department, Marketing Department, Agrarian Services Department, Cooperative Wholesale Department, Paddy Marketing Board, Irrigation Department, and Irrigation Management Division.

9.3 Achievements: Crop Intensification Trials

Since GSL funding was not provided in 1989 for crop-diversification activities, the SAI local consultant identified farmers in the Ridi Bendi Ela and Ampara districts who had planted their Maha rice crop early (October 1989) to participate in informal crop-intensification trials of cowpeas, green gram, and mungbean. The purpose of these trials was to demonstrate the benefits of early Maha rice planting and early harvest, not only to enable an additional crop between Maha harvest (February) and Yala planting (April) but also to demonstrate better water-management practices.

In Ridi Bendi Ela, 60 acres of mungbean and 3 acres of cowpeas were planted. In Ampara, 20 acres of mungbean, 5 acres of cowpeas, and 1 acre of black gram have been planted.

9.4 Case for Crop Diversification

The first valid reason for including crop-diversification activities in ISMP is that crop diversification is a stated GSL and USAID policy.

Another argument is that rice irrigation techniques are already well established throughout the project area. Other food crops (OFC) and high-value crops (HVC), on the other hand, are more difficult to irrigate, and farmers are less familiar with the special techniques they require in water management, including water quantity, timing, and spacing of irrigation according to soil moisture content, soil depth, crop type, and growth stage.

The implications of such considerations on ISMP water-management activities cannot be ignored:

- ISMP should respond to the various needs of DCOs that might choose to irrigate other food crops or high-value crops, now and in the future.
- ISMP should respond to the implications for D- and F- channel O&M that arise from growing other crops. In particular, ISMP should increase flexibility of the system so that farmers can decide dates for land preparation, fertilizer and chemical application, and other suitable farming practices. Ways should also be sought to cater to variable water demand due to varying crops, soils, and topography.

9.5 Case Against Crop Diversification as Presently Implemented under ISMP

There are several important reasons why ISMP should not be promoting its present crop-diversification program.

First, research has shown (IIMI, January 1990) that traditional OFCs are not more profitable than rice. Second, the DOA Extension Service has made several attempts—with very little success, according to the SAI Crop Diversification Paper—to promote subsidiary food crops between Maha and Yala rice crops and during the Yala season. The ISMP Diagnostic Analysis Report also indicates that only 4 to 5 percent of the operators in the Polonnaruwa District grow other food crops. According to these studies, major success with crop-diversification programs has only been achieved in situations where there has been a shortage of water in the dry season.

Third, there is ample evidence to suggest that the poor rate of acceptance is due less to farmers' lack of information and subject matter know-how than to other much more serious and complex constraints, such as marketing. Other reasons cited for the present low adoption rates include the following:

- Other food crops are, in many instances, more capital and labor intensive than rice, need better care, have higher levels of risk, and reduce farmers' leisure time.
- There is inadequate protection from stray cattle and theft, requiring care during the night.
- There are problems of irrigation and drainage when rice and other food crops are grown in the same field.
- There is a shortage of crop varieties that have maturity periods fitting the season and that are resistant to pests and diseases.

- There is no evidence to suggest that ISMP's traditional extension approach will succeed where the DOA Extension Service has not.

Aside from questions of technical appropriateness, ISMP's crop-diversification program has heavy coordination requirements with a multitude of institutions, including organizing and facilitating workshops, training programs, extension activities, credit programs, input supply, and marketing services. Planning requirements for an effective crop-diversification program are also significant. Information would need to be collected on soil suitability, rainfall, water scheduling, crops and varieties, production methods, credit, and marketing.

9.6 Conclusions

1. The case for a crop-diversification program under ISMP may be justified on several grounds:

- desirability of a crop-diversification program in the ISMP project area and other suitable areas throughout the country
- justified GSL and USAID commitment to promoting crop diversification in Sri Lanka
- negligible cost of the present crop-diversification program
- potential contribution of a crop-diversification program to achieving increased agricultural productivity and expanded rural employment opportunities and farm incomes

2. However, the crop-diversification program as presently implemented under ISMP is based on the questionable assumption that the major constraint to greater farmer participation is the lack of farmer access to information and know-how.

3. It is insufficiently clear why past GSL crop-diversification programs have had low adoption rates, when research has demonstrated that farmers could earn higher income from food crops other than rice and that soils in Polonnaruwa are more suitable for these other crops during the dry season. Preliminary research, nevertheless, indicates that capital and labor intensity requirements, higher risk, reduction in farmers' leisure time, and underdeveloped market structures represent major constraints to an expanded crop-diversification program.

4. A major benefit to ISMP in incorporating a crop-diversification component would be to gain better understanding of the implications of growing other food crops and high-value crops on operating and maintaining the water management system.

5. The ISMP crop-diversification program as presently implemented has heavy coordination, planning, management, and training requirements—activities that are carried out in isolation of other ISMP activities and do not contribute significantly to them.

9.7 Recommendations

1. It is recommended that ISMP participation in a crop-diversification program be limited to activities that relate to water management:

- developing irrigation scheduling for on-farm and F canals serving those farmers who choose to grow other food crops or high-value crops, so as to match water requirement with crop needs, soil types, and topographical land classes;
- analyzing and solving drainage problems resulting from mixed rice and other food crops or high-value crops.

2. Other crop-diversification activities not directly related to water management, such as research, extension, training, demonstration trials, and analysis of marketing and other constraints should be undertaken by the DOA and other specialized institutions, but not by ISMP.

3. Effective implementation of the two separate but interrelated activities outlined in (1) and (2) will require a high degree of coordination between ISMP and these specialized institutions. ISMP should take the lead in establishing an appropriate mechanism at the scheme, district, and/or other levels to achieve this coordination.

4. Successes, constraints, and lessons learned from experiments carried out through the activities described in (1) above should be documented.

10

OVERALL PROJECT MANAGEMENT

This chapter assesses overall management of the ISMP implementation process since project start-up, particularly in the areas of project vision, leadership, coordination and communication, work planning, and IMD/ID staffing. It also assesses ISMP budget and procurement since project start-up.

10.1 History of ISMP Management: 1987-89

In the two years from project start-up in 1987, ISMP underwent significant management and implementation changes. In the perception of many people interviewed, these changes have brought about a transition—from a project "in trouble" to one beginning to get positive results.

Two events were most often cited as key to bringing about this transition:

- The December 1988 USAID internal assessment of ISMP (see *December 1988 ISMP USAID/Sri Lanka Assessment Team Final Report*). The assessment made several management and implementation recommendations that have positively affected ISMP, particularly concerning the farmer organization component, IO attrition, and the SAI consultant team.

- The April 1989 ISPAN-organized ISMP Implementation Workshop. (See *Project Review Workshop for the Irrigation Systems Management Project.*) Agreements and recommended actions stemming from the workshop have had a critical impact on the project, especially with regard to work planning and sharing project information.

These two events and their documentation serve as a baseline against which to compare the current ISMP management situation.

Previous chapters describe ISMP weaknesses in the 1987-89 period. Many of these issues and problems can be attributed to a lack of shared vision within the project. Several reasons were cited in interviews for this lack of vision:

- The delayed start-up of ISMP and the concurrent staff turnover of the USAID project officer and the IMD director resulted in a vision gap between the ISMP conceptualizers and implementers.

- The Implementation Start-Up Workshop scheduled in October 1987, primarily intended to develop a common understanding of project objectives based on the PP, was canceled because the SAI workshop facilitator who arrived in-country proved to be inappropriate for the assignment.

- The first ISMP project director (1987-88), had other responsibilities within IMD and was, therefore, unable to devote his full attention to the project.

- There was insufficient teamwork and collaboration in the development of the 1988 and 1989 Work Plans.

- Some members of the initial SAI expatriate team, according to people interviewed, had unsatisfactory technical expertise, demonstrated poor rapport with colleagues and counterparts, and were ineffective in setting and articulating direction for their component areas. In addition, the former chief-of-party (COP) was based in Colombo, not at the project site.

Other reasons were cited for this lack of shared vision in the project's first 18 to 24 months, including the management style of SAI's first COP, particularly his inability to integrate the TAT's approach to project components and overall project purpose. Also cited was the uncertain relationship during this same period between ID and IMD.

Many people interviewed credit ISMP with improving the teamwork between ID and IMD at all levels over the past year.

10.2 Current ISMP Management Situation

As noted, if the 1988 USAID assessment of ISMP and the 1989 ISPAN workshop were to serve as a baseline against which to compare the current ISMP management situation, there is ample evidence of improved management and teamwork.

10.2.1 Development of a Shared Vision

Other sections of this report have pointed out differences between the current project vision and the vision presented in the PP. Although some of these differences will need to be rectified, interviews did indicate a growing sense of shared project vision among ISMP staff.

People interviewed credit the following factors for this improvement: the two ISPAN workshops (1989 and March 1990); the ISMP monthly meetings; the October 1989 Work Planning Workshop (for the 1990 Work Plan); the good working relationship between the current ISMP project director, the USAID project officer and the new SAI chief of party; and the fact that the new COP also served that function for ISMP's predecessor, USAID's Water Management Project.

However, interviews also indicate that some of the Irrigation Department TAs may not fully understand—and may not be fully committed to—the project vision related to FOs. TAs do not attend ISMP work planning and monthly meetings, yet they are the ID's primary representatives, its front line at the farmer level.

10.2.2 Project Leadership

The overall perception of current project leadership is that it has improved substantially in the last year.

In ISMP, key leadership roles are played by the ISMP project director, the USAID project officer for ISMP, and the SAI chief-of-party. Leadership and project support is also provided by the secretary, MLIMD, who chairs the ISMP Biannual Steering Committee Meeting, and by the new State Secretary, MLMD, who had an active role in the USAID Water Management Project (seen as Phase I to ISMP), and who is referred to by USAID and others within IMD and ID as a founder of the farmer-organization approach to water management.

The current ISMP project director and the new SAI chief-of-party are perceived by project staff interviewed as strong, committed, and task-oriented managers. Both are credited with bringing improved management skills and teamwork to the project. The USAID project officer is perceived as being very actively involved in the project implementation process. His interpersonal skills, in particular, were cited as contributing to the positive relationship that exists among USAID, IMD, and SAI.

10.2.3 Project Coordination and Communication

The ISMP project director has initiated several management interventions in the last year that have positively affected project coordination and communication. One intervention often cited in interviews was his initiation of the ISMP's first annual two-day Work Planning Workshop (which he designed and facilitated), held in October 1989. This event and the 1989 and 1990 ISPAN workshops are credited with improving political support to the project at both national and district levels; with improving collaboration and teamwork between ID and IMD, particularly among IEs and PMs; and with improving cooperation (because of GA support to ISMP) between PMs and the line officers of other GSL district-level departments.

Other ongoing activities and documents cited as contributing to improved project coordination and communication are listed below:

- The ISMP monthly meeting, chaired by the ISMP project director and held in Polonnaruwa. USAID and SAI participate in this meeting, as do all ISMP project staff down to the IE and PM levels. Also participating are the district-level GAs and district representatives of cooperating GSL departments.

- SAI periodic luncheons, initiated by the new COP to informally bring together IEs and PMs to discuss issues and problems faced by the project and to strengthen teamwork.

- The PM's Project Committee Meeting, which each of the seven ISMP project managers holds monthly as a joint management-committee meeting between farmers and government officers. This meeting is attended by the IE, TAs, DCO chairmen, line officers of cooperating GSL departments (such as the agricultural instructor and the colonization officer), and the project manager's staff—IDO, MEF assistant, and IOs.

- ISMP quarterly and monthly reports, produced by SAI. Quarterly reports have been produced since the beginning of the project. The new COP refocused and redesigned the two reporting mechanisms to facilitate improved IMD and USAID monitoring of project performance. The quarterly report now addresses project-component activities and performance, and the monthly report addresses SAI staff activities and performance. By the end of 1990, IEs and PMs are also expected to take on some writing responsibilities for the quarterly reports.

- Annual status report. Currently included as a brief introduction to the annual work plan. This report summarizes activities completed but does not identify lessons learned nor define project adjustments based on these lessons and other issues.

Two reporting issues were identified: (1) IEs would like to receive copies of PM monthly reports (IE monthly reports to the DDI are shared with project managers); and (2) PM reporting to IMD/Colombo follows a one-way path —information goes up the chain of command, but analysis and feedback do not come back down. Moreover, the PMs are only required to complete a monthly progress form.

10.2.4 ISMP Work Planning

In October 1989, the ISMP project director initiated a collaborative work-planning approach in the form of a two-day workshop for all project staff down to the IE and PM level. As part of this process, SAI developed a draft plan, with component bar charts, budget implications, and monthly cash-flow patterns; then a two-day workshop was held to review it and to develop a final draft for submission to Treasury. The workshop enabled specific details to be debated and revised, such as a particular TA's ability to handle a greater or lesser workload.

According to interviews, this collaborative planning process has resulted in a more-realistic work plan, a greater sense of ownership and commitment to planned activities, and a broader shared vision and increased integration of project components.

10.2.5 ID and IMD Management Issues

This section reviews management issues and problems identified at the ID and IMD headquarters and project levels. (See a description of the institutional structure in Appendix C.)

Irrigation Department

Under the Irrigation Department, one area in need of management strengthening is the link between IEs and their immediate subordinates, the technical assistants. The large number of TAs supervised by each IE was one management constraint cited. Another is that some IEs may not, in certain circumstances, set strong enough expectations of TAs in their role and responsibilities to support farmer organizations and PM training of IOs, DCO representations, and farmers. IEs need to directly tell TAs what is expected of them in specific activities and in quality of performance. Moreover, IEs need to share more ISMP project information with TAs, so that they will better understand the institutional-development objectives of the project.

As a whole, the Irrigation Department is described by most people as an old, well-established department with a fairly strong technical and management capacity.

Irrigation Management Division

IMD is, unlike the ID, a new entity established only in 1984. Management issues within IMD were identified at both headquarters level and project

level. At the headquarters level, issues identified center on the workload of the deputy director for institutional development and training, and on the technical capability of the MEF office. Recently, positions for an assistant director for training and an assistant director for institutional development were established and filled. It is hoped that this added support will ease the DD's workload. However, there is still a need for a training specialist at the headquarters level to coordinate the development and application of training modules and materials by the various donor and IMD programs.

Another IMD management weakness cited in interviews is the lack of a division-level IMD management position similar to the ID division-level DDI to provide management supervision and support to ISMP project managers. As mentioned earlier, PMs report directly to the IMD director in Colombo (although the GA oversees them on administrative matters).

Finally, the management capability of PMs should be further strengthened, according to some people interviewed, because of their crucial leadership and coordination role during and after ISMP.

10.3 Procurement

Procurement was originally funded under a combination loan/grant totaling $4,085,000, of which $260,000 were grant funds. As of March 1990, only 11.6 percent of funds specified in the PP have been earmarked. However, a reprogramming of these procurement funds has already taken place or is about to occur as follows:

- Of the grant funds, $156,000 were reprogrammed to SAI in 1987 to cover vehicle rental costs and the purchase of five jeeps.

- Of the loan funds, a decision has been reached by ID, IMD, SAI, and USAID to reprogram close to 50 percent to cover rehabilitation costs of D and F channels.

Two reasons were cited for the latter decision: (1) the original PP included funds for heavy equipment, such as bulldozers, which have not been needed for rehabilitation; and (2) the PP underestimated costs for rehabilitation of D- and F-channel work, particularly in labor wages and in inflation of construction costs.

A revised commodity-procurement plan based on these reprogramming decisions was developed by ID, IMD, SAI, and USAID in December 1988, and was included in the 1989 Work Plan. Scheduling for commodity procurement is done annually and is included in the annual work plan (see 1990 Work Plan). Of this revised procurement plan, 22 percent of the item budget has been earmarked as scheduled. It is expected that most funds obligated for 1990 will be earmarked.

Although procurement problems occurred in 1989 due to the security situation, there are no procurement bottlenecks at this time. Some people interviewed did feel that GSL's close scrutiny of commodity procurement is excessive, but most Sri Lankans interviewed support this ministry-level concern that USAID loan money be used judiciously.

10.4 Budget

As can be seen in Table 3, significant unearmarked balances still exist in training, commodities, and rehabilitation. Although considerable in absolute terms, this project "pipeline" should not be perceived as a serious problem given the security conditions under which activities have been implemented. Moreover, much of this pipeline is directed at Gal Oya, where activities have only recently commenced. Although the security conditions have improved, Gal Oya is still considered an unsafe zone, but it is hoped that conditions will continue to improve.

10.5 Conclusions

1. The 1988 USAID internal assessment of ISMP and the 1989 ISPAN-organized ISMP Implementation Workshop had a significant impact on the project, helping to bring about a transition from a project "in trouble" to one that is beginning to get positive results.

Table 3

ISMP BUDGET ANALYSIS[1]

	Total USAID		Not Earmarked	
Inputs	Grant	Loan	Grant	Loan
Technical Assistance	4,866,000	-	3,132	-
Training	995,000	-	451,310	-
Commodities[2]	104,000	4,085,000	7,848	3,582,989
Facilities Construction	-	185,000	-	117,585
Rehabilitation	-	7,430,000	-	3,188,995
Research	420,000	-	24,85	-
Recurrent Costs	380,000	-	258,730	-
Evaluation	135,000	-	20,000	-
TOTALS	6,900,000	11,700,000	765,870	6,889,569

NOTES

[1] As of 19 March 1990

[2] Procurement plan revised 12 December 1988; however, line item cost remains unchanged. See 1989 Work Plan for revised list of commodities.

2. If the 1988 USAID assessment of ISMP and the 1989 ISPAN workshop were to serve as a baseline against which to compare the current ISMP management situation, there is ample evidence of improved management and teamwork.

3. The overall perception of current project leadership—both ISMP project director and new SAI chief-of-party—is that it is strong, effective, and task-oriented.

4. The ISMP project director has initiated several management interventions in the last year that have positively affectedly project coordination and communication, improving political support to the project, collaboration and teamwork between ID and IMD, and cooperation with other GSL district-level departments.

5. The collaborative planning process initiated in October 1989 has resulted in a more-realistic 1990 Work Plan, a greater sense of ownership and commitment to planned activities, and a broader shared vision and increased integration of project components.

6. There is currently no project reporting mechanism, such as an annual status report, which identifies lessons learned and recommends project adjustments based on these lessons and other issues.

7. As a whole, the IO is described by most people as an old, well-established department with a fairly strong technical and management capacity. However, the management link between IEs and their immediate subordinates, the technical assistants, needs strengthening.

8. The lack of a division-level IMD management position—on a level with the ID division-level DDI—to provide management supervision and support to ISMP project managers is perceived as a major management weakness within the project. In addition, PM management skills require further strengthening.

9. IMD internal reporting by PMs is not resulting in sufficient two-way information flow and feedback with IMD/Colombo and with ID irrigation engineers.

10. Although there is a considerable project "pipeline," it is not seen as a serious problem, given the security conditions under which activities have been implemented. Moreover, much of this pipeline is directed at Gal Oya, where activities have only recently commenced.

10.6 Recommendations

1. SAI should prepare an annual status report (beginning with 1989) that identifies lessons learned and recommends project adjustments in each component.

2. A local consulting firm should be contracted to identify ways to improve IMD internal reporting and recommend procedures for assuring two-way information flow and feedback.

3. Irrigation engineers should hold staff meetings following each ISMP monthly meeting and each ISMP workshop to share outcomes with TAs.

4. In staff meetings and in one-on-one meetings, IEs should set strong expectations with TAs regarding their role and responsibilities in supporting farmer organizations and ISMP training activities.

5. IMD should establish a division-level IMD management position—on a level with the ID division-level DDI—to provide management supervision and support to ISMP project Managers.

6. A two-week management skills training course tailored to ISMP should be conducted for IEs and PMs. This course should be based on a participatory training approach and should be designed to build skills in planning, leadership styles, performance monitoring and feedback, team effectiveness, and conflict resolution.

   An ISMP-specific course, as such, would help build a critical mass of project officers who share management language as well as values and expectations. It would also further improve teamwork between IEs and PMs and contribute to ISMP's institutional-development objectives.

7. Before the end of 1990, ID, IMD, SAI, and USAID should undergo a rebudgeting exercise to reprogram projected savings in the commodity line item and to reestimate the projected costs in rehabilitation, facilities construction, and other line items.

11

CONCLUSIONS AND RECOMMENDATIONS

This evaluation has assessed ISMP progress to date, with particular emphasis on institutional development and sustainability. Special attention has been paid to making specific recommendations as well as strategic adjustments where pertinent.

It is important to view the project as a learning experiment with considerable potential impact on the future of irrigation systems management in Sri Lanka. ISMP is a complex project with many parts that must be merged harmoniously for maximum effect. This chapter summarizes the major findings and recommendations made at the end of each chapter. For detailed findings and supporting discussions, refer to the relevant individual sections. A detailed list of recommendations is also provided in Appendix A.

11.1 Perspective and Impact

ISMP implementation is closely followed by GSL decision-makers. It has already provided impetus to new and innovative policy and thought at the national level concerning the future of irrigation systems management in Sri Lanka. ISMP has been instrumental in creating a consensus among high-level officials that farmers must play a substantial role in irrigation system development and management. Irrigation personnel at the field level are equally appreciative of its approach and potential impact. Organized farmers are beginning to enthusiastically experiment with their new responsibilities and role.

ISMP is behind schedule mainly due to negative factors beyond its control:

- widespread civil disturbances
- inaccessibility until mid-1989 of the Gal Oya area, where a considerable portion of project resources are focused
- considerable turnover in professional and technical staff of many government and nongovernment organizations, due to civil unrest
- periodic shortages of construction materials, which should no longer be a problem with the end of the disturbances
- a short construction season, which the PP did not sufficiently account for
- a delayed GSL decision on the TA requirement and acceptance of an 8a firm and subsequent slow mobilization of the TAT

Considering these obstacles, the project has made more than acceptable progress and is now poised to begin those activities that will determine its effectiveness.

The project is now at a crucial point, as the implementation environment is propitious:

- Civil disturbances, which greatly hampered progress—especially in the large structural rehabilitation element—appear to be on the decline.
- Interagency cooperation and TAT productivity and acceptance are at high levels.
- Farmer enthusiasm is unprecedented.

Actions taken in the next year will determine the extent of the project's ability to achieve its goals. ISMP must implement the following:

- Consolidate the broad-based farmer enthusiasm and convert their fledgling D-channel organizations into participating partners in irrigation system management, along with the ID and the IMD.

- Institutionalize the improved O&M techniques now well into an advanced stage of development at the ID.

- Implement the FM plan and integrate it within the fabric of the improved management system being built on the O&M and farmer-organization inputs.

- Use the project's MEF and research elements to study, document, and disseminate the results of the experiments implemented under the project to justify the full-scale use of these improved practices in other major irrigation systems countrywide.

11.2 Main Recommendation and Strategic Considerations

11.2.1 Main recommendation

With more than 50 percent of the project life past, it is clear that, due to unavoidable adverse circumstances, the ESI/PR program cannot be completed before the scheduled end of project in mid-1992. Moreover, the remaining rehabilitation work, mainly in the D and F channels, will take much longer than the time spent on work already completed in the main and branch channels. Not enough time remains in the project to complete the scheduled construction work, regardless of whether construction is undertaken by DCOs or private contractors. It is also doubtful whether enough time remains to achieve institutionalization of the improved O&M procedures within the ID or the DCOs.

ISMP's underlying principles are characterized by a balanced consideration for technical as well as social, economic, and institutional factors. Sustainability and long-term achievements will be inhibited if rigid and unreasonable timetables and schedules are imposed on project activities, for both management and beneficiaries will be under pressure to simply follow traditional modes of project implementation.

A two-year time extension is, therefore, highly recommended. The extension will compensate for considerable early delays caused by political unrest in the project sites and other unavoidable events. It will give DCOs enough time to complete the structural rehabilitation and will allow sufficient opportunity for the project to assist them in developing their O&M and self-help capability. Just as important, an extension will also allow the project enough time to assist the ID and IMD in their transition to, and institutionalization of, a preventive-maintenance program.

As an option to a time extension, the outputs of the project O&M element should be reviewed and scaled down significantly to reflect the early delays. The project goal of sustained renewal will not, however, be met under this option, as the systems will still require significant structural improvement at the D- and F-channel level. Even though structural rehabilitation costs, along with cost information related to O&M improvements are available and can be used to generate comparative studies, the project's ability to test and demonstrate the effectiveness of different combinations of management and structural improvements will also be impeded under a no-extension scenario.

11.2.2 Strategic Considerations

Regardless of whether the project ends as scheduled or whether a time extension is approved, project leadership should take into consideration the following strategic principles in developing among their staff a clear set of goals and a sense of purpose:

- Clear goals provide direction to project staff and are essential for effective decision-making at all levels. Activities that may detract project personnel from their sense of purpose should be carefully examined. The crop-diversification program as recently established under ISMP provides an example of such activities. Attractive as it may be to certain PMs or their staffs, and justified as it may be under other circumstances, promoting activities with little direct relevance to project purposes will weaken ISMP's clear set of goals and dilute its essential messages to both farmers and project managers.

- A central goal of ISMP is to establish an effective and sustainable irrigation and water-management system through a balanced coordination of technical and institutional activities. Giving greatest importance to timely completion of physical structures may retard efforts to achieve this goal. ISMP should continue to evaluate preoccupation with its engineering objectives in light of their consistency with its institutional objectives.

- Experience shows that successful and cost-effective promotion of farmer participation requires several forms of experimentation and learning in pilot areas. One of ISMP's two purposes is to analyze mixes of physical upgrading and management improvements. It is essential that close monitoring and observation of the pilot experiments be continued and that research be conducted to generate successful approaches to effective water management. Only then will lessons be successfully replicated in other projects or locations.

- A clear policy of system ownership by beneficiaries before and during construction or rehabilitation will enhance efforts to promote farmer participation. Involvement of farmers in decision-making from the initial phases of system development will help to generate their sense of ownership over the irrigation facilities. Beyond the level of the main system planning, farmers should, therefore, have ample opportunity for participation, including construction.

11.3 Summary of Specific Recommendations

11.3.1 Project Components

Farmer Organizations

- ISMP should organize a one-day workshop to provide an opportunity for DCO chairmen to share ideas and achievements. The workshop could also be used to begin formulating (with DCO-chairmen participating) clear guidelines on DCO functions, role, and responsibilities.

- Legal recognition of FOs is a task that must be accomplished soon in order to formalize and encourage FOs. ISMP management should explore and follow ways and means to expedite the process of amending the relevant legislation.

- ISMP should develop written guidelines and procedures for handing over D canals to farmer organizations. Moreover, ISMP should develop an agreement format specifying the rights, duties, and obligations of the parties involved.

Training

- Within the next four months, ISMP should contract a master trainer for at least a ten-week period to (a) carry out a training needs assessment, (b) develop training designs based on behavioral training objectives, and (c) conduct a two-week TOT for 15 to 20 project-level ISMP trainers.

- Additional short-term technical assistance—at least ten weeks per year of a master trainer—should be provided throughout the life of the project to (a) conduct additional TOTs and follow-up TOTs, (b) develop ongoing training evaluation skills and procedures, and (c) provide management-skills training workshops.

Monitoring, Evaluation, and Feedback

- An in-depth assessment carried out in a workshop under professional guidance should be immediately initiated. The assessment would determine information needs, staffing and training requirements, staff location and respective responsibilities, as well as formal and informal communication and feedback strategies.

Research

- IIMI should be given an extension to its Cooperative Agreement with USAID to continue implementation of the ISMP research component.

- IIMI should initiate as soon as possible a research paper related to Purpose (b) of the PP.

- Implementation of the cost-effectiveness study should not be pursued.

Operations and Maintenance

- DCOs should, to the maximum extent possible, carry out all remaining 1989 and future D- and F-channel ESI/PR work under the project.

- The project should, as soon as possible, adopt the following policy for D- and F-channel construction:

  - All D channels below a 20 cfs flow rate will be done only through DCOs.

  - For channels above 20 cfs, private contractors can do the work, but in greater coordination with the concerned DCOs.

- After DCOs complete the work, they should be made responsible for all future O&M costs and for carrying out all maintenance activities, with technical assistance from the ID on an as-needed basis.

- To encourage DCOs, the project is urged to institute a mobilization advance for DCOs and help them with materials.

Financial Management

- Full-scale implementation of the DCO financial management plan should be accelerated by the IMD, as DCOs are already engaged in collecting their own maintenance funds. The TAT should help the IMD prepare a *detailed* activity-flow diagram, schedule, cost estimate, and manpower and transport plan to implement the FM system.

Crop Diversification

- ISMP participation in the crop-diversification program should be limited to activities that relate to water management:

  - developing irrigation scheduling for on-farm and F canals serving those farmers who choose to grow other food crops or high-value crops

  - analyzing and solving drainage problems resulting from mixed rice and other food crops or high-value crops

- Other crop diversification activities, such as research, extension, training, demonstration trials, and analysis of marketing and other constraints should be undertaken by the MOA and other specialized institutions, not by ISMP.

Project Management

- SAI should prepare an annual status report (beginning with 1989) that identifies lessons learned and recommends project adjustments in each component.

- In staff meetings and in one-on-one meetings, IEs should set strong expectations with TAs regarding their role and responsibilities in supporting farmer organizations.

- IMD should establish a district-level IMD management position—on level with the ID district-level DDI—to provide management supervision and support to ISMP project managers.

11.3.2 Staffing Recommendations

Long-term TA Staffing Recommendations

Under a two-year project extension—

- The engineering staff should be expanded from the current three (excluding the COP) to a total of five.

- The institutional development staff should be expanded from two positions to three and extended through 1993. Two institutional development positions would be based at Polonnaruwa: one position would include responsibility for FO development and ISMP training coordination, and the second position would include responsibility for FO development and ISMP financial management coordination. The third institutional development specialist, based in Ampara, would be responsible for FO development.

- The MEF specialist position should be extended to the end of the project.

- Office support staff and draftsman position should be extended to the end of the project.

Total recommended person months for TA staffing positions, and their locations, are included in Table 4.

Short-Term Technical Assistance

- *Training.* 10 weeks per year of master training for the life of the project. Short-term overseas training course (TOT) for PSS project manager and for IMD training specialist when the position is filled.

- *Monitoring, Evaluation and Feedback.* 10 weeks in 1990.

- *Research.* US$100,000 per year for three years.

- *Computer Programming.* O&M Component—3 months in 1990; MEF Component—3 months in 1990.

Technical Assistance Budget Requirements

Two-Year Extension. For the proposed extension, an estimated $1.8 million is required for both long-term and short-term positions. This is based on—

- 56 total long-term additional American person-months for the two current positions extended to June 1994.

- 378 total long-term additional local Sri Lankan person-months for twelve positions (see Table 4 for proposed person-months per specific position).

- Short-term assistance as noted above.

Total short-term assistance is estimated at $490,000 and total long-term assistance, both American and local staff, at $1.31 million. These estimates include salaries, benefits, and normal TA contractor fees. Short-term estimates include per diem, air fares, and local expenses. Long-term estimates do not include local support costs; i.e, in-country transport, office support, and housing.

No Extension. Additional technical assistance costs are recommended even if there is no PACD extension. These resources will compensate for the considerable early delays and allow appropriate implementation of the recommendations suggested in this evaluation. Additional TA costs under a no-PACD-extension include—

- Eight total long-term additional American person months for the two current positions.

- 126 total long-term additional local Sri Lankan person months for twelve positions extended as shown in the table below.

- Short-term assistance as noted under the two-year extension above, with the exception of 10 weeks of training assistance and one year of research.

Long-term costs for both American and local Sri Lankan staff are estimated at $275,000. Short-term TA costs are estimated at $335,000, for a total of $610,000.

Table 4

PROPOSED ISMP LONG TERM TECHNICAL ASSISTANCE OPTIONS

NO.	POSITION	PM	1990	1991	1992	1993	1994
A. ISMP PACD Extended Two Years							
1	Chief of Party +	51	.◊.....	.....	...▌***	*******	***■
2	O&M Engineer +	51	.◊.....	.....*	***▌***	*******	***■
3	Senior Operations Engineer	45	.◊.....	.....*	***▌***	*******	■
4	Irrigation Engineer(A)	51	.◊.....	.....	***▌***	*******	***■
5	ME&F Specialist	51	.◊.....	*******	***▌***	*******	***■
6	Inst.Dev.Spec.(A)	45	.◊.....	.....**	***▌***	*******	■
7	Inst.Dev./Trng.	45	.◊...**	*******	***▌***	*******	■
8	Construction Engineer	45	◊*****	*******	***▌***	*******	■
9	Construction Engineer(A)	45	◊*****	*******	***▌***	*******	■
10	Inst.Dev./FM	45	◊*****	*******	***▌***	*******	■
11	Office Manager	51	.◊.....	.....	...▌***	*******	***■
12	Secretary	51	.◊.....	.....	...▌***	*******	***■
13	Secretary	51	.◊.....	.....	...▌***	*******	***■
14	Draftsman	51	.◊.....	.....	...▌***	*******	***■

678 person months from March 1990

B. ISMP Ends at Existing PACD							
1.	Chief of Party +	27	.◊.....	.....	...▌		■
2.	O&M Engineer +	27	.◊.....	.....*	***▌		■
3.	Senior Operations Engineer	27	.◊.....	.....*	***▌		■
4.	Irrigation Engineer(A)	27	.◊.....	.....	***▌		■
5.	Constuction Engineer	27	◊*****	*******	***▌		■
6.	Construction Engineer	27	◊*****	*******	***▌		■
7.	Inst.Dev/Trng.	27	.◊...**	*******	***▌		■
8.	Inst.Dev.Spec.(A)	27	.◊.....	.....**	***▌		■
	Agronomist	0	.◊xxxxx	xxxx			■
9.	Inst.Dev./FM	27	◊*****	*******	***▌		■
10.	ME&F Specialist	27	.◊.....	*******	***▌		■
11.	Draftsman	27	.◊.....	.....	...▌		■
12.	Office Manager	27	.◊.....	.....	...▌		■
13.	Secretary	27	.◊.....	.....	...▌		■
14.	Secretary	27	.◊.....	.....	...▌		■

378 person months from March 1990

KEY

+ American staff

(A) Ampara site (Gal Oya)

... Existing Person Months

xxx Deleted Person Months

*** Proposed Person Months

▌ Project Assistance Completion Date (PACD) - June 1992

■ Proposed PACD Extension - June 1994

◊ Mid Term Evaluation - March 1990

Appendix A

LIST OF RECOMMENDATIONS BY PROJECT COMPONENT

Farmer Organizations

1. ISMP should organize a one-day workshop to provide an opportunity for DCO chairmen to share ideas and achievements. This workshop could also be used to begin formulating—with DCO chairmen participation—clear guidelines on DCO functions, role, and responsibilities. ISMP's farmer organization specialist (FOS) should take the lead in organizing this workshop.

2. Legal recognition of FOs is a task that must be accomplished soon in order to formalize and encourage them. Ways and means to expedite the process of amending relevant legislation should be explored and followed by ISMP management.

3. ISMP should develop written guidelines and procedures for handing over D canals to FOs. Moreover, ISMP should develop an agreement format specifying the rights, duties, and obligations of the parties involved. The FOS should take the lead in organizing the development of these guidelines and procedures and the agreement format.

4. ISMP should explore ways to establish an appropriate district-level mechanism to adjudicate conflicts between individuals and groups over water rights. A possible starting point might be the expert report on the establishment of Jala Sampath Palaka Sabaha prepared as part of the Gal Oya project.

   DCOs should continue to be encouraged to play a key role in settling disputes. To facilitate this process, a one-day workshop that includes DCO representatives and IMD staff should be conducted to establish a framework for a code of ethics to guide the conflict-resolution process. The FOS should take the lead in organizing this workshop.

5. The two-week management skills training course recommended in Chapter 10 should address project managers' roles and responsibilities in support of FOs and participatory management.

   ISMP should develop a definition of the project manager's role that emphasizes the PM's responsibility in preventing FOs from creating new dependency relationships that hinder the growth of DCO self-reliance and independence. As was recommended at the 1990 ISMP Project Review Workshop, PMs should always work through the FO structure in solving farmers' problems.

   Pre-service and in-service training for technical assistants (TAs) and work supervisors (WSs) should address their roles and responsibilities in support of farmer organizations.

6. ISMP should help identify career opportunities for IOs, either within or outside the irrigation sector. For instance, those IOs who are phased out may be transferred to other projects where their services are needed. Similarly, as was agreed in the 1990 ISMP Project Review Workshop, PMs may take the lead in recommending outstanding IOs for advancement.

7. All IOs and IDOs under ISMP should receive appropriate transport to perform their tasks.

8. Many active DCOs have initiated activities outside water management, such as community fund-raising, road-development work, establishment of women's groups, and income-generating projects. These activities should be encouraged under ISMP because they enable FOs to be more self-reliant and more responsive to community needs.

9. The FOS should take a proactive role in documenting constraints and lessons learned and in developing dissemination models for

applying these lessons in other irrigation schemes. The FO Think Tank recommended at the 1990 workshop should be established to help identify these lessons and dissemination models and to identify critical concerns facing FOs as they take on their new responsibilities for O&M.

10. An FOS position should be created within the IMD to help support ISMP and other farmer organization programs.

11. IMD should translate the farmer organization manual into Sinhala and Tamil and make it available to relevant officials in the implementing agencies. ISMP should seek ways to expedite the translation.

Training Enhancement

1. Within the next six months, ISMP should contract a master trainer for at least ten weeks to—

   - Carry out a needs assessment for training directed at TAs, IOs, and DCO farmer representatives.

   - Develop training designs (based on behavioral training objectives) for key in-house training programs.

   - Conduct a two-week training-of-trainers (TOT) workshop (centered on these new designs) for 15 to 20 project-level ISMP trainers (PMs, TAs).

2. Additional short-term technical assistance—at least ten weeks per year by a master trainer—should be provided throughout the life of the project to—

   - Conduct additional TOTs and follow-up TOTs.

   - Develop ongoing training evaluation skills and procedures.

   - Provide training workshops for management skills (see 10.6).

   Such short-term technical assistance would significantly strengthen ISMP institutional-development efforts.

3. The master trainer selected for these assignments should have at least five to ten years of experience *designing and delivering* needs-based, participatory training programs. (University teaching experience in and of itself does not qualify under this definition.) USAID could ask ISPAN to help identify an appropriate individual and to help develop the specific scope of work.

4. PMs who will be designing and coordinating in-country training should attend the six-week basic TOT that the U.S. Department of Agriculture (USDA) will hold in Washington, D.C. in August 1990. This short course should be in addition to their attendance in the project-specific TOT (see recommendation 1). With these two training courses, PMs will have the basic skills and credibility to serve as assistant trainers to the short-term master trainer in subsequent years.

5. A training specialist position should be created within IMD/Colombo to coordinate the development and dissemination of training modules and materials by donor and IMD programs. When selected, this individual should also attend USDA's yearly August TOT.

6. A nonresidential facility for in-house training should be established in Polonnaruwa to accommodate up to 60 participants. Training equipment and materials should be provided to this facility.

7. ID technical assistants should take a much stronger training role in ISMP by providing field training in water management, the gravity of the water shortage, preventive maintenance, and other pertinent topics at D- and F-channel sites.

8. ISMP should establish formal opportunities for short-term overseas training recipients to share what they learn with other project officers or farmer leaders (for example, a debriefing at ISMP monthly meetings).

Monitoring, Evaluation and Feedback

An in-depth assessment of the existing MEF system should be immediately initiated. The assessment should be carried out by a highly qualified professional with demonstrated experience in developing and implementing information-management programs at the national and project levels. His/her expertise should combine experience in both physical-delivery projects and people-centered projects. Knowledge of O&M irrigation systems and farmer organizations would be highly desirable.

The assessment would be carried out in three stages:

- In the first stage, relevant project documents would be reviewed and interviews conducted with pertinent personnel at the central and project-site levels. Based on literature review, interviews, and field visits, a detailed outline of issues and constraints would be prepared.
- The issues statement would be used in a second stage to design and conduct a workshop involving ID and IMD officials, project managers, monitoring and evaluation staff, and other potential information users. The workshop would investigate, with the assistance of the MEF professional and a workshop facilitator, the information needs of the various users, identify specific information items, define staffing and training requirements, determine staff location and respective responsibilities, and formulate formal and informal communication and feedback strategies.
- Details of technical issues—such as the formulation of indicators, sampling techniques, statistical analysis, survey methodology, and reporting procedures—should not be discussed in the workshop. These would, instead, be examined in a third stage by the technical staff in light of the agreed-upon strategies. An appropriate number of smaller workshops would be conducted to carry out these tasks.

Once the revised MEF system starts functioning, an annual workshop should be held to review progress and schedule necessary changes in light of experience and new needs. Work schedules may be formalized within an MEF committee that would periodically review information flows to ensure that appropriate facts are available to relevant users in a timely fashion and in the desired formats.

Research

1. IIMI should be given an extension to its Cooperative Agreement with USAID to continue implementation of the ISMP research component.

2. Future research studies should be linked to specific problem areas identified through analysis of MEF data.

3. A workshop for ID technical assistants should be held to identify ways that the water-delivery study can be used in developing the operations model.

4. The Research Advisory Committee should give further consideration to IIMI's proposal in its 1990 Work Plan that action-oriented research related to the institutional- development study be done at ISMP project sites.

5. The 1990 ISMP workshop recommendations related to the research component should be acted upon. If a Sri Lankan institute cannot be identified to develop a research dissemination newsletter, USAID and IIMI should consider subcontracting such a newsletter to a Sri Lankan private-sector firm.

6. As soon as possible, IIMI should initiate a comparative analysis study as outlined in Part II, Section 6 of the Project Paper. In implementing the study, IIMI should carefully examine the methodology suggested in proposals received to assure that outcomes will meet the study objectives. Due to this study's importance, it is imperative to solicit proposals only from highly qualified, well-experienced public institutions and private firms.

7. The usefulness of the cost-effectiveness study designed by the TA team is highly questionable and should not be continued, although work completed to date should be reviewed and used appropriately.

Operations and Maintenance

1. The TAT should assist the ID in keeping well-organized records of structural-rehabilitation construction activities and costs for use in future cost/benefit studies under the project.

2. Emphasis now on structural rehabilitation (ESI/PR) should shift to O&M. It is recommended that the TAT work more intensively to institutionalize the use of the operational tools and preventive maintenance plan within the ID. This includes helping develop the required changes in internal day-to-day work routines, developing job descriptions for ID staff, and developing ID record-keeping capability, an essential item in effectively undertaking a preventative maintenance program. This strategy will require an on-the-job training approach. In order to promote this shift, it is recommended that the TAT hire two local construction engineers over the remainder of the project to take on the majority of the field and office work done by the TAT in support of the ESI/PR program. These engineers must have the required means of transport to carry out field work. This scenario will allow the three existing engineers much more time to devote to O&M improvements.

3. Emphasis also needs to be placed on adding to the bank of knowledge on sustained renewal. Are the approaches to improve irrigation-systems management sustainable that are being tested within project systems? Do ID and IMD have sufficient capability to continue them after the project? Can the GSL continue the support required to sustain them in the future? The project management team needs to take specific action to answer these questions through studying ongoing activities. Based on the results of these studies and observations, O&M improvement activities should be altered so as to be sustainable after the project.

4. DCOs should do all remaining 1989 and future D- and F-channel structural rehabilitation (ESI/PR) work under the project, to the maximum extent possible. The project should, as soon as possible, adopt the following policies for D- and F-channel construction:

   - All D channels below a 20 cfs flow rate should *only* be done through DCOs. For channels above 20 cfs, private contractors can do the work when DCOs are unable to accept such contracts, but they should maintain greater coordination with concerned DCOs than in the past.
   - The ID will have to work closely with the DCOs to ensure adequate construction-quality control, a difficult and intensive yet not impossible task.
   - After DCOs complete the work, they should be made responsible for all future O&M costs and for carrying out all maintenance activities, with technical assistance from the ID on an as-needed basis.

   Adopting these policies should also have the additional benefit of alleviating DCO reluctance to do ESI/PR F-channel work, as they will have sufficient earthwork on the D channels. F-channel work would then become more attractive, as part of an overall contract package. To encourage DCOs, the project should institute a mobilization advance for DCOs and should help them with materials.

5. With the handing-over of D and F channels proceeding rapidly, the TAT should focus on developing and implementing an O&M plan model for the DCOs as well as for the ID. The DCO plan should incorporate the *project awareness record*, developed under the financial management (FM) element of the project (see Chapter 8).

6. With the large number of rehabilitation projects underway and planned, a more effective system to monitor contract and quality control would help to complete work faster. It is recommended that the ID and the TAT—

- Convert the existing ID manual program-recording document and the TAT spreadsheet reporting document to a single database application, which is updated with standard information after each inspection. This will serve not only as an ongoing contract-and quality-control tool but also as a reporting mechanism that will allow the ID and TAT to streamline their approach to construction program management.

- In conjunction with this new database management/reporting tool, develop and use standard construction inspection forms that are disseminated and recorded. All ID/TA and TAT inspections would result in a completed form. Four or five indicators of quality and progress would be included in the form. These indicators would immediately be entered into the database, allowing an up-to-the-day record of the construction program.

- Hire a local programmer for a three-month period to design an appropriate software program to implement these tasks.

7. Motorcycles should be procured as soon as possible for those TAs in both Polonnaruwa and Gal Oya without the means to effectively monitor ISMP construction. Each TA should have a motorcycle for this purpose.

8. Computers and spreadsheet software be used to develop and implement the annual maintenance plan.

9. The ID should take steps to increase channel freeboard during operations, so as to decrease channel-maintenance costs. It is recommended that this be considered an objective of the improved operations plan. The ID should also ensure that observed water-surface profiles during actual system operations are used as a design criterion.

10. ID technical assistants should be brought into the project mainstream through workshops and short courses that make them more aware of their critical role in strengthening FOs by building their confidence and trust in the ID.

11. In all ISMP systems, the ID must work quickly to complete the updating of issue trees, installation of flow measuring equipment, and structure marking so as not to delay implementation of the computer operations systems.

Financial Management

1. Full-scale implementation of the DCO financial management plan should be accelerated by the IMD, as DCOs are already engaged in collecting their own maintenance funds. The TAT should help the IMD prepare a *detailed* activity-flow diagram, schedule, cost estimate, and manpower and transport plan to implement the FM system. It is recommended that additional staff be hired on a contract basis to implement the system. The IMD should hire one FM assistant for every fifteen DCOs. Implementation should also include checking and updating records and information concerning farmers.

2. Once the FM system is in operation, it should be reviewed quarterly until the system is operating properly. At the review meetings, decisions can be made to modify the system so that it responds to program needs. These modifications might include adding manpower, simplifying forms, fine-tuning institutional linkages, and identifying further training requirements.

3. The GSL policy debate on user cost-recovery should be monitored by the project. If the now-suspended fee-collection system is rescinded, the project inputs and outputs should be revised accordingly.

Crop Diversification

1. It is recommended that ISMP participation in a crop-diversification program be limited to activities that relate to water management:

   - developing irrigation scheduling for on-farm and F canals serving those farmers

who choose to grow other food crops or high-value crops, so as to match water requirement with crop needs, soil types, and topographical land classes;

- analyzing and solving drainage problems resulting from mixed rice and other food crops or high-value crops.

2. Other crop-diversification activities not directly related to water management, such as research, extension, training, demonstration trials, and analysis of marketing and other constraints should be undertaken by the DOA and other specialized institutions, but not by ISMP.

3. Effective implementation of the two separate but interrelated activities outlined in (1) and (2) will require a high degree of coordination between ISMP and these specialized institutions. ISMP should take the lead in establishing an appropriate mechanism at the scheme, district, and/or other levels to achieve this coordination.

4. Successes, constraints, and lessons learned from experiments carried out through the activities described in (1) above should be documented.

Overall Project Management

1. SAI should prepare an annual status report (beginning with 1989) that identifies lessons learned and recommends project adjustments in each component.

2. A local consulting firm should be contracted to identify ways to improve IMD internal reporting and recommend procedures for assuring two-way information flow and feedback.

3. Irrigation engineers should hold staff meetings following each ISMP monthly meeting and each ISMP workshop to share outcomes with TAs.

4. In staff meetings and in one-on-one meetings, IEs should set strong expectations with TAs regarding their role and responsibilities in supporting farmer organizations and ISMP training activities.

5. IMD should establish a division-level IMD management position—on a level with the ID division-level DDI—to provide management supervision and support to ISMP project Managers.

6. A two-week management skills training course tailored to ISMP should be conducted for IEs and PMs. This course should be based on a participatory training approach and should be designed to build skills in planning, leadership styles, performance monitoring and feedback, team effectiveness, and conflict resolution.

   An ISMP-specific course, as such, would help build a critical mass of project officers who share management language as well as values and expectations. It would also further improve teamwork between IEs and PMs and contribute to ISMP's institutional-development objectives.

7. Before the end of 1990, ID, IMD, SAI, and USAID should undergo a rebudgeting exercise to reprogram projected savings in the commodity line item and to reestimate the projected costs in rehabilitation, facilities construction, and other line items.

Appendix B

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Appendix C

ISMP INSTITUTIONAL STRUCTURE

The chart below represents key ISMP relationships as they currently exist. It is based on the evaluation team's interview data.

Key ISMP External Relationships

As indicated in the chart, the ISMP project director is directly responsible to the IMD Director, officially designated as the lead implementer of ISMP. The ISMP deputy director is directly responsible to the ID director. These two external relationships form the basis for collaboration on ISMP between the ID and the IMD.

Key ISMP Internal Relationships

Key internal relationships of ISMP are as follows:

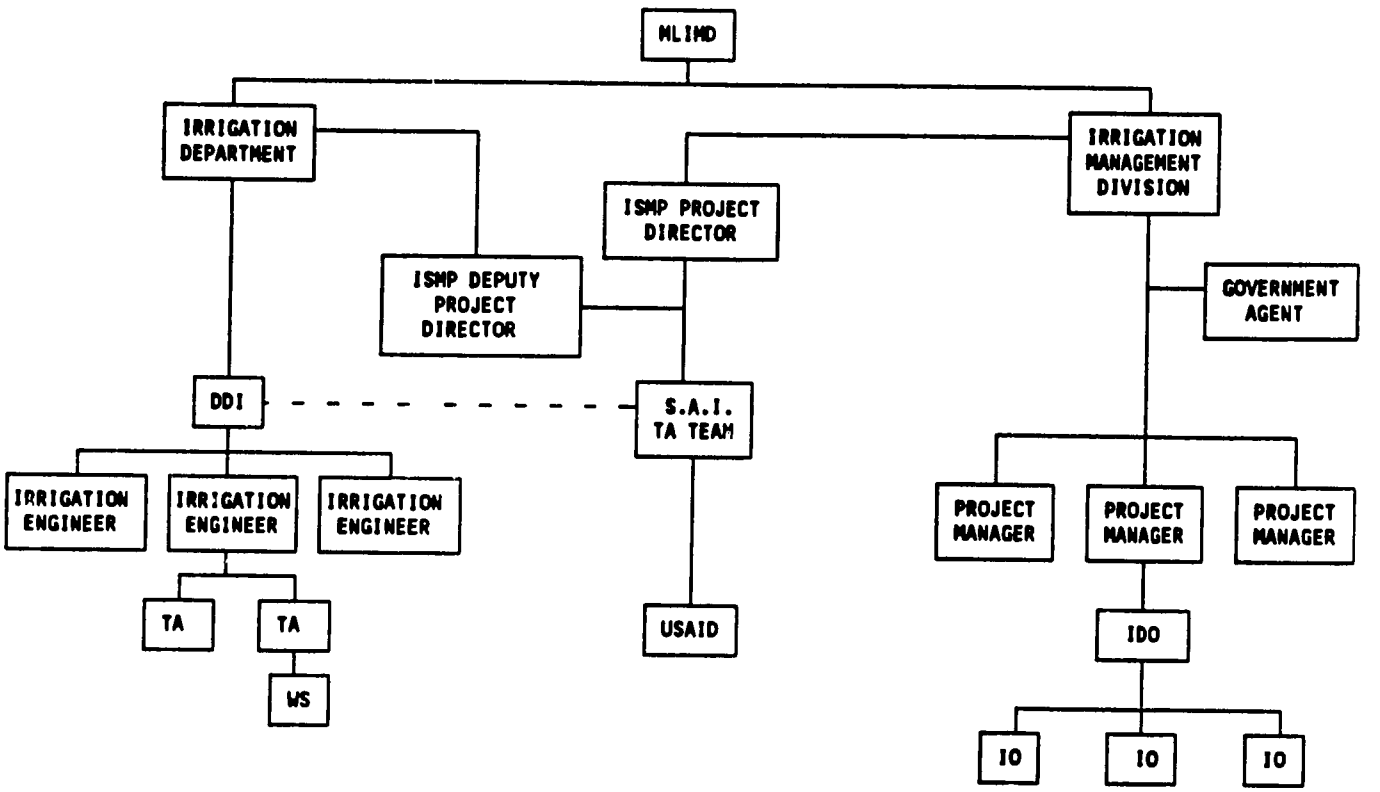
- The SAI technical assistance team is directly responsible to both the ISMP project director and the USAID project officer for ISMP.
- At the district level, ISMP irrigation engineers are directly responsible to the district-based DDI, under the ID.
- At the district level, ISMP project managers, who coordinate ISMP activities at the scheme level (of which there are seven in three districts), are directly responsible to the IMD director on programmatic matters and to the district-level GA on administrative matters. They do not have a district-level representative of IMD to whom they report.

Roles and Responsibilities of Key Players

Following are the key players in ISMP, with their roles and major responsibilities as currently perceived by project staff:

- *IMD.* Serves as lead implementor of ISMP. Its major responsibilities include setting policies on all project-related issues; providing overall direction to ISMP components; making decisions jointly with ID vis-a-vis water-management, and FO functions, and work scheduling.
- *ID.* Manages the construction elements of ISMP. Its major responsibilities include making decisions on construction priorities and implementing areas and providing all designs and cost estimates for construction works.
- *USAID.* Monitors project implementation. Its major responsibilities include jointly supervising with IMD the performance of the SAI technical assistance team; providing information on A.I.D. implementation guidelines and regulations; and monitoring performance of ISMP components.
- *SAI.* Advises and assists IMD in implementing ISMP as designed by USAID and accepted by the GSL. SAI major responsibilities include providing technical and planning assistance to all ISMP components, except research and monitoring and reporting on project performance.
- *IIMI.* Manages ISMP's research component through a Cooperative Agreement with USAID. Its major responsibilities include overseeing the selection of local consulting firms to carry out research studies; identifying research topics in consultation with ISMP key players; defining terms of reference; and providing contract management.

ISMP STRUCTURE



Appendix D

ISMP ESSENTIAL STRUCTURE IMPROVEMENT AND PRAGMATIC REHABILITATION PROGRAM: Status of Physical Progress as of 31 March 1990

Total Polonnaruwa and Gal Oya

	TOTAL PROJECT LENGTH (Km)	COMPLETED END 1989 (Km)
Surveys		
Main Channels	86.7	78.7
Branch Channels	150.2	142.7
D-Channels	503.3	267.2
F-Channels	1209.0	459.2
Drains	245.0	0.0
	2194.7	947.8
Designs		
Main Channels	86.	70.8
Branch Channels	150.2	83.4
D-Channels	503.3	220.0
F-Channels	1209.5	364.4
Drains	245.0	0.0
	2194.7	262.2
Construction		
Main Channels	86.7	55.9
Branch Channels	150.2	58.0
D-Channels	503.3	89.6
F-Channels	1209.5	58.7
Drains	245.0	0.0
	2194.7	262.2

Four Polonnaruwa Systems

	TOTAL PROJECT LENGTH (Km)	COMPLETED END 1989 (Km)
Surveys		
Main Channels	51.5	43.5
Branch Channels	67.1	65.8
D-Channels	328.3	255.0
F-Channels	982.1	459.2
Drains	145.0	0.0
	1574.0	823.5
Designs		
Main Channels	51.5	42.3
Branch Channels	67.1	65.8
D-Channels	328.3	220.0
F-Channels	982.1	364.4
Drains	145.0	0.0
	1574.0	692.5
Construction		
Main Channels	51.5	41.9
Branch Channels	67.1	58.0
D-Channels	328.3	89.6
F-Channels	982.1	58.7
Drains	145.0	0.0
	1574.0	248.2

Ampara (Gal Oya)

	TOTAL PROJECT LENGTH (Km)	COMPLETED END 1989 (Km)
Surveys		
Main Channels	35.2	35.2
Branch Channels	83.1	76.9
D-Channels	175.0	12.2
F-Channels	227.4	0.0
Drains	100.0	0.0
	620.7	124.3
Designs		
Main Channels	35.2	28.5
Branch Channels	83.1	17.6
D-Channels	175.0	0.0
F-Channels	227.4	0.0
Drains	100.0	0.0
	620.7	46.1
Construction		
Main Channels	35.2	14.0
Branch Channels	83.1	0.0
D-Channels	175.0	0.0
F-Channels	227.4	0.0
Drains	100.0	0.0
	620.7	14.0

ESI Polonnaruwa Range + PR Ampara Range

	TOTAL PROJECT LENGTH (KM)	COMPLETED END 1989 (KM)	PLANNED FOR 1990 (KM)	REMAINING FOR LOP (KM)
Surveys				
Main Canals	86.7	78.7	8.0	0.0
Branch Canals	150.2	142.7	7.5	0.0
D-Canals	503.3	267.2	230.7	5.4
F-Canals	1209.5	459.2	403.6	346.7
Drains	245.0	0.0	67.0	178.0
TOTAL	2194.7	947.8	716.8	530.1
Designs				
Main Canals	86.7	70.8	15.9	0.0
Branch Canals	150.2	83.4	66.8	0.0
D-Canals	503.3	220.0	229.1	54.2
F-Canals	1209.5	364.4	343.1	502.0
Drains	245.0	0.0	50.0	195.0
TOTAL	2194.7	738.6	704.9	751.2
Construction				
Main Canals	86.7	55.9	22.8	8.0
Branch Canals	150.2	58.0	47.0	45.2
D-Canals	503.3	89.6	102.6	311.1
F-Canals	1209.5	58.7	231.4	919.4
Drains	245.0	0.0	10.0	235.0
TOTAL	2194.7	262.2	413.8	1518.7

ESI Polonnaruwa Range
(PSS, Minneriya, Giritale and Kaudulla)

	TOTAL LENGTH (KM)	COMPLETED END 1989 (KM)	PLANNED FOR 1990 (KM)	REMAINING FOR LOP (KM)
Surveys				
Main Canals	51.5	43.5	8.0	0.0
Branch Canals	67.1	65.8	1.3	0.0
D-Canals	328.3	255.0	67.9	5.4
F-Canals	982.1	459.2	383.6	139.3
Drains	145.0	0.0	67.0	78.0
TOTAL	1574.0	823.5	527.8	222.7
Designs				
Main Canals	51.5	42.3	9.2	0.0
Branch Canals	67.1	65.8	1.3	0.0
D-Canals	328.1	364.4	338.1	279.6
F-Canals	982.1	364.4	338.1	279.6
Drains	145.0	0.0	50.0	95.0
TOTAL	1574.0	692.5	487.7	393.8
Construction				
Main Canals	51.5	41.9	1.6	8.0
Branch Canals	67.1	58.0	6.0	3.1
D-Canals	328.3	89.6	100.4	138.3
F-Canals	982.1	58.7	231.0	682.4
Drains	145.0	0.0	10.0	135.0
TOTAL	1574.0	248.2	349.0	976.8

PR Ampara Range
Gal Oya RB

	TOTAL RB LENGTH (KM)	COMPLETED END 1989 (KM)	PLANNED FOR 1990 (KM)	REMAINING FOR LOP (KM)
SURVEYS				
Main Canals	35.2	35.2	0.0	0.0
Branch Canals	83.1	76.9	6.2	0.0
D-Canals	175.0	12.2	162.8	0.0
F-Canals	227.4	0.0	20.0	207.4
Drains	100.0	0.0	0.0	100.0
TOTAL	620.7	124.3	189.0	307.4
Designs				
Main Canals	35.2	28.5	6.7	0.0
Branch Canals	83.1	17.6	65.5	0.0
D-Canals	175.0	0.0	140.0	35.0
F-Canals	227.4	0.0	5.0	222.4
Drains	100.0	0.0	0.0	100.0
TOTAL	620.7	46.1	217.2	357.4
Construction				
Main Canals	35.2	14.0	21.2	0.0
Branch Canals	83.1	0.0	41.0	42.1
D-Canals	175.0	0.0	2.2	172.8
F-Canals	227.4	0.0	0.4	227.0
Drains	100.0	0.0	0.0	100.0
TOTAL	620.7	14.0	64.8	541.9

Appendix F

LIST OF PERSONS CONTACTED

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Appendix G

SCOPE OF WORK: Mid-term Evaluation and Management Workshop, ISMP

The purpose of this contract amendment is to conduct the mid-term evaluation and associated management workshop for the Irrigation Systems Management Project. The primary objective of this work is to assist participating agencies with forward planning to implement the remainder of the project more effectively.

I. BACKGROUND

The Project Agreement was signed on August 25, 1986, and the Project Assistance Completion Date is June 30, 1992. The Technical Assistance contract was not signed until June 11, 1987, causing considerable delay in launching the project. The total project budget consists of $6.9 million AID grant, $11.7 million AID loan and $9.7 million contribution by the Host Government. An internal Project Assessment was conducted by the USAID mission in November, 1988. A Project Review and Workshop was conducted by ISPAN during April, 1989.

II. PROJECT

The goal of the ISM Project is to increase agricultural productivity, expand rural employment opportunities, and raise net farm family income on existing irrigated land.

The original purpose of the ISM Project was two-fold: (a) to develop Ministry of Lands, Irrigation and Mahaweli Development (MLIMD) institutional capacities at national, district and system levels to operate and maintain major irrigation systems on a "sustained renewal" basis, i.e., without recourse to periodic major rehabilitation; and (b) to test and demonstrate the effectiveness (costs vs. benefits) of different combinations of management and structural improvements carried out in selected irrigation systems. As a result of the 1988 Assessment it was agreed by USAID and the Implementing Agency (Irrigation Management Division) that the second "purpose" needed interpretation and elaboration. It was modified accordingly to read "Find the most long-term cost effective methods and techniques for system rehabilitation and sustained maintenance, building effective farmer organizations and institutions, and linking these elements to work together for a common goal."

To accomplish this purpose, the Project has six separate but interrelated components: (1) farmer organization development; (2) O&M improvements; (3) financial management improvements; (4) monitoring, evaluation, and feedback; (5) training capacity enhancement; and (6) research. Eight major irrigation systems in three districts are included in the Project as sites for testing and demonstration.

The principal *outputs* of the Project are expected to be as follows:

At the national level:

- An expanded staff and institutionalized capacity within the Irrigation Management Division to carry out management responsibilities in major irrigation systems;
- An expanded farmer organization program capable of being extended to all major systems;
- O&M improvement procedures capable of being extended to all major systems;
- Demonstrated costs and benefits associated with varying levels of management/ rehabilitation improvements;
- An established national financial management program for irrigation system O&M, including the collection and disbursement of O&M fees paid by farmers;

- An established monitoring, evaluation, and feedback (MEF) program for assessing the performance of irrigation systems, capable of being extended to all major systems;

- Trained personnel in the above irrigation management functions, and enhanced training capacities in place in local training organizations; and

- A strengthened research capacity and the carrying out of the specific irrigation management research studies.

At the field (District and Project site) level:

- Strengthened, comprehensive management capacity in seven irrigation systems under the charge of Project Managers and assisted by IMD/ID field officers;

- Farmer Organizations (FOs) established in seven systems on an average of one FO per 15 to 20 farmers, FOs federated in each system at distributory channel levels, and farmers represented on Project Committees;

- O&M procedures institutionalized with weekly computer-based operations and regular maintenance schedules in six systems; daily computer-based operations and preventive maintenance program in place in one system (Gal Oya Left Bank);

- Essential Structural Improvement (ESI) completed for main, branch, and distributory channels in four systems.

- Pragmatic Rehabilitation (PR) completed for main, branch, an distributory channels in one system (Gal Oya Right Bank);

- O&M financial management systems producing monthly, seasonal and annual financial reports established in seven systems; and

- Monitoring, evaluation, and feedback programs producing weekly, monthly, seasonal and annual project operations and performance reports established in seven systems.

End-of-Project Status. At the end of six years, Project activities are expected to result in the following accomplishments:

- A better understanding of the requirements, costs and benefits in upgrading and existing major irrigation systems to the point where they can be operated and maintained on an affordable "sustained renewal" basis (without recourse to periodic major rehabilitation);

- Better communications and coordination among farmer organizations and irrigation systems personnel, and proven methods for creating and sustaining farmer organizations;

- Functioning financial management and MEF programs, computerized to the degree feasible, to handle annual O&M revenues and expenditures and report on the total performance of major irrigation systems;

- The Gal Oya Left Bank Systems being maintained in a sustained condition, based on an annual preventive maintenance program, and capable of supporting diversified agricultural production in response to farmers' decisions on which crops to grow; and

- The Gal Oya Right Bank system and the four Polonnaruwa District tank systems brought to the sustained renewal level, upgraded physically with effective O&M procedures and management in place, and highly sustainable for a program of improved farm water management and diversified agricultural production.

III. PURPOSE OF EVALUATION AND REVIEW WORKSHOP

The primary purpose of this mid-term evaluation is to determine the following:

- Summary of progress to date in each area of activity.

- If the goals, purpose, and end-of-project status as stated are reasonable and practical.

- Identification of major problems in achieving project goals, purposes, and end-of-project status.

- Assessments of the project in achieving its goals, purposes, and outputs by the PACD.

- Recommendations for modification of activities, implementation, procedures, or PACD in order to achieve objectives.

The Review Workshop, which is included as an integral part of the evaluation, will be conducted to assist the participating agencies in forward planning to implement the remainder of the project more effectively.

IV. STATEMENT OF WORK

1. The team will review pertinent project documents including, but not limited to:

   (a) Project Paper
   (b) Technical Assistance Contract
   (c) Technical Assistance Team Reports
   (d) USAID Assessment
   (e) ISPAN Project Review
   (f) Research Component Studies

   Copies of these documents will be provided by USAID.

2. The team will interview pertinent personnel at the central and project site level including:

   (a) USAID Project Manager
   (b) IMD Director
   (c) IMD Project Director
   (d) IMD Deputy Director, Institutional Development and Training
   (e) IMD Deputy Director, Operations and Maintenance
   (f) IMD Deputy Director, MEF and FM
   (g) ID Director of Irrigation
   (h) ID Deputy Director, Operations and Maintenance
   (i) ARTI Director
   (j) IIMI Research Coordinator (all in Colombo)
   (a) Deputy Directors, Irrigation (D)
   (b) Project Managers (IMD)
   (c) Irrigation Organizers (IMO)
   (d) MEF/FM Assistants (IMO)
   (e) Agraria Services Agents
   (g) Department of Agriculture and Extension Agents
   (h) The Technical Assistance Team (at Project Sites)

3. Based on literature review, interviews, field visits, and observations the team will prepare a draft issues and problems statement addressing all aspects of project implementation, progress, and constraints.

4. The team will design and conduct a workshop based on the issues statement. The workshop facilitator and evaluation team members will assist the participants in addressing and resolving the identified problems through forward planning.

5. The evaluation team will produce two reports, based on the overall exercise. The first will be the formal mid-term Project Evaluation, and the second will be the agreements and forward planning resulting from the review workshop. Although these documents may be redundant in certain areas, the Evaluation is intended to be an independent, outside assessment with recommendations, whereas the workshop will document agreements and plans made during the workshop and will be a forward planning tool agreed upon by participants. The team is to complete drafts of each report and forward seven copies of each to USAID, Colombo by courier within fifteen working days after completion of activities in Sri Lanka. Upon official review and submission of comments by GSL through AID to the Contractor, thirty copies of the Evaluation and sixty copies of the Review Workshop Report will be finalized, printed, and forward by Diplomatic Pouch within twenty working days (from receipt of the comments).

V. ESTIMATED RESOURCES

Personnel

It is estimated that an expatriate team of three or four persons will be required for a total period of four weeks. Travel time to and from Sri Lanka and report writing should be included. A six-day work week is authorized. One of the members will be designated "Team Leader" and be responsible for the input of other members as well as for overall preparation and finalization of the Evaluation Report. It may be favorable to stagger some of the members during final stages. The required areas of expertise include institutional development and training; monitoring, evaluation and feedback, and financial management; agricultural development and economics; irrigation systems operations and maintenance; and workshop design and facilitation. It is expected that the expatriate team will procure assistance from Sri Lanka Institute of Development Administration (SLIDA) in planning and conducting the workshop. In addition, the team may want to augment areas of expertise and experience by using a local consulting form or individuals.

Workshop and Facilities

All facilities including meals and lodging for participants are to be provided. It is estimated that the workshops will take about three full days and nights with a maximum of 60 participants. The venue will be in or accessible to Colombo.

Transportation

The contractor is to provide transportation to and from Sri Lanka, as well as local travel in Colombo and environs. USAID will provide transportation to project sites as required. Transportation for workshop participants will be provided by the project locally and will not be the supplier's responsibility.

Secretarial and Production Services

The contractor will provide all required secretarial and reproduction services, equipment, and supplies, these resources are available locally.

VI. TIME FRAME

Activities by the team in Sri Lanka should commence on or after February 25 and be completed on or before April 6, 1990. The specific activities of the field work and workshop will be agreed upon between the mission and ISPAN by cable exchange.

VII. RELATIONSHIPS AND RESPONSIBILITIES

The evaluation team will report to and work through the USAID Project Manager for Irrigation Systems Management.