

**Monitoring and Evaluation of the
Participatory Irrigation System Management Policy**

MAIN REPORT

Volume I

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Hector Kobbekaduwa Agrarian Research and Training Institute

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ABBREVIATIONS

ADB	- Asian Development Bank
ARTI	- Hector Kobbekaduwa Agrarian Research & Training Institute
BCC	- Block Coordinating Committee
DAS	- Department of Agrarian Services
DC	- Distributary Canal
DCO	- Distributary Canal Organization
FCG	- Field Canal Group
FC	- Field Canal
FO	- Farmer Organization
FR	- Farmer Representative
ID	- Irrigation Department
IDO	- Institutional Development Officer
IDU	- Institutional Development Unit (Mahaweli Economic Agency)
IIMI	- International Irrigation Management Institute
IMAC	- Irrigation Management Cell (Irrigation Department)
IMD	- Irrigation Management Division
INMAS	- Integrated Management of Irrigation Systems program
IO	- Institutional Organizer
IOV	- Institutional Organizer Volunteer
ISMP	- Irrigation System Management Project
JMC	- Joint Management Committee
JVP	- Janatha Vimukthi Peramuna (political movement)
LSS	- Large Scale Survey
MANIS	- Management of Irrigation Systems program
MARD	- Mahaweli Agricultural and Rural Development Project
MASL	- Mahaweli Authority of Sri Lanka
M&E	- Monitoring and Evaluation
MC	- Main Canal
MEA	- Mahaweli Economic Agency
ME&F	- Monitoring, Evaluation and Feedback system (IMD)
MIRP	- Major Irrigation Rehabilitation Project
NGO	- Non Governmental Organization
NIRP	- National Irrigation Rehabilitation Project
PD	- Process Documentation
PM	- Project Manager (Irrigation Management Division)
PMC	- Project Management Committee
PMU	- Planning and Monitoring Unit (MASL)
PCC	- Project Coordinating Committee
RPM	- Resident Project Manager (Mahaweli Economic Agency)
RS	- Recurrent Survey
SLFO	- System Level Farmer Organization
SPC	- Sub Project Committee
SPCC	- Sub Project Coordinating Committee
TA	- Technical Assistant (Irrigation Department)
UCC	- Unit Coordinating Committee
USAID	- United States Agency for International Development

FOREWORD

The concept of “participatory system management” in major irrigation schemes that emerged due to several concurrent efforts in the early 1980s including under the USAID funded Gal Oya Project expanded to a program mode in 1982 with the GOSL program in Water Management in 25 systems and further expanded to 35 Projects under the Integrated Management of Major Schemes (INMAS) program in 1984. The setting up of a specialized institutional development-focused, multi-disciplinary unit (Irrigation Management Division) within the then Ministry of Lands and Land Development, ensured a fast track approach to reinforce institutionalization and helped provide adequate resources, and emphasis to this new program. The participatory management program was granted formal acceptance as state policy by a decision of the Cabinet in 1989. The program provided for greater involvement of the beneficiaries through their established organizations in system management. This program was further extended to cover the taking over of O & M activities by Farmer Organizations in distributary canals relieving to some extent the pressure on funds required by the State for O & M. The program received legal backing when the Irrigation Ordinance was amended in 1994 to recognize these Farmer Organizations and the institutional arrangements such as the Project Management Committee which has become the instrument for planning and management of the seasonal cultivation program including water management of the seasonal cultivation program including water management in major systems. This gradual evolution of the program and policy was the outcome of several efforts and ongoing programs that were supported by studies.

This particular study funded by the ADB and undertaken by IIMI in collaboration with the Hector Kobbekaduwa Agrarian Research and Training Institute was actively supported by the Government and implemented with the assistance of ID, IMD & MASL.

This study finds strengths in the implementation of the policy. In particular, it indicates that the policy has led to an improvement in water management while, perhaps, contributing to maintaining irrigation systems effectively with lower inputs from the government. At the same time, it finds problems, largely in the fact that the irrigation agencies have not adapted themselves fully yet to the policy. The Ministry has taken action to solve some of these problems including the formation of an interagency committee to respond to issues related to irrigated agriculture including recommendations of the study.

This study is valuable for the light it throws on participatory irrigation management in Sri Lanka and for the guidance it gives towards improving the productivity and sustainability of irrigation in the country.

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EXECUTIVE SUMMARY

This report summarizes the findings of the IIMI/ARTI study entitled Monitoring and Evaluation of the Participatory Irrigation System Management Policy. The study has been supported by TA No. 1705 SRI from the Asian Development Bank and has been carried out with the collaboration of the Ministry of Irrigation, Energy, and Power. The study focused on the 199 major and medium schemes included in the INMAS, Mahaweli, and MANIS programs.

The findings on the progress and evaluation of the participatory management policy can be summarized as follows:

Farmer Organizations

- Distributary channel farmer organizations or their equivalents have been created in about 85% of all schemes under the three programs. The number of farmer organizations varies from over 200 in some Mahaweli schemes down to 1 for many MANIS schemes. The areas covered and numbers of members vary greatly. System level farmer organizations have been formed in most INMAS schemes but are still too new to evaluate.
- Farmer organizations show generally good water distribution performance. Overall, participatory management has improved water distribution significantly although it has not eliminated all problems.
- Farmer organization maintenance performance is more equivocal. Most do a reasonably good job on jungle clearing and desilting; generally they do not undertake other maintenance activities.
- A significant minority of FOs in INMAS (45%) and Mahaweli (22%) schemes are involved in business activities, most commonly selling fertilizers and agro-chemicals. Generally they perform well but still depend upon government assistance.
- Farmer organizational strength is a measure of the ability of the organization to sustain itself. FOs vary widely in organizational strength in all three programs. The strongest FOs are found in INMAS schemes. Organizational strength is only partially related to FO performance in particular tasks; leadership can substitute for good organization. However, dependence upon leadership alone threatens the long term sustainability of the FO.
- Most farmer organizations are organized on the INMAS model, with field channel groups, etc. However, within MANIS schemes a majority use a nonhydrological basis for the groups. The study also found that there are three important types of MANIS schemes for which the INMAS organizational model is not appropriate. There is a need to find more appropriate organizational models for these categories of schemes.
- Land tenure was found to be an important factor in the willingness of farmers to support FOs; many short term lessees and encroachers are not willing to work with the FOs. Other factors, such as caste and other social divisions were not found to be important. Outside interventions in FO activities, while destructive when they occurred, were found to be uncommon.
- Legal recognition of FOs is not strongly related to FO performance; recognition by the relevant government agencies is more important.

- Agency support for FOs is strongly related to organizational strength and less strongly related to FO performance. However, it is important to note that FOs have been created by farmers in response to the government rather than spontaneously. Agency support is thus necessary.

Joint Management Committees (JMCs)

- Overall, about 51% of the schemes in the three programs have some form of joint management committee structure. These include all INMAS and Mahaweli schemes. Strong emphasis was given in the INMAS and Mahaweli programs to the JMCs, but the emphasis in the MANIS program has been much less.
- JMCs serve two major functions: seasonal planning and problem solving. JMCs generally can make decisions, but follow-up has not been good in all cases. JMC seasonal planning performance has been mixed in part because JMCs have been excluded from seasonal planning in some schemes. Because of agency limitations, JMC performance in problem solving has also been mixed.
- Because of the emphasis given by the agencies, performance varies among programs. Mahaweli JMCs seem to perform the best because of the strong support given by the MEA.

Turnover

- Turnover of irrigation management responsibilities is not a single phenomenon; there are many variations. The most common responsibilities turned over include maintenance (jungle clearing and desilting only) of distributary channels, water distribution on the distributary channel and below, and operation of the distributary channel head gate. Virtually all INMAS FOs report some turnover, most including the first two responsibilities and a significant number (43%) including the third as well. The great majority of Mahaweli FOs report taking some or all of these responsibilities. Turnover has occurred in a minority of MANIS schemes. We found cases where FOs had taken responsibility for main systems operations and maintenance as well.
- Turnover of water distribution is not problematic and has helped improve water distribution.
- Turnover of maintenance responsibilities is not complete in any scheme. Virtually no FO is held responsible for the regular maintenance and repair of concrete and masonry structures. Also, the agencies continue to provide FOs with funds for maintenance through maintenance contracts. This should be called "joint management" rather than "turnover." MEA (and the ISMP before it) explicitly define a turnover process that includes a period of "joint management."
- It is our opinion that FOs handle maintenance responsibilities about as well as the irrigation agencies. Moreover, it appears that, unless the profitability of paddy farming gets significantly worse, farmers can afford to pay the full costs of periodic maintenance of field channels and distributary channels.
- Some farmers, because of the costs, and some irrigation agency officers, for other reasons, oppose complete turnover of maintenance responsibilities. The government must decide whether it wishes to subsidize irrigated farmers by paying some of the maintenance costs.
- There is a need to consider and plan for some of the consequences of full turnover if the decision to go ahead is made. The most important consideration is planning to repair systems before complete turnover.

Impacts of Participatory Management

- The study found no evidence of improved crop production from participatory management in the short term. Yields have not increased significantly and evidence on area irrigated is unclear. In both cases, it appears that other factors are more important than participatory management. Since participatory management has resulted in an improvement in water distribution, it has lowered the risks of irrigated agriculture, thus improving long term productivity.
- Profitability of irrigated agriculture may have increased to a small extent because some actions of FOs have lowered costs of production. However, profitability appears to be affected far more strongly by factors other than participatory management.
- In real terms government O&M expenditures have decreased over the past several years except in Mahaweli systems where there has been a small increase. However, this decrease has been the product of Treasury limitations rather than participatory management. However, due to participatory management, there appears to have been a small shift from expenditures on distributary channels and below to expenditures on the main system. This should improve the long term sustainability of the systems.
- Under participatory management, water distribution has improved and maintenance appears to be as adequate as before. Since this is being accomplished at lower costs to the government, participatory management appears to make government funds more effective. That is, more is being accomplished at lower cost to the government.

Sustainability: Benefits and Costs

- The major benefits of participatory management to farmers have been a) improving water distribution, and b) giving farmers more influence over government agencies providing agricultural services, particularly irrigation services. The major cost is the burden that falls on the Farmer Representatives. Although a simpler alternative organization of farmers for irrigation management can be conceived that would cost the farmers less, it also would provide less potential and actual benefits and is not recommended. There is a need to a) make government agencies more responsive to FOs and JMCs, b) support FOs in money-making businesses to increase the benefits, c) find a way to lessen the burden on Farmer Representatives or to compensate them for their effort, and d) have government agencies support the FOs in disciplining their members.
- The primary benefit of participatory management for irrigation agency officers is improved relations with farmers and a more pleasant working environment. The primary cost is reduced power and influence over farmers. To motivate officers, they should perceive that they will be rewarded with good evaluations by their superiors if the FOs and JMCs work well.

Conclusion and Recommendations

The major conclusion is that, despite its failure to achieve some of the main goals, participatory management has clear benefits and should be continued and supported. Also, basing participatory management on formal multifunctional farmer organizations and joint management committees should be continued.

Following modifications made at a Workshop held to discuss the conclusions of this study, the specific recommendations made to strengthen the policy are:

Recommendation No. 1

The IIMI/ARTI team recommends that steps to be taken to make government agencies dealing with agriculture more responsive and more supportive of farmer organizations and joint management committees. These steps should include:

- Within each agency, the agency should redefine the job descriptions of officers to reflect the tasks and attitudes needed to provide explicit support for farmer organizations and joint management committees. This redefinition should make certain activities mandatory, including attendance at JMC meetings and providing technical assistance and advice to FOs and JMCs. Reference should be made to the job redefinitions proposed by the Institutional Strengthening Project for the Irrigation Department and to those proposed specifically for Uda Walawe under the Irrigation Management and Crop Diversification Technical Assistance. In particular, the job descriptions of Technical Assistants/Project Managers in MANIS schemes should be redefined to ensure that the TA/PMs have the time and motivation to play their roles as Project Managers effectively.
- (Workshop) An inter-agency committee should be set up to redefine job descriptions and qualifications for staff recruitment.
- Intensive training should be provided to government officers in all relevant agencies about their roles and functions with respect to farmer organizations and joint management committees and about the rights and responsibilities of the FOs and JMCs.
- In order to ensure that officers act in supportive ways, their performance in supporting farmer organizations and joint management committees should be made an explicit part of their performance evaluations.
- The government should make it a policy to support farmer organization and JMC decisions. This may mean delegating greater authority to local agencies so that they can respond effectively to JMC decisions. It also means that government officers should support farmer organization decisions against complaints from individual members.
- (Workshop) The Secretaries of Irrigation and Agriculture should issue a joint declaration of the participatory management policy. The policy should be widely publicized through various media. The Central Coordinating Committee for Irrigation Management should be responsible for planning this effort.
- A major effort should be made to publicize among the farmers the rights and responsibilities of farmer organizations and joint management committees as defined in by-laws to the amended Agrarian Services Act and in the amended Irrigation Ordinance.
- (Workshop) Farmers should be consulted about any future amendments to the relevant legal acts.
- (Workshop) Regular monitoring and evaluation of the progress of the policy should be undertaken, perhaps by the Hector Kobbekaduwa Agrarian Research and Training Institute. An annual workshop should be held to review the performance of the irrigation management policy activities.

Recommendation Number 2

We recommend that catalyst efforts, farmer training, and other direct support activities for FOs and JMCs be continued. These efforts are needed for the following:

- Catalyst efforts are needed to facilitate the organization of farmers in schemes where no farmer organizations exist. Catalysts are also needed to assist agencies and farmer representatives in the creation of joint management committees in schemes where they do not exist.
- Catalyst efforts, training, and publicity should focus on educating all farmers, not just farmer organization leaders, about participatory management. Specific efforts should be made to educate farmers about organizational management, including handling finances, selecting leaders, etc.
- (Workshop) Training should be provided to the farmers at the appropriate time on the functions and responsibilities of the farmer organization during each stage (initial, joint management, and turnover) of farmer organizational development.
- (Workshop) When needs arise, farmer organizations should be encouraged to hire trained persons (e.g. bookkeepers, auditors) to carry out specific organizational management tasks.
- Widespread training about technical aspects of irrigation should be continued.
- (Workshop) The relevant government agencies should make technical information on the irrigation schemes available to the farmer organizations.
- Where special problems exist, e.g. land tenure problems, support efforts should focus on finding solutions to those problems.
- Special efforts should be made to offer opportunities to farmer organizations to take up new businesses. One business that should be fully supported by the government agencies is paddy marketing. Government agencies should assist in establishing linkages to other relevant markets.
- Efforts should be made to prevent development of dependency of the farmers on the catalyst agents as has been reported from some INMAS schemes. This can be done by constant monitoring of catalyst activities; catalysts should not provide direct services but only instruction, advice, and guidance. Catalyst assistance should be time-bound.
- (Workshop) Efforts should be made to mobilize other community members, such as teachers, grama niladhari, and religious leaders in support of participatory management.

Recommendation Number 3

We recommend that alternative organizational forms be developed for the various types of schemes for which the INMAS model is not appropriate.

- (Workshop) Farmer organizations should be organized on the basis of hydrological units whenever possible.

Recommendation Number 4

We recommend that the government clarify the policy on turnover, including defining what powers and responsibilities will be turned over and how the government will continue to support irrigation services. We suggest that the following should be part of this clarification:

- **Turnover should be publicly declared to be a fixed policy that applies to all FOs in all schemes. If necessary, it can be explained that this is an alternative to imposing the irrigation service fee mandated by law.**
- **(Workshop) To ensure an effective and united policy, both agriculture and irrigation should be placed under one ministry. Alternatively, the policy can be implemented and supervised by a unified secretariat under a board drawn from both ministries. These measures will ensure a unified policy.**
- **(Workshop) Funding for farmer organization and turnover activities should be provided on a program basis to deal with the whole sector rather than on a project basis that deals with only a few schemes at a time.**
- **(Workshop) For turnover, farmer organizations must be formally recognized by the government; for this many farmer organizations need to be strengthened.**
- **(Workshop) The irrigation agency personnel in a turned over scheme will be answerable to the Project Management Committee for that scheme.**
- **Operations of distributary channels and below, or equivalent portions of systems without distributary channels, should be turned over to farmer organizations as soon as the channels are repaired to make them operable.**
- **Operations of distributary channel head gates, branch channels, main channels and headworks should be turned over to appropriate level farmer organizations or joint management committees upon the request of the farmer organizations or joint management committees with the proviso that the farmer organizations or joint management committees take full responsibility for hiring, paying, and supervising the necessary operating personnel. The exact details can be negotiated following a request from the relevant group of farmers to the Project Management Committee in each scheme.**
- **(Workshop) For operation of distributary channel headgates, it is suggested that they be jointly operated for a period of less than five years, following which operations should be handed over to farmer organizations.**
- **(Workshop) Farmer organizations should be made responsible for the safety of structures and protecting reservations from encroachments and damage.**
- **Jungle clearing and regular desilting of distributary channels and field channels or their equivalents should be made the unambiguous sole responsibility of farmer organizations; no funds should be provided to farmers for this activity.**
- **The government should come to a decision about how much it is willing to subsidize other aspects of distributary channel and field channel maintenance, including painting and greasing**

of metal controls, major and minor earthworks such as the repairs of scours and washouts, and repair of concrete and masonry structures.

- **(Workshop)** Once the basic decision about the obligations of farmer organizations and government are worked out at national level, specific subsidies and subsidy levels should be worked out at scheme level based on an assessment of needs. These subsidies can include salaries, equipment, operation funds, and others.
- **The mechanism for providing subsidies should be defined.** There are several alternatives ranging from giving the irrigation agency full responsibility and the necessary funds to making the FOs responsible but giving them a simple annual cash grant.
- **The government should define a period of time by the end of which the transfer of responsibilities must be accomplished.** No more than five years following completion of needed repairs should be needed to complete the transfer. During this period, a time of "joint management" should be defined during which the agency officers supervise and assist the farmer organizations in undertaking their responsibilities.

Suggestions for Monitoring the Policy in the Future

As part of the study, the IIMI/ARTI team documented the monitoring and evaluation systems being used by the implementing agencies, interviewed managers about their information needs, developed indicators of key characteristics of farmer organization and joint management committee performance, and tested these in the field in an experiment in improved monitoring.

At present, the Irrigation Management Division uses the Monitoring, Evaluation and Feedback (ME&F) System. A major problem is that many FO office-bearers do not prepare the required monthly reports. The ME&F system has now been introduced in 19 INMAS schemes but data reports are actually being produced only in 10 schemes. Until recently, the Irrigation Department had no regular monitoring of participatory management. Now, various formal and informal initiatives are under way, the most important of which may be the establishment of Irrigation Management Cells (IMACs) in each range office; one of whose functions is monitoring institutional development activities. MEA's Institutional Development Unit (IDU) collects data and reports on various aspects of participatory management. In late 1994, the MASL's Planning and Monitoring Unit began studies with a pilot survey of the strengths and performance of farmer organizations in two Mahaweli schemes.

Based on discussions with managers in charge of institutional development programs, the ARTI/IIMI team concluded that the major weakness that now exists is the lack of good measures for FO status and FO performance that allow quantification and comparison among FOs, schemes, programs, etc.

To help provide quantifiable measures for the purpose of monitoring and evaluating participatory management, the IIMI/ARTI team developed and tested a set of indicators for

- Farmer Organization Strength
- FO Water Distribution Performance
- FO Maintenance Performance
- FO Performance in Non Irrigation Management Activities
- Joint Management Committee Performance

These are given in Annex A. Properly used, the indicators provide a reasonably accurate way to measure FO and JMC progress. To provide an objective way to evaluate the strength and performance of FOs before considering them for turnover, the team suggested a first approximation of minimum acceptable percentage scores for turnover. These numbers can be refined over time as more experience is gained in rating FOs and JMCs.

IIMI discussed with the agencies the possibility of assisting the agencies in improving their M&E systems. Neither the IMD nor MEA were interested. However, the Irrigation Department showed interest and worked together with IIMI to devise an M&E system that may be useful for MANIS schemes. This system was tested at Kaltota scheme in October 1994. The work required simple modifications of the indicators and development of a simple and easy to implement plan for carrying out the monitoring. Such modifications and plan are described in detail in Volume III of this report. The methodology developed seems to avoid present problems with IMD's ME&F system and yet provides accurate data on progress of FOs.

To monitor progress in a large number of schemes, the team considered a number of methods and suggested that a modified version of the recurrent surveys carried out for the study itself would work well. For this purpose, a specialized research institute such as ARTI should be used.

The following thus is recommended:

We strongly believe that the government should have an effective way of keeping track of the progress of FOs, JMCs and turnover. Based on these experiences and findings, we recommend:

- 1. That the IMD modify the ME&F system to solve the problem of dependence on IOs for monthly reports. Specifically, the IMD could reconsider the idea that FOs will be interested in collecting data for themselves and for the IMD. The lessons from the Kaltota experiment may be useful.**
- 2. That the MEA install its monitoring and evaluation system as soon as possible. The indicators may be helpful in this regard.**
- 3. That the Irrigation Department consider developing a recurrent survey-type monitoring program for MANIS schemes based in the IMACs.**

CHAPTER 1

THE PARTICIPATORY IRRIGATION SYSTEM MANAGEMENT POLICY

1.1 The Issue

Sri Lanka has been developing the "participatory irrigation system management policy" since 1979, although aspects of it date from the passage of the Paddy Lands Act in 1958. Much of the development has been through experiments and special projects. In 1988, a Cabinet Memorandum declared the policy official. Since then, the various government agencies involved have developed detailed plans for implementing the policy and some aspects have been codified into law. The Irrigation Management Policy Support Activity strongly recommended that the participatory management policy be made one of the keystones for reform of the irrigated agriculture sector (IMPSA 1992).

Despite this long history, there remain disputes and unclear aspects about how the policy should be implemented and what can be expected from it. This report is a summary of the results of a 2 year study by the International Irrigation Management Institute (IIMI) and the Hector Kobbekaduwa Agrarian Research and Training Institute (ARTI) to evaluate the progress and impacts of the policy in detail so that the government and the implementing agencies can review various aspects of the policy and revise both the policy itself and the programs for implementing it to make it more effective. The study has been supported by Technical Assistance No 1705 from the Asian Development Bank and has been aided by the various government agencies involved in implementing the policy.

1.2 Basics of the Policy

Prior to 1978, all "major" (those whose commands are over 800 hectares) and "medium" (those whose commands are between 80 and 800 hectares) irrigation schemes in Sri Lanka were managed by the Government. That is, government personnel were responsible for operations of the headworks, main and branch channels, distributary channels, and field channels and for maintenance of headworks, main and branch channels, and distributary channels. Funding for management of these schemes was derived from general government revenues; no irrigation fee was charged to farmers.

Under pressure from international donors and as part of other attempts to improve irrigation management, the government imposed an irrigation service fee in 1984 to improve the funding position of O&M and thus the sustainability of the system. Although the collection rate for the first year was good, it declined thereafter as some of the promises made to farmers remained unfulfilled and as unrest increased in the countryside due to the JVP disturbances.

In 1988, the government adopted the "participatory irrigation system management policy." As defined in a Cabinet Paper, full responsibility for operations and maintenance (O&M) and for resource mobilization of field channels and distributary channels of the major irrigation systems is to be turned over to farmer organizations. In return, farmers would be exempted from payment of the irrigation service fee. The government would retain responsibility for O&M of the headworks and main systems.

There are two primary goals of the policy:

1. Improved productivity of the irrigation schemes through management by farmers. The underlying idea is that farmers have the information, ability, and incentive to manage the system to better serve crop needs.

2. An increased share of O&M expenditure borne by the farmers. Transferring a portion of the O&M responsibilities to the farmers should help relieve pressure on the government budget.

Since that time, the effort to collect the irrigation service fee has been stopped, while the effort to implement participatory management has continued and been strengthened.

1.3 The Three Programs

The INMAS, MANIS, and Mahaweli programs are the government's main means for implementing participatory management.

- **INMAS** The Integrated Management of Major Irrigation Schemes (INMAS) program began in 1984 under the newly created Irrigation Management Division (IMD) with the cooperation of the Irrigation Department. INMAS was the result of several experiments that showed the potential of organized farmer involvement in irrigation system management. Schemes brought under INMAS (originally 48, since reduced to 35) include most of the large schemes in the country.
- **MANIS** The INMAS program deals only with larger schemes and does not include the medium schemes. Therefore, in 1986 the Irrigation Department created the Management of Irrigation Schemes (MANIS, now referred to as WAPHAULA) program to serve the needs of the medium schemes. The basic organization and objectives of MANIS are the same as those of INMAS except that it is managed solely by the Irrigation Department.
- **Mahaweli** In 1977, the Mahaweli Authority of Sri Lanka (MASL) took over the construction, development, settlement, and operation of several very large irrigation schemes. Operation of the schemes was entrusted to the Mahaweli Economic Agency (MEA). Since 1980, MEA has been experimenting with ways to encourage farmers to take greater part in system O&M. These experiments have not had much success. In 1992, the MEA adopted an organization similar to that developed for INMAS and is now implementing it throughout its schemes.

Although not one of the three programs focusing on irrigation management, personnel from the Agrarian Services Department have also been directly involved in creating and strengthening farmer organizations in many major and medium irrigation schemes. Also, various private voluntary organizations have been involved in some specific schemes.

Of the 270 major and medium schemes, 199 have been effectively included in the three programs. Most of the remainder are located in security areas. Of these, 160 schemes are included in the MANIS list. The Irrigation Department divides the MANIS schemes into 3 classes based on the amount of effort expended so far. MANIS Class C schemes have had very little effort. Therefore, at the request of the Irrigation Department, MANIS schemes were divided into two groups: those in classes A and B on the one hand, and those in class C on the other. Table 1.1 gives the distribution of major schemes among the program categories.

Table 1.1: Schemes in the Three Programs

Program	# of Schemes	Total Command Area	Average Command Area
Mahaweli	4	121,000 ha	30,250 ha/ scheme
INMAS	35	197,000 ha	5,629 ha/scheme
MANIS	160	59,000 ha	369 ha/scheme
Total	199	377,000 ha	

1.4 Components of Participatory Management

Since 1992, when the MEA adopted the INMAS approach, all three programs have been using the same basic model for participatory management. Figure 1.1 shows the INMAS model scheme management structure. This structure has the following components and features:

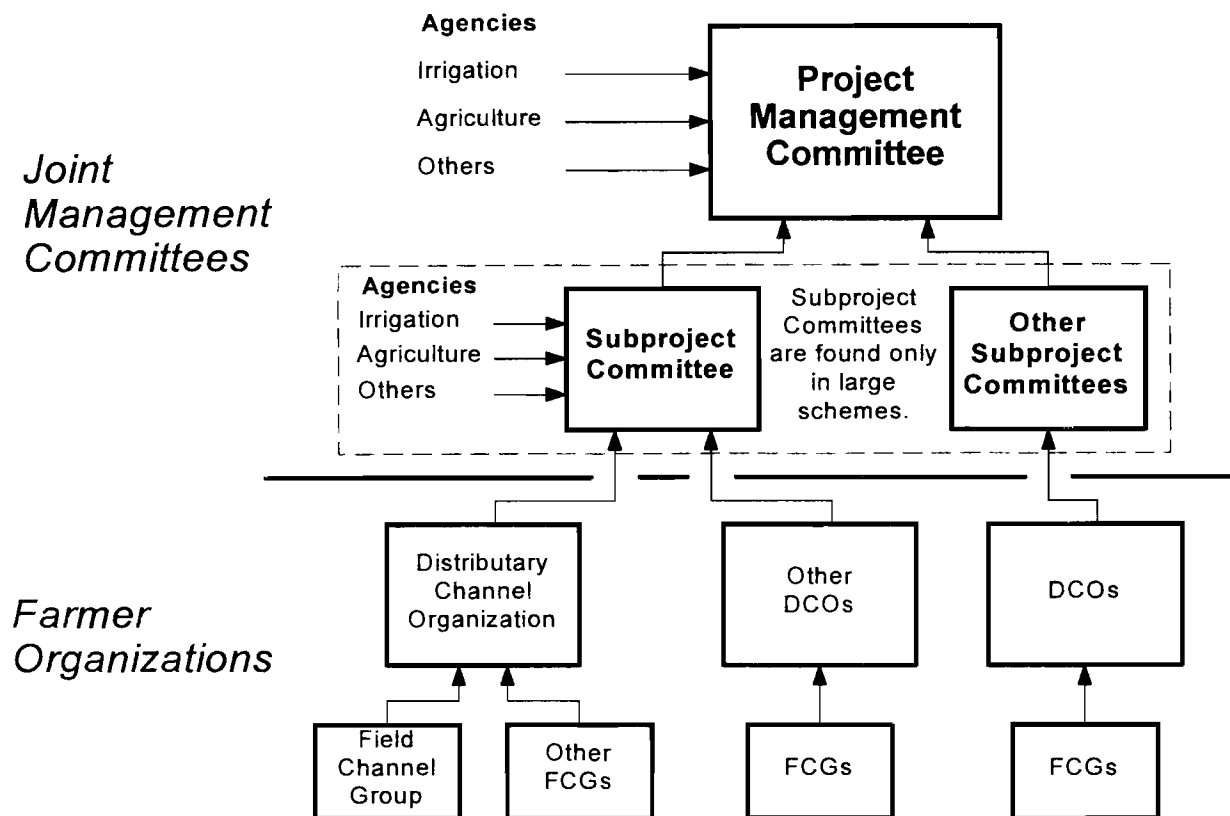
- 1. Farmer Organizations** Hydrologically based farmer organizations (FOs) are fundamental to the scheme. FOs' basic functions are to deal with irrigation matters, but they are not limited to irrigation matters. Most FOs consist of informal Field Channel Groups (FCGs), each of which selects a Farmer Representative (FR) who sits on a committee that governs the Distributary Channel Organization (DCO). The DCO is considered the legal farmer organization. In some schemes, farmers have federated the DCOs into System Level Farmer Organizations (SLFOs).
- 2. Joint Management Committees** Each scheme has a structure of Joint Management Committees (JMCs) on which sit officers from the relevant agencies and Farmer Representatives. Minimally, every scheme has one committee, generally called a Project Management Committee (PMC). The PMC is responsible for preparation of the seasonal plan, including allocating water to different parts of the system according to the crop plan, and deciding upon an overall schedule of operations. In addition, the PMC attempts to coordinate efforts among agencies, improve communication and resolve problems between farmers and agencies, and resolve disputes among DCOs. Larger schemes have lower level joint management committees, generally called Subproject Committees, to deal with irrigation and other problems of smaller units within the scheme.
- 3. Turnover** Once the FOs and JMCs are established and considered capable of handling the responsibilities, the irrigation agency formally assigns ("hands over") the full responsibilities for operations and maintenance (O&M) on the distributary channels and field channels to DCOs. The agency retains responsibility for O&M of headworks, main channels and branch channels.

Table 1.2 contrasts the assignment of management responsibilities before participatory management with the proposed assignment under participatory management.

Table 1.2: Comparison of Pre-Participatory Management and Participatory Management Systems

Management Function	Pre-Participatory Management	Participatory Management
1. Seasonal planning	Done by agencies and ratified at kanna meetings	Done by P MCs
2. Operations planning	Done by agencies, basic plans ratified by kanna meetings	Done by agencies, basic plans ratified by PMCs
3. Headworks, main channel, branch channel operations	Carried out by irrigation agencies	Carried out by irrigation agencies
4. Distributary channel operations	Carried out by irrigation agencies	Carried out by FOs after turnover
5. Field channel operations	Carried out by irrigation agencies	Carried out by FOs
6. Headworks, main channel, branch channel maintenance	Planned and carried out by irrigation agencies	Carried out by irrigation agencies in priority order determined by PMCs
7. Distributary channel maintenance	Planned and carried out by irrigation agencies	Planned and carried out by FOs after turnover
8. Field channel maintenance	Done by individual farmers under direction of the <i>Yaya Palakas</i> of the Agrarian Services Department	Done by FOs

Figure 1.1: The INMAS Organization Model



1.5 Objectives and Methodology of the Study

As stated in the Technical Assistance Agreement, "the objective of the Technical Assistance is to assist the Government and the irrigation agencies in the implementation of the Government's new participatory irrigation system management policy through a comprehensive monitoring and evaluation of the Turnover Program being implemented under this policy."

The Terms of Reference for the study incorporate a series of activities that focus on two items:

- Evaluation of the progress and impacts of the participatory management policy with an eye towards changing the policy and programs to make them more effective.
- Development of methods by which the government can improve its monitoring and evaluation of the progress and impacts of the participatory management policy.

In order to carry out the evaluation of progress and impacts, the IIMI/ARTI team undertook three data collection efforts: Recurrent Surveys of 30 FOs in 18 schemes from the three programs, Process Documentation for six FOs in six schemes from the three programs, and a Large Scale Survey that covered 51 schemes and 172 FOs in the three programs. In addition, other sources and a few small special

studies were undertaken to deal with particular issues. Detailed descriptions of the methodology and selected field sites are given in Volume II of this report.

To improve monitoring and evaluation methods, IIMI conducted a small survey of field managers and others to determine information needs and the current sources of information. In addition, the IIMI/ARTI team gave considerable thought to measures and indicators of important characteristics of participatory management. Although IMD and MEA declined, IIMI cooperated with the Irrigation Department in an experiment to devise an improved field data collection and analysis method for monitoring and evaluation. The methods used and the results are given in Volume III of this report.

1.6 Organization of the Report

The overall report is divided into three volumes:

- Volume I is this report. It summarizes the main results of the study, including the major conclusions and recommendations.
- Volume II presents the detailed results of the evaluation of progress and impacts of participatory management.
- Volume III presents the results of the investigation into ways to improve the monitoring and evaluation of the participatory management policy.

The current volume is organized according to the major components of the participatory management policy. Thus

- Chapter 2 deals with the status of farmer organizations,
- Chapter 3 covers the status of joint management committees,
- Chapter 4 covers the status of turnover,
- Chapter 5 deals with agency support for participatory management,
- Chapter 6 deals with impacts on agricultural production, income, and government finances,
- Chapter 7 discusses sustainability concerns,
- Chapter 8 synthesizes these findings into a series of major conclusions and recommendations,
- Chapter 9 summarizes the findings on monitoring and the suggestions for monitoring the policy in the future.

CHAPTER 2

FINDINGS ON FARMER ORGANIZATIONS

2.1 Organized Schemes

The study found that farmer organizations (FOs) are widespread. Of the 51 schemes selected for the Large Scale Survey, two, both MANIS C schemes, were not visited because of security concerns. Of these 49 schemes, four MANIS C schemes were not working schemes and two others did not have farmer organizations. Both schemes without FOs were Wet Zone drainage schemes. Also, one MANIS AB scheme (with FOs) had been incorporated into an INMAS scheme and was removed from the sample. All sampled INMAS and Mahaweli schemes had farmer organizations. If we extrapolate from these findings, we see that

- all 35 INMAS schemes have farmer organizations,
- all 59 schemes on the MANIS AB list have farmer organizations, although some may no longer be separate schemes,
- about 71 of the 101 schemes on the MANIS C list have farmer organizations although some other schemes on the list may not be functioning schemes, (14 of the 20 sampled schemes have farmer organizations: $14/20 \times 101 \text{ schemes} = 70.7$),
- all four Mahaweli schemes have farmer organizations.

Altogether, then, we project that approximately 169 or 85% of the 199 schemes included in the three programs have farmer organizations. These findings also suggest that the majority of the MANIS C schemes that do not have FOs are schemes are not functioning. The truly surprising finding is that so many FOs have been formed in both MANIS AB and MANIS C schemes despite the relative lack of effort.

In some schemes, not all the farmers are yet organized into FOs. Officers reported plans to create additional FOs in six of the 42 schemes with FOs in the Large Scale Survey. These included two Mahaweli schemes, one INMAS scheme, and three MANIS AB schemes. The largest number of FOs yet to be created per scheme was five and the largest percentage was 60%.

In most of the schemes where no FOs were reported, other mechanisms exist for farmer involvement in irrigation management. The most common such mechanism is the Vel Vidane (sometimes called "irrigation headman"). In some schemes, both Vel Vidanes and FOs exist. One such scheme is Mannankattiya, one of the Process Documentation schemes.

2.2 Farmer Organization Number and Size

Table 2.1 shows the average number of FOs per scheme, and the average area per FO for the schemes included in the Large Scale Survey (LSS). As expected, the number of FOs per scheme varies widely because of the large differences in the sizes of the schemes. Mahaweli schemes average over 175 FOs per scheme, INMAS schemes average about 15 FOs per scheme, MANIS AB schemes have about 6 FOs per scheme while the MANIS C schemes with FOs have about 4 FOs per scheme. There are a significant number of MANIS schemes that have only one FO.

Table 2.1: **Numbers and Areas of Farmer Organizations**

Program	Average FOs per Scheme	Range	Average Area per FO (ac)	Range (ac)
INMAS	16	6-56	464	231-1000
MANIS AB	6	3-15	141	73-210
MANIS C	4	1-20	206	77-500
Mahaweli	178	124-226	309	272-338

The average area reported per FO also varies. The LSS shows that INMAS has the highest average, somewhat over 460 acres per FO area. Mahaweli has a bit over 300 acres per FO; while MANIS schemes average between 140 and 200 acres per FO. The large area per FO for INMAS schemes is largely due to two schemes: Gal Oya Right Bank where 1000 acres per FO is found, and Padaviya where 862 acres per FO is found. Without these two the average area become comparable to the average for Mahaweli FOs.

Table 2.2 shows the total numbers of farmers and numbers of FO members reported from the Large Scale Survey schemes. Office bearers in both Mahaweli and INMAS FOs reported that an average of over 70% of the potential members are actual members. Of these, about 58% are reported to be "active" members. Office bearers from MANIS AB schemes and MANIS C schemes reported that an average of 53% of the potential members are actual members and an average of 52% of those members are "active." In our opinion, based on the Recurrent Survey and Process Documentation data, the membership and active membership figures reported by the office bearers are too high.

Table 2.2: **Farmer Organization Membership by Program**

Program	Sample FOs	Farmers	Members	Farmers per FO	Members per FO	% Members
INMAS	60	10,483	7,709	175	128	74 %
MANIS AB	22	3,101	1,648	139	75	53 %
MANIS C	23	2,784	1,471	121	64	53 %
Mahaweli	63	7,230	5,118	115	81	71 %

2.3 Higher Level Farmer Organizations

INMAS has begun to federate FOs based on distributary canals into higher level organizations, generally system level farmer organizations (SLFOs). Of the 12 INMAS schemes sampled in the LSS, seven reported the existence of SLFOs. None of the other programs have SLFOs. However, in many smaller MANIS schemes there is only one FO for the whole scheme.

The farmer leaders identify the functions of the SLFOs as: a) dealing with system level irrigation problems, b) providing input supply services, c) providing marketing services, and d) representing the interests of the farmers in meetings with politicians and high level government officers. These are the same as the functions of the FOs except on a larger scale and at a higher level. To date the SLFOs, except in a few cases, have not been very active. Most are quite new.

In a few schemes other types of higher level organizations have been found, including main canal farmer organizations (Rajangana), commercially oriented farmer organizations (System B and C), and others. None are widespread and, to date, none have been very successful.

2.4 Farmer Organization Water Distribution Performance

The study found that FO water distribution performance on distributary and field channels is generally good and, combined with improvements brought about by other aspects of participatory management, has improved water distribution in most schemes.

Water Distribution Problems Head-tail differences in water availability exist in the schemes during some seasons even when overall water supply is adequate. Table 2.3 shows that irrigation officers in the majority of schemes sampled in the Large Scale Survey for all three programs reported major differences in water availability between the heads and tails of the systems. Observations from the Recurrent Survey and Process Documentation sites agree. Overall, then, over half of all schemes have some serious problems of water distribution among the different parts of the schemes.

Table 2.3: Head-Tail Differences in Water Availability

Program	Sample	# of Sample Schemes	Schemes with Head-Tail Problems	% of Sample
INMAS	LSS	12	7	58 %
	RS/PD	7	5	71 %
MANIS AB	LSS	12	10	83 %
	RS/PD	11	7	64 %
MANIS C	LSS	14	10	71 %
Mahaweli	LSS	4	3	75 %
	RS/PD	2	1	50 %

These distribution problems are due to various factors. Table 2.4 shows the problems cited by irrigation agency officers during the LSS. From this table, it is apparent that scheme physical deficiencies and lack of O&M funds are the major identified causes, except in Mahaweli schemes. Poor farmer-officer cooperation is seen as a problem in the majority of Mahaweli schemes and seems to be a problem in a significant number of MANIS AB schemes but not in the other schemes. The large percentage of "other" answers for Mahaweli schemes refers to two schemes reporting inadequate planning as a problem. This was one among a wide variety of other answers in MANIS C schemes.

Table 2.4: Major Causes of Water Distribution Problems

Program	Causes (See list below for Key)*					
	A	B	C	D	E	Others
INMAS	8 %	50 %	8 %	75 %	17 %	17 %
MANIS AB	45 %	82 %	27 %	91 %	36 %	27 %
MANIS C	29 %	71 %	14 %	43 %	21 %	50 %
Mahaweli	25 %	25 %	25 %	25 %	75 %	50 %

* Multiple answers mean that the numbers add up to more than 100%. Numbers of schemes are: INMAS-12, MANIS AB-11, MANIS C-14, Mahaweli-4.

Key: A - Inadequate water supply
 B - Physical deficiencies in the system
 C - Poor agency water distribution performance
 D - Inadequate O&M funds
 E - Poor farmer-officer cooperation

Inadequate O&M funds generally lead to poor system maintenance, causing physical problems with the system. The RS and PD data confirms that poor physical conditions and design deficiencies in many schemes cause major problems in distribution within the schemes. On the other hand, several management problems also emerged that were not related to poor physical condition.

Water Distribution Responsibilities In general, except in Mahaweli schemes, FOs take responsibility for operation of field channel headgates and for operations on field channels, including scheduling deliveries to the field channels whenever such scheduling is carried out. In Mahaweli schemes, MEA officers generally operate all gates though many now do so in cooperation with farmers.

Farmers and FOs are, in a few schemes, also directly involved in main system operations. For example, in Mannankattiya, a MANIS scheme, the main sluices and all downstream gates have for a long period been operated by Vel Vidanes. The four FOs under Abakolawewa Tank in Mee Oya, an INMAS scheme, have now taken over the full operation of the tank and the distribution below it.

Farmer Satisfaction with Water Distribution In the Large Scale Survey, we questioned farmers about the adequacy, timeliness, and reliability of water delivery to their farms. The results are shown in Table 2.5 and in Figure 2.1.

Table 2.5: Farmer Opinions of Farmer Organization Water Distribution Performance

Location within FO Area	Stage of Season	Indicator	INMAS		Mahaweli		MANIS AB		MANIS C	
			N	%	N	%	N	%	N	%
Head	Crop Growth	Adequacy	52	85	58	92	18	78	9	36
		Timeliness	51	84	58	92	18	78	9	36
		Reliability	51	84	57	90	18	78	9	36
Tail	Crop Growth	Adequacy	43	70	34	54	15	65	6	24
		Timeliness	37	61	41	65	15	65	6	24
		Reliability	38	62	44	70	15	65	6	24

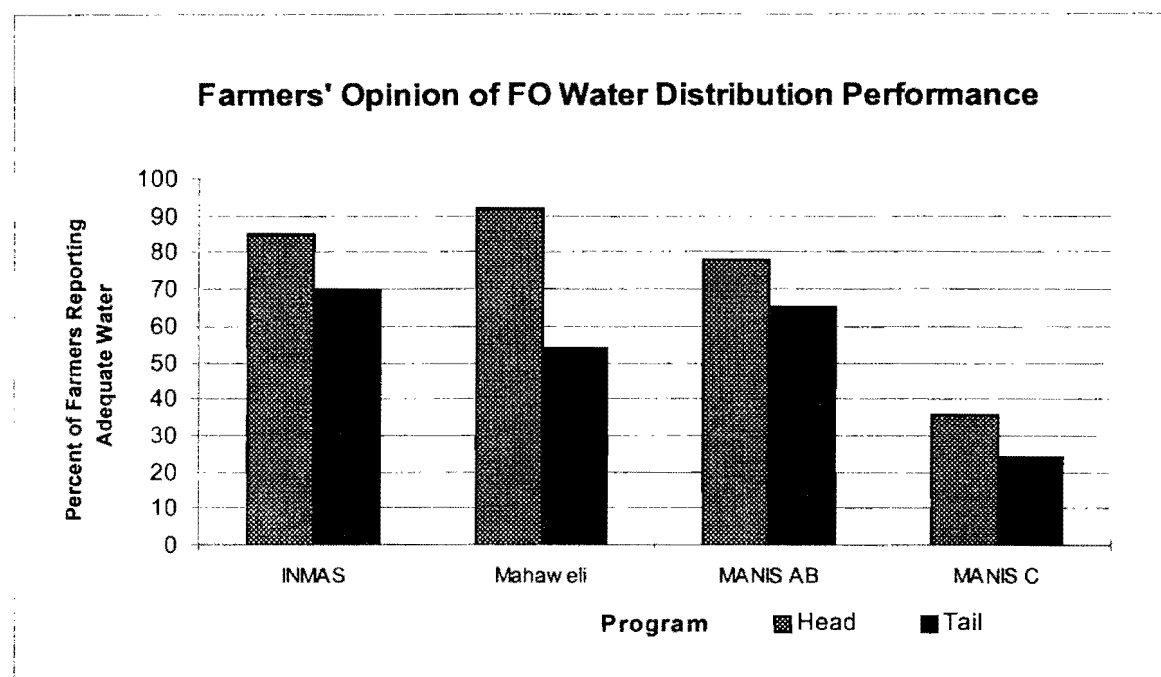
These results can be summarized as follows:

- The majority of farmers in INMAS, Mahaweli, and MANIS AB schemes are satisfied with water delivery performance as measured by all three indicators.
- The majority of farmers in MANIS C schemes are not satisfied with water distribution performance. This indicates either that FOs do a poor job of water distribution or the agency does a poor job of distributing water to the FOs or both. RS and PD data donot help to explain which because none of the RS or PD sites fell into the MANIS C category. One probable explanation is that poor physical conditions make it difficult for both the agency and the FOs to deliver water efficiently.
- As expected, satisfaction was higher in head areas of the FOs than in tail portions of the FOs. The implication is that water distribution is not fully equitable within the FO area.
- Differences in satisfaction between head and tail are somewhat greater in Mahaweli schemes than in INMAS and MANIS schemes. This implies that Mahaweli FOs do a poorer job of distributing water equitably than do either INMAS or MANIS FOs. It is quite likely that the reason is because MEA Irrigators are more directly involved in water distribution within FO areas than are ID employees in INMAS and MANIS schemes.
- The difference in satisfaction between head and tail farmers in MANIS C schemes is small. This suggests that poor distribution is found throughout the FO areas.

These results indicate that FOs in INMAS, MANIS AB, and Mahaweli schemes are reasonably effective in water distribution. These findings agree with the 74% of the irrigation agency officers questioned during the LSS who said that participatory management has improved water distribution (See Figure 2.2).

As is implied in Table 2.5, detailed observations of FO water distribution in a few selected schemes shows that equity between head and tails of distributary and field channels is not maintained fully (see Annex C in Volume II). Generally, FOs are able to maintain partial equity among their members. The relative importance given to water distribution was observed to have changed over the study period, particularly in Mahaweli schemes where several FOs began to take greater interest as time went on. This seems to have occurred as it was made clear that O&M would be turned over to the FOs and farmers come to know rehabilitation would be forthcoming.

Figure 2.1: Farmer's Opinions of FO Water Distribution Performance (Adequacy)



2.5 Farmer Organization Maintenance Performance

Because the major irrigation systems were built by the government, maintenance of most portions of these systems has been the responsibility of the irrigation agency in the past. Maintenance of the field channels and below has been the responsibility of the farmers. However, with increasing budgetary constraints, the irrigation agency found it difficult to maintain irrigation systems. Under participatory management, maintenance of distributary channels and below has become the responsibility of the farmer organizations.

Maintenance Planning Planning for maintenance was the task of the irrigation agency prior to participatory management. Now, in INMAS schemes, DCO members identify and prioritize maintenance needs and forward the list to the JMC. At the JMC, DCO requests are discussed and further prioritized and forwarded to the Irrigation Department for implementation. This process was

not observed in MANIS systems, largely because FOs and JMCs are not as well developed as in INMAS schemes. In most MANIS schemes, there was no systematic planning of maintenance. In Mahaweli schemes, the JMCs are directly involved in maintenance planning.

Implementation of Maintenance There are two major maintenance activities carried by FOs: jungle clearing and desilting. FOs are expected to desilt and clear the weeds (jungle) from their own FCs by themselves. In most INMAS and MANIS systems, clearing DCs has become the duty of the FOs. Desilting of DCs is sometimes done by FOs. Besides these major activities, FOs are also expected to attend to small repairs, including undertaking minor earthworks such as bund fillings, and oiling and greasing of canal gates. All activities other than FC cleaning and desilting are done on the basis of a contract with the irrigation agency.

Besides undertaking FC and DC maintenance, the FOs in some instances have undertaken main canal (MC) maintenance. MC maintenance activities were found in several RS and PD schemes, including two INMAS schemes and most of the MANIS schemes. In most cases, MC maintenance works were undertaken on contract with the ID. However, there were cases where MC maintenance had been done by FOs without payment. FOs have even attended to service road maintenance as reported from Rajangana and some Mahaweli systems. Clearly, FOs can undertake maintenance activities beyond simple cleaning and desilting of FCs and DCs.

These cases show that most farmer organizations, particularly those in INMAS and Mahaweli schemes, now have the capability of handling maintenance work provided it answers a felt need or the financial resources are forthcoming.

Quality of Maintenance Clearing and desilting of FCs and DCs undertaken by the FOs alone or together with the agencies are reported as satisfactory. This appears to be a major improvement over the situation prior to participatory management. Earlier, a common complaint from farmers was that the quality of clearing and desilting was inadequately done. Most agency personnel agree that this was the case. Agency maintenance laborers responsible for jungle clearing only cleared the vegetative overgrowth. FOs completely clean the vegetation so that it will not grow again during the season. For desilting, FOs request the assistance of the irrigation agency where silt deposition was excessive. Such a request was reported from Muthukandiya after the 1993/1994 Maha rains.

Problems exist. It is found that where the FO assigns sections of the canal to individual farmers, some farmers complain that their sections are too large and do not do all of it or do a poor job of it. In other places, farmers who get little water refuse to do anything. Many of the FOs report difficulties in dealing with these problems. Overall, however, the problems are fewer than the successes. These comments apply only to jungle clearing and desilting. Other maintenance activities, such as structure repair, are not routinely undertaken by FOs.

Of the FO office-bearers interviewed for the LSS, 90% from INMAS schemes, 82% from Mahaweli schemes, 90% from MANIS AB schemes, and 53% from MANIS C schemes were satisfied with the quality of maintenance carried out in DCO areas. To further improve maintenance, most respondents said that their FOs need additional funds. In MANIS C systems, training and technical know-how were also identified as important aspects to improve maintenance. In Mahaweli, training was identified as a needed input to improve maintenance.

Table 2.6: **Impact of Participatory Management on System Maintenance**

Impacts	INMAS	MANIS AB	MANIS C	Mahaweli
Improved maintenance	42 %	75 %	50 %	25 %
Worsened maintenance	17 %	8 %	-	-
No change	33 %	17 %	29 %	25 %
No response	8 %	-	21 %	50 %

Table 2.6 and Figure 2.2 show the opinions of the irrigation officers from the LSS sample schemes about the impact of participatory management on maintenance. A majority of ID officers in MANIS AB systems and half or almost half in INMAS and MANIS C schemes felt that participatory management has improved maintenance. This improvement refers primarily to improved farmer contributions (cash and kind) in maintenance and better organization of maintenance activities. These factors assist ID officers to perform maintenance better. The inference is that ID would not have been able to maintain the system in the present condition without participatory management. Note that the low number of responses from Mahaweli schemes (only 4) makes the Mahaweli responses shown in Table 2.6 not very meaningful. As shown in Figure 2.2, irrigation officers' opinions of the impact of participatory management on maintenance are significantly less favorable than their opinions of the impact on water distribution.

To improve maintenance, about half of the Irrigation Department officers interviewed in the LSS felt that rehabilitation was required; the others felt that additional funds were needed. None identified the problems as ones of management of resources. One would expect a felt need for rehabilitation from MANIS schemes where no physical rehabilitation had been done in the recent past. Surprisingly, though, this opinion was also expressed by some officers from INMAS schemes which have had recent rehabilitation. From the LSS sample, officers from Rajangana which was rehabilitated under MIRP and from Ridi Bendi Ela which was rehabilitated under ISMP expressed the opinion that further work was needed on the distributary and lower level channels. Kaudulla, an RS site, also rehabilitated under ISMP, reportedly has the same problem.

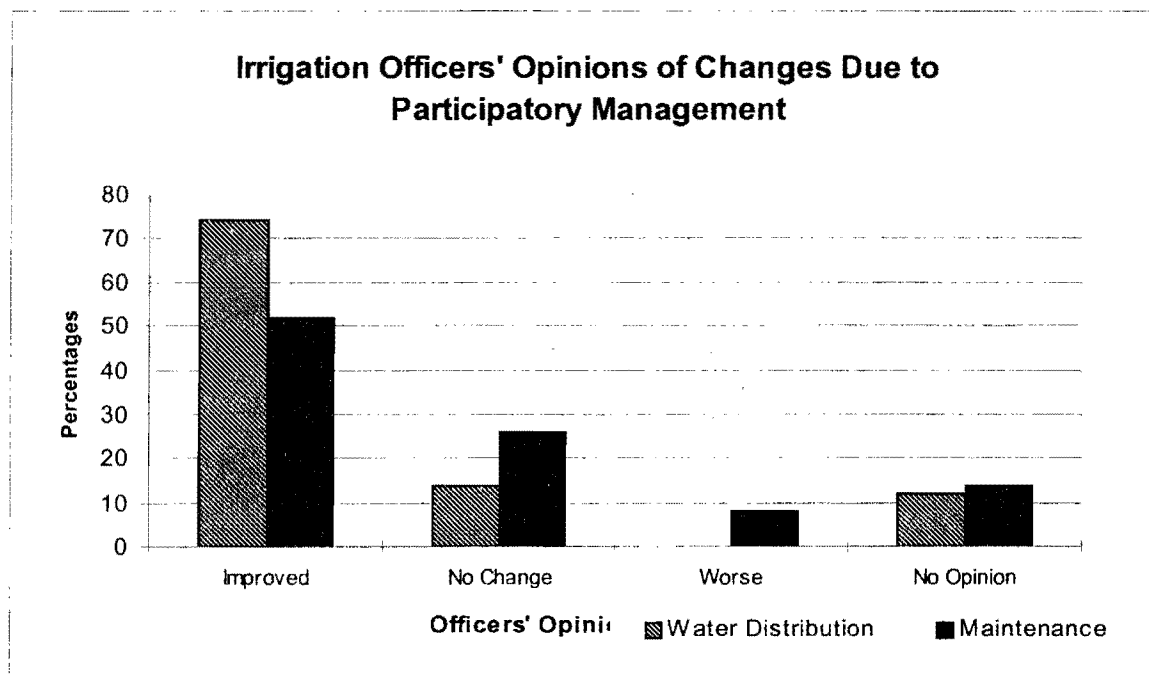
It may be that some rehabilitation work was not done well enough so that farmers could manage the channels easily. Some farmers complain that their participation in planning and design was not sought for much of the recent rehabilitation work. Also, in the recent rehabilitation projects, the concrete work was done by the agency but most of all the earth work was left for the FOs. As there was little guidance from the agencies on this earthwork, some concrete structures are now deteriorating faster than expected. This situation has been reported strongly by Kaudulla DCOs. The Kaudulla PMC passed a unanimous resolution to petition the Irrigation Department to take back all the DCs handed over to them in 1992. The systems should have been rehabilitated with explicit farmer participation. Only then can the ID demand better maintenance by the FOs.

Operation and Maintenance Allocation In many systems, farmers, as well as irrigation agency officers, complain of inadequate O&M funds, particularly for maintenance activities. Usually the funds allocated for O&M are about half of the estimates submitted. Present O&M allocations are insufficient for the irrigation agencies to maintain the systems without the cooperation of FOs. The irrigation agencies complain that other maintenance costs, e.g. for vehicles, buildings, etc., have to come from the same O&M allocation. The problem of insufficient allocations has been partly "solved" by contracting with FOs for DC maintenance work but paying them less, often much less, than the work would cost if all of the labor were paid for. The presumption is that the FOs will carry out the work out of self interest. Under this situation, FOs often complain of inadequate payment for the work performed. FOs cannot always perform maintenance by shramadana. FOs at times have to hire labor to carry out

maintenance. The O&M allocation from the irrigation agency aids the FOs in this situation. Many officers and farmers assert that FOs lack the funds to supplement O&M allocation shortfalls.

Farmers have come to expect the maintenance allocations from the government. Some farmers are of the opinion that if the systems can be properly rehabilitated with full farmer participation, the FOs may be able to maintain the systems without O&M allocations. However, the farmers also say that major repairs must continue to be the responsibility of the irrigation agency.

Figure 2.2: Irrigation Officers' Opinions of Changes Due to Participatory Management



2.6 FO Non-Irrigation Activities

2.6.1 Business Activities

Many FOs have taken up business activities, particularly agricultural service activities. The number is still a minority; during Yala 1994, 22% of the Mahaweli sample FOs, 45% of the INMAS sample FOs, 5% of the MANIS AB sample FOs, and 16% of the MANIS C sample FOs have taken up one or more businesses. The RS and PD studies, however, made it clear that the number involved varies from year to year as FOs take up, drop, and take up businesses again. It is clear that INMAS FOs are far in the lead. However, the MEA has recently made it a priority to help the FOs take up these businesses.

The most popular business is selling fertilizer (37% of INMAS FOs and 16% of Mahaweli FOs). A few (15% of INMAS FOs and 13% of Mahaweli FOs) have gone into paddy marketing. Several of the FOs have taken up supplying seed, not just for paddy but for other crops as well. The study found that these activities are generally carried out effectively. However, the FOs often depend upon assistance from the government agencies for such things as warehouses for fertilizer and other supplies.

Some FOs have hired out agricultural implements to members. Most frequently, these are tractors purchased by the FO from the Department of Agrarian Services. This facility is provided by the

Department to recognized and effective organizations. Profits earned after paying for the tractor are given to the FO fund. Other implements such as sprayers and water pumps are also hired out to FO members. Eksath FO in Dewahuwa has started special projects such as a Highland Development Program and Animal Husbandry Program under which cashew and coconut are grown.

2.6.2 Construction Contracts

The commissions and profits obtained from the rehabilitation and maintenance contracts given by the agencies have made a major contribution to FOs. Data reported by LSS FO office-bearers shows that, 56% of INMAS FOs, 29% of MANIS AB FOs, 42% of MANIS C FOs, and 60% of Mahaweli FOs undertake such contracts. A major portion of FO funds is earned from O&M contracts given by agencies. In addition to the income that can be earned by this activity, farmers also gain experience in maintenance of their systems.

There are different methods by which these contracts benefit FO funds. LSS sample FO office-bearers reported that, in INMAS and Mahaweli systems, 54% and 32% respectively of the FOs undertake the contracts as organizations. In this case, the full profit goes into the FO fund. The other major method is to subcontract the work to individual farmers or others. In this case, a commission, generally 5% of the estimated cost, is given to the FO fund. Subcontracting is relatively more common in MANIS schemes than in INMAS or Mahaweli schemes. The FOs give subcontracts because of the inability of the FO to organize farmers to do the required work. Some cases where FO office-bearers have taken subcontracts have given rise to criticism from FO members as they feel that the commission is generally never remitted to the fund. Examples were found by the RS and PD studies in Thewanuwara FO at Tabbowa and Thissara FO at Muruthawela. In Diyawiddagama FO in Mahaweli System C, the FO President undertook subcontracts without informing the FO. In Talawa and Mahawelitenna DCOs in System H, commissions from contracts undertaken by the leaders were not found in the funds.

2.6.3 Credit

A minority of FOs are involved in helping to provide credit to their members. Credit has been mainly given for agricultural purposes and for the purchase of agro-chemicals and fertilizer. None of the FOs have the required funds to give loans to the farmers except for some Mahaweli DCOs. Help with credit was reported in the LSS from 25% of Mahaweli FOs, 23% of INMAS FOs, 25% of MANIS AB FOs, and 13% of MANIS C FOs. Over half of these FOs provide guarantees for members for loans from banks and other agencies. In some areas, however, banks no longer accept FO guarantees. Slightly less than half of the FOs involved in credit also arrange loans for members through the FO, generally from the Agrarian Service Centres.

2.6.4 Social and Religious Activities

A large majority of FOs in Mahaweli and INMAS schemes undertake social and religious activities for the welfare of the communities; 78% of the Mahaweli sample FOs and 74% of the INMAS sample FOs do so. Of MANIS schemes, only 46% of MANIS AB schemes and 38% of MANIS C schemes report such activities. These activities include performing religious rituals for the community, building community halls, undertaking community health programs, creating women's associations, and many others.

Some of the FO leaders in the Mahaweli schemes complain that they are forced to take on social development activities by the MEA for Mahaweli Week. For example, in 1994 the MEA tried to get every FO to build a house for a poor resident of the area. This is not a spontaneous activity.

2.6.5 Problems with Non O&M Activities

Non-O&M activities, particularly business activities, require enhanced organizational capabilities to be sustainable. Many FOs started such activities without proper guidance and directions. This has led, in some cases, to ad hoc management and creation of various problems among members of the organizations.

2.7 Farmer Organizational Strength

The study formulated a measure for "Organizational Strength" in order to evaluate the ability of the FO to make decisions and mobilize its members and their resources to undertake tasks. The measure combines an evaluation of the conceptual basis, the performance, and the outcome of basic activities needed to keep the FO functioning as an organization. These activities include recruiting members, selecting leaders, making decisions, handling funds, mobilizing membership for group activities and communicating between leaders and members. Some problems clearly identified were:

- Most FOs make use of a constitution developed by one of the government agencies. Most FOs in Mahaweli schemes and many in MANIS schemes use a constitution developed by the Agrarian Services Department. Most FOs in INMAS schemes and many in MANIS schemes use a constitution developed by IMD. There has been relatively little attempt to tailor these constitutions to local needs and wants.
- One problem with the two model constitutions is that they specify that legal landowners or allottees are potential members. However, in some schemes, sharecroppers, renters, and encroachers make up a sizable portion of the farmers. This creates a problem in recruiting members.
- According to the INMAS model, FOs are supposed to have field channel groups (FCGs) as internal groupings to have smaller and more manageable groups to carry out activities and as a means for selecting the Farmer Representatives (FRs) that govern the FO. In the LSS, 70% of INMAS FOs, 94% of Mahaweli FOs, 17% of MANIS AB FOs, and 8% of MANIS C FOs report the existence of FCGs. The lack of FCGs in MANIS schemes is due to two factors: a) the lack of distributary canals and field channels on which to base these groupings, and b) low effort expended in organizing FOs. The INMAS procedure calls for organizing the FCGs first. But this procedure requires a great deal of effort. Many Project Managers have chosen to get an FO started by having FRs selected in some other way, such as through a general meeting, apparently with the intention of organizing subgroups at a later time when more personnel become available to work with the FOs. Surprisingly, 30% of INMAS FOs do not have FCGs. One would expect a higher percentage in the INMAS schemes because of the much longer organizing period. Two factors seem to be at work in INMAS schemes: a) in some schemes IMD assigned Project Managers without other support and they followed the easier organizing approach, and b) in some schemes, FCGs have withered away as all government support and help has come to be focused on the DCOs. In some INMAS FOs, they have begun to select the FRs at a general farmer meeting of the DCO where the farmers from each field channel can select their representative. In Mahaweli schemes, the very high percentage with FCGs is probably due to the recent reorganization which has given prominence to the INMAS model of organization. It is likely that, over time, the situation will come to resemble the INMAS situation.
- A strong FO will include most of the farmers in the FO area as members so as to have influence over their actions. Despite the constitutional definitions of eligibility for FO membership, most farmers in the FO localities can become members of the FOs irrespective of land status; certain FOs consider cultivation of land plot under a particular irrigation canal, regardless of ownership, as a

sufficient qualification for FO membership. Ninety percent of the farmers interviewed in the LSS claim to be members of their FOs; the range varied from 93% in Mahaweli schemes to 83% in MANIS C schemes. FO office-bearers, however, reported that only about 68% of the eligible farmers were members. INMAS and Mahaweli FOs both have percentages above 70% while the MANIS percentages are just above 50%. This difference reflects the lesser time and effort given to the MANIS program. Overall, the FO office-bearers report that about half of FO members in each program are “active” members. An active member is generally defined as one who pays his dues, comes to meetings, and takes part in FO activities, particularly shramadanas.

- Effective leadership is a key factor. In extreme cases, an effective leader makes it possible for the group to function even when other management systems are not in place. A strong FO has a system for periodically selecting leaders that ensures that capable persons are selected. It was found that whenever the members selected their leaders without outside interference, the leaders generally emerged as effective mobilizers of their groups. They are also more accountable to farmers. Wherever the selection process has been supervised by outsiders, the selection process is distorted. Observations indicate that in Mahaweli schemes, Unit Managers are often asked to supervise the selection process. During the process, many of the farmers attempt to select the person wanted by the Unit Manager, thus weakening his ability to inspire loyalty among the farmers. The same process has been observed in MANIS schemes where the Project Manager oversees selection. One result is that, in many MANIS schemes, the selected persons were the Vel Vidanes who for long had close association with the Project Manager. This problem is less common in INMAS schemes because of the longer history of FOs. Selection of leaders, i.e. FO office-bearers such as President, Secretary, and Treasurer, is done most commonly through general farmer meetings. Of farmers interviewed in the LSS, 63% of INMAS farmers, 88% of Mahaweli farmers and 79% of MANIS farmers said that this was how their leaders were selected. However, 37% of INMAS farmers said that selection of leaders were done by Farmer Representatives. In some cases, FO leaders have used their positions for their own benefit to the detriment of the FO. Many of these cases come from Mahaweli schemes, where, as noted, there has been a relatively high degree of influence of MEA officers in selection of FO leaders. The cases from Mahaweli, however, refer to leaders selected prior to the recent reorganization of FOs in Mahaweli schemes. Despite these problems, most farmers interviewed for the LSS (82% in INMAS, 80% in Mahaweli, 75% in MANIS AB, and 65% in MANIS C) are satisfied with the FO leaders. As expected, the degree of satisfaction is highest in INMAS schemes where there has been the most time and effort spent to develop FOs and lowest in MANIS C schemes where there has been the least time and effort spent.
- FOs raise the funds they need from a number of sources, including fees and shares, construction contracts, O&M allocations (mostly in the form of maintenance contracts), and others. While most (84% of LSS INMAS FOs, 83% of MANIS AB FOs, 58% of MANIS C FOs, and 92% of Mahaweli FOs) collect fees or shares from their members, the amounts collected are low. Noteworthy is the high dependence on contracts with the irrigation agencies. This implies a high degree of dependence on government help. However, many FOs do not have a significant amount of funds. About half of INMAS and Mahaweli FOs have funds, many deal with significant amounts. The average reported for INMAS FOs with funds was Rs 27,107 and for Mahaweli FOs with funds was Rs 39,450. (The average amount of funds reported for the Mahaweli FOs is high largely because of one System C FO who won a prize of Rs 1,250,000 from the MEA. If this FO is not included, the average Mahaweli FO fund is only Rs 16,274.) However, less than one-quarter of MANIS FOs report holding funds and the amounts held are generally very small (average Rs 7,554 for MANIS AB FOs and Rs 5,143 for MANIS C FOs). and the maximum is Rs 110,000. These figures more accurately represent the state of the Mahaweli FO funds; on average they handle less than do INMAS FOs.

- A strong FO must have good procedures to ensure that funds are handled properly, including keeping well organized accounts, storing funds in a bank account, having and respecting rules for disbursement of funds, and having and following procedures for reporting financial affairs to the FO membership. Except for MANIS C schemes, the great majority of the FOs studied have accounts, have rules requiring expenditure approvals and require regular reporting to the members. INMAS FOs are the most developed in this regard. Reflecting the lesser government attention given them, only about half of the MANIS C schemes have such procedures, partly because very few handle significant funds. Fully 77% of INMAS FOs and 38% of Mahaweli FOs report a requirement to have a government official's approval for withdrawal of funds from their bank accounts. Only a very small number of MANIS FOs report this requirement. According to the RS and PD findings, financial management is a major problem for many FOs. Although financial management mechanisms exist, the rules are often not followed and may be only partially understood. Accounting and reporting to the membership seem to be the weakest links. Without these, it is easy for FO leaders to abuse their control over FO funds. Some FO leaders were criticized by farmers for abuse of FO funds, particularly in Mahaweli FOs. Problems of misuse of funds are much less frequent in INMAS systems, probably because of more democratically selected leadership and closer monitoring by Project Managers.
- Communication within FOs is often problematic and is one of the main causes of organizational weakness. When asked, FRs say that the main method of communication among members is by word of mouth. Unfortunately, that channel requires an effort to spread information and not all are willing to make the effort. Meetings are the most important means of ensuring necessary communication. Meetings are also necessary to allow group decisions to be made. All FOs hold meetings, generally of two kinds: FO committee meetings and FO general membership meetings. The general standard is to hold an FO committee meeting per month and a general farmer meeting once or twice a year. The frequency of meetings is a crude measure of internal communication. As reported in the LSS, 75% of INMAS FOs, 60% of Mahaweli FOs, and 47% each of MANIS AB and MANIS C FOs hold FO committee meetings each month. Only a few INMAS and Mahaweli FOs report other frequencies, but a significant number of INMAS FOs report holding FO committee meetings bimonthly or as needed. Very few FOs reported no meetings. There is far less uniformity with regard to general membership meetings. Reportedly, 65% of INMAS FOs, 45% of MANIS C FOs, 29% of MANIS AB, and 23% of Mahaweli FOs meet seasonally or annually. Surprisingly, 42% of MANIS AB FOs report never holding general membership meetings; the other programs have lower percentages. On the other hand, 32% of Mahaweli FOs report monthly general membership meetings. These are, in fact, the same as the committee meetings rather than separate meetings. The practice is to hold an open meeting. The great variation suggests that, except in INMAS schemes, general membership meetings have not yet been seen as a necessary part of FO activities. Where meetings are held, Farmer Representatives communicate among themselves. However, Farmer Representatives often fail to consult their constituents when decisions are to be made and often fail to communicate decisions to them. In addition, the attitude toward general membership meetings, as contrasted with the attitude toward FO committee meetings, suggests that, except in INMAS schemes, Farmer Representatives have not yet come to realize the necessity of regular communication with their constituents. Overall, then, failures of communication between FRs and ordinary members of the FO is a common problem.

The measure of FO Organizational Strength combines evaluations of these key characteristics into a single index number (see Volume III). When this is done for the FOs studied in the Recurrent Surveys and Process Documentation, the results vary widely, even within programs. On the whole, however, the highest ranked FOs are from the INMAS program, particularly those from Rajangana and Kaudulla. The Mahaweli FOs generally rank next followed by the MANIS FOs.

2.8 FO Strength and Performance

Surprisingly the relationship between FO organizational strength and performance in specific tasks is not a strong one. Organizationally strong FOs generally do a good job on most or all of their activities. However, some organizationally weak FOs are also able to do a good job on specific tasks.

There are two reasons. First, some tasks do not require a formal organization like the FOs. In many places, farmers have long been accustomed to manage public goods with much simpler organizations. For example, Vel Vidanes selected by villages for life tenure, have, in some places, been capable of managing irrigation systems. Other tasks that do not recur regularly can be handled by a temporary grouping.

Second, strong leadership can compensate for weak management systems. If there is a strong leader who is willing to take on tasks, he, perhaps with a few others, is able to handle the FO tasks without calling upon the others. Examples can be found in all of the programs. Unfortunately, such an FO is far less likely to survive changes in leadership than one with well established management systems.

The dependence of weak organizations on leadership also explains why some FOs do well one season then seem to fall apart during the next season. Over the seasons, several cases of radical change in FO performance were noticed. In every case, the changes were associated with changes in leadership.

If an organization cannot perform at least some tasks adequately, it is unlikely that farmers will support it. This will make it a weak organization. This suggests that the tasks assigned to an FO must be ones that are important and that are not too difficult.

Unless there is a great abundance of water, water distribution and system maintenance are tasks very important to farmers. One key question then is to determine the factors that define how difficult it is to carry out these tasks. Such factors include:

- Extreme shortage of water. If there is an extreme shortage, no amount of organized work can solve the problems.
- Bad system physical condition. If the condition of the system makes control of water flow very difficult, it may be beyond the capacity of the FO to distribute water effectively.
- Response of agencies to the FO. If the agencies controlling the main system will not respond to FO requests for assistance, then farmers may ignore the FO in their attempts to get the water they need.

For example, the FOs at Kaudulla have a reputation for being among the strongest FOs in Sri Lanka. Kaudulla was a site where:

- There is a moderate shortage of water, but one which can be ameliorated by organized political activity to get the Mahaweli Water Management Panel to release water to the scheme.
- Main system rehabilitation under the ISMP made it possible for the farmers and agency together to deliver water effectively to the FOs; FO involvement was important for equitable delivery.
- There was an energetic and supportive IMD Project Manager who, together with a generally supportive Irrigation Department staff, was able to make sure that agency responses to the FOs were generally positive and helpful.

Recently the situation has changed. With the departure of the IMD Project Manager and a delay in recruiting his replacement, there has been a decrease in agency responsiveness. At the same time, delays in completing rehabilitation works have frustrated FO efforts to improve water distribution, particularly on the DCs. The changed situation has made a number of farmers vocally dissatisfied with

both the FOs and the government. Our evidence and that of others suggests that the level of water management performance by the Kaudulla FOs has dropped over the last two years and that at least a few FOs seem weaker than they were before. It is not clear what will happen. Some members of the IIMI/ARTI team believe that the situation will continue to deteriorate without some extra help. Others believe that the situation will stabilize at a lower level of performance by the FOs and the system as a whole.

Most of the stronger FOs in the RS and PD sample were associated with the same set of supporting factors as those described for Kaudulla. On the other hand, weak or nonexistent agency support has, in some cases, motivated farmers and led to good performance, though not always to strong FOs.

- In Abakolawewa, part of the Mee Oya scheme, an INMAS PD site, the FOs have taken over all water distribution, including operation of the tank sluices. Here, although a INMAS site, frequent changes of Project Managers, little presence of catalyst agents, no rehabilitation, and relative neglect by an Irrigation Division that deals with many separate systems, have led the farmers to take on the responsibilities themselves. The Abakolawewa FOs, however, show some but not all of the characteristics of strong FOs.
- Kotikapitiya, a MANIS C scheme studied in the LSS, is a case where there has been little agency support, and a weak formal FO structure, but the system is well managed by farmers. Kotikapitiya is a drainage scheme of Minneriya and thus has plenty of water. When there was a need for maintenance or a structural repair, the farmers as individuals get together to contribute labor or money or both as needed. The FO leadership is dedicated and educated and have made sure that the system operates even without ID help.

The above cases indicate that FO performance thus depends not only on FO strength but also on other factors, including availability of water and the physical condition of the system.

2.9 Farmer Organization Structure and Scheme Type

The farmer organization model developed for INMAS was developed for the larger irrigation systems in the Dry Zone. The study found that there are three additional types of systems for which this model appears not to be appropriate.

- One type is the system designed for *kattimaru* management. In this system, farmers own land in different parts of the system so that the area irrigated can easily be adjusted to water supply without affecting equity. This type is common in minor schemes but rare in major and medium schemes; Mannakattiya is the only example we found.
- A second type can be called the single main canal scheme type. This type of scheme has a single long main canal with only very short field canals, usually not even recognized officially as field canals, coming out of the main canal. These field canals and the outlets to them from the main canal are generally operated by the farmers as they see fit. Since there are only a few farmers under each outlet from the main canal, water distribution is not a problem. Also, since most of these systems have adequate water, distribution among outlets is also not a major problem. Because they are anicut schemes, seasonal planning is not a major issue. Setting the dates of opening and closing the system headgates, and maintenance of the main canal, are the major and virtually the only issues that require collective action by farmers. Also, without distributary channels or other clear subcommands, there is no easy way to set up hydrologically defined FOs. These schemes are relatively common; 33% of the sample MANIS AB schemes and 18% of the sample MANIS C schemes into this category.

- A third type that was not investigated thoroughly are Wet Zone lowland drainage schemes. These were identified only during the Large Scale Survey. Four of the original sample MANIS C schemes were of this type. However, we found FOs in only one of the four (Bentota Right Bank). These schemes appear to be common but all or most are found in the MANIS C list.
- Another type of scheme identified during the study includes the schemes in which water from a tank is released into a natural stream bed and picked up by anicuts for delivery to the fields. Mediyawa, Mahananneriya, and Wennoruwa from the RS sample all belong to this category. In these schemes, the organizations are based on hydrological units, i.e. the command irrigated by one anicut is taken as a farmer organization area. In both Mediyawa and Mahananneriya, however, there is also an system level farmer organization at system level to coordinate water distribution to the anicuts. In these schemes, a form of the INMAS model modified to deal with the varying commands under the anicuts can be successfully applied.

Given this variety of scheme types, it is thus not surprising that while the FOs in INMAS and Mahaweli systems are reportedly based on canal commands, this is true in only 58% of MANIS AB sample schemes and in 15% of MANIS C sample schemes. Other bases found in MANIS AB schemes are village (25%) and settlement tract (17%). Other bases found in MANIS C schemes include: the whole system (31%), settlement tract (31%), village (15%), and field tract (8%).

The INMAS model was primarily developed to form FOs to overcome water shortage situations in a specific type of scheme. It can be successfully implemented to solve water distribution problems found in INMAS and Mahaweli systems in the Dry Zone. However, the needs for organization may be different. If water is abundant, as in Kotikapitiya, or where drainage is the problem, as in Bentota Right Bank, there may be no strong need to introduce a formal organization system to manage different aspects of water management. Similarly, in Ambewela and Murapola the major problem for the farmers was marketing of vegetables. In such cases it would be advisable to organize farmers to overcome their marketing problem and get the same organization to attend to water distribution as a subsequent priority. There is a need to reconsider how participatory management works in these types of schemes.

2.10 Social, Economic and Political Influences on FOs

This section discusses social factors hypothesized to affect the strength and performance of farmer organizations. The three factors discussed are:

- Ethnic groups and castes
- Land tenure
- Interventions in FO affairs by outsiders

2.10.1 *Ethnicity and Caste*

RS and PD observations indicate that multiethnic FO membership usually does not hinder FO activities. However in Wennoruwa, Sinhala and Muslim communities have clashed over a construction of a cemetery by the Sinhala community. This rivalry spread to FO activities. Such conflicts were not found elsewhere.

The majority of sample farmers in the LSS belong to the high Govigama (cultivator) caste, while a significant minority in some places were found to be "Padu" (Salagama) caste or other castes. Farmers did not report any obstacles to FO development due to caste differences. The best example for this

statement comes from Tabbowa. In the Thewanuwara DCO in Tabbowa, both the recently appointed Chairman and Treasurer belonged to the Padu caste. However, the Chairman participates in all official and social functions in the village without being treated differently due to his caste.

2.10.2 Land Tenure

The land tenure system includes owner-cultivation, government allotment, different forms of leases, and encroachers. In many MANIS schemes, there has been subdivision of lands leading in some cases to very small holdings. These are made economic through lease arrangements or through *thattimaru* systems where shareholders in a piece of land alternate cultivation. In almost all INMAS and Mahaweli schemes, land is still officially the property of the government and has been allotted to settlers under many restrictions. However, due to population growth, there is a high rate of sale, mortgages and encroachments of land as well as landlessness among 2nd and 3rd generation settlers.

As reported by LSS sample farmers, over 70% of the land is cultivated by owners or allottees. INMAS schemes have a significant percentage of encroached land while MANIS schemes have a significant percentage of sharecropping (*ande* tenants). According to the constitutions of most FOs, to be a member of the FO one has to be the owner or allottee or *ande* cultivator of the land. In most INMAS FOs, all farmers cultivating lands are offered membership in the organization irrespective of land tenure arrangement. In most MANIS schemes, only tenants and owners of land are given membership. In Mahaweli FOs, generally only owners and allottees are offered membership although in Galnewa and Uda Walawe some encroachers and *ande* tenants have also been able to obtain membership.

Tenure is a common reason given for non participation of farmers in maintenance activities. Nearly 40% of the LSS FOs reported lack of attendance to maintenance tasks by short term lessees. Short term lessees or those with insecure tenure like encroachers try to cultivate with the least investment, which means the least amount spent on maintenance. Lack of concern with the sustainability of the system is common among those with insecure tenure. In schemes where there are large land owners who have put the land under various tenant agreements, there is a general lack of cooperation in FO activities which is proving to affect the working of the FO. For example, in Mahananneriya, 100 acres of the 350 acres under this scheme is cultivated by *ande* farmers who do not do any maintenance in their areas except for maintenance of the anicuts. In addition to lack of maintenance, land tenure can lead to violation of irrigation schedules. For example, in Muruthawela and Dewahuwa schemes, lessees have refused to abide by schedules arguing that since they have a financial deal with owners, profit is their main concern. Some FOs have, however, managed to overcome these problems.

Land tenure affects both FO organizational strength and performance in activities. In particular, FOs which manage areas where there are large numbers of short term lessees have problems in recruiting these persons as members and in mobilizing them for maintenance and other tasks. Encroachers were also cited as problems, particularly in some INMAS schemes, but less often than the short term lessees. In addition, where land fragmentation has been great, as in Dewahuwa, there is often difficulty in getting the holders of very small parcels to contribute.

2.10.3 Outside Interventions

The study found that intervention in internal FO affairs by outside authorities is not common. In several places, it was reported that FO members make an effort to keep political considerations out of FO affairs.

However, there are clear cases where political or other authorities have intervened, generally to the detriment of the FO. The different types of intervention in FO affairs by outside forces can be broadly categorized as follows:

- Interventions by outside politicians or officials
- Internal politics allied with line agencies
- Interventions from FO members allied with powerful outsiders
- Appeals by FOs to politicians for help in solving problems.

Examples of all of these types of intervention are given in Volume II. Despite these incidents, most FOs have been largely free from problems due to outside interference. In part this has been because of their political unimportance. As their power grows, however, there may be an increase in the number of problems.

2.11 Farmer Organization Legal Status

At the time of formation of farmer organizations, legal authority for farmer organizations was not thought essential because it was believed that the group social strength would provide the authority needed. In addition, it was felt that it would be better to experiment first before codifying participatory management into law. However, for the past few years, it has been realized that the FOs need some sort of legal authority to function efficiently; in many cases, social pressure needs legal backing.

Enforcement without Legal Authority During the Recurrent Survey, many FOs said that they do not have adequate legal authority to reprimand defaulters. Almost all FOs have realized that legal authority was essential to get farmers to work to the decided schedule in all activities. Several FOs have been able to enforce sanctions even without legal backing. Strong leadership has been a major factor in most of these cases.

Recognition by Government Agencies Under participatory management, the FOs have to work together with government agencies. To do so, they must be recognized by the agencies. The key agencies are the Irrigation Department and Irrigation Management Division in INMAS and MANIS schemes, and the Mahaweli Economic Agency in Mahaweli schemes. Over 90% of the FOs in INMAS schemes are recognized by both the Irrigation Department and IMD; over 90% of the FOs in MANIS schemes are recognized by the Irrigation Department; and over 90% in Mahaweli schemes are recognized by MEA.

The Department of Agrarian Services in many places also recognizes the FOs in order to deal with them concerning input supplies. Some banks, through the intercession of the IMD, recognizes many INMAS FOs. Other agencies do not pay much attention to FOs in their routine functions. Not unexpectedly, Mahaweli FOs are recognized by MEA divisions, banks, and by local government authorities but not by other agencies. Irrigation Department FOs are recognized by the other agencies but not by MEA.

Recognition is increasing. For example, in Radagalpotha, a MANIS scheme, the Crop Insurance Board gave authority to the FO to assess crop damage in 1993/94 Maha. With time and functional stability, FOs will be recognized by most line agencies and rural institutions. However, this process can be expedited if national level recognition is given to FOs by accepting participatory management as the mode of future irrigation management.

Legal Recognition Recognition by agencies does not constitute legal recognition. To remedy this situation, in 1991 the government amended the Agrarian Services Act of 1979 to provide legal recognition of FOs. Clauses 56(a)A and 56(b) now permit the Commissioner of Agrarian Services to recognize an FO. This provides a simpler alternative to registration of an FO under the Companies Act.

By registering under 56(a) of the amended Agrarian Services Act of 1991 a FO becomes eligible to perform the following functions.

1. Preparation of a agricultural implementation schedule for the FO area of jurisdiction.
2. Attending to improvements (repairs) to irrigation physical system within the area of jurisdiction.
3. Attending to sales of produce and distribution of agro-chemicals and fertilizer within the FO area.
4. Coordinating agricultural activities in the area and improving the relationship between the farmers and state agencies.
5. Any other activity authorized by Commissioner of Agrarian Services and intended to be beneficial to farmers.

Registration under clause 56(b) permits an FO to enter into legally enforceable contracts and to be recognized by the courts. However, the requirements for registration under clause 56(b) are more stringent than for registration under clause 56(a). One requirement is prior registration under clause 56(a) for at least six months. More than 60% of FOs in all programs have registered under 56(a) of the Agrarian Services Act. However, only 11% of the FOs from the total sample were registered under 56(b).

Amendment to the Irrigation Ordinance Act No. 13 of 1994 Registration under clauses 56(a) or 56(b) of the Agrarian Services Act does not give the FOs any particular powers to enforce their decisions with regard to irrigation management. To rectify this situation, the Irrigation Ordinance was amended in 1994. With this amendment, FOs were given the status enjoyed by Cultivation Committees under the Irrigation Ordinance of 1968. With Cultivation Committee status, FOs have the legal authority to take action against those who do not comply with FO orders.

The amended Irrigation Ordinance authorizes the FOs to take over O&M of their areas. In return they are exempted from paying irrigation rates. This amendment thus also provides the legal basis for turnover that underlies the 1988 Cabinet Paper on participatory management. The Ordinance authorizes FOs to impose a levy on the farmers to cover O&M of the distributary canal system and any other cost for work that may be beneficial to the farming community under area of authorization. It also specifically gives the FO the power to fine those who do not comply with FO decisions. This authority may solve the problems of lack of authority raised by most farmer organizations. However, some are concerned because it does not provide the FO with the legal power to deny water to defaulters. Although not stated in the Ordinance, it is expected that the Ordinance confers these powers only on legally recognized FOs, that is on FOs registered under clause 56(b) of the Agrarian Services Act or, possibly, under the Companies Act.

To date there is no information about the effect of this law. At present, most FOs are not aware of the authority given by the amended Ordinance. It will take some time for them to learn of the authority they now have from the amended Ordinance.

Importance of Legal Powers Though FOs have been critical about lack of authority, they also say that, they would like to settle disputes of defaulters amicably. FOs are undecided as to which action they should take in solving disputes. One reason for reluctance to use punishments is reluctance to weaken the spirit of cooperation that IOs and others have tried to instill in the FOs. In addition, the FOs may be subjected to political pressures if they attempt to penalize farmers. It may be difficult to fine a large number of farmers for not attending shramadana or to take a large number of farmers to court.

2.12 Overall Evaluation of Farmer Organizations

Approximately 85% of the 199 major and medium irrigation schemes under the INMAS, MANIS and Mahaweli participatory management programs now have farmer organizations. This is good progress.

However, the FOs vary greatly in many characteristics, including basis for organization, size, strength and performance. With regard to performance, the study shows

- FOs are quite successful at distributing water, although they do not achieve perfect equity even within their own areas. Many have shown ability to manage distribution effectively not only on FCs and DCs but also at higher system levels.
- With regard to maintenance, FOs generally do jungle clearing and desilting well. For the most part they do not take on other maintenance tasks. However, irrigation officers are not satisfied with the maintenance. It is probable that without FO involvement, maintenance would have been even less well performed because of the low maintenance allocations given to the Irrigation Department. The irrigation agencies continue to provide resources to the FOs to undertake maintenance. While some argue that the FOs will not be able to raise these resources by themselves, giving them government resources also raises the expectation that the government will continue to subsidize their activities.
- A minority of FOs have taken up business activities of various kinds. While many are successful, the degree of success varies.

Overall, the most successful FOs are those in the INMAS program, although there are some FOs in both of the other programs that are as effective as any in the INMAS program. Farmer organization strength, a term used here to refer to the ability of an FO to govern itself and mobilize resources, varies also. Again, INMAS FOs generally show the greatest strength.

The farmer organization structure varies with the structure of the physical system and vary greatly in activities and capabilities. There is a need to reconsider the use of the INMAS organizational model for many MANIS schemes for which the INMAS model is not appropriate.

The activities and capabilities of farmer organizations depend not only on experience of the organization but also on the strength of leadership, interest and dedication of the members and involvement and support of the agency staff. The condition of the physical system and agency support are of great importance also.

The differences between the programs can largely be attributed to differences in the level of inputs to participatory management given by different implementing agencies and to the effective age of the program. INMAS and Mahaweli have had more resources than MANIS for institutional development, with the result that these two programs show better results overall than does MANIS. The INMAS program is older than the Mahaweli program in its present form, thus partly explaining the fact that INMAS FOs do better than do Mahaweli FOs.

CHAPTER 3

FINDINGS ON JOINT MANAGEMENT COMMITTEES

3.1 Existence of JMCs

Joint management committees exist in most schemes:

- All four Mahaweli schemes have an elaborate structure including Unit Coordinating Committees, Block Coordinating Committees, Subproject Coordinating Committees, and a Project Coordinating Committee for each scheme.
- Each LSS and RS sample INMAS schemes has a Project Management Committee. One sample scheme, Nachchaduwa, also has Subproject Committees and one PD scheme, Mee Oya, has water management committees.
- Nine of the 12 MANIS AB schemes in the LSS have Project Management Committees. One MANIS AB scheme has a water management committee. Two MANIS AB schemes have no joint management committees although each has two FOs.
- One LSS MANIS C scheme has a Project Management Committee, and one has both a Project Management Committee and Subproject Committees. The remaining 12 MANIS C schemes in the LSS sample have no joint management committees. Two of these have neither functioning FOs nor JMCs.

Using these figures we estimate the total number of schemes with JMCs as follows. The number of schemes with JMCs includes all 35 INMAS schemes, all 4 Mahaweli schemes, 83% of 59 MANIS AB schemes (= 49), and 14% of 101 MANIS C schemes (= 14) for a total of 124 schemes. Therefore approximately 51% (102 out of 199) of all schemes in the four programs have JMCs. It should be noted that some MANIS schemes have only one FO that covers the whole scheme, thus obviating the need for JMCs in those schemes.

We observed that three factors influenced the creation of JMCs:

- Interest and degree of agency involvement in creating JMCs.
- Availability of catalysts (change agents or Institutional Organizers) and their involvement in creating JMCs.
- Special programs and projects implemented in the particular projects.

All three factors are external to the particular scheme; the creation of JMCs is heavily dependent on external intervention largely because JMCs must have official representation. Although the M&E study covered a large number of schemes under its data collection program no scheme reported that farmers themselves attempted to establish a JMC without external intervention. Once farmers became aware of the possibilities of JMCs many have come to see JMCs as important features of participatory management. We observed this trend in schemes where farmer awareness was enhanced through various types of external interventions.

The Mahaweli and INMAS programs have had better success in establishing JMCs than have the MANIS programs largely because strong emphasis was given in both of those programs to their formation, although MEA's emphasis is recent. In the case of MANIS schemes, the Irrigation Department has been

less able to support and guide their field officers, many of whom saw less of a need for the JMCs than for the FOs. In addition, there has been less support from catalyst agents and special programs in MANIS schemes than in INMAS and Mahaweli schemes.

Some of the officers in MANIS schemes interviewed for the LSS asserted that the kanna meetings serve as JMCs. Of course, kanna meetings and JMCs are not the same. JMCs have clearly defined membership and formal representatives from the farmers. Kanna meetings have no such formal structure. However, JMCs deal with various intra seasonal activities too.

3.2 JMC Seasonal Planning Performance

Seasonal planning is a key function of JMCs, including choosing crops, allocation of water to different parts of the scheme, setting the basic irrigation schedule, and, in many cases, making decisions concerning allocation of resources for maintenance. According to knowledgeable farmers (and PMC members where a PMC exists) interviewed for the LSS, the JMCs take part in seasonal planning in three of the four Mahaweli systems, in all of the INMAS LSS sample systems, and in 7 of the 10 LSS sample MANIS AB systems with JMCs. Based on LSS results then, JMCs take part in seasonal planning in about 73% of the schemes where such JMCs exist.

Overall, most JMC members interviewed for the LSS, including irrigation officers, institutional development officers, and Farmer Representatives believe that their JMCs do seasonal planning well. Virtually all officers gave this verdict except in two MANIS AB schemes and one Mahaweli scheme. One significant difference among the groups interviewed is that for INMAS, MANIS C, and Mahaweli schemes, farmers are less happy with JMC seasonal planning than are the officials. They denied the effectiveness of JMC seasonal planning in 2 INMAS schemes, 2 MANIS C schemes, and one Mahaweli scheme. In the interviews, some explicit reasons for ineffectiveness were given. In one MANIS AB scheme, an irrigation officer said that the farmers do not follow the PMC decisions. Farmers in an INMAS scheme and a MANIS C scheme felt that the PMCs could not plan well because they did not have accurate information about water and desires of farmers. Farmers in another INMAS and a MANIS AB scheme said that farmers ignored the PMC decisions; in another MANIS AB scheme the interviewed farmer said that the irrigation officials ignored the PMC decisions.

Ordinary farmers' opinions of the effectiveness of the JMCs in seasonal planning is not high (Figure 3.1). Of the farmers interviewed for the LSS, 26% of Mahaweli farmers, 34% of INMAS farmers, 19% of MANIS AB farmers, and 8% of MANIS C farmers felt that the JMCs had improved seasonal planning over kanna meetings. However, this low opinion may reflect the relative lack of knowledge of JMC functions because of poor communication between FRs and farmers.

A key concern is the ability of Farmer Representatives to contribute effectively to JMC meetings, and the ability of agency officers to respond appropriately. The ability of the FRs to represent farmer concerns adequately depends upon several factors, including a) whether the FRs attend meetings, b) ensuring that discussions at lower levels of multi-level JMC structures are taken into account by the higher levels, and c) communication between Farmer Representatives on the JMCs and the ordinary farmers.

Our PD observations indicated that there can be problems with attendance in some schemes in all programs, but most commonly in MANIS schemes. No INMAS scheme has more than two levels of JMCs and generally the FRs at the PMC are selected by the Subproject Committees to ensure that SPC discussions are reflected in PMC discussions. Our observations seem to indicate that this works fairly well. Mahaweli schemes have a larger problem because of the four level JMC structure. There this problem is solved by a system that tries to ensure that a high percentage of FRs are represented within

the four tier structure of the JMCs and that FRs at higher level committees are members of the lower level committees. The biggest concern is that observations and discussions indicate that lack of communication between FRs and other FO members is a major problem in many FOs. As discussed earlier, many FOs fail to meet with ordinary farmers or do so seldom while FRs often fail to discuss issues with the farmers they represent.

We observed that farmer representation is not effective at the JMC planning sessions in MANIS schemes. One reason was that FRs who attend JMC planning sessions do not represent the scheme proportionately; some areas of the scheme are over-represented, while other areas are under-represented. Also, many FOs in MANIS schemes do not hold meetings as often as required; 26% of MANIS AB FOs from the LSS and 32% of MANIS C FOs do not hold scheduled FO committee meetings. Mahaweli and INMAS have a developed system of holding types of FO meetings and therefore FRs at JMC sessions have a better understanding of the concerns of the ordinary farmers.

A basic concern is that the JMC decision making process be one that allows for effective farmer input. This depends largely upon the way the meetings are run, but also to some degree on the skills of the FRs in making their input. In Mahaweli schemes, we observed variances among the different levels of JMCs. At UCC level, farmers dominate in decision making mainly because UCC is chaired by a FR and the number of FRs attending UCC are much higher than the number of officers attending. The situation is quite different at BCC and above. Although BCC and SPCC are attended by a larger number of FRs, we observed that the planning process is agency dominated, largely because the BCC is chaired by the Block Manager. This situation is also found in the SPCCs and PCC. In INMAS systems, effectiveness in seasonal planning is heavily dependent on capacity of IMD Project Manager to ensure effective discussion. The Farmer Representatives in INMAS system have developed some capacity, probably due to intensive training given to FRs. In MANIS schemes, we observed agency domination in negotiations between FRs and agency officials. We saw also that while the Irrigation Department official attended most sessions, there was minimal or no attendance from other agencies.

Effective planning requires the ability to integrate various inputs. In Mahaweli schemes, since MEA provides all the required inputs, it is not difficult to coordinate inputs to fit JMC decisions. This works well as long as the officials attend the meetings. LSS interviews with both institutional development officers and with some farmer members of the PCC (who also attend the other JMCs) indicate that official attendance is good. We also observed good attendance. Unlike Mahaweli schemes, INMAS and MANIS schemes are served by separate agencies that provide inputs and assistance. Our observations showed that planning discussions are dominated by irrigation concerns and the Irrigation Department personnel play a dominant role. Some agricultural officers complained about the lack of concern for crop planning and other aspects of agriculture. However, in INMAS schemes, both institutional development officers and farmers interviewed for the LSS felt that attendance of the officials from other agencies other than the Irrigation Department and IMD was satisfactory. MANIS schemes, however, show poor performance in integrated planning because in many schemes, only Irrigation Department representatives and FRs attend JMCs regularly.

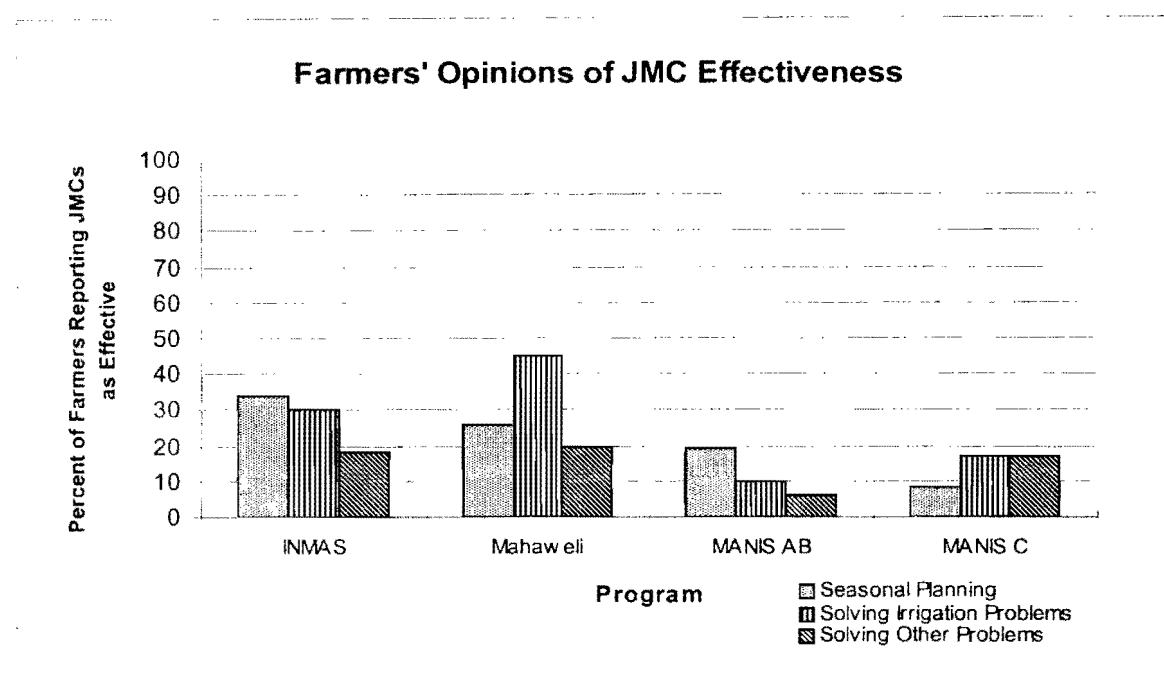
Our observations in PD schemes under the three programs indicate that no clear mechanism has been developed or practiced to communicate seasonal plans to the farmers. In MANIS systems there is no mechanism for holding FR committee meetings. FRs who attend JMC meetings do not have a forum to convey PMC planning decisions to the farmers unless they communicate with them individually. Therefore farmers learn about JMC plans only at the kanna meetings. In INMAS schemes, FR committee meetings are held once a month. But there is no specific meeting scheduled after JMC seasonal planning sessions are over. Therefore, JMC planning decisions are not communicated to the farmers effectively. The situation is similar in Mahaweli schemes. The only difference is that a large

number of FRs in the scheme can be represented at all four tiers of JMCs. Therefore, it provides opportunities for a larger number of FRs to know about JMC planning decisions.

One weakness is that most seasonal planning is not done in an integrated way. Generally each agency arrives at the seasonal planning meeting with its own plan without prior discussion. An important finding from IIMI's work at Kirindi Oya was that agency involvement in seasonal planning was greatly strengthened by discussion among the officers, particularly the irrigation and agriculture officers among themselves ahead of time.

In two MANIS systems, it was observed that the Project Manager arranged his "JMC" meeting together with the kanna meeting. Kanna meetings, however, because they are open to all farmers, are practically limited to making only a few key decisions, the most important of which is the first date of water issue. This practice suggests that these Project Managers fail to see the potential for more careful and thorough seasonal planning.

Figure 3.1: Effectiveness of Joint Management Committees



3.3 JMC Irrigation Monitoring and Problem Solving

JMCs are also involved in monitoring irrigation performance through the season and solving problems. That is, Farmer Representatives bring various problems to the JMC for solution. In some cases, the JMC is a forum used by officers to bring problems to the attention of their superiors.

Knowledgeable farmers interviewed in the LSS indicated that JMCs deal with irrigation issues through out the season in three of the four Mahaweli schemes, in all 12 of the sample INMAS schemes, in nine MANIS AB schemes (75%), and in two of the MANIS C schemes (13%). Officers responsible for institutional development gave very similar responses.

RS and PD data indicate that there is wide variation in the effectiveness of irrigation problem solving. Generally the problems brought to JMC are problems that cannot be resolved by the farmers alone. The

Mahaweli systems have a formal procedure for passing problems up the chain of JMCs when they cannot be solved at lower levels.

Usually the problems are such that the farmers want or need help from the irrigation agency. The irrigation agency's willingness to cooperate is thus a key factor in solving problems. Although not widely reported now, there have been problems in the past with irrigation officers who attempt to dominate or stampede JMCs into making the decisions they favor.

One difficulty is that the solutions to some problems require additional resources that the irrigation agency does not have. This leads to frustration on the part of the farmers and often to frustration on the part of the agency officers.

Ordinary farmers' opinion of the effectiveness of the JMCs in solving irrigation problems is not very high (Figure 3.1). Of the ordinary farmers interviewed for the LSS, 45% of the Mahaweli farmers, 30% of the INMAS farmers, 10% of the MANIS AB farmers, and 17% of the MANIS C farmers felt that the JMCs helped solve farmers' problems, including irrigation problems. As mentioned earlier and discussed below, this may reflect ignorance of the JMCs.

A major factor in the ability of JMCs to resolve irrigation problems is the regularity of meeting. JMCs that do not meet cannot solve problems. JMCs in different schemes meet on different schedules, including monthly, bimonthly, and quarterly. The two lower tiers of Mahaweli JMCs meet once a month, the Subproject Coordinating Committees meet bimonthly, and the Project Coordinating Committees meet quarterly. We observed that JMC meetings are held regularly as expected; unless there are unavoidable circumstances, no JMC meeting is canceled or postponed. PMCs in INMAS schemes that have a resident IMD Project Manager generally meet once a month, but occasionally skip a few. JMC meetings are not as regular where the Project Manager resides elsewhere, as does the Mee Oya Project Manager. The average is thus less than 12 times a year; for some schemes it may be as low as six meetings per year. MANIS schemes have even more difficulties. Some meet only once a season, primarily to do seasonal planning. Others, like the PMC from Gampola Raja Ela met frequently in the past when rehabilitation work was going on, but now meet seldom because the Project Manager rarely calls meetings.

Most JMCs have no organized way to monitor irrigation and identify problems. INMAS schemes rehabilitated under MIRP and ISMP programs have established systems for recording problems faced by FOs. The monitoring system of INMAS has been discussed in detail in Volume III.

As with seasonal planning, weaknesses in the ability of the FRs to represent the interests of ordinary farmers also make JMC problem solving less effective.

3.4 Solving Other Problems

Farmers want to use the JMCs to tackle many types of problems. According to knowledgeable farmers interviewed for the LSS, all of the following problems are brought to JMCs in most schemes: problems relating to land, credit, seed, problems in getting fertilizers and agro-chemicals, and institutional problems. Less commonly brought to JMCs are marketing problems, crop insurance issues, problems of crop/structure damage by animals, and social works. Rehabilitation is discussed at length in any scheme undergoing rehabilitation. In most MANIS schemes under NIRP, the PMC focuses almost all of its attention on rehabilitation issues.

In the LSS, we asked both institutional development officers and farmers who were members of the JMCs about types of problems discussed and satisfactorily resolved. For the most part, the officials and the farmers agreed about the categories of problems discussed at their JMCs. However, they do not

agree about whether those problems were satisfactorily resolved. Farmers more often felt that problems were not satisfactorily resolved by the JMCs than the officials. These data suggest that INMAS JMCs have discussed most problems and have been successful in resolving seed problems and land problems; they tend to be less successful in resolving other types of problems. MANIS AB JMCs seem to have discussed only a few of the problems but have been more successful, particularly with agricultural input related problems. MANIS C JMCs have been reasonably successful in farmers' opinions but quite unsuccessful in the officers' opinions. However, the MANIS C sample size is too small to be confident of this finding. Mahaweli JMCs discuss everything and appear to have been reasonably successful in resolving problems (See Figure 3.1).

As with irrigation problems, these problems are generally ones that farmers want the government agencies to help solve. The willingness and ability of the agencies to respond strongly affects the JMC performance. Since the Mahaweli and INMAS JMC sessions are attended by line agency officials who are responsible for the activities mentioned above, it is possible to draw their attention to the farmers' concerns about their services. In MANIS systems, although FRs bring a variety of problems to the attention of the PMC, many sessions are attended by the ID personnel only. Therefore non-irrigation problems are not so often resolved.

Minutes of JMC meetings indicate that nonagricultural problems are occasionally brought to these meetings in the hope of getting them solved. Examples include, second and third generation problems, tank bed cultivation, use of illicit liquor, problems of health facilities, and others. For the most part, these cannot be addressed at the JMCs because the agencies present are not the appropriate ones. The fact that these problems are brought to this forum suggests that there is a demand for a similar forum to address such problems.

Overall, then, JMCs have become useful as places for discussion of a variety of problems in addition to irrigation problems, particularly in INMAS and Mahaweli schemes. They have, so far, had only moderate success in resolving many of these because of the various weaknesses mentioned earlier.

3.5 Representation of Farmers

As mentioned, a major weakness of the JMC structure is the lack of good channels of communication from the JMCs to the ordinary farmers. Farmer Representatives who attend the meetings rarely report back to their constituents and they rarely gather opinions from their constituents before important decisions.

One result is that many farmers do not know what the JMCs are and what they do. The fractions of the ordinary farmers interviewed for the LSS who said that they knew nothing about the JMC structure and functions were 26% of Mahaweli farmers, 20% of INMAS farmers, 15% of MANIS AB farmers, and 40% of MANIS C farmers. In our opinion, these figures are understated because many farmers simply preferred not to say that they were not acquainted with the JMCs. In Kirindi Oya, several more intensive surveys carried out by IIMI and ARTI showed that farmers who are not Farmer Representatives or FO officer bearers are generally not aware of the PMC and its functions.

Of farmers questioned by the LSS, 21% of Mahaweli farmers, 10% of INMAS farmers, 13% of MANIS AB farmers, and 2% of MANIS C farmers felt that JMCs had brought no benefits. We feel that this wide variation also reflects relative ignorance.

The general weakness mentioned here is a result of relatively poor communications within FOs. Good communications with the FOs, such as regular meetings with all farmers, will make it possible for the

Representatives who sit on the JMCs to both speak effectively and accurately for their constituents and to relay the decisions and discussions back to those constituents.

3.6 Structure of JMCs

There has to be one scheme level JMC in every scheme, no matter the size, if only to make scheme level allocations of water. However, for larger schemes, if there is only one JMC, the JMC may not be able to give appropriate attention to the problems. For example, in some PMCs, Farmer Representatives and Irrigation Department use the PMC to discuss issues relating to specific structures that affect only a relatively few farmers in some parts of the scheme. If there are only a few such issues this is not a problem but it can be if there are many issues to discuss.

The way chosen by MEA to solve this problem is to create a four tier structure of JMCs in which an attempt is made to solve each problem at the lowest possible level. However, some unpaid Farmer Representatives are forced to attend up to four JMC meetings each month.

The difficulty is to get the right balance between area to be covered by each JMC in the structure and the amount of effort that is required of the various representatives, particularly the unpaid Farmer Representatives. For many of the Farmer Representatives the chance to mingle with the officers is itself an incentive (see below), but it may not be possible or desirable to populate the JMCs solely with farmers who see mingling with officers as an incentive.

3.7 Agency Representation and Action in JMCs

The JMCs give the various government agencies (or, in the case of MEA, the various divisions) the opportunity to work as a group with a group of Farmer Representatives to make plans and solve problems. However, there are factors in the organization of the agencies that makes this less effective than was originally hoped for.

First, for Irrigation Department schemes, the various agencies are all independent agencies whose local level representatives report to their bosses in Colombo, far from the schemes. They are rarely rewarded for cooperating with other local agencies or even with farmers. Their effectiveness is generally judged on the basis of their handling of budgets and administrative matters rather than on their effectiveness in solving farmers' problems. Thus the agency officers, with the exception of Irrigation Department and IMD officers, have no strong motivation to work with farmers or with other agencies in carrying out their functions. IMD officers have such a motivation since their performance is measured in part on the changes that occur among farmers. Irrigation Department officers have a motivation since farmers, who have no alternative to dependence upon the Irrigation Department, will complain strongly and loudly about poor service.

The situation is somewhat better within the MEA. The structure of the MEA encourages a degree of cooperation among the various divisions. Also, since the performance of at least some of the field officers are judged by higher level officers in the field, there is the possibility of motivating officers to work with farmers. However, the MEA is a very hierarchical organization and all of this coordination depends upon the attitude of the Resident Project Manager in the system, and the Block Manager in each block. Thus there is considerable variation.

A second factor that makes the JMCs less effective than they might be is that the local officers from the agencies often lack the power to make the needed decisions or take the necessary action. In particular, any issue that can only be resolved by getting resources from outside the area requires negotiation by the local officers with their superiors who may turn them down irrespective of the decisions of the JMCs. The

Irrigation Department is in better shape in this regard than the other agencies since many of the problems it is asked to solve are local operational problems that it has direct control over.

A third factor is that the agency officers who sit on JMCs, particularly higher level JMCs, are somewhat removed from the field. Like the Farmer Representatives, they would play their part at the JMCs better if they had up-to-date information on field conditions from their subordinates. Rarely do they have such information. In addition, the lower level officers are sometimes reluctant to implement JMC decisions because they were not consulted. Some complain that their superiors lack any real knowledge of field conditions.

A fourth factor is that until May 1994 the JMCs had no legal authority to make decisions. Some agency officers and farmers have used this as an excuse to avoid implementing a decision made at a JMC meeting. In Irrigation Department schemes, the follow up by officers from agencies other than the Irrigation Department and IMD is felt to be rather poor.

3.8 Value of JMCs to Farmers and Officers

In all three programs, most farmers and officers accept that the JMC is an essential component of participatory management. Reasons given by officers interviewed in the PD and RS efforts include:

- They can understand farmers' views and opinions with regard to seasonal planning.
- They can understand the problems faced by farmers with regard to water delivery and other service required by farmers from time to time.

Some reasons cited by farmers are:

- They can meet all relevant line agency/divisional officials at one place without making individual visits to separate offices/divisions.
- They can point out strengths and weaknesses of the services of the line agencies and divisions.
- They can develop/improve interactions/relationships with different agency/divisional officials.

In general, the knowledge held by farmers, other than JMC members, about JMCs is poor. Since Mahaweli and INMAS schemes hold the FO committee meetings, FRs have knowledge about JMC discussions and decisions. Although FRs accept that JMCs are essential, they are critical about the progress of JMCs. They pointed out in a majority of the schemes under the three programs that when different officials get together they take decisions but these are often not followed up by actions. At various discussions, government officers pointed out to us that there are some shortcomings in the FOs that prevent the successful implementation of JMC decisions.

3.9 Overall Evaluation of Joint Management Committees

The major findings from the study are:

- The JMCs have been an important complement to the farmer organizations. They have made it possible for farmers to have direct input into system level management decisions and have given the organized farmers an opportunity to deal more effectively with at least some of the government agencies.
- Progress in establishing and making JMCs function is rather poor. JMCs exist in only a little over half of the schemes, although they exist in all INMAS and Mahaweli schemes. Overall, JMCs do

not function well in the MANIS schemes where they exist and there are important weaknesses even in INMAS and Mahaweli schemes. A major problem in MANIS schemes is failure to hold meetings.

- JMC performance in seasonal planning has been mixed, in part because JMCs have been excluded from seasonal planning in an important fraction of the schemes. In addition, in some schemes, the agency officers have not played their parts effectively.
- JMC performance in monitoring irrigation performance and solving irrigation problems has also been mixed, although virtually all JMCs take part in this activity. The main problems are the agency limitations. However, the failure of JMCs in MANIS schemes to meet regularly also hinders the ability to solve irrigation problems.
- Although farmers show a desire to use the JMCs to solve other problems, JMC performance in solving other problems has not been as good as hoped. In part this has been because of reluctance of some of the agencies, particularly agencies other than the irrigation agencies and the IMD, to take part in and follow up on JMC decisions.
- Although the JMCs show an impressive ability to make decisions, follow up is not as good. In addition to problems of agency unwillingness or inability to implement the decisions, farmers too sometimes show unwillingness or displeasure at implementing JMC decisions. This latter is because of the lack of regular and systematic communication between Farmer Representatives on the JMCs and their constituents.

The programs vary considerably in effectiveness of JMCs. The MEA is currently putting a great deal of effort into making the Mahaweli JMCs function well and is having considerable success. In most INMAS schemes, IMD has also striven to make the JMCs successful and have had some success. However, because IMD has no control over other agencies, the INMAS JMCs are less successful in dealing with problems outside of irrigation than are the Mahaweli JMCs. Because of lack of resources, the Irrigation Department has not been able to put an equivalent effort into making the JMCs in the MANIS schemes function well.

CHAPTER 4

FINDINGS ON TURNOVER

4.1 Frequency of Turnover

Turnover can take place either formally or informally. Under formal turnover an agreement is signed between the agency and the relevant FO specifying the responsibilities to be fulfilled by the parties concerned. Informal turnover is a verbal agreement between the two parties.

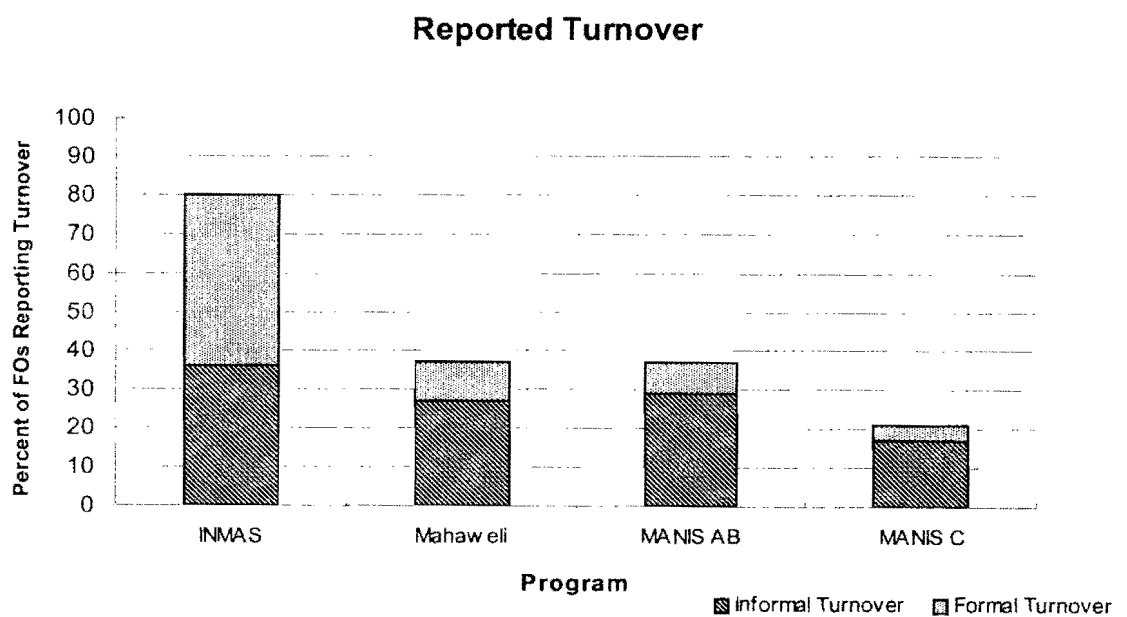
Turnover has reportedly occurred in many schemes. The LSS findings (Yala 1994) are shown in Table 4.1 and Figure 4.1. It can be seen that turnover in INMAS schemes was common (80%), but turnover in MANIS and Mahaweli systems was at a fairly low level with the lowest level being observed in the latter. Mostly informal turnover had occurred, although formal turnover was prevalent in some INMAS schemes.

Table 4.1: Reported Turnover in LSS Sample Farmer Organizations

Program	Total Sample FOs	Informal Turnover	Formal Turnover
INMAS	61	36 %	44 %
MANIS AB	24	29 %	8 %
MANIS C	24	17 %	4 %
Mahaweli	63	27 %	10 %

The study also found unrecognized cases of turnover. For example, one of the RS and PD sites, Mannankattiya has been operated and maintained by the farmers, except for some large repairs, since the 1960s. Other such cases exist in the MANIS schemes, particularly for smaller systems.

Figure 4.1: Degree of O&M Turnover



4.2 Responsibilities Turned Over

We found four sets of responsibilities that had been turned over separately or in various combinations. Two types of operational responsibilities have been handed over:

- Operation of FC gates
- Operation of DC gates and above

Two types of maintenance responsibilities have been handed over:

- DC jungle clearing and desilting only
- DC jungle clearing, desilting and minor repairs, greasing and painting, and/or MC level cleaning and desilting.

Operation and maintenance at the FC level has been the practice of farmers for a long time and therefore these activities are not included within the definition of turnover.

We found that by Yala 1994, all four responsibilities have been handed over to only four of the 35 FOs (11%) studied in the RS and PD efforts, including two each in the INMAS and MANIS AB programs. In nineteen cases (54%), including all nine from the Mahaweli program, no responsibilities had been handed over. We found that turnover of maintenance responsibilities is more common than turnover of operational responsibilities; it had occurred in 15 cases (43%) whereas turnover of operations had occurred only in 11 cases (31%). There were six cases (17%) where FOs had taken over operation of DC head gates in addition to operation of FC head gates. There were also seven cases (20%) where FOs had taken over all maintenance in addition to DC jungle clearing and desilting.

DC jungle clearing and desilting and FC gate operations are the two most prevalent responsibilities handed over to FOs in all schemes. In the RS and PD sites, all FOs, whether responsibilities have been handed over or not, undertake DC jungle clearing and desilting, although in some cases this is carried out under contract to the irrigation agency. FC gate operations were undertaken in 7 INMAS PD/RS sites (54%) and 10 MANIS RS/PD sites (83%), whether this responsibility was handed over or not.

In addition, there are clearly reported cases of FOs taking responsibilities for operations and maintenance of the main system. In Mee Oya, for example, the four FOs under Abakolawewa Tank operate the whole system, including the main sluices from the tank, and contribute to maintenance of the main channels through shramadana. Similar cases are reported from other schemes, particularly some MANIS schemes.

Data were obtained from the LSS on turnover of O&M activities under three categories a) distribution of water within the DC (FC gate operation), b) operation of DC gates and, c) DC jungle clearing and desilting. We found that in INMAS schemes, 34% of the LSS sample FOs reported taking over all three types of responsibilities, 34% reported taking on the first two responsibilities, and another 13% reported taking over single responsibilities. In MANIS AB schemes, 8% reported taking over all three responsibilities, 21% reported taking over single functions, and another 8% reported taking over other functions. In Mahaweli schemes, 6% of the FOs reported taking over all three responsibilities, 16% reported taking over the first two only, and 14% reported taking on single functions.

4.3 Turnover of Operations

In most cases, turnover of operational responsibilities has been accompanied by withdrawal of the agency employee assigned to operate field channel gates. It is expected that the FO will assign specific farmers, generally Farmer Representatives, to operate the gates. In some INMAS systems, such as Rajangana, FOs

have been encouraged to hire their own gate operators to make sure that water is distributed well. However, in the case of Rajangana and some other systems, the Irrigation Department gives funds to the FO to pay gate operators, although the gate operations are selected and supervised by the FOs. This is not full turnover of responsibility.

It is difficult to separate the effect of turnover on water distribution from the effect of having an FO. Generally, if water distribution is a problem, the FO will take some action even if water distribution has not been turned over. The action usually consists of working with the agency employee who is responsible for operating the gates. Such cooperation is widely reported in Mahaweli systems where the MEA maintains gate operators to operate even field channel gates. Irrigation Department systems, on the other hand, have now reduced the number of gate operators significantly so that turnover, either recognized or de facto, is more common. FOs even take actions at higher levels, either directly or through the JMCs.

4.4 Turnover of Maintenance

In schemes where turnover has occurred formally, responsibilities assigned to FOs include DC jungle clearing, desilting, minor repairs of bunds and structures, greasing and painting, and road maintenance. The foremost maintenance responsibility taken over by FOs under all three programs is DC jungle clearing and desilting. If the handing over is informal, the responsibilities are usually limited to jungle clearing and desilting. Undertaking DC jungle clearing and desilting has become almost a norm for FOs.

However, the study found the following key points:

- First, whether or not maintenance responsibilities have been handed over, the relevant agencies provide funds for these activities from their annual O&M allocations by contracting with the FOs. Maintenance contracts are the major source of funds for many FOs.
- Second, neither the irrigation agencies nor the farmers expect FOs to take responsibility yet for repairing concrete and masonry structures. Normally when it is said that "maintenance responsibilities have been handed over" this refers only to channel clearing and desilting. Structure repairs on distributary channels and sometimes on field channels are generally done by the agency using improvement funds or other funds that are not allocated to the FOs.

These procedures keep decision making about maintenance on distributary channels at least partly in the hands of the agency officers. That is, "turnover" of maintenance responsibilities is not complete.

4.5 Effects of Turnover

4.5.1 Effects on Operations

Both farmers and irrigation officials say that water distribution has improved under participatory management whether turnover has occurred or not. From observation and farmers' statements, two major benefits resulting from the take over of operation responsibilities by FOs can be found.

- FOs can appoint their own Irrigators replacing those of the agency. More accountability and better performance can be expected from the Irrigators appointed by the FOs.
- FOs can now effectively negotiate with the Agency for adequate and more reliable as well as timely supplies of water.

E. What should be the Involvement of Women in Participatory Irrigation Management?

As pointed out above, women's involvement in irrigated agriculture is increasing. This implies that their involvement in participatory management of irrigation systems should keep pace. There is thus a need to provide some extra attention to women's involvement in FOs and JMCs. Two things can help:

- It would be useful to have catalyst agents pay special attention to encouraging appropriate women's involvement in irrigation management. This implies training for the catalyst agents in these matters.
- Special training for women FRs would also be helpful to encourage them to take more active parts in the meetings.

Table C.1: **Women's Membership in LSS Sample FOs***

Program	Sample FOs	Total Membership	Women Members	% Women
INMAS	60	7,709	926	12 %
MANIS AB	22	1,648	134	8 %
MANIS C	23	1,471	176	12 %
Mahaweli	63	5,118	616	12 %
Totals	169	15,946	1,852	12 %

* As reported by FO office-bearers.

In many cases, FO constitutions allow a farm to be represented by either husband or wife. Women have thus become members of FOs when their husbands have left for off-farm work, even though they are not the official landholders. Table 2 shows the breakdown of reasons for being members as recorded in the LSS. As can be seen, the questionnaire was badly designed since the overwhelming majority of answers fall into the category of "Other." Most of these refer, however, to husbands being away while working off-farm.

Table C.2: **Women's Reasons for Being FO Members***

Program	Women Members	Reasons for Membership		
		Landowner	Death of Husband	Other
INMAS	926	1	25	600
MANIS AB	134	13	9	112
MANIS C	176	13	5	158
Mahaweli	616	51	9	556

* As reported by FO office-bearers.

Women's roles in leadership was also reportedly negligible. Table 3 shows the numbers of women Farmer Representatives reported in the LSS. This table shows that women FRs form an almost insignificant part of the FRs. It also shows that the percentage of women FRs is considerably smaller than the percentage of women FO members.

Table C.3: **Women Farmer Representatives in LSS Sample Schemes***

Program	Total Membership	Total FRs	Women Members	Women FRs	Total FRs as % of Total Members	Women FRs as % of Women Members	Women FRs as % of Total FRs
INMAS	7,709	792	926	7	10 %	<1 %	1 %
MANIS AB	1,648	149	134	1	9 %	<1 %	<1 %
MANIS C	1,471	195	176	3	13 %	2 %	1.5 %
Mahaweli	5,118	720	616	16	14 %	3 %	2 %
Totals	15,946	1,856	1,852	27	12 %	1.5 %	1.5 %

* As reported by FO office-bearers.

One reason for not nominating women as FRs given to us in conversations with farmers was that in some schemes, FRs have to monitor night irrigation and it was felt unsafe for women to be out all night. Another reason given is that being an FR can involve a considerable amount of traveling (to FO committee meetings, to JMC meetings, on other errands) which is either unsafe or inappropriate for women.

In our RS studies, we found one case (in Muruthuwela) in which all the office-bearers of an FO were women. In this case the women were managing the FO because no men were available, almost all were off working outside the scheme. The statistics shown above, however, suggest that such cases are quite rare. None of the women FRs reported in the LSS sample were office-bearers within their FOs. This finding also implies that very few women are members of joint management committees since it is generally the FO office-bearers who represent FOs on the JMCs.

Women's participation in meetings is reported to be little. That is, most women FRs are reported to say little at FO committee meetings; our observations confirm this. The same is true for women at FO general membership meetings.

D. Present Roles of Women in Irrigation System Operations and Maintenance

Women's involvement in irrigation system O&M has increased recently along with a general increase in their involvement in irrigated agriculture. However, it is still very low.

As is suggested by the above figures on membership and leadership in FOs, women's participation in O&M decision-making is not great.

- Women FRs are clearly involved in O&M decision-making and management at the field channel level. However, there are very few women FRs.
- Not only are there few women FRs, thus limiting their involvement in distributary channel and scheme level decision-making at FO committee meetings and JMC meetings, but their relative lack of participation in those meetings reduces their influence further.

Direct participation in operations and maintenance activities is a bit higher. Observations from RS and PD FOs suggests that women provide 5-10% of the labor in shramadana activities. However, they also take part in shramadana activities by preparing and serving food for the laborers. Women also carry out a significant fraction of regular water management labor on the farm, including getting the water from the canal. We were not able to estimate this percentage because of the difficulty of observation, but we believe that it is considerably larger than 10%.

Women's involvement in all aspects of the work on irrigated agriculture was observed to be considerably higher in those schemes where a high percentage of the area is under high value crops other than rice. Such crops generally require large amounts of labor spread over the crop season. To maximize profits, farmers make the greatest use possible of household labor, thus women play a major part in cultivation of these crops. Indeed, in many households, the full management of such crops is in the hands of the senior woman. In these cases, the on farm management of irrigation is also managed by the woman.

For lack of time, this discussion was quite short. Participants made the following points:

- One participant pointed out that, for lack of time, it would not be possible to come to full agreement on the recommendations within the workshop; hence the recommendations of the small groups have to be presented as such rather than as outcomes of the workshop. Another suggested that the government should organize a separate workshop / meeting to discuss the recommendations in further detail.
- A participant suggested that since participatory irrigation management policy has been accepted it is better to drop fee collection. It should not be considered as an option available. He further suggested 5 year transition period after minimum rehabilitation is too long.
- A participant pointed out that government staff at DC level must be phased out and suggested that the FOs can keep ID staff at tertiary level if they desire. Another pointed out that they may not want the ID staff.
- A participant noted that government subsidies must be separated from regular operations.
- One participant said that catalyst assistance should not be confined to FOs but should be provided for JMC activities too.
- It was pointed out that the study suggests a need for major institutional change.
- A participant suggested that there must be a separate body to implement institutional development activities. He further suggested that coordinating board would be a good idea for consideration.
- One participant noted that improvement in the legal framework will make such extra organizations unnecessary.
- Several participants suggested that monitoring should be continued and that ARTI could be involved in future monitoring and that it should be mentioned as recommendations in the report.

12. *Concluding Remarks on 8 July*

In his concluding remarks, Mr. Nanda Abeywickrema made the following points:

- Participatory irrigation management activities were started in the country when there was no policy level support but now full policy support is assured.
- He felt that the study report should discuss more fundamental issues, e.g. why turnover is necessary, etc. He said micro level management activities can be attended by FOs and the government agencies can attend to higher order of activities such as watershed management. Therefore, it is correct to make strong pitch to the government to provide full support for promoting participatory irrigation management policy in the country.

Annex C
FINDINGS ON WOMEN IN PARTICIPATORY MANAGEMENT

K. Jinapala and Jeffrey D. Brewer

A. Introduction

Although not included in the terms of reference for the study, the Asian Development Bank requested IIMI and ARTI to review the participation of women in the FOs and JMCs. However, IIMI had already begun a larger study of the role of women in irrigation management in several countries, including Sri Lanka. Therefore, while the IIMI/ARTI team cooperated with this study, it was carried out independently and the reports will be issued independently. This annex reports only the data collected during the RS and LSS efforts of the IIMI/ARTI study.

The following issues are discussed in this report:

- Present involvement of women in organizational activities related to irrigation management.
- Present involvement of women in irrigation system operations and maintenance.
- What should be the future involvement of women in participatory irrigation management.

B. Background

Traditionally, women's involvement in agriculture has been significant in rainfed agriculture in Sri Lanka. Women's involvement in irrigated agriculture has traditionally been less, except perhaps for transplanting and harvesting. Generally, they had little to do with irrigation management.

Today, however, things have changed. A major reason is that in the present economic environment, many men are working away from the farm and have left farming tasks to their wives and female relatives. Also, rainfed farming has decreased in significance in many places, including the newer settlement schemes, thus leading to the greater involvement of women in irrigated farming as a major source of livelihood. With this involvement, women also have to play a role in irrigation management.

No specific mention is made of women in the documents concerning participatory irrigation management. The wording focuses solely on "farmers." On the other hand, it is clear that the present image of the "farmer" in irrigated agriculture is that of a male farmer, who is also head of his household. In part, this is because most landholders are men. Thus most effort on organization, etc., has been focused on men.

C. Present Roles of Women in Organizational Activities of FOs

In settlement schemes, most allotments have been granted to men and most legal landholders in major and medium schemes are men. Because, at least in principle, FO membership is based on landholding, the great majority of potential members and recognized members of FOs are men. Table 1 shows the sex breakdown of members of the LSS sample farmer organizations by program. According to these figures, overall about 12% of all FO members are women. We might expect some difference between the INMAS and Mahaweli schemes on the one hand, because they are largely resettlement schemes, and the MANIS schemes on the other. Surprisingly there is relatively little variation among the programs.

village level agricultural planning there must be a system to meet FOs with village level government officials frequently, perhaps bi-weekly. Also, to implement participatory activities effectively a massive training program is important.

7. Comments by Mr. Arriens (ADB)

The first point raised by Mr. Arriens was methods for continuous monitoring and evaluation (M&E) of participatory management activities. He requested agency officials to consider methods developed by IIMI/ARTI (Volume III) to improve existing M&E mechanisms. He inquired whether ARTI can undertake further M&E of irrigation schemes.

Mr. Arriens highlighted following points regarding the policy of participatory management.

- The objectives of participatory management should be clarified.
- Take over O&M responsibilities by farmers could be an alternative for paying irrigation fees.
- Financial resource limitations are faced by the government.
- Irrigation management policy should be linked with other national policies.
- There is a need to ensure the quality of O&M and rehabilitation of main system.
- Government agencies should facilitate/support rather than creating or organizing FOs.
- There is a need for accountability of government agencies in implementation policy recommendations.
- A program to inform the public about the policy of irrigation management (possibility of using media like TV, radio to inform study findings to the public) would be useful.
- There is a need to clarify government and FO responsibilities of O&M activities in the schemes.
- There is a need for arrangement for accountability on both parties.
- They should clarify government financial limits on O&M and also for rehabilitation work.
- An agreement for cost sharing for initial transition period before final turnover might be helpful.
- Government should encourage FOs to takeover responsibilities.
- Government should provide effective support to FOs.
- Minimum rehabilitation for successful O&M by FOs, where required, should be provided.

Mr. Arriens also made following points on improving future monitoring: a) To improve data collection, the formats suggested in Volume III of M&E study report should be used, b) monitoring should be standardized among agencies, and c) they should consider the possibility of using ARTI for future monitoring activities.

8. Results of Group A's Discussions

Group A was asked to consider the IIMI/ARTI recommendations regarding improving agency cooperation with FOs and JMCs. Group A made the following suggestions:

- The government should appoint of an inter-agency committee to redefine job descriptions and recruitment of staff.
- Intensive training on attitudinal changes and job responsibilities should be provided.
- The group members agreed on the recommendations made by IIMI/ARTI group regarding the performance evaluation of agency staff.
- The Secretary to Agriculture and the Secretary of Irrigation, Power and Energy, should issue a joint declaration of the policy.
- The participatory management policy should be publicized; the Central Coordinating Committee on Irrigation Management can plan these activities.
- On legal amendments it is important to consult with farmers.

- It is important to hold annual workshops to review the performance of participatory irrigation management policy activities.

9. Results of Group B's Discussions

Group B was requested to comment on IIMI/ARTI recommendations on direct assistance to FOs and JMCs. The following suggestions were made by Group B.

- Basically the group agreed with the first recommendation with following modifications:
 - * Instead of creation of FOs it is appropriate to use facilitating FOs
 - * Catalysts should focus their attempts on support to FOs while agencies including project managers should focus on support for JMCs.
- In addition to training, FOs have to hire persons for organizational management.
- FOs need information on irrigation policies; an effort to provide information to the community at large on participatory irrigation management activities is required.
- The government should provide appropriate training to the FOs related to the functions and responsibilities at each stage of FO development (initial stage, joint management and turnover).
- Special efforts are required to establish market linkages with FOs not only for agriculture products but also for other inputs.
- To prevent dependency, constant monitoring on IO activities is necessary and catalyst assistance must be time bound.
- The group agreed on necessity of alternative forms of FO structure depending on the nature of irrigation scheme; however, the basis should be the hydrological units.
- T support, agency personnel attendance at JMC sessions must be made mandatory.
- Steps should be taken to mobilize other community members such as teachers.

10. Results of Group C's Discussions

Group C was asked to comment on the IIMI/ARTI recommendations on Turnover. Group C members made following suggestions:

- The government should reaffirm "turnover" as a policy.
- FOs must be accepted by the government. For this FOs must be strengthened.
- Agriculture and irrigation must come under one Ministry and there must be a united policy on establishment and fostering FOs. There must be a unified secretariat for policy formulation and implementation.
- DC head gate operations can be done jointly with agencies for 5 years and after that operations turnover can take place.
- There must be system of program funding not project funding to avoid project based development.
- "Turnover" should be negotiated; a request for turnover should come from the general membership of FO to PMC.
- FOs must be responsible for safety of structures, and reservations.
- Regular desilting must be introduced.
- There is a need to identify the obligation of FOs and the agencies at national level; based on the needs of each scheme the funds must be worked out for the items such as salaries, equipment, operation funds etc.
- Subsidy must be provided in whatever possible ways to the farming community.

11. Discussions on the Group Presentations

8:45 AM Philippine Experiences, Dr. C.M. Wijayaratna
 9:00 AM Mexican Experience, Dr. J. Brewer
 9:15 AM Group Discussions
 10:30 AM Tea Break
 11:00 AM Presentation and Discussion of Group Conclusions
 12:00 NGeneral Discussion
 1:00 PM Concluding Remarks: Mr. N Abeywickrema
 1:30 PM Vote of Thanks, Conclusion and Lunch

D. Discussions and Outcome

Discussions were lively throughout the first day as participants questioned the various findings of the study. The groups in their discussions considered the specific recommendations and proposed modifications or additions to them. Key points made in the discussions included:

1. Discussion on Findings on FO O&M and non-O&M Activities

There was considerable discussion on the necessity for FOs to take up non-irrigation management activities, a point which was stressed in Mr. Karunaratne's presentation. Several persons felt that such activities could be undertaken but the starting point must be irrigation management, particularly in water short systems. The IIMI/ARTI team and others, however, felt that paddy farming was not sufficiently remunerative and thus other sources of income for FOs and farmers should be looked for. Other issues, particularly those where the farmers have clearly felt needs, may be good bases for organizing farmers. One participant argued that paddy farming is still profitable, but prices are distorted due to various forms of taxes on inputs which raises the input cost and lowers the paddy price. Dr. S.G. Samarasinghe (Director, ARTI), mentioned that the Ministry of Agriculture is planning to use FOs as social/economic and cultural unit to work in all areas.

In his presentation, Mr. Ariyabandu noted that shramadana has become less common. Two participants noted that cleaning canals by shares (*pangu*) has increased and can take the place of shramadana.

In the presentation, it was pointed out that FOs remain dependent upon the agency allocations for O&M. In the discussion it was suggested that it would be better to give funds to the FOs for activities that they cannot handle on their own.

Mr. Arriens (ADB) raised three issues to be considered: a) whether the strength of an FO depends on the number of members in the organization, b) the degree of women's participation in FO/JMC and agency activities, and c) the regulatory framework for FOs, including water rights and relations between FOs and agencies.

2. Discussion on Findings on FO Strength

In the discussion, it was suggested that the IIMI/ARTI team's approach of reporting findings by program is not appropriate. Specifically, because of the large internal differences among schemes in each program, it is not proper to compare the programs. The IIMI/ARTI team replied by noting that the intention was to help the program managers learn lessons from each other regarding the approaches followed in three models. Another participant suggested that lessons could be learned from other efforts as well. Several others noted common features and differences among the programs and suggested that the workshop could address these differences.

One participant noted that there was a top-down approach in organizing farmer in all three programs and suggested that this policy needs reconsideration.

There was some discussion on leadership. Several types of problems were identified and it was suggested that to get their proper attention, FO leaders should be provided salaries or other incentives. Others suggested that FOs should be encouraged to pay their own leaders.

3. Discussion on Findings on Joint Management Committees

One problem noted by Mr. Jinapala and Mr. Nandaradne in their presentations was the lack of attendance by line agency officers at JMC meetings. One participant suggested an incentive program to overcome this problem. Also, it is difficult to command attendance at JMC meetings in Irrigation Department schemes because the officials belong to other agencies. In Mahaweli schemes, attendance is compulsory.

Another point made in the presentation is that catalysts are helpful and should be kept. Others pointed out that although catalysts help to ensure attendance and strengthen JMCs, their withdrawal is government policy. Also, if catalysts have to be continued, the sustainability of the FOs must be questioned. One participant suggested that FOs have to decide whether they want catalysts after two years. If they want them, they should pay the catalysts' salaries.

4. Discussion on Findings on "Turnover"

In his presentation, Mr. Nandaradne pointed out that farmer and officers understandings on turnover are quite different.

A key issue discussed was farmer affordability of turnover. The IIMI/ARTI team pointed out that except for maintenance of concrete structures, other routine maintenance can be fully undertaken by farmers, generally by providing no more than 3 days work per season. However, it was pointed out that being able to handle maintenance and being willing to do so are not the same.

Another issue raised was the possibility of turning over total system management to farmers, perhaps including giving the total government O&M allocation to the farmers. It was suggested that this be tried on a pilot scheme. While technical competence will be a problem, the FOs can hire technical staff when required with the government funds.

5. Discussion on the Findings on the Impact of Participatory Management

Dr. Brewer, in his presentation suggested that savings from participatory management are being used to help O&M on the main system. One participant suggested that this is not desirable. Another noted that despite the shift there has been no real improvement in main system management.

There was a discussion on the idea posed by one participant that FOs should take over total system management and be given the government allocations for this purpose so that they can hire the necessary expertise. Others felt this was not possible.

6. Concluding Remarks on 7 July

In his concluding remarks, Dr. S.G. Samarasinghe noted that the deficiencies observed in existing FOs can be lessons for the formation and strengthening of FOs in future. He suggested that to deal with

Annex B
FINAL WORKSHOP ON STUDY FINDINGS

A workshop to discuss the findings and recommendations presented in the draft Final Report of the M&E Study was held on 7-8 July 1995 at IIMI. This annex summarizes the event.

A. Objective

The objective of the workshop was to review the IIMI/ARTI team's findings from the Monitoring and Evaluation of the Participatory Management Policy and to consider the recommendations from the study.

B. Participants

Ministry of Irrigation, Power, and Energy

Mr. J. Medagama, Secretary
Mr. L.U. Weerakoon, Additional Secretary of Irrigation
Mr. R. Ratnayake, Director, Water Resources Development

Irrigation Department

Mr. W.N.M. Botejue, Director of Irrigation
Mr. D.W.R.M. Weerakoon, Senior Deputy Director (O&M)
Mr. L. T. Wijesuriya, Senior Deputy Director (Rehabilitation)
Mr. K.S.R. de Silva, Project Director (NIRP)
Mr. N.T. Athukorala, Deputy Director (O&M)
Mr. B.M.S. Samarasekara, Deputy Director (IRMU)
Mr. S.A.P. Samarasinghe, Deputy Director

Mahaweli Economic Agency

Mr. N.G.R. de Silva, Managing Director
Mr. S. Samarasinghe, Project Coordinator, Institutional Development

Mahaweli Planning and Monitoring Unit

Dr. R. Wanigaratne, Director

Irrigation Management Division

Mr. G.T. Jayawardena, Project Director (ISMP)
Mr. S. Danansuriya, Deputy Director (Institutional Development)

Department of Agrarian Services

Mr. Jayasena Perera, Deputy Commissioner

Ministry of Planning

Mr. H. Banduratne, Deputy Director, Agriculture
Mr. K. Yoganathan, Chairman, National Water Resources Council

DHV Consultants

Mr. I. K. Weerawardena, Farmer Organization Specialist

Asian Development Bank

Mr. W.T.L. Arriens

Others

Mr. N. Abeywickrema

International Irrigation Management Institute

Dr. J. Kijne, Director of Research

Dr. C.M. Wijayarathna, Head, Sri Lanka Field Operations

Dr. J.D. Brewer, Project Leader

Dr. K.A. Haq, Technical Advisor, IRMU

Dr. C.R. Pannebokke, Agronomist

Mr. K. Jinapala, Social Scientist

Dr. F. Marikkar, Economist

Ms. A. Abeywardene, Social Scientist

Mr. L.R. Perera, Social Scientist

Mr. S.M.K.B. Nandaratne, Social Scientist

Ms. K. Athukorala, Gender Specialist

Hector Kobbekaduwa Agrarian Research and Training Institute

Dr. S.G. Samarasinghe, Director

R. de S. Ariyabandu, Project Leader

Mr. H. Razak, Social Scientist

Ms. S. Dharmalingam, Social Scientist

D. G. Karunaratne, Research Assistant

C. Agenda

The first day consisted primarily of presentation and discussion of the study findings. On the second day, the participants were divided into groups and asked to discuss the three major recommendations in the light of the findings and of their own experiences and knowledge.

Friday, 7 July 1995

8:30 AM Registration

8:45 AM Inauguration of the Workshop: Mr. L.U. Weerakoon, Dr. J Kijne

9:15 AM Introduction: Dr. J. Brewer

9:45 AM FO Activity Performance: Mr. R. de S. Ariyabandu, Mr. D. G. Karunaratne

10:30 AM Tea Break

11:00 AM FO Organizational Management Performance: Mr. H. Razak

12:30 PM Lunch

1:30 PM Joint Management Committee Performance: Mr. K. Jinapala, Mr. S.M.K.B. Nandaratne

2:30 PM Turnover: Mr. R. de s. Ariyabandu, Mr. S.M.K.B. Nandaratne

3:30 PM Tea Break

4:00 PM Impacts of Participatory Management: Dr. J. Brewer

4:45 PM Concluding Remarks: Dr. S. G. Samarasinghe

5:00 PM Conclusion

Saturday, 8 July 1995

8:30 AM Introductory Remarks, Mr. W. T. Lincklaen Arriens

4. Farmer Organization Non Irrigation Management Activity Performance

Income-generating and Financial Activities

Activity	Level of Activity	Benefit
Input Coordination and Supply	0=Not undertaken 1=Coordination of information on needs 2=Retail supply undertaken	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Crop storage and Trading	0=No activity 1=Provide common storage facility 2=Trade in crops	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Providing Credit	0=No activity 1=Facilitate institutional credit 2=Operate credit facility and facilitate institutional credit	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Other Income Generating Activities	0=No activity(s) 1=Facilitate individual farmers to undertake 2=Operate additional business(es)	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds

Non-Income Generating Activities

Activity	Level of Activity	Benefit
Sponsor Community Rituals and Activities	0=No activity 1=FO activities only 2=Other community activities as well	0=None 1=To FO only 2=To wider community
Provide Community Facilities	0=No activity 1=Provide community hall only 2=Provided several facilities	0=Non 1=To FO only 2=To wider community
Sponsor Activities for Special Groups (women, youth, etc.)	0=No activity 1=Activities for one group 2=Activities for 2 or more groups	0=None 1=To local community only 2=To wider community

5. Joint Management Committee Performance

Activity	Performance	Degree of Compliance	Decision Making
Seasonal Planning	0=JMC does not undertake seasonal planning 1=JMC undertakes seasonal planning	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken
Maintenance Planning	0=JMC does not undertake maintenance planning 1=JMC undertakes maintenance planning	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken
Monitoring of System Performance	0=Progress/ performance occasionally discussed at JMC meetings 1=Progress/ performance always discussed at JMC meetings	0=No actions are taken in response to discussions 1=Actions taken in response to discussions	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken
Problem Solving	0=JMC does not try to solve problems 1=JMC tries to solve selected problems; others are forwarded to agencies 2=JMC tries to deal with all problems	0=No actions are taken in response to discussions 1=Actions taken in response to discussions	0=Only one party, agency or FRs attempts to solve problems at JMC meetings 1=Both parties jointly attempt to solve problems

2. Farmer Organization Water Distribution Performance

Activity	Responsibility	Performance
Preparation of schedules: Within DCs	0=Scheduling done by Agency 1=Scheduling done by Agency and FO 2=Scheduling done by FO	0=Scheduling done only after problems arise 1=Scheduling done in time 2=Scheduling done in time and is appropriate
Within FCs	0=No schedules/ scheduling done by agency 1=Scheduling done by Agency and FO 2=Scheduling done by FO	0=Scheduling done only after problems arise 1=Scheduling done in time 2=Scheduling done in time and is appropriate
Operation: Within DCs	0=Scheduling implemented by Agency/Not followed 1=Schedules implemented by Agency and FO 2=Schedules implemented by FO	0=There is disparity between head and tail in adequacy and timeliness 1=There is disparity only in adequacy or timeliness 2=No disparity in adequacy and timeliness
Within FCs	0=Schedules not followed or implemented by Agency and FO 2=Schedules implemented by FO	If water supply to the FC is adequate and timely: 0=There is disparity between head and tail in adequacy and timeliness 1=There is disparity only in adequacy or timeliness 2=No disparity both in adequacy and timeliness
Problem Resolution within DC and FCs	0=FO does not monitor and resolve problems 1=FO resolves problems in ad hoc manner 2=FO resolves problem through clear mechanism	0=Less than 50% of recorded problems solved 1=Between 50% and 75% recorded problems solved 2=Over 75% recorded problems are solved

3. Farmer Organization Maintenance Performance

Activity	Responsibility	Performance Level
DC maintenance: Cleaning and desilting	0=Done by Agency 1=Done by Agency and FO 2=Done by FOs	0=Done poorly 1=Done on time 2=Done adequately and on time
Structure repair	0=Done by Agency 1=Done by Agency and FO 2=Done by FOs	0=Done poorly 1=Done adequately or on time 2=Done on time
FC maintenance: Cleaning and desilting	0=Done by Agency 1=Done by Agency and FO 2=Done by FOs	0=Done poorly 1=Done on time 2=Done adequately and on time
Structure repair	0=Done by Agency 1=Done by Agency and FO 2=Done by FOs	0=Done poorly 1=Done adequately or on time 2=Done adequately
Preventive measures	0=FO has no rules for preventing cattle or other damage 1=FO has rules but no enforcement means (relies on agency) 2=FO has both rules and enforcement means	0=Rules not enforced properly 1=Rules well enforced

REFERENCE

IMPSA. 1992. *Achieving High Productivity and Prosperity of Irrigated Agriculture through Participatory Management*, Irrigation Management Policy Support Activity, Policy Paper No. 10, Colombo.

Annex A
INDICATORS USED FOR ASSESSMENT OF FARMER ORGANIZATION PERFORMANCE

1. Farmer Organization Strength

Features	Conceptual Bases	Performance	Outcome
Structure	0=No constitution or clear structure 1=FO has constitution 2=FO has constitution and clear structure	0=FO has no farmer approval for constitution 1=FO has farmer approval for constitution	0=Required characteristics of FO structure are not met 1=Required characteristics are partially met 2=Required characteristics are fully met
Membership	0=No clear definition for eligibility 1=There is clear definition for membership		0=Less than 50% of potential members are active members 1=Between 50% -75% are active members 2=More than 75% are active members
Leadership	0=No procedures or criteria for selecting leaders 1=There is a procedure 2=There are both procedures and criteria	0=Neither procedure nor criteria are followed 1=Only the procedure is followed 2=Both the procedure and criteria are followed	0=Leaders are not selected by farmers 1=Leaders are selected by a minority of farmers 2=Leaders are selected by majority of farmers
Funding	0=No planned ways to raise funds 1=Plans to raise funds from membership fees and agency funds 3=Sustainable procedures defined	0=FO has poor funding position 1=FO has good funding position	0=No funds 1=Funds primarily from agency O&M allocations 2=Funds primarily from membership levies 3=Funds from contracts and FO business activities
Financial Management	0=FO has no financial reporting and disbursement procedures 1=FO has financial reporting and disbursement procedures.	0=FO does not follow financial reporting and disbursement procedures 1=FO follows financial reporting and disbursement procedures	0=Funds management not reported to membership 1=Funds management acceptable to some farmers 2=Funds management acceptable to most farmers
Use of Funds	0=Plans are not prepared to use funds 1=Plans are prepared to use funds	0=Funds are not used for any activity 1=Funds are used for FO activities	0=Use of funds has brought no benefit to FO 1=FO activities diversified with use of funds 2=Strong FO finances through diversified activities
Internal Communication	0=No defined channel of communication 1=Informal channels identified 2=Regular channel established through meetings	0=No FO meetings held 1=Meetings held irregularly 2=Regular meetings are held	0=No systematic information flow between farmers and FRs 1=FO committee meetings only (Info flow among FRs only) 2=Meetings held between farmers and FRs

These caveats aside, the Kaltota methodology seems to be a very practical approach to monitoring and evaluation of the progress of participatory management in MANIS schemes. Costs are minimal wherever IOs exist. If IOs are not available then some other persons will have to be recruited. However, the total labor requirement is small. The analysis itself also takes very little time since most of it is carried out by the data collectors on the formats. Overall then, this is an effective but not expensive system.

9.4.6 *Comparison of the Kaltota System with IMD and MEA Systems*

IMD's ME&F system is dependent on the willingness of FO office-bearers to play their part. However, it seems that they are generally unwilling to do so. The Kaltota methodology avoids this problem by having the data collected by those who want to use it, namely government employees.

At the moment, the MEA is not collecting any data on FOs comparable to that collected by the Kaltota system, although the JMC records it gets are superior to that collected by the Kaltota system on JMCs.

9.5 *Recurrent Surveys as a Monitoring Method*

Since the number of irrigation schemes and the number of FOs to be covered under the three programs are large, it is necessary to work out a cost effective methodology for monitoring. One option is to install appropriately adapted versions of Kaltota system in all schemes. However, an alternative approach that may be more cost effective is to use recurrent surveys with teams based out of regional or national headquarters. The following comments are based on our experience with this approach.

9.5.1 *Suggested Methodology*

The basic approach would be to have a team from Colombo or from a regional office visit and collect data on FOs and schemes at regular intervals. Our experience suggests that once a season would be enough for a relatively simple monitoring system that would allow senior program managers and policy makers to keep track of the progress of FOs, JMCs and turnover.

Rather than use the rapid assessment approach used by the IIMI/ARTI teams, it is strongly suggested each recurrent survey team would make use of relatively detailed data collection formats like those developed for the Kaltota experiment. These would provide the data needed to make use of the indicators developed earlier, perhaps with modifications.

The collected data should include data on farmer organization strength, FO water distribution performance, FO maintenance performance, FO performance in non O&M activities, JMC performance, status of turnover, and any special problems noted by system manager and farmers. We strongly suggest that additional items be kept to an absolute minimum to make it possible to carry out the work efficiently.

Most information would be gathered from agency officers and FO office-bearers. However, for a few items it will be necessary to interview some general farmers. There will be no need for a statistically valid sample of farmers.

9.5.2 *Costs of Recurrent Surveys*

The total cost is heavily dependent on the number of FOs and schemes to be assessed. Assuming that a trained investigator can collect data on 5 FOs per day, and an additional day is needed for each scheme, then the total labor required to cover all FOs in all schemes under the INMAS, MANIS, and Mahaweli programs would come to 700 - 800 person days or a full year's work for a team of four persons. In

addition, another one or two man-years would be needed for data compilation. Sampling would cut the labor and transportation costs proportionally.

If samples are to be used, our experience is that the samples must be considerably larger than the sample of 30 FOs in 18 schemes used for this study. Far too much variation is missed in a sample this small. Also, unlike our sample, the sample must be selected randomly.

One suggestion is to create regional teams attached to the IMACs for Irrigation Department schemes. Similarly, each Mahaweli scheme could have its own team. Another suggestion is to contract with a research institute to undertake sample surveys.

9.5.3 *Comparison of the Kaltota Methodology and Recurrent Surveys*

The Kaltota methodology and the recurrent survey idea sketched out above are very similar since both make use of formats to collect data to fit the indicators developed earlier. The indicators are used for the analysis. The major differences between the two lie in who collects and analyzes the data. The Kaltota methodology has it done at scheme level while the recurrent survey methodology would have it done at supra-scheme level.

The main advantage of the Kaltota approach is that it supplies data directly to scheme managers. However, most scheme managers claim that they already have the information they need. A second advantage is that, wherever scheme personnel are sufficient, it requires no new personnel and it minimizes transportation costs.

The recurrent survey approach has the advantages that it can monitor participatory management in all schemes without reference to presence of IOs or other personnel and that it will help to insure that comparable data is collected from all schemes. Also, it provides a ready-made means of gathering extra data needed by policy makers.

9.6 Recommendations

We strongly believe that the government should have an effective way of keeping track of the progress of FOs, JMCs and turnover. Based on these experiences and findings, we recommend:

1. That the IMD consider whether they wish to modify the ME&F system to solve the problem of dependence on IOs for monthly reports. Specifically, they may wish to reconsider the idea that FOs will be interested in collecting data for themselves and for the IMD. The lessons from the Kaltota experiment may be useful.
2. That the MEA install its monitoring and evaluation system as soon as possible. The indicators may be helpful in this regard.
3. That the Irrigation Department consider developing a recurrent survey type monitoring programs for MANIS schemes based in the IMACs.

in 1991. Altogether 11 DC level farmer organizations have been formed covering the whole scheme. Three federated FOs have been formed above the DC level.

An IIMI researcher prepared data collection formats which were finalized following discussions with ID personnel. These formats, while lengthy, are designed so that the questions are direct and the scoring can be carried out directly from them.

As planned, the Project Manager provided the scheme level data on the prepared formats. He said that it took him about 30 minutes and it was not difficult. The IOs collected the data from the FOs. Initially, each IO took about 1.5 hours to collect the data required, but shortened that time to less than one hour when they became used to filling the formats. It took the two IOs one whole day to get all the information required. According to them, collection of data in future would not be as time consuming as they know the data required.

Data collection was greatly facilitated by the fact that the FOs were maintaining proper records on finance, attendance, membership etc. Problems arose only when collecting data on problem solving since very few instances of problem solving were recorded. Also, there was little recorded data on PMC performance. Data on FO operation and maintenance performance was initially collected at the system level. However, detailed data on individual FOs was required to evaluate the FO performance more accurately. Therefore, additional field data was collected after improving the formats. The finalized formats and data collected from the Kaltota Project are given in Volume III.

9.4.3 Evaluation of the Kaltota Farmer Organizations

The indicators developed for the project were used as the basis for analysis of the data. Two changes were made in the indicators.

- The FO non O&M activities performance indicators was separated into two indicators, one for income generating activities and one for non-income generating activities because they have different meaning to the people.
- An additional activity - JMC Communication - was added to the JMC Performance indicators. JMC communication was evaluated by determining whether a clear communication channel to farmers has been created through JMC and FO meetings by taking the meetings as the formal channel of communication.

Comparability was a major problem. The three sub-system FOs took no part in water distribution or maintenance and could not be scored on these. Also one group of FOs was not scored on operations on DCs because the DCs were impossible to manage. Another FO had no DCs and had a very unreliable water supply to its FCs. Various parts of the items to be scored were left out for this reason.

It was decided to rank FOs on four levels - Very weak, Weak, Fair and Satisfactory - based on percentages of possible scores achieved. The evaluation showed that while most of the 11 DCOs were evaluated as weak in water distribution and maintenance and very weak in income generating activities, those DCOs who get their water from the main channels have satisfactory FO Strength scores whereas the other DCOs are weak or very weak in this item. This seems to reflect emphasis placed upon one group of DCOs by the IOs. The evaluation also showed that the sub-system FOs, although they do not take part in water distribution or maintenance, show satisfactory FO strength and do undertake other activities satisfactorily. This may imply that the farmers find these organizations useful for non O&M activities.

Detailed evaluation of each FO can be done by using the same indicators. In particular, analysis of the scores for the various aspects of the indicators can help understand some of the weaknesses of each FO. Examples are given in Volume III.

9.4.4 *Scheme Level Evaluation*

An attempt was made to evaluate the performance of the Project Management Committee using the indicator for JMC performance. However, the PMC is not functioning properly. Meetings are not being held, even seasonally. The result was that no points could be given to the PMC in any category.

Information on agency performance in support of participatory management was supplied by the Project Manager after consultation with the Farmer Representatives. Also, according to the Project Manager, no O&M responsibilities have been handed over to the FOs formally or informally in the Kaltota project.

Overall conclusions can be reached from this data. For Kaltota, the conclusions are that while FO strength is satisfactory, the FOs at Kaltota are weak in actual performance. This implies that more needs to be done to help them with their activities. None of these FOs has yet reached a level appropriate for handing over O&M responsibilities. The PMC in Kaltota is not functioning properly. There are also some weaknesses in agency support but the data is not complete enough to pinpoint the problems. No recognized turnover has occurred.

Inferences about the participatory management effort can be drawn from these findings. For example, the fact that the FO Strength is relatively strong but FO Performance in O&M and other activities is weak suggests that the IOs and Project Manager are working to create FOs but encouraging them to undertake some other activity. Since Kaltota is being rehabilitated under NIRP, which requires FO agreement to the rehabilitation, it is probable that efforts have been directed at creating FOs for rehabilitation.

9.4.5 *Evaluation of the Kaltota Experiment*

The system devised for Kaltota had two strong points:

1. The data are easy to collect if the FOs have records. Collection takes little time and effort; in Kaltota all needed information from 14 FOs and scheme officers was collected within a day by three people. This work would need to be repeated only twice a year for continuous monitoring.
2. The data collection system was able to reduce the data on FOs to numeric scores on five key performance indicators. This facilitated both the analysis of individual FOs and the analysis of the progress of the FOs within the whole scheme. The JMC Performance indicator allowed evaluation of the PMC.

The Kaltota methodology also showed a weakness. Although data were collected on agency support, it was not complete enough to provide guidance to project or program managers.

There are two potential problems in the application of the Kaltota methodology to other schemes:

- If the FOs do not keep records, it may be more difficult to collect the data needed for evaluation of FO strength.
- Data collection was carried out by the Project Manager and IOs, both of whom are very familiar with the scheme. If IOs are not available, data collection may take somewhat longer and be more difficult.

One difficulty with these indicators is that there is a degree of subjectivity involved in making some of the assessments, particularly those for the FO Strength indicator. Hence, there is a need to see that the persons doing the scoring have a clear agreement about how to interpret the data. This problem seems to be inevitable when reducing complex data to relatively simple scoring systems.

Inspection of Table 9 shows some findings that seem to contradict the conclusions reached in Volume II concerning the relative development of FOs and JMCs in the three programs. These apparent contradictions can be explained as follows:

- As expected, INMAS FOs have the highest FO Strength scores. However, MANIS FOs outscored Mahaweli FOs. In part, this is due to scorer subjectivity; the Mahaweli FOs were scored by IIMI researchers while the INMAS and MANIS FOs were, with three exceptions, scored by ARTI researchers. In part, this difference seems to be due to sampling error. Most of the MANIS sites were selected by the Irrigation Department because they are NIRP sites, thus they are less representative of MANIS schemes in general than are the Mahaweli sites of Mahaweli schemes. For example, if the top two scoring MANIS sites are dropped, the average MANIS score drops to 17.1.
- The FO Water Distribution, FO Maintenance and FO Non O&M Activities scores are as expected.
- On JMC Performance, as expected, MANIS schemes scored far lower than either of the other two categories of schemes. However, the Mahaweli schemes scored higher than did the INMAS schemes. In our opinion, this reflects current reality, although the difference is smaller than suggested by the difference in scores.

The indicators rank the programs in the order in which we would rank them based on the fuller information available. Once the difficulty with subjectivity in the FO Strength indicator is overcome, they also rank the individual FOs and JMCs accurately.

There is a problem with comparability among some schemes. Many MANIS schemes lack some levels of canal. For example, one PD scheme, Gampola Raja Ela, lacks distributary canals totally and has only three recognized field canals. Most farmers get their water from outlets directly from the main canal. Lack of DCs means that it is not accurate to give scores to Gampola Raja Ela for water distribution on DCs or for DC maintenance. In turn, this means that the raw score for Gampola Raja Ela is not comparable to the raw score for another FO which has DCs.

The solution to this problem is to score each FO and JMC on each indicator by taking the percentage it received of the possible score for its particular situation. Thus, Gampola Raja Ela's raw score for FO Maintenance was 8 or 42% of the maximum possible score of 19. But if DCs are not considered, the maximum possible score is only 11. Thus Gampola Raja Ela should be scored as 73%. This would make its performance comparable to that of Wennoruwa whose score was 13 out of 19 or 68%.

Properly used, the indicators provide a reasonably accurate way to measure FO and JMC progress.

9.3.3 *Uses of the Indicators*

As indicated in Section 9.2, there is a need for measures or indicators of progress in participatory management for two main purposes:

- To provide policy makers and top program managers with comparative data on the progress and performance of the FOs and JMCs within schemes and among schemes.
- To provide an objective way to evaluate the strength and performance of FOs before considering them for turnover.

For the latter use, it is necessary to set standards of performance. Based on the findings of the overall study, we suggest the following as a first approximation of minimum acceptable percentage scores for turnover:

- FO Strength : 61% of maximum
- FO Water Distribution: 61% of maximum
- FO Maintenance: 61% of maximum
- FO Non O&M Activities: 41% of maximum
- JMC Performance: 61% of maximum

These numbers can be refined over time as more experience is gained in rating FOs and JMCs.

9.4 Improving M&E of Participatory Management in a MANIS Scheme

IIMI discussed with the agencies the possibility of assisting the agencies in improving their M&E systems. Neither the IMD nor MEA were interested in having IIMI's direct assistance. However, the Irrigation Department showed interest and worked together with IIMI to devise an M&E system that may be useful for MANIS schemes. This system was tested at Kaltota scheme in October 1994.

9.4.1 *Defining the Data Needs and Planning Data Collection*

Discussions about information needs with the Deputy Director (Operations and Management) and with field personnel at Kaltota scheme led to the decision to collect information on strength of the FOs, FO performance, JMC performance, agency support for FOs, and performance of the IOs.

Based on the indicators developed by the IIMI/ARTI team, draft formats were prepared to collect the following information:

1. **FO Strength:** basis of FOs, FO structure, selection of FRs and office bearers and their responsibilities, membership, communication: holding of FO committee and general membership meetings, funding positions, uses of funds, FO assets, legal recognition of the FO.
2. **FO Performance:** preparation and implementation of water distribution schedules, involvement in maintenance, problem solving, non-O&M activities.
3. **JMC Performance:** holding of JMC meetings, seasonal planning, oversight of seasonal cultivation progress, problem solving.
4. **Agency Support for FOs:** satisfaction with agency support, performance of IOs.
5. **Formal Turnover:** number of cases.

It was also decided that IOs would collect the field level data and the Project Manager would collect the scheme level data. Several items were to be collected once only, others annually, and others seasonally.

9.4.2 *Data Collection*

Kaltota scheme is an anicut scheme situated in Ratnapura District. The design command area of the scheme is about 1900 acres; the actual irrigated area now is about 2350 acres. The scheme is highly dilapidated and now being rehabilitated under NIRP. Two Institutional Organizers (IOs) were appointed

M&E Needs of Program Implementors We conducted interviews with managers charged with institutional development and other officers and farmers in the Process Documentation sites to find out how well the existing systems are serving their information needs. The findings showed:

- The MEA officers indicated a need for better information on the status of the FOs and on farmers' opinions about relevant issues.
- In INMAS schemes, the reported need was for information about agency finances - to pass on to the FOs - and on IO activities. The IMD officers feel that their informal sources of information give them an adequate picture of the status of the FOs.
- MANIS Project Managers often are stationed far from the schemes, this making it difficult to get information about the FOs. They are forced to depend upon IOs, if they exist, and on infrequent meetings with farmers, often at Project Management Committees meetings. In so far as they are concerned with promoting participatory management, they have a clear need for information about the status and activities of FOs.

For Mahaweli and MANIS schemes, therefore, there is a need for more information on the status of FOs.

Above the individual scheme level, government officers charged with promoting participatory management need measures of progress. Generally these are numbers - how many FOs formed, how many JMCs formed, to how many FOs have specific O&M responsibilities been turned over. There is neither desire nor need for more complicated measures of progress. Thus the major weakness that now exists is the lack of good measures for FO status and FO performance that allow quantification and comparison among FOs, schemes, programs, etc.

M&E Needs of Policy Makers We did not conduct a separate survey for policy makers because it is apparent that policy makers do not require monitoring as such. Policy makers have a need for information relevant to the specific questions that they are facing. Since the key issues arise only at intervals and differ each time, it would be a mistake to establish a formal monitoring program to provide data for policy makers. Insofar as the information needed can be supplied by the information available to program managers, there is no need for special efforts. If there are questions that cannot be answered from normal program management monitoring efforts, then a special one time study should be launched.

Therefore, policy makers should have the means to commission special studies when they need them. It is for this purpose that various research institutes, including the Hector Kobbekaduwa Agrarian Research and Training Institute, and the Irrigation Management Research Unit were created.

9.3 Indicators of Key Characteristics of Participatory Management

9.3.1 Development of Indicators

To help provide quantifiable measurers for the purpose of monitoring and evaluating participatory management, the IIMI/ARTI team developed a set of indicators for

- Farmer Organization Strength
- FO Water Distribution Performance
- FO Maintenance Performance
- FO Performance in Non Irrigation Management Activities
- Joint Management Committee Performance

We also developed draft indicators for scheme water availability, agency water distribution to FOs, and agency performance in support of FOs. However, these indicators were not found to be useful in analyzing the data from the study. They refer to support for the process of developing participatory management, not for its results. Another indicator for degree of turnover has potential for development but is not discussed here (see Volume III).

Four basic principles were followed in developing these indicators:

- Each indicator would provide a numeric score.
- Each indicator would score the basic activities of characteristics making up the overall item whose performance is to be measured.
- Each indicator would deal with three key aspects of each activity or characteristic, if relevant: defining what was to be done, how well it was done, and what the outcome was.
- The data needed to score each item should be easy to collect.

The items evaluated for the indicators include:

1. **FO Strength:** FO structure, membership, leadership, funding, financial management, use of funds, internal communication.
2. **FO Water Distribution:** scheduling within FCs, scheduling within DCs, operation within FCs, operations within DCs, problem resolution.
3. **FO Maintenance:** DC structure repairs, FC structure repairs, DC cleaning and desilting, FC cleaning and desilting, damage prevention
4. **FO Non O&M Activities:** input coordination and supply, crop storage and trading, providing credit, other income generating activities, community rituals and activities, providing community facilities, activities for special groups.
5. **JMC Performance:** seasonal planning, maintenance planning, system performance monitoring, problem solving.

The indicators are give in full in Annex A and discussed in Volume III of this report.

9.3.2 Evaluation of the Indicators

These indicators were tested against data collected by the Recurrent Surveys and Process Documentation. The ranges and average scores for the RS/PD sample FOs in the different programs are given in Table 9.1.

Table 9.1: Average Indicators Scores for RS/PD Sites

Indicator	Max Score	INMAS		MANIS		Mahaweli	
		Av.	Range	Av.	Range	Av.	Range
FO Strength	36	29.4	23-35	20.0	7-35	15.9	5-24
FO Water Distribution	20	15.3	9-18	8.3	4-13	12.8	5-15
FO Maintenance	19	10.2	7-13	9.3	5-14	9.0	5-10
FO Non O&M Activities	28	8.5	5-11	3.2	0-11	6.8	0-13
JMC Performance	15	10.4	8-12	4.0	3-9	12.5	12-13

CHAPTER 9

SUGGESTIONS FOR MONITORING THE POLICY IN THE FUTURE

9.1 Need for Monitoring

The implementation of participatory irrigation system management is a process whose goals and implications change even as the process proceeds. For example, the evaluation made by this study suggests that the impacts that can be expected from the policy are not what was expected at the time of the formulation of the Cabinet Paper in 1988. Moreover, the turnover process turns out to be more complex than anticipated. There is a need for monitoring and evaluating this process as it proceeds so that changes can be made in policies and programs to make the process most valuable to farmers and to the country as a whole.

As part of the study therefore, we documented the monitoring and evaluation systems being used by the implementing agencies, interviewed managers about their information needs, developed indicators of key characteristics of farmer organization and joint management committee performance, and tested these in the field in an experiment in improved monitoring.

9.2 Existing Monitoring and Evaluating Systems

9.2.1 *Irrigation Management Division M&E Systems*

Not surprisingly, as the agency whose primary reason for being was the INMAS program, the IMD has been the most concerned with monitoring and evaluating the progress of participatory management in the INMAS schemes.

Initially, the IMD required the Project Manager in each scheme to prepare a set of regular plans and reports. These were found to be time-consuming and the information was rarely used. In 1989, the Irrigation Systems Management Project (ISMP) developed an alternative monitoring system that required so much data that it was not adopted. In 1991, the ISMP developed a revised M&E system, called the Monitoring, Evaluation and Feedback (ME&F) System.

The ME&F uses six formats. Formats ME-1 through ME-5 are to be filled out once a season; they are designed for seasonal planning and evaluation of seasonal cropping performance from the field channel level of the scheme level. Format ME-6 is a monthly evaluation of FO progress and problems. All are to be filled out by or with the FOs. The Project Manager is required to tabulate the information in the monthly reports to be circulated to interested local agencies and to the IMD head office. It is expected that the monthly tabulations will be discussed at PMC meetings. For the seven schemes in the ISMP, the head office prepares a monthly progress summary report that is sent to various managers.

A major problem is that many, perhaps most, of the FO office-bearers will not fill out the ME-6 format each month without encouragement and help. For example, in Kirindi Oya, as long as IOs were working with the FO Presidents, they filled out and sent in their reports each month. As soon as the IOs were eliminated, the FO Presidents stopped. The ME&F system stopped functioning in Kirindi Oya sometime in late 1993 as the IOs prepared to leave. This problem is also reported in other INMAS schemes.

The ME&F system has now been introduced in 19 INMAS schemes but data reports are actually being produced only in 10 schemes. At the end of 1994, IMD conducted training sessions for its officers to prepare them for the introduction of ME&F in all INMAS schemes.

9.2.2 *Irrigation Department Monitoring and Evaluation Systems*

Until very recently, the Irrigation Department had no regular monitoring of participatory management in MANIS schemes. Now, under the National Irrigation Rehabilitation Project (NIRP), consultants have been working with ID Project Managers to evaluate the FOs. Their efforts have not been codified into a formal system but they do provide feedback. In addition, the Irrigation Research Management Unit has been evaluating the progress of FOs under NIRP.

Also, in 1994 the Irrigation Department established Irrigation Management Cells (IMACs) in each range office. Among other things, each IMAC is to monitor institutional development activities, particularly those under NIRP. They have not yet designed a monitoring and evaluation system for institutional development. Some have started to collect information on the number of FO meetings held, details of shramadanas, FO funds, etc. from NIRP schemes.

9.2.3 *Mahaweli Monitoring and Evaluation Systems*

Both MEA's Institutional Development Unit (IDU) and the MASL's Planning and Monitoring Unit (PMU) are involved in monitoring participatory management in Mahaweli schemes. However, until 1992, monitoring consisted solely a) of records kept by the Resident Project Managers (RPMs) of the numbers of FOs in their schemes, and b) of some efforts in System B under the MARD Project.

Following the establishment of the IDU in late 1992, the RPMs' records were compiled and updated by IDU officers. In addition, with the establishment of joint management committees in 1993, IDU officers began to prepare regular reports on the progress of these committees. Also, in 1992, the Managing Director of MEA requested the PMU to monitor the progress of participatory management. No action was taken by the PMU until late 1994.

In late 1994, the PMU carried out a pilot survey of the strengths and performance of a few farmer organizations in two Mahaweli schemes. They have developed plans for a more comprehensive survey that has not yet been carried out, partly because IIMI's larger survey had been carried out by that time and it was felt that PMU's work would be a duplication of effort.

The IDU in Colombo now collects data and reports on coordinating committee activities, training on institution building, legal recognition of FOs, turnover process, and the activities of Institutional Development Officers (IDOs) and Institutional Organizer Volunteers (IOVs). Progress is discussed with the Managing Director at the monthly meeting of the IDU and at the monthly meetings with the Assistant Managers (ID) from the schemes.

Because of the size of the schemes and the relatively small number of MEA officers working in institutional development, the amount of information about the FOs provided by these reports is limited. Because of the need for more information and the delay by the PMU in creating a more comprehensive monitoring system, the IDU has begun developing plans for a more comprehensive monitoring program.

9.2.4 *Weaknesses in the Existing M&E Systems*

Various government employees and others are responsible for implementing the participatory management policy. Each such person has some need to know how the process is going. These persons can be considered in two categories: program implementors, including the persons charged with organizing farmers, creating joint management committees, etc., within particular irrigation systems; and policy makers, including those responsible for evaluating the results of the programs and for making changes in the program as needed to achieve the overall goals of the programs.

by a unified secretariat under a board drawn from both ministries. These measures will ensure a unified policy.

- (Workshop) Funding for farmer organization and turnover activities should be provided on a program basis to deal with the whole sector rather than on a project basis that deals with only a few schemes at a time.
- (Workshop) For turnover, farmer organizations must be formally recognized by the government; for this many farmer organizations need to be strengthened.
- (Workshop) The irrigation agency personnel in a turned over scheme will be answerable to the Project Management Committee for that scheme.
- Operations of distributary channels and below, or equivalent portions of systems without distributary channels, should be turned over to farmer organizations as soon as the channels are repaired to make them operable.
- Operations of distributary channel head gates, branch channels, main channels and headworks should be turned over to appropriate level farmer organizations or joint management committees upon the request of the farmer organizations or joint management committees with the proviso that the farmer organizations or joint management committees take full responsibility for hiring, paying, and supervising the necessary operating personnel. The exact details can be negotiated following a request from the relevant group of farmers to the Project Management Committee in each scheme.
- (Workshop) For operation of distributary channel headgates, it is suggested that they be jointly operated for a period of less than five years, following which operations should be handed over to farmer organizations.
- (Workshop) Farmer organizations should be made responsible for the safety of structures and protecting reservations from encroachments and damage.
- Jungle clearing and regular desilting of distributary channels and field channels or their equivalents should be made the unambiguous sole responsibility of farmer organizations; no funds should be provided to farmers for this activity.
- The government should come to a decision about how much it is willing to subsidize other aspects of distributary channel and field channel maintenance, including painting and greasing of metal controls, major and minor earthworks such as the repairs of scours and washouts, and repair of concrete and masonry structures.
- (Workshop) Once the basic decision about the obligations of farmer organizations and government are worked out at national level, specific subsidies and subsidy levels should be worked out at scheme level based on an assessment of needs. These subsidies can include salaries, equipment, operation funds, and others.
- The mechanism for providing subsidies should be defined. There are several alternatives ranging from giving the irrigation agency full responsibility and the necessary funds to making the FOs responsible but giving them a simple annual cash grant.

- **The government should define a period of time by the end of which the transfer of responsibilities must be accomplished. No more than five years following completion of needed repairs should be needed to complete the transfer. During this period, a time of "joint management" should be defined during which the agency officers supervise and assist the farmer organizations in undertaking their responsibilities.**

8.2.2 Direct Assistance to Farmer Organizations and JMCs

Because FOs now exist in the majority of schemes, there is no need for large catalyst campaigns to create them. However, the existing FOs have a variety of weaknesses that can be remedied through direct assistance.

Although the Agrarian Services Act and Irrigation Ordinance have now been amended to support participatory management, there may be a need to make further legal changes. One possible need would be to amend the Irrigation Ordinance to allow FOs to withhold water from those who abuse the system.

Recommendation Number 2

We recommend that catalyst efforts, farmer training, and other direct support activities for FOs and JMCs be continued. These efforts are needed for the following:

- Catalyst efforts are needed to facilitate the organization of farmers in schemes where no farmer organizations exist. Catalysts are also needed to assist agencies and farmer representatives in the creation of joint management committees in schemes where they do not exist.
- Catalyst efforts, training, and publicity should focus on educating all farmers, not just farmer organization leaders, about participatory management. Specific efforts should be made to educate farmers about organizational management, including handling finances, selecting leaders, etc.
- (Workshop) Training should be provided to the farmers at the appropriate time on the functions and responsibilities of the farmer organization during each stage (initial, joint management, and turnover) of farmer organizational development.
- (Workshop) When needs arise, farmer organizations should be encouraged to hire trained persons (e.g. bookkeepers, auditors) to carry out specific organizational management tasks.
- Widespread training about technical aspects of irrigation should be continued.
- (Workshop) The relevant government agencies should make technical information on the irrigation schemes available to the farmer organizations.
- Where special problems exist, e.g. land tenure problems, support efforts should focus on finding solutions to those problems.
- Special efforts should be made to offer opportunities to farmer organizations to take up new businesses. One business that should be fully supported by the government agencies is paddy marketing. Government agencies should assist in establishing linkages to other relevant markets.
- Efforts should be made to prevent development of dependency of the farmers on the catalyst agents as has been reported from some INMAS schemes. This can be done by constant

monitoring of catalyst activities; catalysts should not provide direct services but only instruction, advice, and guidance. Catalyst assistance should be time-bound.

- **(Workshop) Efforts should be made to mobilize other community members, such as teachers, grama niladhari, and religious leaders in support of participatory management.**

Education about organizational management is, in the modern world, likely to be of far reaching importance for almost all persons. Thought could be given to including it in the school curriculum.

8.2.3 Models for Farmer Organizations

Creating and strengthening FOs requires that the catalyst agents start with a model of the organization to be achieved. All three programs are now operating with the INMAS model, although the study showed that it is not appropriate for several types of irrigation system coming under the MANIS program. Single main channel schemes and low country drainage schemes are two such types. These schemes are sufficiently numerous that there is a need to develop alternative model organizations.

Recommendation Number 3

We recommend that alternative organizational forms be developed for the various types of schemes for which the INMAS model is not appropriate.

- **(Workshop) Farmer organizations should be organized on the basis of hydrological units whenever possible.**

8.2.4 Turnover

There is an urgent need for clarification of turnover. At the moment, all involved are confused. The key question is how maintenance responsibilities for distributary channels are to be divided between the government agency and FOs.

There are several advantages to turning all responsibilities, including financing, over to FOs as was envisioned in the 1988 Cabinet Paper. Complete turnover will make the responsibilities clear to all and should result in more efficient use of government funds since those funds will be concentrated on main system management. Study findings suggest that there would be no adverse effects on maintenance. However, if the profitability of irrigated agriculture declines further, farmers may find it difficult to bear the costs. Also, it may be politically unpopular to put the whole burden onto the farmers. Therefore, there is an argument for providing continued government support for maintenance.

Recommendation Number 4

We recommend that the government clarify the policy on turnover, including defining what powers and responsibilities will be turned over and how the government will continue to support irrigation services. We suggest that the following should be part of this clarification:

- **Turnover should be publicly declared to be a fixed policy that applies to all FOs in all schemes. If necessary, it can be explained that this is an alternative to imposing the irrigation service fee mandated by law.**
- **(Workshop) To ensure an effective and united policy, both agriculture and irrigation should be placed under one ministry. Alternatively, the policy can be implemented and supervised**

- Agency support also includes working cooperatively with the FOs and JMCs and responding positively to their initiatives. Irrigation Department officers in INMAS schemes have gradually become more cooperative over time so that now they work well with FOs and JMCs. However, the officers of other agencies, except the IMD, do not yet work well with FOs and JMCs. MEA officers are now learning to work with FOs and JMCs. Overall, more progress is needed.
- In some schemes, particularly INMAS schemes, some catalyst agents, including Project Managers, Institutional Development Officers and Institutional Organizers, have worked to make the FOs dependent on their (the officers') services rather than self-reliant. This has created a new kind of dependency. Examples from other systems show that this dependency need not be created.
- Although participatory management has clearly improved water distribution, there is no evidence of increased crop production or increased farmer incomes resulting from participatory management. However, improved water distribution decreases the risks of irrigated agriculture and thus should raise the long run production.
- There is no evidence of reduction of government O&M expenditures as a direct consequence of participatory management. However, the amounts spent by the government on distributary canal and field channel O&M have decreased over time in real terms, except in Mahaweli schemes where expenditures have remained the same or have increased. The general decrease in expenditures has occurred while participatory management has improved water distribution and has ensured that maintenance continues. In many cases, a greater portion of government O&M funds are now being used on the main system, thus prolonging its life. Overall, participatory management means that more O&M work is being done with a decreased amount of government funds.

8.2 Recommendations for Improving the Results of Participatory Management

Overall, we believe that the participatory management policy is moving in the right direction. Water distribution has improved and, we assert, maintenance has also improved. Despite the failure to have some of the expected impacts, the benefits of participatory management in water distribution and potential to increase sustainability are sufficient reasons to continue the policy. However, there is a need to reconsider certain aspects of the organization and support for the policy.

Below are given our recommendations based on our findings. These recommendations were discussed in a workshop in July 1995 (see Annex B). The discussions resulted in some changes in wording and in the addition of some additional recommendations. The added recommendations are clearly marked.

8.2.1 *Improving Agency Cooperation with FOs and JMCs*

Participatory management is a government program that has been accepted by many farmers because of its benefits. From the farmers' point of view, the major benefit of participatory management has been to give the farmers more power in negotiating with government agencies over services and resources. Thus the most important form of support to be provided is to make sure that the agencies respond positively to the farmer organizations (FOs) and joint management committees (JMCs).

A major finding of the study is that government agency cooperation with FOs and JMCs can be greatly improved. This is not just a matter of attitude but also of procedures within the agencies. The legal foundations now exist in the amendments to the Agrarian Services Act and the Irrigation Ordinance; it is now time to change the agencies themselves.

Recommendation No. 1

The IIMI/ARTI team recommends that steps to be taken to make government agencies dealing with agriculture more responsive and more supportive of farmer organizations and joint management committees. These steps should include:

- **Within each agency, the agency should redefine the job descriptions of officers to reflect the tasks and attitudes needed to provide explicit support for farmer organizations and joint management committees. This redefinition should make certain activities mandatory, including attendance at JMC meetings and providing technical assistance and advice to FOs and JMCs. Reference should be made to the job redefinitions proposed by the Institutional Strengthening Project for the Irrigation Department and to those proposed specifically for Uda Walawe under the Irrigation Management and Crop Diversification Technical Assistance. In particular, the job descriptions of Technical Assistants/Project Managers in MANIS schemes should be redefined to ensure that the TA/PMs have the time and motivation to play their roles as Project Managers effectively.**
- **(Workshop) An inter-agency committee should be set up to redefine job descriptions and qualifications for staff recruitment.**
- **Intensive training should be provided to government officers in all relevant agencies about their roles and functions with respect to farmer organizations and joint management committees and about the rights and responsibilities of the FOs and JMCs.**
- **In order to ensure that officers act in supportive ways, their performance in supporting farmer organizations and joint management committees should be made an explicit part of their performance evaluations.**
- **The government should make it a policy to support farmer organization and JMC decisions. This may mean delegating greater authority to local agencies so that they can respond effectively to JMC decisions. It also means that government officers should support farmer organization decisions against complaints from individual members.**
- **(Workshop) The Secretaries of Irrigation and Agriculture should issue a joint declaration of the participatory management policy. The policy should be widely publicized through various media. The Central Coordinating Committee for Irrigation Management should be responsible for planning this effort.**
- **A major effort should be made to publicize among the farmers the rights and responsibilities of farmer organizations and joint management committees as defined in by-laws to the amended Agrarian Services Act and in the amended Irrigation Ordinance.**
- **(Workshop) Farmers should be consulted about any future amendments to the relevant legal acts.**
- **(Workshop) Regular monitoring and evaluation of the progress of the policy should be undertaken, perhaps by the Hector Kobbekaduwa Agrarian Research and Training Institute. An annual workshop should be held to review the performance of the irrigation management policy activities.**

CHAPTER 8

RECOMMENDATIONS ON IMPROVING PARTICIPATORY MANAGEMENT

8.1 Summary of Main Findings

The main findings of the study can be summarized as follows:

- There has been good progress in establishing farmer organizations. Farmer organizations (FOs) have been established in almost all parts of all of the INMAS and Mahaweli schemes. FOs also exist in most MANIS schemes. Overall, 85% of schemes in the three programs have FOs.
- The organizational strength of the FOs varies greatly among the schemes. FO strength in INMAS schemes is reasonably high; most farmers are members and most have the necessary management systems in place. FO strength in Mahaweli schemes is less good but is improving with assistance from the MEA. FO strength in MANIS schemes varies greatly but the majority are rather weak.
- There has been less progress in establishing joint management committees (JMCs). JMCs exist in all INMAS and Mahaweli schemes but in only a minority of MANIS schemes. Overall, JMCs have been established in about 51% of the schemes in the three programs.
- The performance of FOs in water distribution is generally quite good. Similarly, JMCs have helped improve seasonal planning. It is widely acknowledged that participatory management has improved water distribution. Overall, farmers have shown themselves quite willing to take water distribution responsibilities.
- The performance of FOs and JMCs in maintenance is controversial. Our findings are that the work done by FOs is generally quite good. It is quite probable that without FO involvement in distributary canal clearing and desilting the quality of work would be significantly worse because of the decreased maintenance budgets of the irrigation agencies. On the other hand some Irrigation Department officers assert that FO maintenance performance is not good enough. We also found many cases of FOs taking responsibility for maintenance activities above the distributary canal level, with and without payment from the government for these activities. Work done without payment was primarily concentrated in MANIS schemes where, because of relative neglect by the Irrigation Department, farmers have long been used to taking care of the schemes.
- JMCs have relatively little direct involvement in maintenance, except in Mahaweli schemes. In Mahaweli schemes, JMCs are directly involved in maintenance planning at various levels, including prioritizing needs and allocating funds. In the other programs, JMCs serve mainly as a place for farmers to bring problems to the attention of the Irrigation Department.
- The performance of FOs in other areas is less good. To date only a minority of FOs are involved in business activities, although a few have done quite well. Almost all FOs are dependent to a greater or lesser degree on the government for their funds.
- The strength and performance of FOs is affected strongly by some key factors. These include the water availability, physical condition of the system, and land tenure. Ethnicity and caste appear to have little effect. Outside interventions are an occasional problem.

- All three programs are using the INMAS model of farmer organization as the basic form to be achieved. This is appropriate in INMAS and Mahaweli schemes. However, the physical structure, land tenure, and other factors in some MANIS schemes are such that the INMAS organizational model is not appropriate.
- The performance of JMCs in solving irrigation problems varies greatly among schemes and is dependent mostly on agency involvement. In INMAS and Mahaweli schemes, irrigation agency officers attend meetings regularly and respond reasonably positively to farmer initiatives at JMC meetings. The result is that JMCs in INMAS and Mahaweli schemes are effective in solving irrigation problems. In MANIS schemes, however, failure to hold meetings and less responsiveness of Irrigation Department officers makes JMCs less effective.
- JMCs are less effective in solving other types of problems. In INMAS and MANIS schemes, officers from some agencies do not regularly attend meetings, and often do not pay attention to the farmer concerns expressed at meetings. Some agencies, e.g. the Department of Agrarian Services (DAS), have policies that hinder the ability to work with farmers through the JMC. In Mahaweli schemes, officers from other divisions of MEA attend the JMC meetings because it is the MEA policy. So far, however, MEA officers have not fully adapted to dealing with farmers through JMCs. Thus, in future, Mahaweli JMCs are likely to be effective in solving many kinds of problems.
- A major organizational weakness that affects both FOs and JMCs is poor communication between Farmer Representatives and their constituents. Another major problem for many FOs is weakness in managing money.
- Turnover comes in several forms. To date, several O&M activities have been taken over by FOs whether or not turnover is recognized. These activities include water distribution among and on field channels and the jungle clearing of distributary channels. On the other hand, recognized turnover, whether formally written into an agreement or not, has not proceeded very far; only in INMAS schemes has turnover been recognized by the government for a significant number of FOs.
- There is general confusion and controversy about turnover. First, except in Mahaweli schemes, there is no well defined process for turnover, although a generally accepted set of stages can be discerned in practice. Second, there is strong disagreement about turnover of maintenance responsibilities. A vocal group of Irrigation Department officers, with support from many farmers, is opposing full turnover of responsibility for maintenance of distributary channels to FOs on the grounds that the farmers cannot afford it. No one seriously opposes turnover of operational responsibilities.
- Our analysis indicates that farmers can afford to take over the O&M of distributary channels and below. In most schemes, the costs involved would be less than 10% of the revenue from one season's crop production. However, this conclusion may not be valid if the profitability of irrigated farming decreases.
- Agency support for participatory management includes actions directed towards helping FOs and JMCs, such as providing catalyst agents and training. Where such direct support has been provided, it has proved useful and generally effective. The strength of FOs and JMCs is highly correlated with the direct support provided. However, support has not been provided equally to all schemes. INMAS schemes have had at least some direct support over 10 years; many have had a lot of support. Mahaweli schemes have had strong direct support but only since reorganization in 1992-93. Most MANIS schemes have had little or no direct support.

management had made no change in their working conditions and none felt that it had worsened working conditions. In addition, 97% said that participatory management had improved farmer-officer relations, 63% said that it had reduced farmer complaints, 42% felt that it had improved job satisfaction, and 39% felt that it had reduced the work load.

The first three benefits identified above make it easier to do a good job. They are not direct benefits except insofar as they reduce work and improve job satisfaction. Recognition by superiors for doing a good job and for supporting participatory management is also not a direct benefit but it can lead to promotions and other economic benefits. This suggests that recognition may be a more important benefit than the others.

7.4.2 *Costs of Participatory Management to Officers*

The costs of participatory management include:

- Reduction of power and freedom of action vis-a-vis the farmers.
- Possible loss of jobs for some irrigation agency employees, particularly lower level employees.
- For irrigation officers, possible reduction of budgets because farmers are to take over activities, particularly maintenance activities.
- Possible reduction in profits from (illegally) taking construction or maintenance contracts.

While some of these costs are still only potential, the last three are direct threats to officers and employees of the irrigation agencies. The first cost cannot be valued easily and, perhaps, for most officers, can be set against the possible reduction of work from participatory management. All of these are costs of transition. Thus, in the long run, these costs will disappear as officers' work becomes adapted to participatory management.

7.5 *Helping Officers Sustain Participatory Management*

This accounting of costs and benefits shows clearly that for government employees the costs are likely to outweigh the benefits. In this case, two items are required:

- Strong support from high government levels is needed. This has to include clear sets of instructions about what is to be done.
- Ways to reward individual officers who work in a supportive manner are needed. This implies that department managers must have systems to monitor the functioning of participatory management in irrigation schemes.

As pointed out, the problem for officers is one of transition from an older system where they had more authority and more direct responsibility to one where farmers have more say in decisions and take more responsibility.

7.6 *Organization for Participatory Management*

There is considerable doubt whether the farmer organizations that have been created under the participatory management policy will be sustained by the farmers without help and inputs from the government. The farmer organizations are formal organizations that require considerable skill and effort to manage. This is a major cost to farmers and one that is balanced by the benefits only in some circumstances.

There is an alternative type of organization that could be considered. Irrigation management tasks alone generally do not require an elaborate organization. A person with appropriate authority for a portion of the system can organize farmers for maintenance tasks and can operate the gates to distribute water. He can also represent the farmers at JMCs to make subsystem and system level decisions. For these purposes alone there is no need for the more elaborate formal farmer organizations that now exist. This system would thus reduce the farmers' costs. There would, of course, have to be a way for the farmers to name their representatives and compensate them for their effort. This alternative organization, of course, is very similar to the Vel Vidane or Yaya Palaka system that existed in major systems in the past. The differences would be that the representatives would be selected by the farmers and that they would sit on JMCs. The farmer organization structure found in some MANIS schemes approximates this alternative organization.

However, without formal organizations, farmers cannot take on activities that deal with cash, thus excluding many maintenance activities - maintenance would remain jointly managed rather than be turned over to farmers - and all business and agricultural service activities. Also, the alternative organization would clearly give the farmers less say in their relations with government agencies.

On balance, the potential of the present farmer organizations to improve the lot of the farmers is much higher than would be the potential of this alternative organization. However, the government should be aware that, for irrigation management alone, a cheaper and less difficult alternative exists.

It should be added that the overall direction of the liberal economy within Sri Lanka and in the world as a whole points toward the need to create flexible organizations that can serve multiple purposes. The present type of farmer organization is an organization of the type required, whereas the alternative organization is a less flexible type more suited to the economic and government environment of the past.

President of the Kaudulla System Level Farmer Organization can telephone directly to the Additional Secretary of Irrigation. Farmer Representatives, when acting in that role, generally get reasonably respectful hearings from system level organizations. Ordinary farmers, of course, have to go through their Representatives, but when they do, they too get respectful hearings. Some farmers, office bearers in particular, have turned these relations with officers into personal profit. One common finding is that when construction contracts are offered to FOs, the office bearers take them personally, without consulting the FO committee, and pay only a small commission to the FO.

- In addition, the office bearers and even some of the Farmer Representatives get additional respect from their fellow farmers, a benefit that is difficult to quantify but is clearly perceived as a benefit by many people.

Farmers have not created FOs for irrigation management spontaneously in major and medium systems. Farmers and other rural Sri Lankans have created many village level organizations spontaneously when they have clearly perceived benefits from such organizations. In the case of FOs, it has required government employees to induce farmers to create FOs. This observation suggests that direct economic benefits of participation are either small or not clearly perceivable to the farmers. This study has shown that crop production benefits are small and other direct economic benefits are not widespread. It should be noted that prestige and community service benefits can easily be achieved through other community organizations.

System rehabilitation is clearly perceived as a major benefit. Unfortunately, if this is the only major benefit, the FOs will not be sustainable over the long run. Once the rehabilitation is finished, farmers will abandon the organization unless it provides other benefits. Such abandonment has been a widespread phenomenon in Pakistan and has clearly been observed in Sri Lanka, particularly in some of the schemes included in the NIRP (e.g. Gampola Raja Ela, Mahanneriya, and others).

It follows then that the most important sustainable benefit for farmers from participatory management is the increased power to influence government agencies that has been provided by FOs and JMCs.

7.2.2 *Costs of Participatory Management to Farmers*

The costs of participatory management to farmers include:

- Contributions of labor, cash, and other resources, including payment of membership fees, for FO activities such as shramadanas.
- Contributions of time, effort, and occasionally other resources for FO meetings and other administrative activities.
- Contribution of time, effort, and occasionally other resources for attendance at JMC meetings.
- A reduction of freedom for individuals in making some decisions with regard to water distribution and other matters.
- For decision makers within FOs, there is a cost in relations with other farmers in making decisions that punish fellow farmers or deny benefits to a fellow farmer.

The costs of participatory management are not equal for the three categories of farmers. Contributions of labor and other resources for FO activities fall more or less evenly on all FO members. At the moment these costs are generally small; membership fees and shares generally cost less than Rs 100 per year and farmers often provide no more than 2 person days of labor per year. However, as shown earlier, if full turnover is achieved, the cash and labor costs might rise significantly. Reduction of freedom costs also fall more or less equally on all members.

However, the costs of dealing with FO organizational matters and with dealing with JMCs fall on the Farmer Representatives and, most heavily, on FO office bearers. The time and effort involved in managing an FO and representing it at one or more JMCs can be considerable. Our data includes several stories of office bearers and Farmer Representatives who complain of having to neglect farm work to do FO work. Others have quit for this reason. In virtually all FOs, Farmer Representatives and office bearers serve without direct compensation. At times, some government agencies, notably the IMD, has offered honoraria to JMC members. However, the amounts have been small and are now rarely been offered to farmers, although they were regular features for officers a few years ago.

7.3 Helping Farmers Sustain Participatory Management

Making participatory management sustainable means ensuring that benefits exceed the costs for the majority of farmers. This accounting of costs and benefits suggests the following actions that should be taken:

- All government agencies should become more responsive to the FOs. Also, assistance to farmers should be channeled through the FOs whenever possible. As pointed out, earlier, many agencies are less than fully responsive. Even the irrigation agency officers sometimes choose to assert their superior knowledge rather than try to satisfy farmer requests.
- FOs should be encouraged and helped to earn direct profits from non-irrigation activities.
- FOs should be guided to find ways to compensate service as a Farmer Representative or as an office bearer so that it does not become an undue burden. An alternative is to get the farmers to recognize service in an FO as a requirement for every farmer for a specified period of time - say two years at a time.
- Government agencies should provide direct support for FO decisions whenever possible, even against their own members so as to lighten the burden of taking action against a fellow farmer.

This accounting of benefits and costs also makes it clear that the FOs and JMCs are not likely to stand on their own without government support. However, the support needed falls more into the area of changes in government agency procedures and in government officers' ways of dealing with farmers rather than in giving resources to farmers.

7.4 Costs and Benefits of Participatory Management for Officers

7.4.1 *Benefits of Participatory Management for Officers*

The benefits of participatory management for officers include:

- Ability to mobilize farmers to help with some activities, particularly activities connected with irrigation O&M.
- Ability to address the problems of larger groups of farmers at one time through the FOs and JMCs.
- Getting better information about farmer needs and desires with less effort.
- More pleasant relations with farmers.
- Avoiding undesirable political influences.
- Recognition from superiors for supporting the participatory management policy.

These are recognized by the officers. A majority, 65%, of irrigation officers questioned in the large scale survey reported that participatory management had improved their working conditions and 73% reported that participatory management had made their work more effective. Only 5% felt that participatory

- Overall demand for O&M resources has not been satisfied with the present allocations even with participatory management since there are main system needs and deferred maintenance needs not yet fully covered.
- Elsewhere we showed that participatory management has improved irrigation services and may have improved maintenance. This improvement has occurred despite decreasing government allocations for O&M.

The major conclusion is that while participatory management *has not reduced government expenditures* as hoped, it *has improved the effectiveness of government O&M allocations*. More is being done with less government resources.

CHAPTER 7

SUSTAINABILITY: BENEFITS AND COSTS

7.1 Collective Action Theory

Collective action theory argues that individuals participate in organizations when the perceived benefits of participation for the individual exceed the costs of participation. This simple statement hides numerous complexities. First, since neither the benefits nor the costs are necessarily quantifiable in any simple way, comparison may be purely subjective. In the case of participatory irrigation system management, benefits can include "prestige" or "influence" or other items whose material worth is very difficult to measure as well as increased crop production or reduced cost of production. Costs of participation can include not only time spent on meetings and material inputs to activities, but also reduction of freedom of action and other items difficult to quantify. Second, the valuation of these benefits and costs is not simply set by each individual but is also subject to cultural interpretation. Freedom of action is likely to be more important in some societies than in others.

Despite these complexities, collective action theory offers an illuminating way to analyze the factors that affect sustainability of participatory management and each of its components.

7.2 Costs and Benefits of Participatory Management for Farmers

7.2.1 *Benefits of Participatory Management for Farmers*

Some of the benefits for farmers fall more or less equally to all farmers. These include the following:

- While there is no evidence that participatory management has increased crop yields, there appears to be a nonquantifiable reduction in risk of crop production from participatory management that may pay off in the long run.
- Some farmers have experienced a real but small reduction in cost of production.
- In some cases, farmers have formed FOs in order to get system rehabilitation.
- In some of the Mahaweli FOs, income from maintenance and other contracts is being distributed to FO members according to the labor they have put in. There are few reports of other distribution of FO income, but distribution of income from fertilizer supply businesses and other businesses is certainly possible.
- Many FOs have undertaken community service and religious activities for the benefit of the community.

Some benefits fall disproportionately to some farmers. Three groups can be distinguished: ordinary farmer members of FOs, Farmer Representatives, and FO office bearers. The latter group includes the farmer members of JMCs. These benefits include:

- Through the FOs and JMCs, farmers have achieved more power to get resources and services from the government agencies. In rural Sri Lanka, an individual farmer is relatively powerless to get any government officer to do what he wants. For the most part, the only techniques that can be used to force a government officer to do something he chooses not to do, are bribery or getting a politician to intervene. FOs and JMCs offer a more orderly alternative to these techniques.

Each of the three classes of farmers gets differential empowerment. The office bearers often find themselves in a position to talk directly to very high level officers and receive respectful answers. The

Overall, then, the following conclusions can be drawn:

- Farmers and officials agree that participatory management has led to improved water distribution.
- Farmers feel that participatory management has improved their relations with the agency officials.
- While a large number of officials feel that participatory management has improved maintenance, this point is more controversial and it was not specifically identified as a benefit by the farmers.
- Finally, few farmers or officials see any direct benefits in terms of crop production or improved profitability of irrigated agriculture.

6.3 Impact of Participatory Management on Crop Production

It was expected that participatory management would enable farmers to improve crop production by improving both yields and area irrigated.

It proved to be impossible to accurately estimate the impact on irrigated area. A few isolated cases of bringing larger areas under cultivation were reported, but too few to be of significance. On the other hand, since most encroached areas get water, irrigated area is generally larger than officially reported. Participatory management has been able to improve the quality of irrigation service not only to authorized command but also to the encroached area, which, in some cases, amounts to significant fractions of commands.

Area Cultivated RS, PD, and LSS data included reports of isolated cases of additional areas being brought into cultivation through the efforts of FOs after turnover. At most, these cases reported increases of 5-10%. Of greater importance, the data on area cultivated in the LSS schemes from 1988 to 1993 showed no discernible trend for annual cropping intensities. There appeared to be no correlation between participatory management and cropping intensity. Other factors, such as the diversion of additional, rehabilitation, and climatic factors appear to be much more important than participatory management.

In some schemes, encroached areas make up a significant proportion of the total command area. Since, as shown earlier, participatory management seems to have improved operations, it may also have improved the quality of irrigation services to encroached areas as well as authorized areas. However, there are no clear measures of this change.

Yields The impact of participatory management on yields is more difficult to estimate because of the numerous factors that affect yields. Participatory management may affect yields through improved distribution of water and greater reliability of supplies from greater farmer involvement in scheme management. We found that in most RS and PD schemes, reported yields had either decreased or remained stagnant. In the few cases where reported yields had increased, the changes could be attributed to factors other than participatory management. Analysis of yield trends in the LSS schemes over the period 1989-1994 also showed that, in most schemes, yields had either remained stagnant or declined. Only three schemes showed slight increases. There was no apparent relationship between average yields and participatory management. Other factors such as weather, pests, and market and input prices have greater affects.

Conclusion on Crop Production Participatory management appears not to have had a significant impact on crop production through increases in area cultivated or through yield increases. Although it may not have had a significant impact on yield, participatory management appears to have had a beneficial impact on water distribution and improved the reliability of water supplies. This has resulted in the reduction of risks of cultivation, which may in the long term help to raise yield levels. Such a change cannot be tested with the present data, since they cover only a few years.

6.4 Impact of Participatory Management on Farm Income

Participatory management might improve income from irrigated agriculture in any of three ways: by increasing crop output, by decreasing the cost of production, or by facilitating a change to a more remunerative crop.

Our major findings were:

- Since there has been little discernible impact on crop production, participatory management has not improved farm income through improved crop production.
- Cases where the actions of FOs have resulted in decreased cost of production are common. Fertilizer sales by FOs have reportedly lowered the costs of fertilizer in several markets. FOs have also helped by providing common tractors and in other ways. All of these are small, and all apply only in specific areas. While real improvements to some farmers, overall they appear not to have had a significant impact. That is, participatory management has not led to significant reductions in costs of production.
- Crop diversification is also affected by a great many other factors in addition to water distribution. It may be that in Ambewela and Komarika Ela schemes, where farmers specialize in vegetables, the shift to vegetables was helped by participatory management. However, we have found no proof and farmers deny it. Elsewhere, as in Mahaweli System H, crop diversification has clearly been the result of other factors. We found some crop diversification in INMAS and MANIS AB schemes that may have been assisted by participatory management through making the farmers more willing to work with government programs. However, of possibly greater importance was the fact that there was a squeeze on the profitability of rice over the same period. Although the data are inconclusive, we find no reason to posit a relationship between participatory management and crop diversification.
- Analysis of LSS data on reported farm incomes showed no relationship between farm incomes and participatory management.

Although participatory management may give a small boost to crop diversification, there is no evidence that it has had any significant impact on the profitability of irrigated farming.

6.5 Impact of Participatory Management on Government Finances

It was expected that turnover would enable the government to reduce expenditures on system O&M. We analyzed estimates of per acre O&M expenditure for 31 selected schemes under the INMAS, MANIS and Mahaweli programs for the period 1988-1994 to determine trends. We also looked into procedures for allocation of O&M funds.

Our findings are:

- Overall expenditures for O&M have decreased in real terms for Irrigation Department schemes and have increased for Mahaweli schemes. These changes have not been responses to demands but to limitations imposed by Treasury allocations.
- In some cases, expenditure on distributary channel O&M has decreased as a result of participatory management. The savings have generally been used for main system O&M.

Irrigation Department Without supportive actions by the Irrigation Department, participatory management could not have gotten started. It is imperative that ID personnel respond positively to FO requests; if they do not, farmers have far less reason to support the FOs. The most important support that the Irrigation Department can give to the FOs is to work with them, including attending JMC and other meetings, and responding to the FO concerns. Support by the Irrigation Department staff in INMAS schemes has varied over time and space. Support has increased since the start of the INMAS program, although there were many cases of conflict between IMD and ID staff in the earlier years. Today, for the most part, ID staff members in INMAS work together with FOs cooperatively, although not always to the full satisfaction of both parties. Although the MANIS program was formulated in 1986, prior to 1990 the MANIS program was not provided with any extra resources. Even now, the personnel and other resources available to the program are less than for the other programs. ID personnel have also regularly taken part in training programs for farmers conducted by IMD. With respect to sponsoring training courses, ID has done its best with the limited resources available. However, training had not been regular and systematic. A key form of assistance has been offering construction contracts to FOs under rehabilitation projects. For many FOs this opportunity has made it possible to develop skills and to earn funds. Other support has been provided, but it cannot yet be said that all Irrigation Department personnel are consistently supportive.

Other Agencies in INMAS and MANIS Schemes In INMAS and MANIS schemes, FOs are strengthened when other agencies provide services to farmers through the FOs. Other agencies' support has varied a great deal of time and space. Generally, the other agencies have not been obstructive but in many cases they have not been helpful. Attendance at JMC meetings of personnel from other agencies is often erratic. On the other hand, there are cases of specific supportive acts.

Mahaweli Economic Agency In Mahaweli schemes, all support of whatever kind is provided by the appropriate division of the MEA. Until 1992, support for FOs was overall quite weak. The MEA was created as an organization dedicated to establishing new settlers in the Mahaweli schemes. This was interpreted to mean that, at least initially, virtually all services would be provided for the settlers. In the eyes of most MEA officers, there was neither need nor place for FOs and JMCs in this conception. Since 1992, however, all MEA staff have been instructed to work with the FOs and a JMC structure has been established as a mechanism for joint decision making and problem solving. Also, MEA has made consistent efforts to support FOs by offering maintenance contracts, not just for DCs as is done in INMAS schemes, but also for main system and other work. The main support that can be provided by the MEA is to work with the FOs to solve irrigation problems and make operating decisions. There has been some reluctance on the part of MEA irrigation staff to change their established ways of doing things by including FOs. MEA's Institution Development Units, and other units within the MEA, are now using the FOs as a means of providing training to farmers on irrigation and agricultural matters. Support by other divisions of MEA is also required. To date, there is little evidence that other divisions are working with FOs consistently. Given the Managing Directors' support, this situation is likely to change.

CHAPTER 6

IMPACTS OF PARTICIPATORY MANAGEMENT

6.1 Impacts of Participatory Irrigation System Management

The key direct outcomes of the three programs for implementing participatory management are formation of farmer organizations, formation of joint management committees, and turnover. Expected impacts include:

- Improved agency response to farmer concerns
- Improved operations (water delivery) and maintenance.
- Increased crop production
- Increased farm income.
- Reduced government expenditure on irrigation system operations and maintenance

The first two impacts listed above can be viewed as the intermediaries leading to the last three. Most of this Chapter deals with the last three, all of which are economic or financial in nature.

Section 6.2 reports on the impacts as reported by farmers and officers. The remainder of this chapter reports on detailed economic and financial analyses that are reported fully in Volume II.

6.2 Perceptions of Impacts

As part of the Large Scale Survey (LSS), we asked farmers what the primary benefits of participatory management were. These results show the following:

- Very few farmers found no benefits.
- Over half of all farmers identified improved relations with agency officials as a major benefit. In our PD and RS studies, we found that, to farmers, improved relations with the officials means that the officials respond as positively as they can to farmer concerns.
- Over half of all farmers identified “adequate and timely water supply” as a major benefit, implying that participatory management has improved water distribution.
- Over 40% of all farmers identified resolution of disputes as a major benefit. We have seen from the PD studies and in other studies, that disputes decrease dramatically as water distribution improves. This benefit is thus tied to improved water distribution.
- Few farmers identified either decreased cost of crop production or increased yields and income as benefits from participatory management.
- About a quarter of all farmers found other benefits. These more important ones included general “betterment of farmers” and “opportunities for crop diversification.”

Although there were some clear differences among the programs, overall the major reported benefit was improved water distribution. However, it is not just the FOs’ performance that has improved water distribution but also the fact that irrigation agency officials are more responsive to farmer concerns.

In the LSS we posed the same question to institutional development officials. Like the farmers, most indicated that improved water distribution is the major benefit. Fewer saw improved maintenance as a benefit and, except in Mahaweli schemes, very few saw other benefits. Overall these officers agree with farmers on two points, participatory management has improved water distribution and has not made major changes in crop production.

The FOs have not been created spontaneously by the farmers for their own purposes. This fact has been recognized in the organizing process. In most cases, catalysts have to promise some sort of benefit to the farmers. Better water distribution is one such benefit. In some cases, the promised benefits have been ones that cannot support the FO over the long run. In some MANIS and INMAS schemes, farmers were promised physical rehabilitation of the system if they organized. In one Recurrent Survey scheme, Mahananneriya, farmers created FOs solely for the purpose of getting rehabilitation and when, for various reasons, rehabilitation was refused, they abandoned the effort.

There have been large differences in the intensity of the organizing effort. The INMAS schemes which are taken as models - i.e. the Polonnaruwa schemes, Rajangana, Gal Oya - all have had very intensive catalyst efforts with large numbers of catalysts working over a significant period of time. These efforts could only be supported by rehabilitation projects. Even now, most of the work in MANIS schemes to promote participatory management is associated with one of the rehabilitation projects, particularly the National Irrigation Rehabilitation Project (NIRP). On the other hand, most MANIS schemes have had very low levels of assistance, as have, until recently, most of the Mahaweli schemes.

The longer time and greater investment in catalytic efforts in INMAS schemes has paid off, as shown earlier, in FOs that are stronger and perform their tasks better on the average than FOs under the other programs. Efforts in Mahaweli schemes have been made at a lower level and for a shorter time, hence the FOs are, on the whole, both weaker and perform less well. MANIS FOs perform at the lowest levels, corresponding to the least amount of inputs to the organizing process.

Study findings reveal that farmer organizations are increasingly becoming disappointed with IOs. The major complaints include: recent reductions in their number of IOs, loss of enthusiasm by IOs when they learned of planned reductions, incompetence and lack of training in needed technical and managerial disciplines, and failure to attend meetings.

Training is a key factor in IO development, which invariably supports FO development. Inadequate training, especially in-service training, was mentioned by most IOs as a problem. Over the past few years, the number of training sessions has declined greatly due to financial constraints. Another problem mentioned by IOs, particularly for MANIS schemes, is lack of proper transport facilities. Transport is important if IOs are to be able to work with all of the farmers.

An important observation made during the study is that IOs are moving away from the catalyst function as initially conceived and becoming more like a field level government officers. IOs and other catalysts now often try to work themselves into a permanent role, generally one of being intermediaries between the farmers and the agencies. The Project Manager position in INMAS and MANIS schemes is now considered a permanent position, although the permanency of the position was questioned when the INMAS program started. As with IOs, Project Managers often act in ways to make themselves indispensable to farmers by becoming go-betweens with other agencies. Many Institutional Development Officers (IDOs) also seem to be working to make the FOs dependent on them.

These acquired functional responsibilities have created dependency by the FOs on the Project Managers, IDOs, IOs, and others involved in promoting participatory management. That is, instead of promoting self-reliance, the catalyst agents have begun to promote dependency, albeit a new type of dependency than the old dependency on the irrigation agency for irrigation services.

While many of the Project Managers, IDOs, and IOs, have created dependency, there are other cases where the catalysts have not been active. While inactivity does not create dependency, it can have either bad or good consequences depending on other aspects of the organization process. For example,

in Abakolawewa, a tank within Mee Oya scheme, an INMAS scheme, there has been relative neglect, but the FOs take responsibility for both DC and main channel maintenance. On the other hand, in Muthukandiya, another INMAS scheme, there has also been neglect by IMD but the FOs have not shown initiative to take charge of their own affairs. A major difference was the effort by an NGO to create FCGs in Muthukandiya; this effort confused farmers and created expectations that further help would be forthcoming. A second difference is that the Abakolawewa Tank is smaller than Muthukandiya and can operate independently, thus making it easier for farmers to control their own scheme.

It is important to note that total neglect may not result in effective participatory management along the expected lines. Thus, although Mee Oya farmers have been neglected relative to some other INMAS schemes, their basic organizational patterns and even the idea that they should take responsibility for themselves derive in part from INMAS. That is, Mee Oya farmers have learned from the IMD employees who worked there.

The involvement of catalysts in the FO development progress is essential. However, a conscious and sustained effort is needed to keep catalysts from promoting dependency on their services.

5.3 Supportive Agency Actions

Agency support for FOs has a strong relationship to FO organizational strength and thus sustainability and a weaker relationship with FO performance. If the agencies do not work with the FOs, the farmers do not feel that the FOs are very useful, hence may not support them fully. Achieving agency commitment to the development of participatory management is a paramount concern.

Agency support consists of recognition of the FO, supplying assistance to farmers through the FO, and supplying specific assistance and guidance to the FO for its activities. In addition, agencies have supplied training and other services directly and through catalyst agents.

A minority of FOs report total lack of support from agencies. For the irrigation agencies, 2% of Mahaweli FOs, 7% of INMAS FOs, 17% of MANIS AB FOs, and 21% of MANIS C FOs report total lack of support. A higher proportion of FOs report lack of support from the other agencies except for IMD. However, the number reporting lack of support is still a minority.

We observed considerable variations in the type and quality of support offered. In some schemes when FO leaders went to irrigation agency officers with water distribution problems, the agency officers tried to suggest ways to solve the problems. In others, the agency officers saw the concerns as complaints and received them with hostility.

Irrigation Management Division The initial success of the INMAS program can be attributed to the commitment shown by the IMD staff. However, after a decade of operation, we observed a decline in the commitment of the IMD staff to the INMAS program. The number of IOs has declined due to financial constraints and there are a large number of vacancies for Project Managers. Withdrawal of IOs should be dependent on the degree of strength of FOs. With the establishment of the PMCs, the Project Manager became an important person in irrigation system management. When a vacancy exists in such a post, it becomes paramount importance to fill the vacancy at earliest possible; delays affect the functioning of the PMC. The line agency commitment also is reduced due to irregular meetings. Training programs have also been reduced during the past year due to lack of funds. The reduction in training programs may have an unfortunate effect on future FO leaders.

- Need for repairing the system to an operable level. The definition of an operable level is controversial, but both farmers and irrigation officers believe that the government should repair the system before turnover. Our thinking also supports this view as farmers would be more willing to take over and be accountable for maintenance of the system if the canals are handed over after repairs.
- Need for a decision about the relationship between irrigation rates, irrigation financing, and turnover.
- Willingness and firm commitment of the agency officials.

4.9.3 Consequences of Turnover

There would be some consequences that must be planned for in the decision to complete turnover.

- There will be a need to reduce the irrigation agency field staff although the reduction may not be a major one.
- It will be unfair to transfer responsibilities wholly to some FOs while others continue to get support and services. Unless there is a system level handing over plan such individual occurrences would be a de-moralizing factor for effective FOs since weaker FOs are more benefited than the effective ones.
- A decision needs to be made about the physical condition of the system at turnover. Both farmers and irrigation officers argue that the government should repair the system before turning it over. Such repairs imply a large investment in system repair and rehabilitation.

4.10 Overall Evaluation of Turnover

The participatory management policy has clearly succeeded in getting farmers much more involved in system management than they were in the past. However, turnover has not progressed as expected. Key findings are:

- Fewer than expected agreements have been reached in all programs. Only the INMAS program has made much progress in achieving some form of turnover, although the MEA is now seriously trying to make turnover work. There has been very little progress in MANIS schemes, although the NIRP mandates turnover.
- Full turnover has not occurred; progress has stopped at a joint management stage.
- Turnover has been more complete for operations than for maintenance. Indications are that the impact of turnover of operations has been positive.
- Complete turnover of maintenance has not occurred except through neglect.
- There is no general consensus about how far turnover should proceed.

Many Irrigation Department officers strongly assert that to turn over full maintenance responsibilities to farmers would mean that the systems will deteriorate physically faster than they should. Personnel from other agencies and organizations believe that this assertion is not true. Indications are that farmers, with agency assistance, are putting more effort into maintenance activities on distributaries than was put in by the irrigation agencies alone. Farmers themselves say that they cannot afford turnover of maintenance; however, it is clearly in their interest to say this to keep the subsidies coming.

Therefore, an immediate need is to define clearly just what responsibilities will be turned over to FOs and what, if any, will be the subsidy given by the government.

CHAPTER 5

AGENCY SUPPORT FOR PARTICIPATORY MANAGEMENT

5.1 Need for Agency Support

Agency support for participatory management includes:

- providing catalysts to encourage farmer organization development,
- recognition of FOs,
- providing assistance to farmers through FOs,
- giving guidance to FOs and farmers,
- taking part in JMC and other meetings,
- conducting training.

It is evident that agency support has directly responsible for the strength and sustainability of farmer organizations. The concept of participatory management is often limited to the participation of farmers. The process has often been conceived by most policy makers and planners as one in which the only change required is to organize the farmers. It is often forgotten that the other side, agency participation and support, is as vital as organizing farmers. After almost two decades of participatory management, it is becoming clear that strength and weakness of farmer organizations and joint management committees depends in part on the catalyst agents, the mode of agency participation, commitment of agencies to farmer organizations, and accountability of agencies to farmer organizations.

5.2 Catalysts and the Organizational Process

Virtually all of the FOs have been created with the help of catalysts of various sorts from government agencies. A few have also had assistance of catalysts from NGOs. Most of the Mahaweli FOs were created by or with the help of MEA officers, most of the FOs in INMAS schemes were created by Institutional Organizers and Project Managers from IMD, and most of the FOs in MANIS schemes were created by Irrigation Department employees. The Agrarian Services Department has been important in some schemes, particularly MANIS schemes. In others (e.g. Mannankattiya), Agrarian Services Officers have created a separate set of FOs. In some of these places there has been rivalry between the Agrarian Services Department and irrigation agencies in the creation of FOs.

Two models for initiating FO development have been used. The most common model, derived from early experiences at Gal Oya, has been to use dedicated catalyst agents, Institutional Organizers (IOs), who work full-time with individual farmers to convince them of the value of organizing and of participatory management. The second model, derived from experiences at Kimbulwana Oya, is for a dedicated irrigation officer to act as a catalyst to show and convince farmers to organize and to work with him in managing the scheme. The Gal Oya model clearly requires more resources. The Kimbulwana Oya model requires particularly dedicated and capable irrigation officers.

Catalysts have played a major role in farmer organization formation and development. Initially, they convinced individual farmers to participate in group activities. This they did through individual visits to farmers and through awareness training. Secondly, catalysts provided direct assistance to new FOs in handling some of its functions as they attempted to develop into sustainable organizations. This second role, however, has, in some cases, created a new kind of dependency on government personnel. Some of the FOs find it difficult to do as well without the catalyst agents now that most have been withdrawn.

As mentioned earlier, maintenance covers a variety of activities that can be classified under four heads, each of which applies to both DCs and FCs:

- Jungle clearing and desilting (jungle clearing)
- Concrete and masonry structure repairs (structure repairs)
- Earthwork repairs (earthwork)
- Maintenance of metal parts (painting, greasing, etc.)

From the farmers' point of view, the key questions are the technical requirements of the work, the labor needed, and the costs in terms of cash or other resources. We distinguish labor costs from other costs because farmers are often willing to contribute labor when they are not willing to contribute cash. When special machinery or special skills are required they can be purchased with cash. If the four activities are rated on the basis of these requirements, we find that farmers can easily undertake jungle clearing and desilting except when desilting labor requirements become high. Also, they can easily take on painting, greasing, etc. Small earthwork repairs are also well within farmers' capabilities, but large ones may require more labor and cash than they would be willing to spend. Similarly structure repairs can require both more cash and technical knowledge and skills than they have.

This evaluation suggests the following alternatives to full turnover of maintenance responsibilities to FOs:

- **Alternative 1** (low technical and financial burden on farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs. As pointed out, FOs are already doing this and farmers have come to accept it.
- **Alternative 2** (low technical and moderate financial burden on farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs.
 - FOs would take responsibility for painting, greasing, etc.
 - FOs would take responsibility for small earthwork repairs.
 - All other work, including heavy desilting and major earthwork, would be the responsibility of the irrigation agency.
- **Alternative 3** (moderate technical and financial burden of farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs.
 - FOs would take responsibility for painting, greasing, etc.
 - FOs would take responsibility for small earthwork repairs.
 - FOs would take responsibility for simple structure repairs.
 - All other work, including heavy desilting, major earthwork, and large or complicated structure repairs, would be the responsibility of the irrigation agency.

Note that here the term "responsibility" means complete financial and planning responsibility. It is not meant to refer to a version of the current system where the irrigation agency carries out planning and pays part of the costs. Other alternatives can be envisioned. In each case, the definitions of such terms as "small earthwork repair" would have to be worked out and the expected cost to the government worked out so that the subsidy implied by these alternatives can be known.

All of these alternatives imply changes in the way that the irrigation agencies provide maintenance support to the FOs. The current system of using contracts is rather detrimental since it removes much of the planning responsibility from the farmers but does not provide the resources to actually carry out the work as planned. We strongly recommend that payment should not be made to FOs for FC gate operation and DC jungle clearing and desilting. It is our firm belief that farmers can take over these activities without the provision of outside funds. Provision of funds should be made only for other maintenance work such as repairs etc.

If a maintenance subsidy is desired, we see two better alternatives to the present system:

- The first and simplest is simply to give them a cash grant based on the average needs for their particular DC. While it might be objected that this gives the FOs too much freedom to misuse the funds and to neglect maintenance, we suggest that farmers are too responsible (they would suffer) to treat maintenance like that. A simple solution would be to cut the subsidy if after some reasonable period - say a couple of years - maintenance is not carried out.
- A more complicated way to give a maintenance subsidy and yet leave the planning responsibility to the FOs is to set a grant limit each year for each FO and then ask them to define plans to use that grant. The funds would then be given either on receipt of the plans or after the work is finished. This would increase the likelihood that the funds are actually used for maintenance but would increase the management burden on the irrigation agency.

We believe that a decision to continue a subsidy to farmers for maintenance cannot be justified on the grounds that farmers do not have the resources and abilities to carry out maintenance. However, continuation of a subsidy through a more appropriate form may be politically more acceptable than turnover without a subsidy.

4.9 Some Other Factors to be Considered

4.9.1 *Turnover and Irrigation Rates*

Turnover of O&M responsibilities to an FO will, under the 1988 Cabinet Paper and under the 1994 Irrigation Ordinance, exempt the FO from payment of irrigation rates. On paper, this provision provides a major motivation for farmers to take over O&M responsibilities. In fact, since irrigation rates are not being collected except in a small way in a few places, this provision has no effect. Seen in one light, virtually all farmers are acting in defiance of the law.

It would be useful to resolve the issue of the relation between irrigation rates and turnover. One possible approach would be to enforce the rates and make the farmers choose. This approach is not likely to be politically popular. A more viable approach would be to abolish the rates and make turnover compulsory. This approach would allow the government to explain to the farmers that it is doing this so that farmers will no longer be acting in a manner that is technically illegal and yet is solving the financial problem that gave rise to the need to collect irrigation rates.

4.9.2 *Conditions Precedent to Successful Turnover*

There are some conditions that should be fulfilled before handing over of O&M responsibilities if the handing over is to be effective. Some of these are given below.

- Need for strong and effective FOs.
- Need of a clear turnover process and plan.
- Need for providing necessary technical knowledge to farmers beforehand.

conclusion is further strengthened by the fact farmers usually value their own labor at much below the market cost so that their envisaged cost would be less than the specified amount of Rs 300/acre used in our analysis. ***Therefore we can conclude that farmers generally can afford to take over O&M, at a rate that is just below the highest amount spent on annual O&M currently.*** It should be remembered that this analysis is based on net income from a single season's crops, while in most schemes, farmers get two crops per year. If profits from irrigated farming, particularly paddy farming decline further, the conclusion reached may no longer be valid.

This however, does not resolve the issue whether farmers are willing to absorb this additional burden, even though it is a small proportion of their net income. The majority of the irrigation officers and institutional officers interviewed in the LSS said that farmers cannot afford to take over O&M entirely. Many farmers and FO office bearers interviewed in RS also indicated their unwillingness to take over the financial burden of O&M. These statements suggest that farmers may be unwilling to spend the necessary resources even if they can afford to do so.

4.8 What Should be Turned Over?

4.8.1 Need for a Decision

The participatory management policy seems to envision total turnover of management responsibility for distributary channels and below to farmer organizations, including full responsibility for all activities and for mobilizing the resources required for those activities. At present, the term "turnover" covers a variety of situations. In some cases, turnover refers just to jungle clearing and desilting of the distributary channel, in some cases to other responsibilities as well. Some FOs, without turnover, are undertaking operation and maintenance of main canals. However, this study did not identify a single instance where total turnover as envisioned by the policy has occurred. So far, only joint management has been achieved. Even the 30 FOs in Polonnaruwa where total turnover was promised in an agreement with USAID, the government continues to provide funds and other support. A major reason was the manifest unfairness of giving assistance to one set of FOs while withholding it from others.

There is a need to decide just what will constitute full turnover so that both the agencies and the farmers will know what the goal of the program is. The current situation is unsatisfactory because many farmers continue to expect government assistance that is only partially provided.

While no one now questions the wisdom of turnover of operations to farmer organizations, some irrigation personnel now advise against full turnover on the grounds that farmers are not capable of or willing to maintain their portions of the systems as well as should be done. Farmers' capability to manage maintenance has two dimensions: a) their technical knowledge, and b) their ability to mobilize the needed resources. Neither would seem to preclude farmers taking on maintenance responsibilities. This study shows that farmers generally have the ability to provide resources at an adequate level and training can supply the necessary technical knowledge. Specific technical services that are required only at intervals, such as surveying services, could continue to be supplied by the irrigation agencies. The evidence is that farmers do the maintenance work they have taken over, primarily jungle clearing and desilting of distributary channels, as effectively as the agencies. This conclusion is strengthened by the known cases of MANIS systems, such as Mannankattiya, where farmers operated and maintained the systems for long periods without substantial assistance from the government. Many of these systems are currently quite dilapidated. However, given that some of the Mahaweli systems are being rehabilitated after less than 15 years of use, the farmer performance does not seem bad. Thus there are good reasons to believe that farmers are capable of maintaining the schemes.

Many ID officials firmly believe that the ideal form of turnover is that of joint management in which the agency provides funds and farmers do the operation and maintenance at DC level. It is their contention that only this form of handing over is feasible and effective as it is highly improbable that the farmers would undertake these activities on their own. This opinion may be motivated in part because of possible loss of prestige and jobs if full turnover occurs. However, we cannot ignore their field experience in our evaluation of the turnover process. Many farmers and irrigation agency officers assert that farmers are unwilling to put in the effort and resources needed. But since the irrigation agencies have continued to provide funds, assistance, and planning even after "turnover" the farmers' statements may be aimed at seeing that this assistance continues rather than being forced to use their own resources.

Finally, current thinking suggests that rehabilitation of irrigation systems is a natural need. Maintenance should not be expected to keep the system as good as new. Rehabilitation after an appropriate period allows for both better repair work than is possible under regular maintenance and for redesigning the system to serve new needs and take advantage of new technology. Like any other capital, an irrigation system should be depreciated over time. The trick is to balance investment in maintenance with savings for rehabilitation to get the least cost option. This implies that we should not expect farmers to do a perfect job of maintenance, any more than we can or should expect the irrigation agency to do so.

Although there is no reason to believe that farmers cannot maintain distributary channels and below, there are other issues that need decision. Most importantly, transferring to farmers the full responsibility for all maintenance of distributary channels and below will impose higher costs on farmers. The issue is whether the government wishes to continue to subsidize irrigated farming by paying some or all of these costs in addition to the costs of constructing the systems and of operating and maintaining the headworks and main systems. This is a political decision.

The arguments in favor of completing turnover include:

- Making farmers completely responsible for maintenance of distributary channels and below clarifies and simplifies responsibilities. At the moment, some FOs do only the maintenance work they are paid for and others do not make repairs well within their capability while trying to get the government to make the repairs.
- Completing turnover will make it possible for the agencies to focus their attention on maintenance of the main system and may improve the sustainability of the systems as a whole.
- Completing turnover means that the financing of maintenance of distributaries and below will not be subject to problems of public finance.

The argument against completing turnover is that imposing the full cost of maintenance of distributary channels and below on farmers will increase the cost of production to farmers. In a few cases, this will make it uneconomic to maintain the systems or to continue irrigated agriculture. The number of such cases is likely to increase if the profitability of paddy production, already low, declines further.

4.8.2 *Alternatives to Full Turnover*

There is no serious opposition to turnover of operations responsibilities for DCs and below to FOs; virtually all agree that it has improved water distribution and relieved the irrigation agencies of some of their burden. The problem is maintenance. To find appropriate alternatives to full turnover of all O&M responsibilities, including financing, we should consider just what the maintenance issues are.

On the other hand, there are also allegations that FOs have not performed well after turnover. Major causes cited include poor involvement of the FRs in water distribution at the field level and favoring close associates in water allocation. But DCO office bearers, particularly the Presidents, have been observed to participate actively in water distribution. Another cause is lack of sufficient knowledge and training concerning water distribution, particularly rotational distribution.

4.5.2 *Effects on Maintenance*

Whether turnover has occurred or not, FOs undertake jungle clearing and desilting in their canals, including distributary canals, in almost all schemes. With regard to jungle clearing and desilting, both farmers and officers in the RS/PD schemes feel that the quality of the work is good and sometimes better than when it was done by the agency. Overall, farmers believe that they do an adequate job of maintenance. Officers are divided; some asserting that farmers do an adequate job while others feel that they are not doing well. Our observations indicate that, after turnover, farmers put more resources and effort into maintenance than they did before turnover and, possibly, more than was put in by the agency.

Evaluating this issue is difficult. We would expect that if inadequate maintenance is being done, the physical condition of the channels and structures would deteriorate and water distribution performance would get worse. Since most turnover has occurred within the past four years, and since most has occurred in recently rehabilitated systems, serious deterioration and worsening of water distribution performance has not yet taken place, even if maintenance has been neglected.

However, our observations indicate that farmers are not yet willing to take full responsibility for maintenance. Cases have been observed where a needed repair that could be done by the FO has been neglected while the FO asks the agency to undertake the repair. This attitude is strengthened by the procedures through which the irrigation agencies do much of the maintenance planning and decision making. Also, the agencies continue to supply resources for maintenance of canals and structures within the FO areas. In this situation, it is logical for the farmers to try to get the agencies to supply the resources needed for maintenance rather than to supply their own. So far, farmers have shown themselves willing to contribute labor for maintenance but there are virtually no cases where farmers have contributed a significant amount of cash for maintenance activities carried out through FOs. Also, though O&M payments have been a major source of FO funds, there is little evidence to suggest that these funds have been used for maintenance work, except for a few insignificant expenditures.

4.6 The Turnover Process

The three programs have similar policies concerning turnover or "handing over" of operations and maintenance responsibilities for distributary channels. All feel that there is a need for a period during which the FOs learn about their new responsibilities while the agency retains final responsibility.

The MEA has now codified this principle into a procedure that calls for the signing of two agreements, one for a period of "joint management" and subsequently for complete turnover. All of the cases of reported turnover and agreements reported earlier for Mahaweli are cases that fall within the "joint management" period.

Farmers generally approve of this process. Some assert that they need time to learn what needs to be done and how to do it. Also, it delays the time when they will have to use their own resources for O&M. As shown, the maintenance procedures now followed by the Irrigation Department mean that what has been called turnover in Irrigation Department and IMD reports, actually is a form of "joint management."

The present turnover programs have progressed up to the stage of formal joint management. It is necessary, however, to define an end to "joint management" either in terms of a time limit or in terms of some sort of performance measure. It is necessary to fulfill three conditions to proceed from the stage of joint management to full turnover.

- Improvement of management capacity of FOs,
- Improvement of technical capacity by imparting necessary technical know how to farmers,
- Willingness and genuine support of agency to provide technical and other necessary assistance.

In addition, it will be necessary to make a firm policy decision to stop subsidizing FO maintenance work. A time limit may be necessary to ensure that the process is actually completed.

The legal basis for turnover is the 1994 Irrigation Ordinance. Some have raised a possible issue over the compatibility between the existing turnover practices and the wording of the Ordinance. Specifically, it has been asserted that the Ordinance requires the FO to request turnover; that is, turnover initiated by the government is not legal. This is not likely to be a problem, but if so, a legal expert will be needed to determine how to resolve the issue.

4.7 Can Farmers Afford Turnover?

The question of whether farmers can afford to take over O&M of distributary channels has been raised. The key problem is maintenance. Operations on a distributary channel require only a little decision making time and one, or at most a few, persons to spend a little time during the season opening and closing gates. Maintenance, on the other hand, requires substantial amounts of labor at fixed times and, in the case of structure repairs, can require the expenditure of cash or other resources in relatively large sums.

Deciding this issue requires determining how much maintenance actually costs. This could conceivably be done by defining a standard for maintenance and then costing it. This is not actually an effective procedure because maintenance requires vary a great deal depending upon system characteristics. Instead, we estimated current levels of O&M funding in the LSS schemes and compared them with requirements as specified by irrigation officers in the LSS. From these figures and from the expenditures incurred in the six Process Documentation sites we estimated that Rs 300/acre is a reasonable average figure for annual O&M including main system O&M. This is slightly less than the highest expenditure - Rs 337/ha for System H in 1993 - reported from the PD sites.

Net farm income was estimated for the PD sites from farm records. In these cases, an O&M cost of Rs 300/acre works out to between 1.8% and 10.9% of one season's net farm income excluding family labor costs. If non farm income is included and family labor is not costed, this proportion changes to between 1.8% to 8.2% of household income. A similar analysis was carried out with LSS data. This analysis showed that an O&M cost of Rs 300/acre works out to about 16% of net farm income from one season excluding family labor for all schemes. It varied between 2.3% to 75% . In 20 of the 41 schemes studied (49%) it was below 10%, and in 15 schemes (37%) it was greater than 10%. Six of the 41 schemes (14%) showed negative returns and were not used for these calculations.

The above data indicate that in more than 50% of the schemes, the amount that farmers have to spend annually for O&M would be a small fraction of their net income from a single season's earnings from irrigated farming. In the PD sites, where farm income was estimated from the far more reliable source of farm records, in four of the five schemes (80%) where farmers had positive returns, the proportion of O&M costs of Rs 300/acre to net farm income was below 10%. This demonstrates the fact that with more reliable data on farm income, we are able to show clearly that farmers can afford turnover. This

**Monitoring and Evaluation of the
Participatory Irrigation System Management Policy**

**PROGRESS AND IMPACT
OF PARTICIPATORY IRRIGATION SYSTEM MANAGEMENT**

Volume II

**International Irrigation Management Institute
Hector Kobbekaduwa Agrarian Research and Training Institute**

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ABBREVIATIONS

ADB	Asian Development Bank
ARTI	(Hector Kobbekaduwa) Agrarian Research and Training Institute
BC	branch channel
BCC	Block Coordinating Committee
BM	Block Manager
DAS	Department of Agrarian Services
DC	distributary channel
DCO	distributary channel organization
DRPM	Deputy Resident Project Manager
FC	field channel
FCG	field channel group
FR	Farmer Representative
FO	farmer organization
ID	Irrigation Department
IDO	Institutional Development Officer (IMD and MEA)
IDU	Institutional Development Unit (MEA)
IIMI	International Irrigation Management Institute
IMAC	Irrigation Management Cell (Irrigation Department)
IMD	Irrigation Management Division
IMPSA	Irrigation Management Policy Support Activity
INMAS	Integrated Management of Major Irrigation Schemes
IO	Institutional Organizer (IMD and ID)
IOV	Institutional Organizer Volunteer (MEA)
ISMP	Irrigation Systems Management Project
JMC	Joint Management Committee
LSS	Large Scale Survey
M&E	Monitoring and Evaluation
MASL	Mahaweli Authority of Sri Lanka
MANIS	Management of Irrigation Schemes (program)
MARD	Mahaweli Agricultural and Rural Development (Project)
MC	Main Channel
MEA	Mahaweli Economic Agency
ME&F	Monitoring, Evaluation and Feedback (System)
NIRP	National Irrigation Rehabilitation Project
O&M	Operations and Maintenance
OFC	Other Field Crops
PCC	Project Coordinating Committee
PD	Process Documentation
PMC	Project Management Committee
PMU	(MASL) Planning and Monitoring Unit
RPM	Resident Project Manager
RS	Recurrent Survey
SPC	Subproject Committee
SPCC	Subproject Coordinating Committee
TA	Technical Assistant
UCC	Unit Coordinating Committee
WS	Works Supervisor

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FOREWORD

This volume describes the IIMI/ARTI team's effort to evaluate the progress and impacts of participatory irrigation system management in Sri Lanka.

The work reported here is largely based on three data collection efforts: Process Documentation in six sites (farmer organizations), Recurrent Surveys of 30 farmer organizations, and a Large Scale Survey covering many of the irrigation schemes in the country. The work was divided between the institutes as follows: IIMI was responsible for the Process Documentation effort and for Recurrent Surveys at the Mahaweli sites (farmer organizations), ARTI was responsible for the Recurrent Surveys at the INMAS and MANIS sites (farmer organizations). The Large Scale Survey was carried out jointly by both institutes. ARTI personnel involved include R. de S. Ariyabandu, D.G. Karunaratne, M. G. M. Razaak, S. Dharamlingam, S. M. K. B. Nandarathne, P. Karunatileke, M. Aheeyar, and G. M. Henegedara. IIMI research personnel involved included: R. Sakthivadivel, K. Jinapala, A. Abeywardene, A. Gamaathige, F. Marikkar, and L. R. Perera. Others IIMI staff, including D. Vermillion, C.R. Pannebokke, and C.M. Wijayaratna, helped with planning and design of the data collection efforts. The entire effort was supported and overseen by a Working Group whose members included Mr. N.T. Athukorala from the Irrigation Department, Mr. G.T. Jayawardena and Mr. S. Danansuriya from the Irrigation Management Division, Dr. R. Wanigaratne and Mr. S. Samarasinghe from the Mahaweli Authority of Sri Lanka, and Mr. A. Gunesekara from the Ministry.

On behalf of the IIMI/ARTI team, I would like to thank the various IMD, ID, and MEA officers, and numerous farmers, necessarily anonymous, who provided information and support for this effort.

Jeffrey D. Brewer
Project Leader

CHAPTER 1

MONITORING AND EVALUATING THE PROGRESS AND IMPACTS OF THE PARTICIPATORY IRRIGATION SYSTEM MANAGEMENT POLICY

1.1 The Participatory Irrigation System Management Policy

Prior to 1978, all "major" and "medium" irrigation schemes in Sri Lanka were managed by the government with little official involvement of farmers. In 1988, after a decade of experiments, the government formally adopted a Cabinet Paper defining the "participatory irrigation system management policy." This policy attempts to increase farmer involvement in the management of major and medium irrigation systems. The goals of the policy are twofold:

1. Improvement of the productivity of the irrigation schemes through improved ability to manage the system to serve crop needs.
2. Increasing the share of O&M expenditure borne by the farmers by transferring a large portion of the O&M responsibilities to them. This would help relieve pressure on the government budget.

The participatory management policy is considered a key element of the future development of irrigated agriculture in Sri Lanka (IMPISA 1991). This document reports the results of a study to evaluate the progress and impacts of the participatory irrigation system management policy.

1.1.1 *Irrigation System Management before Participatory Management*

Prior to adoption of participatory management, major and medium irrigation schemes were managed as follows:

- **Responsible Government Agencies** Major schemes are generally divided into two classes: major schemes whose command areas are larger than 800 hectares and medium schemes with command areas between 80 and 800 hectares. Management of both types of schemes are the responsibility of the Irrigation Department (ID).

Not all major schemes are managed by the Irrigation Department. Since before independence, Sri Lanka has been developing new irrigation and settlement schemes. Starting at independence the integrated development agency approach modeled on the Tennessee Valley Authority has been used for the larger schemes. The Mahaweli Project is the latest development scheme and is managed by the Mahaweli Authority of Sri Lanka (MASL). The Mahaweli Economic Agency (MEA) is the specific organization within the MASL that manages Mahaweli schemes.

- **Seasonal Planning** Seasonal planning includes deciding upon the crops to be grown in different areas of the scheme and the allocation of available water to those areas. In addition, seasonal decisions define when irrigation will start, how long irrigation for land preparation will continue and how long irrigation for the crop growth will continue.

The Irrigation Ordinance of 1968 specified that, for major schemes, seasonal plans were to be made by the farmers prior to the season at a *kanna* (seasonal) meeting. Kanna meetings were called and chaired by the Government Agent of the District or by his delegate. The idea was to get farmer participation in making the decisions. Because the Irrigation Ordinance applied to all major systems, kanna meetings were held for Mahaweli schemes as well as for Irrigation Department schemes. However, they were called and chaired by MEA personnel rather than by the Government Agent.

As has been shown by Murray-Rust and Moore (1983), these kanna meetings did not serve these purposes effectively. On larger schemes kanna meetings cannot deal with all of the farmers; hence several kanna meetings were held for each larger scheme. For example, each season eight kanna meetings were held for the Gal Oya Left Bank Scheme in Ampara and Batticaloa Districts. Even in smaller schemes the tendency was for the ID officers and Agriculture Department officers to meet, often at the District Agricultural Committee, and make the decisions. These decisions were then announced at the kanna meetings rather than discussed with farmers.

- **Operations Planning** Operations planning refers to defining how water is to be delivered (rotation, continuous flow, etc) and how much is to be delivered. Prior to participatory management, these decisions were made solely by ID or MEA engineers. Kanna meetings often discussed these matters but farmers had no recourse if the engineers decided that they needed to make changes in schedules or amounts.
- **Operations** Both the ID and the MEA claimed to deliver water to the farmer's outlet. In ID's case, gate operations on main, branch, and distributary canals down to the gate at the head of each field channel were carried out by Irrigators (*Jala Palakas*) under the supervision of Work Supervisors and Technical Assistants. In MEA's case, gate operations were carried out by Irrigators under the supervision of Technical Officers and Engineering Assistants. The Irrigators took their orders from supervisors within the department rather than from farmers. Farmers supposedly had no role to play in setting gates.

In fact, however, farmers could and did interfere with gate operations whenever they felt it necessary. Because of a lower level of funding, ID Irrigators were fewer and ID systems thus were more subject to interference by farmers than were MEA Irrigators. A farmer caught interfering with water distribution could be punished. However, no special powers were given to ID or MEA officers to punish farmers; they had to rely on the police and the courts. In fact, therefore, little could be done.

- **Maintenance** Maintenance of all channels and structures other than field channels was the sole responsibility of the ID and MEA. In ID schemes, the work was generally carried out by Patrol Laborers or Irrigators under the supervision of the Work Supervisor. The Irrigators or special laborers did the work on Mahaweli Schemes under the supervision of the Technical Officer.

Farmers were considered responsible for cleaning field channels each season. This work was to be carried out under the supervision of the Yaya Palaka, a farmer appointed by the Agrarian Services Department. The normal practice was to assign each farmer a stretch of canal. A date would be set at each kanna meeting by which each farmer was supposed to have cleaned his section of the field channel. In theory, farmers could be punished by the courts if they did not clean their sections. In fact, it was very difficult to enforce the cleaning.

- **Resource Mobilization** Virtually all costs of operations and maintenance were to be borne by the ID and MEA. The Irrigation Ordinance of 1968 authorized the Government Agency in each district to levy a fee on farmers for maintenance. However, before 1984, no fees were charged. An irrigation service fee was introduced in 1984 along with the promise of improvements to the services. Although many farmers paid at first, service did not improve significantly. Also, political disturbances affected both the ability of the government agencies to deliver services and the ability to collect the fee. Recovery rates dropped from almost 85% for 1984 to less than 10% by 1988.

1.1.2 *Participatory Irrigation System Management*

The basic idea of participatory irrigation system management is that farmers work together with the government irrigation agencies to take responsibility for system management. As developed since 1978 through various experiments, participatory irrigation system management in Sri Lanka includes the following basic elements:

1. ***Farmer Organizations*** A key element is the development of hydrologically based farmer organizations (FOs) whose basic functions are to deal with irrigation matters. FOs, however, need not be limited to irrigation matters. Most farmer organizations consist of informal Field Channel Groups (FCGs), each of which selects a Farmer Representative (FR) who sits on the committee that governs the Distributary Channel Organization (DCO). The DCO that is considered the legal farmer organization. In some schemes, farmers have created higher level organizations, including System Level Farmer Organizations (SLFOs) by federating DCOs.
2. ***Joint Management Committees*** Each scheme has a structure of joint management committees (JMCs) on which sit both Farmer Representatives and officers from the relevant agencies. Minimally, every scheme has a top level committee, generally called a Project Management Committee (PMC). The PMC is responsible for preparation of the seasonal plan, including allocating water to different parts of the system according to the crop plan, and deciding upon an overall schedule of operations. In addition, the PMC attempts to coordinate efforts among agencies, improve communication and resolve problems between farmers and agencies, and resolve disputes among DCOs. Larger schemes have lower level JMCs, generally called Subproject Committees (SPCs) to deal with irrigation and other problems of subareas within the scheme. One accepted principle is that Farmer Representatives must outnumber the agency officers on each JMC.
3. ***Turnover*** Once FOs and JMCs are established and considered capable of handling the responsibilities, the irrigation agency formally assigns ("hands over") the responsibilities for operations and maintenance (O&M) on the distributary channels and field channels to DCOs. The agency retains responsibility for O&M of headworks, main channels and branch channels.

Figure 1.1 shows the current organizational model for participatory management. This model was first developed for the INMAS program and can be called the INMAS model. The idea behind the INMAS model is that farmer organizations and joint management committees will improve communications with between farmers and the agencies, thus improving the agency response to farmer needs. Better coordination and turnover of O&M responsibilities will lead to improved operations and management. Better O&M and better agency services will lead to increased crop production and this, in turn, should lead to increased income from irrigated agriculture. At the same time, turnover will enable the government to reduce staff and materials costs thus reducing government expenditures on O&M. Figure 1.2 shows the expected process.

The changes from the pre-participatory management situation include the following:

- ***Seasonal Planning*** Seasonal planning is to be carried out by the JMCs instead of kanna meetings. The basic idea is that by using representatives of the farmers, instead of farmers themselves, the number can be made manageable so that farmers can have effective participation in seasonal planning decisions.
- ***Operations Planning*** Under participatory management, operations planning is still carried out primarily by ID or MEA engineers. However, the JMCs can discuss operations plans and set out basic parameters for the plans.

- **Operations** Under participatory management, operations on field channels are the responsibility of FOs. Where turnover has occurred, operations on distributary channels are also the responsibility of FOs. The agencies retain responsibility for headworks and main system operations.
- **Maintenance** Under participatory management, unless there has been turnover, the maintenance of all channels and structures other than field channels remains the sole responsibility of the ID and MEA. FOs are responsible for maintaining field channels each season. Turnover implies that the FOs also take responsibility for maintenance of distributary channels.
- **Resource Mobilization** Without turnover, farmers are still supposed to pay the irrigation service fee, in addition to taking responsibility for operations on the field channels. The 1988 Cabinet Paper on the participatory management policy proposes turning over operations and maintenance responsibility, including responsibility for resource mobilization, for field and distributary channels to farmer organizations. In return, the farmers would be exempted from their obligation to pay the irrigation service fee. The Cabinet Paper clearly was a response to the difficulty in collecting the service fee.

Table 1.1 contrasts management responsibilities before participatory management with the assignment of management responsibilities under participatory management.

1.1.3 *Recent Developments in the Participatory Management Policy*

Until recently there was no legal basis for the farmer organizations and joint management committees to take on any specific irrigation management functions in major irrigation schemes. FCGs and DCOs had no legal right to stop abuses of water distribution. Similarly, PMCs had no legal right to make seasonal plans. Because of this last point, kanna meetings continued as a legally required means of ratifying seasonal plans made by PMCs.

In May 1994, the Irrigation Ordinance was amended to recognize the rights of farmer organizations to operate and maintain distributary and field channels, to collect fees from the farmers to cover operation and maintenance costs, and to fine farmers who take more than their share of water or who fail to contribute their share of maintenance labor. The new Irrigation Ordinance also specifies that Project Management Committees are, under the supervision of a government officer, mandated to make seasonal plans.

The government has continued to develop the participatory management policy. Beginning in 1989, various efforts were carried out to define the responsibilities to be turned over and the mechanisms for turnover, including development of formal agreements between the Irrigation Department and farmer organizations. Between 1990 and 1992, the USAID-financed Irrigation Management Policy Support Activity developed numerous policy papers on various aspects of the irrigation system management based on the participatory management policy (IMPSA 1992). Work on the policy, particularly on the definition of responsibilities to be turned over to farmer organizations, continues.

1.2 **Programs for Achieving Participatory Management**

The INMAS, MANIS, and Mahaweli programs are the government's main means for implementing participatory management and achieving its goals.

1.2.1 *The INMAS Program*

The Integrated Management of Major Irrigation Schemes (INMAS) program was begun in 1984. It was based on earlier experiments in improving irrigation management (Brewer 1994). At the same time, the Irrigation Management Division (IMD) was created to implement the INMAS program.

Table 1.1: Comparison of Pre-Participatory Management and Participatory Management Systems

Management Function	Pre-Participatory Management	Participatory Management
1. Seasonal planning	Done by agencies and ratified at kanna meetings	Done by Project Management Committees
2. Operations planning	Done by agencies, basic plans ratified by kanna meetings	Done by agencies, basic plans ratified by PMCs
3. Headworks, main channel, branch channel operations	Carried out by irrigation agencies	Carried out by irrigation agencies
4. Distributary channel operations	Carried out by irrigation agencies	Carried out by FOs after turnover
5. Field channel operations	Carried out by irrigation agencies	Carried out by FOs
6. Headworks, main channel, branch channel maintenance	Planned and carried out by irrigation agencies	Carried out by irrigation agencies in priority order determined by PMCs
7. Distributary channel maintenance	Planned and carried out by irrigation agencies	Planned and carried out by FOs after turnover
8. Field channel maintenance	Done by individual farmers under direction of the <i>Yaya Palakas</i> of the Agrarian Services Department	Done by FOs

As defined in the 1984 documents, the INMAS Program has the following objectives:

In the short term:

- Increase agricultural production per unit of irrigation water,
- Increase agricultural production per unit of land,
- Distribute irrigation water to farmers adequately and equitably,
- Arrange for timely supply of agricultural inputs and sale of products,
- Organize and develop farmer organizations to facilitate farmer participation in management,
- Recover O&M costs from farmers in major irrigation schemes,
- Maintain irrigation systems at optimum level of performance,
- Identify major systems needing urgent rehabilitation.

In the long term:

- Integrated development of the farms to commercial holdings,
- Crop diversification and rotation,
- Social and economic development of the farming community,
- Improved marketing of agricultural produce and by-products,
- Local processing of agricultural produce to semi-finished or finished products,
- Handing over to farmer organizations some management and operational functions of the systems.

Under INMAS, a Project Manager is stationed in each INMAS system. He is an employee of the IMD and is responsible for establishing and strengthening of farmers' organizations, for coordinating government agency efforts, and for chairing the Project Management Committee initially. The Project Manager, however, has no direct power over farmers or officers from other agencies; he must rely on persuasion to achieve INMAS goals.

The Project Manager is generally assisted by an Institutional Development Officer specifically charged with creating and strengthening the farmer organizations. In some INMAS systems, the IMD has appointed Institutional Organizers (IOs) to act as catalyst agents to create and strengthen farmer organizations. IOs have generally been provided only to schemes undergoing rehabilitation through a donor funded project. IMD expects that the IOs can be withdrawn once the farmer organizations develop.

At least two levels of hydrologically based farmer organizations exist in INMAS schemes: field channel groups and distributary channel organizations. Recently the INMAS program has begun organizing system level farmer organizations in many of the INMAS schemes.

Since adoption of the participatory management policy, formal turnover of the operation and maintenance of distributary channels to farmer organizations has been a goal of INMAS. Many farmer organizations have now formally taken responsibility for the distributary channel O&M. In most cases, the Irrigation Department is still providing funds and other assistance to the farmer organizations. However, in February 1992, under the Irrigation Systems Management Project, 33 farmer organizations signed agreements with the government renouncing this assistance.

INMAS was implemented in 35 irrigation schemes, including most of those with command areas greater than 800 hectares.

1.2.2 The MANIS Program

In 1986, the Irrigation Department created the Management of Irrigation Schemes (MANIS) Program to bring the benefits of the INMAS approach to the schemes not falling under INMAS. The objectives of MANIS are identical with those of INMAS and the scheme level organization is similar. MANIS is managed directly by the Irrigation Department.

Each MANIS scheme has a (part time) Project Manager, generally the Technical Assistant assigned to the scheme by the Irrigation Department. The Project Manager is assisted by ID field-level staff including Work Supervisors and others. Special inputs have been few. The most important has been training given to the Project Managers. Until very recently, MANIS Project Managers have not had specialized help such as Institutional Development Officers or Institutional Organizers. Project Managers attend to their functions on a part time basis since they have their technical duties to perform as well. Recently some MANIS schemes have been taken for rehabilitation under the World Bank-funded National Irrigation Rehabilitation Project. Institutional Organizers like those used in INMAS schemes are provided to these schemes.

Like INMAS, each MANIS scheme is supposed to have hydrologically-based farmer organizations and the equivalent of a Project Management Committee. As in INMAS schemes, formal turnover of distributary channel management functions is a goal of MANIS. In addition, it has been recommended (IMPSA 1991) that all medium schemes with command areas of 400 hectares or less be turned over in to farmer organizations.

Definition of schemes included within MANIS has been problematic. When the program was created, the goal was to include all major schemes under ID control that were not part of INMAS. This would have

been about 230 schemes. Because funding and facilities for training Project Managers was limited, initially only 120 Project Managers were named to take responsibility for some 170 schemes.

An amendment of the Constitution in 1988 created the Provincial Councils and specified that all irrigation schemes that were not interprovincial came under the authority of the Provincial Councils. To simplify the definition, the Irrigation Department turned over to the Provincial Councils all schemes with command areas under 400 hectares. Since then, many of these schemes have been returned to the Irrigation Department for technical or financial reasons. These transactions have confused the definition of which schemes fall within MANIS.

As a result of a request to the Irrigation Department from IIMI for an "official" list of MANIS schemes for this study, the ID has prepared a definitive list of 160 MANIS schemes. The schemes that remain with the Provincial Councils are not included nor are schemes that have never had any input at all. This list has been used as the basis for this study.

1.2.3 Mahaweli Participatory Management Programs

Most of the Mahaweli schemes are new settlement schemes founded on irrigation systems that derive some or all their water from the Mahaweli River. The Mahaweli Economic Agency (MEA), a unit of the Mahaweli Authority of Sri Lanka (MASL), manages the Mahaweli schemes. MEA attempts to provide fully integrated services to the settlers, including irrigation, agricultural, health and other services. In non-Mahaweli schemes, these services are provided by a variety of specialized agencies or by the private market.

There are six hydrologically distinct Mahaweli irrigation schemes: System H, System C, System B, System L, Bakamuna, and Uda Walawe. Bakamuna was formerly called System G; it has recently been amalgamated administratively with System B. System L is still under construction and is not further considered here. In effect then, there are four Mahaweli schemes discussed here: System H, System C, System B (including Bakamuna), and Uda Walawe.

A Resident Project Manager is in charge of each scheme. The Resident Project Manager is helped by deputies for agriculture, lands, irrigation, marketing, community development, and institutional development. Each Mahaweli scheme is divided into Blocks headed by Block Managers who are assisted by deputies for the five subject areas. Each Block is divided into Units headed by Unit Managers assisted by Technical Officers and Field Assistants in irrigation and agriculture respectively.

There have been several experiments in organizing farmers for participatory management in different Mahaweli systems, including:

- **System H Turnout Groups** The creation of "turnout groups" in Mahaweli System H in 1980 was the first experiment in organizing farmers within the Mahaweli systems. Under this program, a leader was selected for each "turnout" (equivalent to a field channel). Training was given to the leaders so that they could help with management of irrigation and other issues within the turnout area.
- **Nation Builder's Association Effort** A non governmental organization, the Nation Builder's Association, was invited to organize farmers, in System B in 1985 and in Uda Walawe a little later. In both places, the Nation Builders' Association fielded catalyst agents to organize farmers.
- **MARD Farmer Organizations** The Mahaweli Agricultural and Rural Development (MARD) Project began work on organizing farmers in System B in 1987. The MARD Project is using MEA field staff as catalysts to organize farmers for various activities, especially for input coordination and marketing.

- **MEA-IIMI Effort** From 1991 to 1993, MEA and IIMI experimented in Uda Walawe with using catalyst agents in cooperation with MEA officers to create and strengthen farmer organizations.

MEA made formation of farmer organizations and turnover its official policy after announcement of the participatory management policy (Jayawardene 1990). As a result efforts were made to create farmer organizations throughout the Mahaweli schemes. In Systems B and C, following MARD examples, many of the organizations were based on Units rather than distributary channels; these FOs focussed their efforts on agribusiness rather than on irrigation management. Although efforts were made to create farmer organizations, no effort was made to create joint management committees.

In October 1992, the new Managing Director of MEA initiated a program to organize farmers for effective participation in system management throughout all the Mahaweli systems (MEA 1992). This program adopted the INMAS model for participatory management, including distributary channel organizations and joint management committees.

An Institutional Development Officer has been appointed for each Block and are supervised by an Assistant Manager (Institutional Development) in each scheme. A central unit for Institutional Development has been created for the MEA. Also, Institutional Organizer Volunteers (IOVs) were appointed for three of the four Mahaweli schemes. Appointments of IOVs were held up in System H for political reasons.

Since early 1993, FOs have been created or reorganized in the four Mahaweli schemes. Also, because of the large sizes of the schemes, four levels of JMCs have been created in each. The four levels are called Unit Coordinating Committees (UCC), Block Coordinating Committees (BCC), Subproject Coordinating Committees (SPCC), and Project Coordinating Committees (PCC).

1.2.4 Numbers of Schemes in the Three Programs

Of the 270 major and medium schemes, 199 have been included in the three programs; the remainder are located in security areas. Of these included schemes, 160 schemes are under MANIS. The Irrigation Department divides MANIS schemes into 3 classes based on the amount of effort expended so far. MANIS Class C schemes have had very little effort. Therefore, at the request of the Irrigation Department, MANIS schemes were divided into two groups: 59 schemes in classes A and B on the one hand, and 101 schemes in class C on the other. Table 1.2 gives the distribution of major schemes among the three programs.

Table 1.2: Schemes in the Three Programs

Program	# of Schemes	Total Command Area	Average Command Area
Mahaweli	4	121,000 ha	30,250 ha/ scheme
INMAS	35	197,000 ha	5,629 ha/scheme
MANIS	160	59,000 ha	369 ha/scheme
Total	199	377,000 ha	

1.3 Objectives and Scope of the Study

1.3.1 Background to the Study

Much of the planning for future investments in irrigated agriculture is based on the assumed success of the participatory management policy. Although there are reports of successes of participatory management in the Polonnaruwa schemes (Sheladia 1992; TEAMS 1992), others question the long term sustainability of the progress there (Athukorale 1992). Also, doubts have been raised about the success of the INMAS

Program (ARTI 1991). On a more theoretical level, participation has costs as well as benefits and that the appropriate level of participation is problematic (Picciotto 1992).

A major difficulty in resolving the doubts about the participatory management policy is a lack of hard data. Data exists. Most consists of anecdotes or of studies that have focussed only on a limited subset of the irrigation schemes. While there is a fairly substantial body of data on participatory management in some INMAS schemes, there is little data on MANIS and Mahaweli schemes.

A primary purpose of the present study is to provide systematic hard data on the progress and impact of all three participatory management programs.

1.3.2 *Objectives of the Study*

This study was being implemented through a tripartite agreement among the Government of Sri Lanka, the Asian Development Bank (ADB), and the International Irrigation Management Institute (IIMI). Funding was provided by the ADB under Technical Assistance no. 1705 SRI.

As stated in the TA Agreement, "the objective of the Technical Assistance is to assist the Government and the irrigation agencies in the implementation of the Government's new participatory irrigation system management policy through a comprehensive monitoring and evaluation of the Turnover Program being implemented under this policy."

This objective focusses on "turnover." This term, as used in Sri Lanka, implies turnover of management functions to farmer organizations and joint management committees created by the INMAS, MANIS, and Mahaweli programs.

In order to plan more effectively, the following more detailed objectives were defined for the evaluation of progress and impact of participatory management:

1. Determination of the progress of each program toward creating effective farmer organizations, effective joint management committees, and turnover of management functions to the farmer organizations and joint management committees.
2. Determination of the impact of each program on the efficiency and effectiveness of system management, on total agricultural production, on farmer income from irrigated agriculture, and on government expenditures for system operations and maintenance.
3. Formulation of recommendations for improvement for each program that will lead to more effective participatory management.
4. Evaluation of the likelihood that participatory management will achieve its goals; if achievement is unlikely, formulation of alternative approaches to resource mobilization for irrigation system management.

As suggested by this discussion, the study was designed to cover all schemes under the INMAS, MANIS, and Mahaweli programs that are not in security problem areas.

1.3.3 *Participants in the Study*

The study has been carried out by the International Irrigation Management Institute (IIMI) in collaboration with the Hector Kobbekaduwa Agrarian Research and Training Institute (ARTI). Great assistance was

provided by senior and junior officers of the Irrigation Department, Irrigation Management Division, and Mahaweli Economic Agency. In particular, a group of officers from these agencies met as a Working Group at various times to provide advice and assistance on the conduct of the study. The study was overseen by a Coordinating Committee established as a subcommittee to the Central Coordinating Committee for Irrigation Management.

1.4 Methodology for the Evaluation of Progress and Impacts

1.4.1 Preliminary Activities

To gather information for design of the data collection efforts, the IIMI/ARTI team undertook two preliminary activities: a literature survey and a reconnaissance of schemes in the three programs.

1. **Literature Survey and Review of History** Much information on the progress and impact of participatory irrigation management in major schemes in Sri Lanka is available in project reports, such as those from the Irrigation Systems Management Project (see Sheladia 1992 for a summary), and other forms. One that is of direct relevance is ARTI's evaluation of the INMAS program (ARTI 1991). The IMD's Monitoring, Evaluation, and Feedback System initiated in the schemes under the Irrigation Systems Management Project in 1990 and recently spread to other INMAS schemes can provide other useful information.
2. **Field Reconnaissance** The IIMI/ARTI team undertook a reconnaissance of schemes for two purposes: 1) to provide information on the range of variation among schemes, and 2) to provide information on the key issues. The reconnaissance covered 59 irrigation schemes, including 24 INMAS schemes (about 67% of INMAS schemes), 32 MANIS schemes (about 20% of MANIS schemes), and 3 Mahaweli schemes (50% of Mahaweli schemes). The reconnaissance covered all major regions not off limits for security reasons, but the schemes were not selected systematically with the regions. Schemes were selected because they were recommended by irrigation professionals as being of interest or, in a few cases, because they were convenient to visit.

The reconnaissance collected data on the following items:

- The progress of the farmer organizations and joint management committees in each scheme,
- The progress of turnover in each scheme,
- Basic information on each scheme, including condition, etc.
- Basic information on monitoring systems used in each scheme.

A separate report analyzing the data from the reconnaissance was prepared (IIMI 1993).

The results of these two efforts were used for the detailed design of the main data collection efforts, including identification of variables and selection of samples.

1.4.2 Variables

From preliminary studies, 28 variables were selected for study. Each of these is described succinctly below, including hypothesized relations with other variables:

1. **Size of the Scheme** This variable is measured by the command area. It is expected that the smaller the scheme, the easier it will be to manage, hence the performance of JMCs and agencies is likely to be better on a smaller scheme.

2. ***Design and Physical Condition of the Scheme*** Design features and the physical condition of the scheme affect the difficulty of solving problems and controlling water. Better design and better physical condition should result in better performance of both agencies and FOs.
3. ***Scheme Water Availability*** The overall amount of water available to a scheme is a product of natural factors and of factors outside the control of the irrigation managers. Abundant water may lead to lack of management effort since problems can be solved by giving more water. Severe deficiencies mean that neither the agencies nor FOs can solve irrigation problems. It is expected that water availability has a major effect on performance.
4. ***Size of the Farmer Organization Area*** This is measured as the command area of the distributary canal(s) managed by the FO. It is expected that the larger the size of an FO area, the greater the problems to be solved. Therefore, size of the FO area should affect FO performance.
5. ***Farmer Organization Water Distribution Performance*** This refers to FO performance in delivering water within the distributary channel command.
6. ***Farmer Organization Maintenance Performance*** This refers to FO performance in cleaning and maintaining the distributary channel(s) and field canals within its area, including maintenance of structures and protection of canals and structures.
7. ***Farmer Organization Communication Performance*** This refers to the performance of the FRs in a) transmitting the views and needs of their constituents to the joint management committees, and b) transmitting decisions and the reasons for the decisions back to their constituents from these committees.
8. ***Farmer Organization Non-O&M Activities Performance*** This covers all activities other than operations and maintenance. Examples include selling fertilizers and agricultural chemicals, storing or marketing crops, building community halls, taking construction contracts, hiring equipment such as tractors, training women for economic activities, and many others.
9. ***Farmer Organization Organizational Management Performance*** A key element is the ability of the FO to handle the tasks needed to maintain itself as a functioning organization. These include defining the organization (who are the members, what is the structure), having and adhering to principles for selecting leaders, communicating information among members, and making decisions.
10. ***Farmer Organization Financial Management Performance*** Given the need to handle funds for maintenance and other purposes, an FO's ability to raise, keep, and use the funds to the satisfaction of the members is a key aspect of FO performance.
11. ***Land Tenure*** Differences in landholdings may create differences in interests among the farmers concerning farming and irrigation. These differences may in turn impede cooperation in a farmer organization. Other things being equal, it is expected that the greater the uniformity of landholdings among members, the more effective the FO will be.
12. ***Caste and Other Social Divisions*** Recognized social divisions may impede the ability of farmers to cooperate because of perceived differences of interest. Other things being equal, it is expected that the fewer the recognized social divisions, the more effective the farmer organization will be. Social divisions of interest include caste, ethnic groups, gender, groups based on the area of origin of settlers, political parties and others.

13. ***Political and Other Intervention in Farmer Organization Internal Affairs*** In Sri Lanka, political and governmental (and occasionally other) authorities have great powers. Such powerful authorities reportedly intervene in FO internal affairs to favor some member or members. Such interventions may weaken the authority and influence of the FO over its members, decreasing the effectiveness of the FO.
14. ***Training and Experience of Farmers and Farmer Representatives*** The effectiveness of the FO in carrying out its tasks depends in part on the ability of individual FO members and, especially, of FO officers (Farmer Representatives) to handle their responsibilities. Experience and training are likely to enhance individual abilities to handle these responsibilities, hence affecting FO performance.
15. ***O&M Responsibilities Turned Over*** FO performance of O&M activities is dependent upon the degree of power they have to make decisions and undertake actions. The degree to which the irrigation agency relinquishes its authority and responsibilities to the FOs is thus likely to affect FO performance. This variable refers to the recognized powers and responsibilities granted to the FO by the irrigation agency.
16. ***Legal Status of Farmer Organizations*** An FO's ability to distribute water, resolve disputes among members, protect structures, and undertake other regulatory activities depends upon its power to control members, including punish offenders when necessary. An FO's power to control members is likely to depend in part on the legal definition of those powers. Individuals may be able to defy the FO, if the FO lacks legal rights and powers.
17. ***Joint Management Committee Planning Performance*** A key function of the joint management committee structure is the preparation of seasonal plans, including making decisions about allocations of water to various groups of farmers. JMC performance in this task is likely to affect overall scheme performance.
18. ***Joint Management Committee Coordination and Problem Solving Performance*** The second main task of JMCs is the coordination of efforts among farmers and agencies by providing needed information and getting agreements.
19. ***Agency Water Distribution Performance*** The ability of an FO to deliver water within its area will be affected by the delivery of water to the FO. Less directly, FO performance in other areas, particularly maintenance, may be affected by water delivery to the FO. The agencies involved include the Irrigation Department in INMAS and MANIS schemes, and the Mahaweli Economic Agency in Mahaweli schemes.
20. ***Agency Communication Performance*** One key to the performance of the JMCs and FOs is the information and specialized knowledge supplied them by the agencies. The main agencies involved include: a) the Irrigation Department, the Irrigation Management Division, the Department of Agriculture, the Department of Agrarian Services and the Land Commissioner's Department in INMAS schemes; b) the Irrigation Department, the Department of Agriculture, the Department of Agrarian Services, and the Land Commissioner's Department in MANIS schemes, and c) the Mahaweli Economic Agency in Mahaweli schemes.
21. ***Agency Performance in Support for Farmer Organizations*** A supportive attitude shown by agency officers toward FOs is likely to be important to success in participatory management since farmers will place more importance on the FOs if they know that the agency officers place importance on them. Supportive actions can help. For example, routing information and assistance to a farmer through the FO strengthens the FO's importance to farmers.

22. ***Policy Guidance to Agencies*** Agency officers acting as system managers or as field officers respond to guidance and direction from their superiors in Colombo or elsewhere. The nature of that guidance (policies, orders, and attitudes) is thus critical to agency performance.
23. ***Institutional Organizers or Other Catalyst Agents*** Many FO successes have depended upon work done by catalyst agents such as Institutional Organizers. It has been suggested that, except in unusual circumstances, IOs are needed to achieve viable FOs.
24. ***Training for Officers*** Training given to officers in working with farmer organizations and in technical matters (water delivery in particular) is likely to affect agency performance.
25. ***Resources Provided to Agencies to Support Farmer Organizations*** This variable is meant to capture resources other than training and IOs provided to the agencies to support their efforts to create and strengthen FOs. Such resources include extra funds, technical assistance, vehicles, other equipment, etc.
26. ***Crop Production*** One intended outcome of participatory management is increased crop production through more efficient irrigation water management. The increases could be due to better yields or more cropped area or both. It is necessary to measure crop production to determine whether it has increased or not. However, because crop production also depends upon many factors other than irrigation, it is necessary to distinguish between increases due to participatory management and increases due to other causes.
27. ***Farm Income*** Participatory management is expected to help increase incomes from irrigated farming. This can come about through two means: a) increasing crop production, and b) decreasing the costs of crop production. On the other hand, increases in costs of irrigation due to taking over of O&M responsibilities could cause decreases in farm income. Again, changes caused by participatory management must be distinguished from changes caused by other factors.
28. ***Agency O&M Costs*** Turnover of O&M responsibilities to FOs is expected to reduce O&M costs to the government. This can come about through decreases in operating and maintenance personnel and through decreases in expenditure on materials and equipment for maintenance.

Figures 1.3, 1.4 and 1.5 show the hypothesized relationships among these variables.

While data were collected on all of these variables, more emphasis was placed on some rather than others. Also, it was found that for analysis purposes, it was useful to combine some, such as the two JMC performance variables. The analyses in the following chapters do not exactly follow these variables and hypothesized relationships.

1.4.3 Data Collection Methods and Sample Selection

The basic irrigation management unit is the scheme; the scheme therefore is also a basic unit for analysis. The second basic unit is the farmer organization because the participatory management policy is based on the performance of FOs. Progress and impacts have both scheme level and FO level dimensions. Therefore, for each of the three programs, sampling was done at two levels: a) schemes, and b) farmer organizations within schemes. Because the participatory management policy envisions distributary channel organizations (DCOs) as the basic farmer organization, DCOs or their equivalents were considered the farmer organization units.

Data on the 28 variables was collected through four methods: a) recurrent surveys, b) process documentation, c) a large-scale survey, and d) special efforts.

Recurrent Surveys (RS). The TA Agreement specified that data was to be collected through recurrent surveys of about 30 irrigation schemes over three seasons. The basic idea was that revisiting the sites would allow observations of changes between visits thus giving data on processes not available through a single survey. Moreover, the number of sites should allow observation of variation among schemes.

In actual practice, we chose to focus on 30 FOs in 18 schemes so that, for larger schemes, we could look at multiple FOs in each scheme. The recurrent survey sites were distributed as shown in Table 1.3.

Table 1.3: **Distribution of Field Sites for Recurrent Surveys**

Program	# of Schemes	FOs per Scheme	Total FOs
INMAS	6	2	12
MANIS	10	1	10
Mahaweli	2	4	8
Totals	18		30

Selection of the sample schemes was done largely on the advice of senior government officers from the programs. Selection of the sample FOs within the schemes was done on the basis of advice from the government officers managing the schemes. Sample selection was not random. The following basic criteria were taken into account:

- There should be farmer organization or turnover activity going on.
- The sample should include schemes that have or have had support from special projects (MIRP, ISMP, NIRP, etc) and others that have not had such support.
- The sample should include both water deficient schemes and water abundant schemes.

The selected schemes and FOs are shown in Tables 1.4, 1.5, 1.6, 1.7, 1.8, and 1.9.

Table 1.4: **INMAS Recurrent Survey and Process Documentation Sample Schemes**

Scheme	Range	Command Area	FOs	Water	Special Inputs
Recurrent Survey Sample Schemes					
Dewahuwa	Kandy	1200 ha	8*	Medium	None
Kaudulla	Polonnaruwa	4800 ha	23	Medium	ISMP
Muruthawela	Hambantota	3600 ha	18	Deficient	None
Muthukandiya	Moneragala	800 ha	6	Abundant	Australian
Rajangana	Anuradhapura	7200 ha	56	Abundant	MIRP
Tabbowa	Puttalam	1000 ha	4	Deficient	None
Process Documentation Sample Schemes					
Mee Oya	Kurunegala	1800 ha	16	Deficient	None
Rajangana	Anuradhapura	7200 ha	56	Abundant	MIRP

* When we began the study, there were only three FOs at Dewahuwa.

Data collection at each site was done using rapid assessment techniques (Chambers & Carruthers 1986, Uphoff 1992), including group interviews, field observations, and others. Observations were carried out

over three seasons: Yala 1993, Maha 1993/94, and Yala 1994. An attempt was made to make three visits per season timed to allow observation of the critical activities, including seasonal planning, water distribution during land preparation, water distribution during crop growth, and harvesting. In a few cases, it was not possible to actually make all of the visits at the proper time.

Responsibility for the Recurrent Surveys was divided between the two institutes: IIMI was responsible for the surveys of the eight Mahaweli sites while ARTI was responsible for surveys of the 12 INMAS sites and the 10 MANIS sites. Whenever possible, the recurrent surveys were carried out by teams of two researchers. ARTI, because of some staffing difficulties and because of difficulties in getting some of the detailed data desired, placed data collectors in three systems for extended periods to supplement the Recurrent Surveys.

Table 1.5: INMAS Recurrent Survey and Process Documentation Sample FOs

Scheme	FOs	Sample FO Names	Location
Recurrent Survey Sample FOs			
Dewahuwa	3	1. Perakum FO 2. Eksath FO	1. Head of scheme 2. Tail of scheme
Kaudulla	23	1. CP Pura Perakum FO 2. Eksath FO	1. Head of RB 2. Ambagaswewa
Muthukandiya	6	1. Village 3 FO 2. Village 6 FO	1. Head of scheme 2. Mid-scheme
Muruthawela	18	1. Pahala Perakum FO 2. Thissara FO	1. Head of Tract 2 2. Tail of Tract 2
Rajangana	56	1. Ranketha FO 2. Nawajeewana FO	1. RB Tract 11 2. LB Tract 3
Tabbowa	5	1. Perakum FO 2. Thewanuwara FO	1. Head of RB 2. Tail of RB
Process Documentation Sample FOs			
Mee Oya	16	Parakum FO	Abakolawewa LB Canal head
Rajangana	56	Ranketha FO	RB Tract 11

Table 1.6: MANIS Recurrent Survey and Process Documentation Sample Schemes

Scheme	Range	Tank/ Anicut	Command Area	FOs	Water	Special Inputs
Recurrent Survey Sample Schemes						
Ambewela	Bandarawela	Tank	390 ha	5	Medium	none
Buttala	Moneragala	Anicut	640 ha	7	Medium	NIRP
Komarika Ela	Bandarawela	Anicut	400 ha	6	High	IRD
Ma Ela	Kandy	Anicut	510 ha	17	Medium	NIRP
Mahananneriya	Kurunegala	Tank	150 ha	1	Low	none
Mannankatiya	Anuradhapura	Tank	520 ha	6	Low	NIRP
Mediyawa	Kurunegala	Tank	390 ha	3	Medium	NIRP
Murapola	Kandy	Anicut	480 ha	10	Medium	NIRP
Radagalpotha	Kandy	Anicut	80 ha	1	Medium	IRD
Wennoruwa	Kurunegala	Tank	170 ha	4	High	NIRP
Process Documentation Sample Schemes						
Gampola Raja Ela	Kandy	Anicut	170 ha	9	Medium	NIRP
Mannankatiya	Anuradhapura	Tank	520 ha	6	Low	NIRP

Table 1.7: **MANIS Recurrent Survey and Process Documentation Sample FOs**

Scheme	FOs	Sample FO Names	Location
Recurrent Survey Sample FOs			
Ambewela	5	Tennakoonwela P. FO	Tail of scheme
Buttala	7	Medagama Ela FO	Middle of scheme
Komarika Ela	7	Kanugolla FO	Head of scheme
Ma Ela	10	Ekamuthu FO	Head of scheme
Mahananneriya	1	Mahananneriya FO	Whole scheme
Mannankattiya	5	Siriperakum FO	Head of scheme
Mediyawa	3	Mahasen FO	Head of scheme
Murapola	10	Girambe Kolabissa FO	Middle of scheme
Radagalpotha	1	Radagalpotha FO	Whole scheme
Wennoruwa	4	Vilgoda FO	Tail of Left Bank
Process Documentation Sample FOs			
Gampola Raja Ela	9	Kurukude Ekamuthu FO	Near tail of MC
Mannankattiya	5	Siri Parakum FO	Head of Raja Ela

Table 1.8: **Mahaweli Recurrent Survey and Process Documentation Sample Schemes**

Scheme	District	Command Area	FOs	Water Status	Special Inputs
System H	Anuradhapura	30,833 ha	224	Medium	Many projects; none for FOs since early 1980's
System C	Badulla	21,039 ha	217	Abundant	Some projects; none for FOs

Table 1.9: **Mahaweli Recurrent Survey and Process Documentation Sample FOs**

Scheme	FOs	Sample FO Names	Locations
Recurrent Survey Sample FOs			
System C	217	1. Hungamalagama FO 2. Diyawiddagama FO 3. Serupitiya FO 4. Pahala Rathkinda FO	1. Siripura Block 2. Medagama Block 3. Lihiyagama 4. Girandurukotte
System H	218	1. D3/D4/421 FO 2. D4/204 FO 3. D1/313 FO 4. D2/101 FO	1. Talawe Block 2. Galkiriyagama 3. Meegalawa Block 4. Madatugama
Process Documentation Sample FOs			
System C	217	301/D1 Pahala Rathkinda FO	Rathkinda Reservoir DC 1
System H	218	D3/305 Parakum FO	305 unit, Kalawewa LB DC3

Process Documentation (PD) We were concerned that the Recurrent Surveys would not provide sufficiently detailed information on some specific aspects of farmer organization, turnover, and other

processes because many of the key events cannot be witnessed by periodic visits. Therefore, the recurrent surveys were supplemented by process documentation studies at selected sites.

Process documentation studies are long term studies based primarily on participant observation by a resident data collector. Process documentation records in detail the happenings at the sites to discover the assumptions, motivations, and social and economic conditions underlying the observed happenings. These data are critical to understanding the ongoing processes.

Process documentation for this study was carried out over three seasons - Yala 1993, Maha 1993/94, and Yala 1994 - at six selected sites (FOs). The sites included two for each program. To increase spread, each FO was in a different scheme and data was gathered at both DCO and scheme level.

Basic criteria for selection of schemes were the same as the criteria for selection of recurrent survey sites. The schemes selected on the advice of senior officers from the agencies. Within each scheme, the sample FO was selected on the advice of the scheme managers. However, to check the Process Documentation against the Recurrent Surveys, one of the two FOs per program was the same as one selected for Recurrent Surveys.

Use of process documentation allowed for the collection of quantitative data of great use in the following analyses. In particular, records were kept of farm operations for selected farms at each of the sample sites over two or three seasons. Also, water distribution records were also kept for one or two seasons at all sites.

The selected schemes and FOs are shown in Tables 1.4, 1.5, 1.6, 1.7, 1.8, and 1.9.

Large-Scale Survey (LSS) One of the key results sought is a valid picture of progress and impact in the three programs. As shown in Table 1.2, the three programs cover 199 irrigation schemes. Altogether, these schemes include perhaps 2000 FOs. With this size of universe, it is necessary to collect data on at least 100 FOs in order to have a statistically significant sample. Therefore, a single Large-Scale Survey was needed to provide a statistically valid picture of the progress and impact of participatory management in the three programs. The survey was carried out between July and September 1994.

It was decided that sampling would be carried out at two levels: by scheme and by FO, and that data would be collected for each sample scheme and each sample FO. Because the number and names of FOs were not known for all schemes, we decided to carry out the survey in two rounds.

The first round focussed on scheme level data, including getting a list of FOs and a general physical description of the scheme. First round data collection included structured questionnaire interviews with

- the irrigation manager for the scheme,
- the person responsible for institutional development for the scheme (sometimes the same person as the irrigation manager in MANIS schemes),
- a leading farmer, preferably a member of the Project Management Committee,
- an agricultural officer responsible for the scheme.

There were considerable problems getting reliable answers from agricultural officers. The data from those interviews were not used in the analysis.

The second round data collection focussed on the sample FOs and included structured questionnaire interviews with

- the President of the FO,

- a farmer from the head portion of the FO area,
- a farmer from the tail portion of the FO area.

The sampling procedure resulted in the decision to select a sample of 51 schemes for the first round. These were divided among the four categories of schemes in proportion to the estimated numbers of FOs in the scheme categories. Schemes were selected randomly from lists of the schemes in the four categories. Table 1.10 shows the initial breakdown of sample schemes.

As shown in Table 1.10, the number of schemes was lowered to 42 for the second round. Of the 22 MANIS C schemes chosen randomly for the first round, two (both in Ampara District) were dropped because security conditions made visiting them unsafe, and four others were found not to be operating schemes. Of these, one was still under construction, one had been abandoned because of saltwater intrusion from prawn farming, and two Wet Zone drainage schemes were simply not operating. Two MANIS C schemes were not included in the second round because they had no farmer organizations. Also, one MANIS AB scheme was dropped because it had been annexed to an INMAS scheme (Inginimitiya) which was not in the INMAS sample.

Table 1.10: **Samples for the Large-Scale Survey**

Program	# of Schemes	Initial Scheme Sample	Final Scheme Sample	Approx Total FOs	Initial* FO Sample	Final FO Sample
INMAS	35	12	12	800	72	61
MANIS AB	59	13	12	400	26	24
MANIS C	101	22	14	?	?	24
Mahaweli	4	4	4	800	52	63
Totals	199	51	42	> 2000	> 150	172

* The initial FO sample sizes were estimated so that the number of schemes could be chosen. The FO sample sizes were recalculated for the second round using data collected from the first round.

The numbers of FOs to be sampled were estimated before the first round for the purpose of calculating the numbers of schemes to be sampled. The sizes of the FO samples were recalculated for the second round using the lists of FOs collected during the first round. This resulted in the final FO samples shown in Table 10. The FOs to be sampled were selected randomly from the lists of FOs for the sample schemes in proportion to the numbers of FOs in each sample scheme. No FOs were selected for the two MANIS C schemes that did not have any FOs.

Special Efforts In addition to the major data collection efforts described above, special efforts were made to collect data to answer particular questions. These included:

- Interviews with various persons in the agencies concerning the participatory management policy and programs and the financing of operations and maintenance.
- Because of its implications for financing, a small special study was made of lift irrigation FOs in Rajangana scheme (an INMAS scheme).
- Assistance was given to a Dutch master's student in management from Silsoe College who prepared a paper on the analysis of the management capabilities of farmer organizations (Docter 1993).
- The study collaborated with the Irrigation Research Management Unit in the Irrigation Department to carry out a study of maintenance performance by FOs.
- The study collaborated with another IIMI study on women's involvement in irrigation management (Zwarteveen 1993).

The results of the last two studies are not incorporated into this report. They will be published separately.

1.5 Organization of this Report

The overall report is divided into three volumes:

- Volume 1 is the Main Report. It summarizes the main results of the study, including the major conclusions and recommendations.
- Volume 2 is this volume. It presents the detailed results of the evaluation of progress and impacts of participatory management.
- Volume 3 presents the results of the investigation into ways to improve the monitoring and evaluation of the participatory management policy.

This volume reports the findings from the data collection efforts described earlier in this chapter. The report is organized according to the major components of the participatory management policy:

- Chapter 2 describes the findings on the existence, strength, and performance of farmer organizations.
- Chapter 3 describes the findings on the existence and performance of joint management committees.
- Chapter 4 describes the findings on turnover of management functions.
- Chapter 5 describes the influence of agency actions on farmer organizations and joint management committees.
- Chapter 6 describes the impacts of participatory management on agricultural production and income.
- Chapter 7 summarizes and synthesizes the results.

Some supporting material is included in the Annexes:

- Annex A gives separate recommendations for the three programs.
- Annex B provides text descriptions of the Recurrent Survey and Process Documentation Sites.
- Annex C gives information about the sites in tabular form.
- Annex D provides results of the water distribution substudy.

Figure 1.1: The INMAS Organization Model

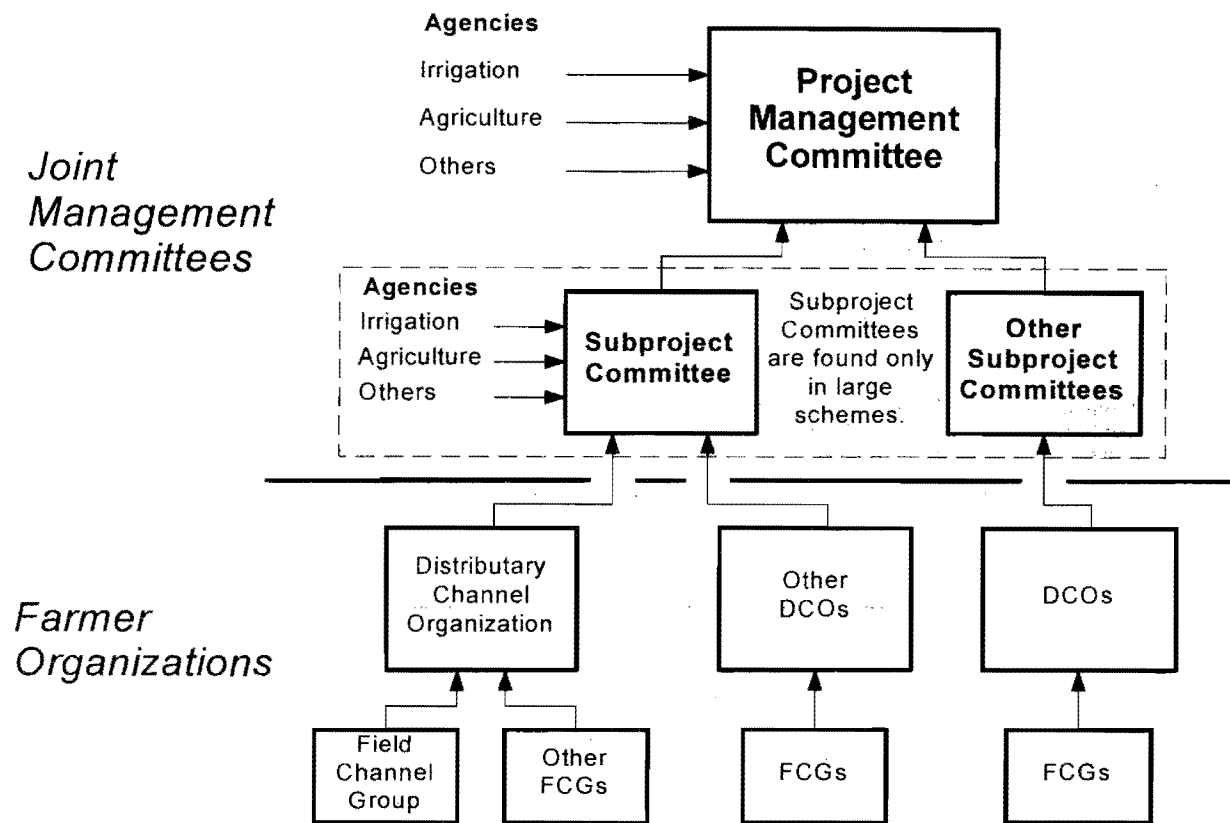


Figure 1.2: Participatory Management Process

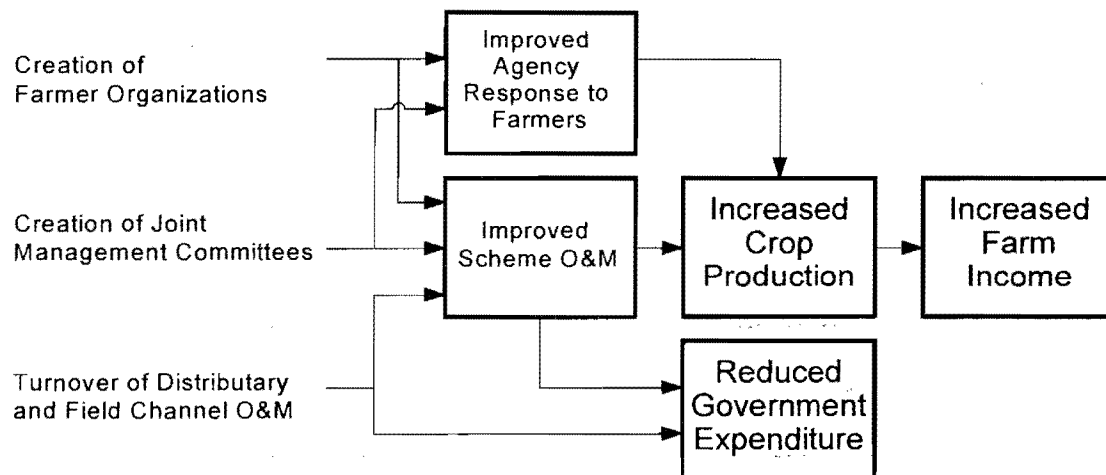
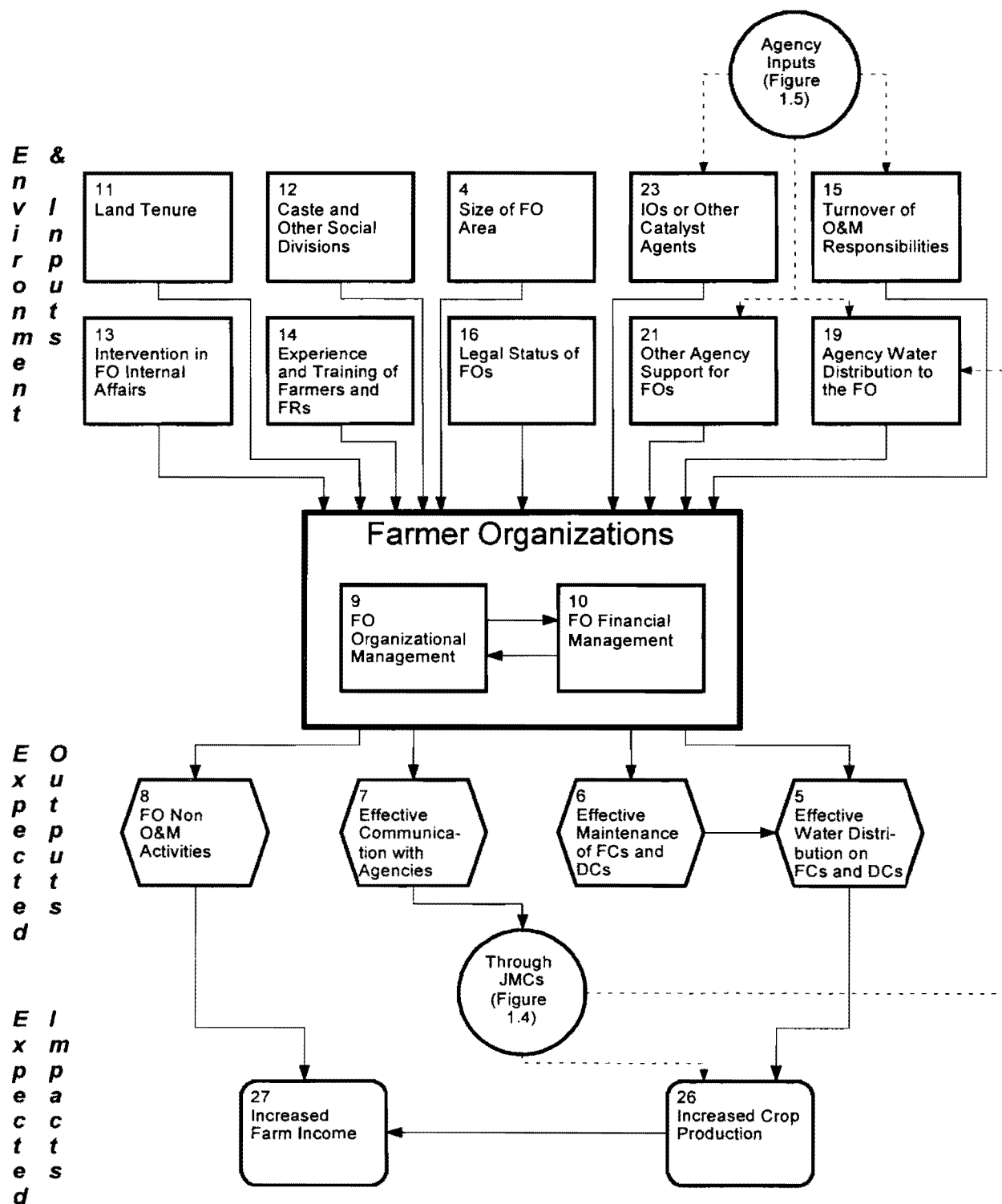
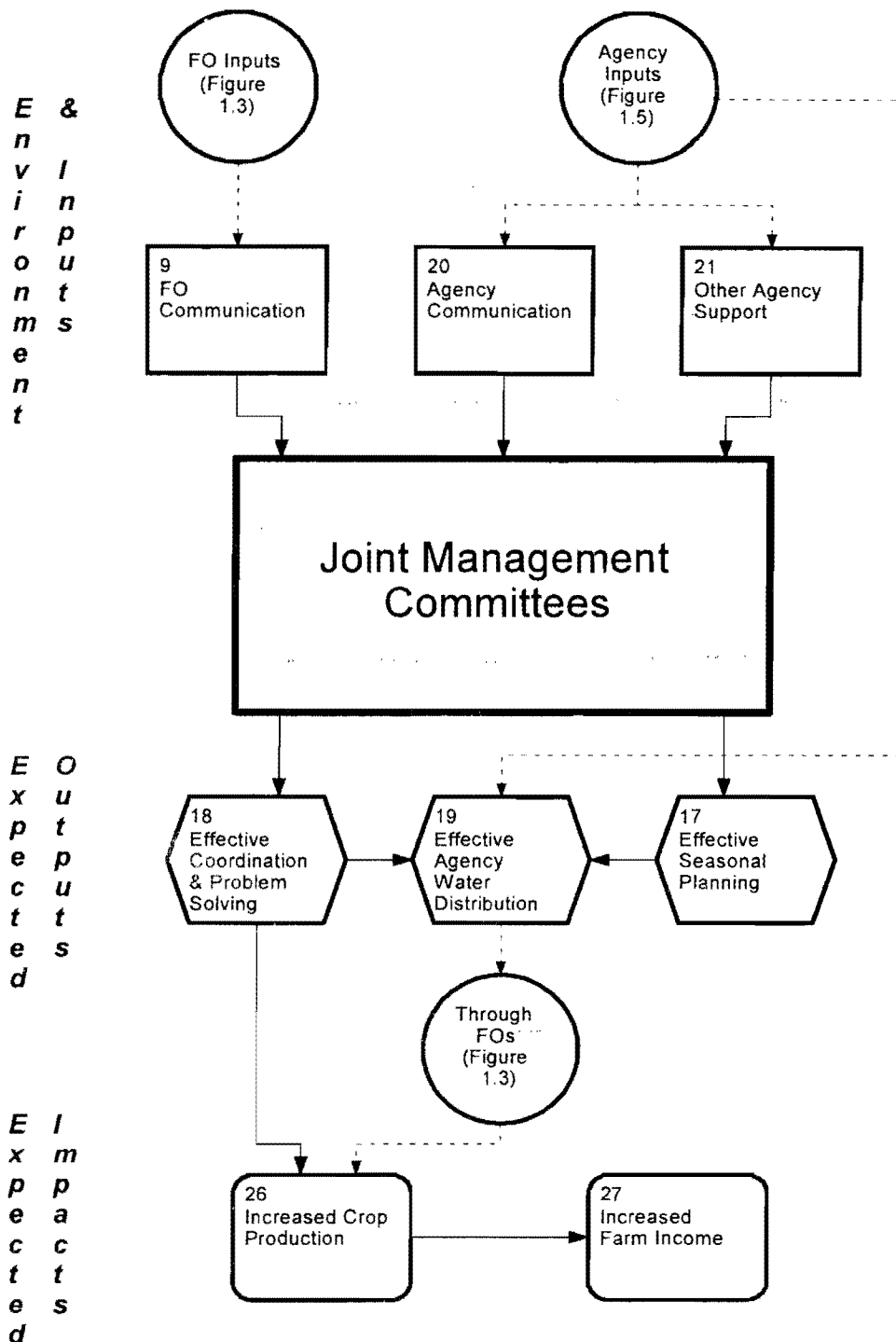


Figure 1.3: **Relations Among Variables**



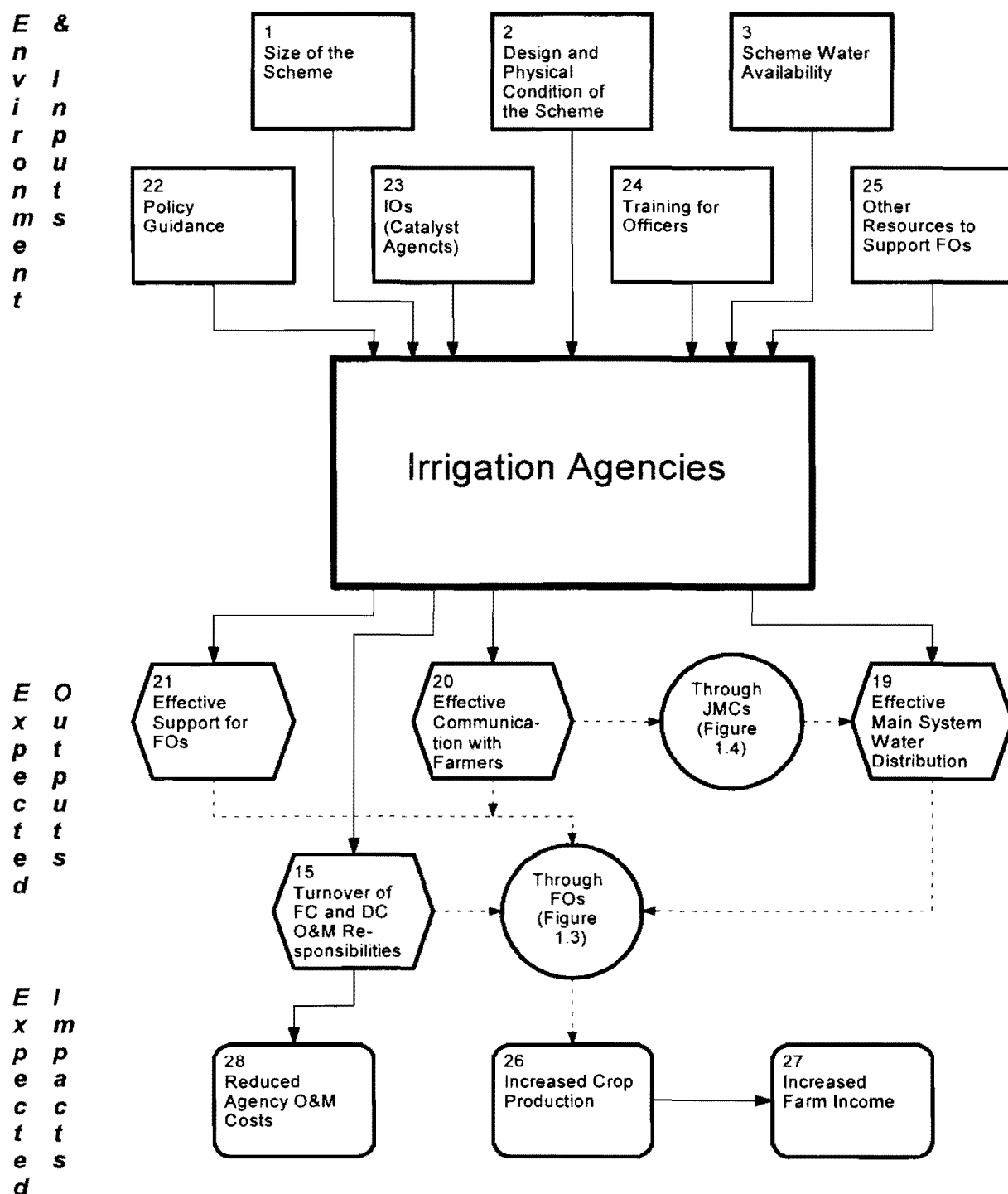
Numbers within boxes refer to variables from the list of major variables.
For clarification of the dotted lines, see Figures 1.4 and 1.5.

Figure 1.4: Relations Among Variables affecting Joint Management Committees



Numbers within boxes refer to variables from the list of major variables. For clarification of the dotted lines, see Figures 1.3 and 1.5.

Figure 1.5: Relations Among Variables affecting Irrigation Agencies



Numbers within boxes refer to variables from the list of major variables.

For clarification of the dotted lines, see Figures 1.3 and 1.4.

CHAPTER 2

FARMER ORGANIZATIONS

2.1 Farmer Organizations in Schemes

The study found that farmer organizations (FOs) are widespread. As mentioned in section 1.4.3, two of the 51 schemes in the Large-Scale Survey sample, both MANIS C schemes, were not visited because of security concerns, thus dropping the sample to 49. Of these 49 schemes, four MANIS C schemes were not working schemes and two others did not have farmer organizations. Both without FOs were Wet Zone drainage schemes. Also, one MANIS AB scheme (with FOs) was found to be a part of an INMAS scheme and was removed from the sample. All sampled INMAS and Mahaweli schemes had farmer organizations. If we extrapolate from these findings, we see that

- all 35 INMAS schemes have farmer organizations,
- all 59 schemes on the MANIS AB list have farmer organizations, although some may no longer be separate schemes,
- about 71 of the 101 schemes on the MANIS C list have farmer organizations although some other schemes on the list may not be functioning schemes, (14 of the 20 sampled schemes have farmer organizations: $14 \div 20 \times 101 \text{ schemes} = 70.7$),
- all four Mahaweli schemes have farmer organizations.

Altogether, then, we project that approximately 169 or 85% of the 199 schemes included in the three programs have farmer organizations. These findings also suggest that the majority of the MANIS C schemes that do not have FOs are schemes that are not functioning.

In some schemes, not all the farmers are organized into FOs as yet. Officers reported plans to create additional FOs in six of the 42 schemes with FOs in the Large Scale Survey. As shown in Table 2.1, these included one INMAS scheme, three MANIS AB schemes, and two Mahaweli schemes.

Table 2.1: **Sample Schemes Where More Farmer Organizations are to be Formed**

Sample Scheme	Program	FOs Formed	FOs Targeted	% Not Formed
Kantale	INMAS	34	39	13 %
Kande Ela	MANIS AB	10	15	33 %
Waduwwela Ela	MANIS AB	2	5	60 %
Wellawa	MANIS AB	2	3	33 %
System C	Mahaweli	187	191	2 %
Uda Walawe	Mahaweli	165	170	3 %

As shown in Table 2.2, very few FOs remain to be formed in INMAS and Mahaweli schemes; no additional ones are planned for MANIS C schemes; but there still remains a significant fraction to be formed in MANIS AB schemes. These differences can be explained as follows:

- INMAS is a mature program where creating FOs began in 1985; completion of the process should be expected. It should be mentioned that the one sample INMAS scheme, Kantale, where not all FOs have been created is located in Trincomalee District where ethnic based warfare is still going on, thus hampering working with farmers, particularly Tamil farmers.

- Creating FOs began only in 1989 for the Mahaweli program. However, the great success reflects the relatively large amount of resources that the MEA can devote to the effort. This then is a good, but not unexpected finding.
- Although the MANIS program was formulated in 1986, few resources were devoted to it until after 1990. In particular, only under the NIRP have significant amount of resources have been made available for MANIS schemes. Thus the larger number of FOs to be formed in MANIS AB schemes reflects the young age of the program. MANIS C schemes, however, have had very little attention. The fact that there was no reported difference between planned and achieved numbers of FOs does not reflect success in forming FOs but lack of planning.

The truly surprising finding is that so many FOs have been formed in both MANIS AB and MANIS C schemes despite the relative lack of effort.

Table 2.2: FOs to be Formed in the Programs

Program	FOs Formed in Sample Schemes	FOs Planned in Sample Schemes	% Not Yet Formed
INMAS	184	189	3 %
MANIS AB	57	66	14 %
MANIS C	51	-	-
Mahaweli	702	711	1 %

In some schemes where no FOs were reported, other mechanisms exist for farmer involvement in irrigation management. The most common such mechanism is the Vel Vidane (sometimes called "irrigation headman"). In some schemes, both Vel Vidanes and FOs exist. One such scheme is Mannankattiya, one of the PD schemes.

2.2 Farmer Organization Numbers and Sizes

As expected, the number of FOs per scheme varies widely due to the varying size of the schemes. Table 2.3 shows the average number of FOs and average FO area for the four programs. A glance at the ranges shown in Table 2.3 clearly shows that INMAS and both MANIS programs show great variation. For the most part, this variation is due to local circumstances. The variation is less within the Mahaweli schemes than in the others because of the uniformity imposed by their design and the heavier administrative structure of the MEA. Also, in MANIS AB schemes, where more institutional support was given than in MANIS C schemes, the number of FOs established was also greater.

One of the major criteria for organizing farmers is a manageable size of the cultivable extent. The great variation in FO area shown in Table 2.3 indicates that this criterion has not been considered carefully in many places. In part, the variation arises due to the setting up of FOs on non-hydrological bases. For example, in Murapola, a MANIS scheme studied by Recurrent Surveys, FCs irrigate directly from the main canal; there are no distributaries. Therefore, FOs had been formed by combining several FCs together. On the other hand, in Ambewela, another MANIS scheme studied by Recurrent Surveys (RS), the main channel was divided among the five existing FOs.

Table 2.3: Numbers and Areas of Farmer Organizations

Program	Average FOs per Scheme	Range	Average Area per FO (ac)	Range (ac)
INMAS	16	6-56	464	231-1000
MANIS AB	6	3-15	141	73-210
MANIS C	4	1-20	206	77-500
Mahaweli	178	124-226	309	272-338

The large area per FO for INMAS schemes is largely due to two schemes: Gal Oya Right Bank where 1000 acres per FO is found, and Padaviya where 862 acres per FO is found. Without these two the average area become comparable to the average for Mahaweli FOs.

Table 2.4: Farmer Organization Membership by Program

Program	FOs	Farmers	Members	Farmers per FO	Members per FO	% Members
INMAS	60	10,483	7,709	175	128	74 %
MANIS AB	22	3,101	1,648	139	75	53 %
MANIS C	23	2,784	1,471	121	64	53 %
Mahaweli	63	7,230	5,118	115	81	71 %

Membership in FOs varies. Table 2.4 shows the average number of members and average percentage of farmers who are members of the LSS sample FOs. Comparison of this table with Table 2.3 shows that the schemes in different programs have rather different characteristics, some are more densely populated with farmers than others.

2.3 Higher Level Farmer Organizations

In most irrigation schemes in Sri Lanka, the farmer organization process has stopped at the distributary channel level. However, in some INMAS schemes, system level farmer organizations (SLFOs) have been formed. Most have been formed as a result of directives from the IMD head office (Circular No. 3/94 of March 1994), primarily to strengthen the FOs.

The initial INMAS organizational process was based on a bottom-up theory of organization. In this view, it is necessary to first create field channel groups. Then, when they are strong, they should be federated into distributary channel organizations. However, the INMAS plan did not include any place for FOs larger than DCOs. It was assumed that the joint management committees would serve any functions of higher level organizations.

Consultants to the Irrigation Systems Management Project (ISMP) at Polonnaruwa, however, felt that larger scale organizations would be valuable on the grounds that they would be the farmers' own rather than joint. Thus the first system level farmer organizations (SLFOs) were created there in 1988 and 1989. It is on the basis of the experience in Polonnaruwa that the IMD adopted the formation of SLFOs as a policy in 1994. The creation of SLFOs or other higher level FOs has not been adopted in either the MANIS or Mahaweli programs.

In some cases, Project Managers or farmers have created higher level FOs that do not cover the whole system. For example, in Rajangana, an INMAS scheme, the IMD Project Manager created an FO for the Right Bank Main Canal and another for the Left Bank Main Canal.

Table 2.5 shows the existence of SLFOs and other higher level farmer organizations in the sample schemes. As expected, the only significant number of SLFOs or other higher level FOs are found in INMAS schemes. All of those found in MANIS schemes exist because the larger organizations were created initially and then the DCO level organizations were created in a second effort that conformed to the INMAS model. Of course, many smaller MANIS schemes have only one FO. These cases are not shown in Table 2.5.

There are no SLFOs in Mahaweli schemes. However, in Systems B and C there were efforts to create commercially oriented farmer organizations. Most of these disappeared with the reorganization of the FOs that started in 1992. In System C, a farmer company still exists. In System H, there were "*Mauv Sanvidhana*" (parental organizations) at Unit level before the recent restructuring of FOs.

Table 2.5: Higher Level Farmer Organizations

Program	Sample Schemes with SLFOs		Sample Schemes with Other FO Types	
	#	%	#	%
INMAS	7	58 %	1	8 %
MANIS AB	1	8 %	1	8 %
MANIS C	3	21 %	0	-
Mahaweli	0	-	0	-

The SLFOs and similar organizations generally are governed by a committee of representatives, usually the Presidents, of the DCOs. The issues discussed at SLFO committee meetings in INMAS schemes fall into four broad categories:

- Water distribution, maintenance and contracts
- Training farmers on water distribution and input use
- Purchasing agricultural inputs
- Solving farmer problems and getting agency assistance

Besides these, the Rajangana Main Canal organizations has discussed special issues such as problems of lift irrigation and marketing of chillies.

These issues are much like those discussed at joint management committee meetings. From Kaudulla, it is reported that the SLFO holds its committee meeting just before the Project Management Committee meeting so that the Farmer Representatives had come to a common policy before meeting with the government officers. The Kaudulla SLFO is commonly quoted as the most successful one, due in part to its leadership. The President of the Kaudulla SLFO has achieved sufficient prominence that he can call high government officials on the telephone and get their attention.

The bottom up organizational approach would suggest that SLFOs or other higher level FOs should not be created until the DCOs are strong. In fact, however, we find that some INMAS schemes have functioning SLFOs based on weak DCOs. Nuwarawewa is one example where some DCOs have a membership of less than 10% of the farmers, but there is a functioning SLFO. In Nuwarawewa,

however, the SLFO concerns itself particularly with the marketing of paddy. Hence, it is found useful by the farmers even though the base DCOs are not strong.

Except for the Kaudulla SLFO and a few lesser cases, it is not yet clear how effective SLFOs are. The implementation of decisions made at SLFO meetings still remains a question, particularly when agency commitment is required for decision implementation. The Rajangana Main Canal FOs have failed because they were not found to be useful by the farmers. Overall, the higher level organizations are not yet well supported by either the government nor the farmers.

2.4 Farmer Organization Water Distribution Performance

Farmer participation in water distribution is as ancient as irrigation civilization in Sri Lanka. Prior to the introduction of the participatory irrigation system management, water distribution was officially the responsibility of the government. However, the experience was that no effective water management could be implemented without the participation of the farmers.

Under participatory management, farmers are officially responsible for water distribution for some parts of the systems. This section describes what roles are being played by farmers in schemes under the four programs and analyzes their performance.

2.4.1 Water Availability

Water availability affects water distribution performance; therefore, water availability in the schemes is discussed here. In all types of schemes, most schemes have water availability problems during Yala but have few problems during Maha. Table 2.6 shows the numbers of sample schemes with water availability problems.

Table 2.6: Water Availability Problems

Program	Sample	# of Sample Schemes	Schemes with Maha Problems	% of Sample	Schemes with Yala Problems	% of Sample
INMAS	LSS	12	1	8 %	9	75 %
	RS/PD	7	2	29%	5	71 %
MANIS AB	LSS	12	3	25 %	8	67 %
	RS/PD	11	1	9 %	7	64 %
MANIS C	LSS	14	1	7 %	10	71 %
Mahaweli	LSS/RS/PD	4	0	0 %	2	50 %

Head-tail differences in water availability exist in the schemes during some seasons even when overall water supply is adequate. Table 2.7 shows that irrigation officers in the majority of schemes sampled in the Large-Scale Survey for all three programs reported major differences in water availability between the heads and tails of the systems. Observations from the Recurrent Survey and Process Documentation sites agree. Overall, then, over half of all schemes have some serious problems of water distribution among the different parts of the schemes.

Table 2.7: **Head-Tail Differences in Water Availability**

Program	Sample	# of Sample Schemes	Schemes with Head-Tail Problems	% of Sample
INMAS	LSS	12	7	58 %
	RS/PD	7	5	71 %
MANIS AB	LSS	12	10	83 %
	RS/PD	11	7	64 %
MANIS C	LSS	14	10	71 %
Mahaweli	LSS	4	3	75 %
	RS/PD	2	1	50 %

These distribution problems are due to various factors. Table 2.8 shows the problems cited by irrigation agency officers during the Large Scale Survey (LSS). From this table, it is apparent that scheme physical deficiencies and lack of O&M funds are the major identified causes, except in Mahaweli schemes. Poor farmer-officer cooperation is seen as a problem in the majority of Mahaweli schemes and seems to be a problem in a significant number of MANIS AB schemes but not in the other schemes. The large percentage of "other" answers for Mahaweli schemes refers to two schemes reporting inadequate planning as a problem. This was one among a wide variety of other answers in MANIS C schemes.

Table 2.8: **Major Causes of Water Distribution Problems**

Program	Causes (See list below for Key)*					
	A	B	C	D	E	Others
INMAS	8 %	50 %	8 %	75 %	17 %	17 %
MANIS AB	45 %	82 %	27 %	91 %	36 %	27 %
MANIS C	29 %	71 %	14 %	43 %	21 %	50 %
Mahaweli	25 %	25 %	25 %	25 %	75 %	50 %

* Multiple answers mean that the numbers add up to more than 100%. Numbers of schemes are: INMAS-12, MANIS AB-11, MANIS C-14, Mahaweli-4.

Key: A - Inadequate water supply
 B - Physical deficiencies in the system
 C - Poor agency water distribution performance
 D - Inadequate O&M funds
 E - Poor farmer-officer cooperation

Inadequate O&M funds generally lead to poor system maintenance, causing physical problems with the system. The RS and PD data confirms that poor physical conditions and design deficiencies in many schemes cause major problems in distribution within the schemes. On the other hand, several management problems also emerged that were not related to poor physical condition.

2.4.2 *Scheduling Water Issues*

The most important aspects of water distribution performance are scheduling water issues, implementing water issues, and monitoring water adequacy. Prior to establishing farmer organizations all these activities were supposed to be performed by the Irrigation Department with respect to INMAS and MANIS schemes and by MEA with respect to Mahaweli systems.

However, this situation has changed since the commencement of the FO program. With respect to INMAS and MANIS schemes, many operational activities are now performed jointly by the FOs and ID officials. In Mahaweli systems, most operational activities are still handled by MEA officials. However, with the restructuring of the Mahaweli farmer organization, there had been increased evidence of joint operational responsibility among MEA officials and farmers.

Scheduling of Deliveries among Distributary Channels Scheduling of deliveries among distributary channels is done by the irrigation agency or jointly by FOs and irrigation agency officers. Table 2.9 shows responsibility for scheduling deliveries as reported by the FO office-bearers in the Large-Scale Sample. This table shows some clear contrasts among the programs.

- In Mahaweli schemes, MEA officials is overwhelmingly responsible for scheduling.
- In MANIS AB schemes, ID officials are primarily responsible but in some schemes FOs contribute to scheduling and in others it is not done.
- In MANIS C schemes, little scheduling is done because most MANIS C schemes lack distributary channels. Most scheduling that is done is carried out jointly.
- Only in INMAS schemes do FOs play a major role in scheduling among DCs; less than 40% of the FOs reported that it is carried out solely by ID officers. In INMAS schemes, operational planning is often discussed at JMC meetings.

Observations in the INMAS RS and PD sites showed that JMCs often discuss scheduling but are less often invited by the agency officials to take part in planning. In some cases, agency officials ignore JMC decisions or fail to consult JMCs when making changes in schedules. Data from RS and PD sites in Mahaweli systems indicated that water distribution schedules at DC levels were prepared at the Block Coordinating Committee (BCC), usually by the Block IE. At the BCC, farmer involvement in water scheduling was minimal. However, this situation appears to be changing as farmers begin to take more active parts in the Mahaweli joint management committees.

Table 2.9: Preparation of Water Distribution Schedules among Distributary Channels

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs Alone (%)	No Scheduling/ No Response (%)
INMAS	61	39 %	26 %	18 %	16 %
MANIS AB	24	50 %	17 %	0 %	33 %
MANIS C	24	4 %	17 %	8 %	71 %
Mahaweli	63	89 %	2 %	3 %	6 %

Scheduling of Deliveries among Field Channels Table 2.10 shows the responsibility for scheduling deliveries to field channels as reported by FO office-bearers in the Large-Scale Sample. As with scheduling of deliveries to DCs, there are clear differences among the programs in water distribution scheduling among FCs.

- In the INMAS schemes, FOs handle this responsibility, in some cases with help from ID officials.
- In Mahaweli schemes, MEA officials largely handle this responsibility, although a significant number of FOs do so on their own. RS data shows, however, that since the JMC structure was introduced, some FRs actively participate in distribution scheduling at FC turn out level by discussions at Unit and Block Committee meetings. This participation is likely to increase.
- In MANIS AB schemes, many FOs schedule deliveries to FCs, but in many cases no schedules are made.

- In MANIS C schemes, most FOs report that no scheduling is done. In many of these schemes there are few recognized FCs; in many others, no schedules are created.

Table 2.10: Preparation of Water Distribution Schedules among Field Channels

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs Alone (%)	No Scheduling or No Response (%)
INMAS	61	2 %	10 %	67 %	21 %
MANIS AB	24	8 %	8 %	46 %	38 %
MANIS C	24	0 %	0 %	17 %	83 %
Mahaweli	63	67 %	10 %	21 %	3 %

These findings clearly indicates a transfer of responsibility from agency to FO. In the case of INMAS and MANIS AB, the FOs have taken a large share of the responsibility for preparing schedules among FCs. In Mahaweli systems, the same trend was indicated but still had not developed to a level of INMAS or MANIS.

Table 2.10 also clearly shows that the Mahaweli scheme managers place greater emphasis on operational planning than do managers in the other, mostly smaller schemes. This same emphasis is also visible to a lesser extent in Table 2.9.

Scheduling of Deliveries within Field Channels At FC level, all operations, including water distribution scheduling, are the responsibility of the FOs. Table 2.11 shows the responsibility as reported by FO office-bearers from the Large-Scale Survey.

Table 2.11 shows clearly that the agency officers are not involved in distribution scheduling on FCs. However, it suggests that FO performance differs significantly among the programs.

- In MANIS AB and MANIS C schemes, there is little or no scheduling of deliveries within FCs. In many cases this is because FCs are very small. As shown by PD studies, in most cases, this is because no agreed schedules are developed; often water is delivered to all farmers at once or farmers take it when they feel they want it perhaps with some rapid discussion.
- Mahaweli FOs contrast strongly with the MANIS FOs in that almost all report scheduling water deliveries to farmers by the FOs. This reflects the greater emphasis on planning and the greater dominance of irrigation officials in these schemes in all aspects of operations until very recently.
- INMAS FOs are intermediate between these two extremes. They have had more assistance than the MANIS FOs and, because many FCs are longer, have greater need for scheduling than in MANIS schemes. However, only about half report preparing schedules.

Table 2.11: Preparation of Water Distribution Schedules within Field Channels

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs Alone (%)	No Scheduling or No Response (%)
INMAS	61	0 %	1 %	49 %	49 %
MANIS AB	24	4 %	0 %	21 %	75 %
MANIS C	24	0 %	4 %	13 %	83 %
Mahaweli	63	0 %	6 %	90 %	3 %

2.4.3 Water Distribution

An important issue in participatory management is how efficiently FOs distribute water to farmers and at what levels water distribution by FOs can be most efficient. Traditionally, canal gate operation had been the duty of the irrigation staff with farmers responsible only for managing the water that is delivered beyond the FC gate. This practice has changed significantly.

The most common pattern that exists in system operations is that the headworks and main system (main channel and branch channel) gates are operated by the irrigation agency, some DC gates (INMAS and MANIS) and almost all FC gates are operated either by farmers or by FOs and agency employees jointly.

Main System Operations Main system operations include operating headworks and gates on main and branch channels. Table 2.12 shows who is responsible for main system operations as reported by the FO office-bearers of the Large-Scale Sample. This table shows clearly that, except for MANIS C schemes, these operations are largely carried out by agency officers. FOs or individual farmers are involved in a small number of cases; the number is slightly larger for INMAS schemes than for MANIS AB or Mahaweli schemes.

Table 2.12: Main System Gate Operations

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs or Farmers (%)	No One or No Response (%)
INMAS	61	84 %	0 %	10 %	7 %
MANIS AB	24	92 %	0 %	4 %	4 %
MANIS C	24	42 %	4 %	13 %	42 %
Mahaweli	63	94 %	0 %	3 %	3 %

The major exception is in the case of MANIS C FOs where over 40% of the FOs did not respond to the question. In many MANIS diversion schemes, main system operations are minimal and consist merely of opening a gate at the beginning of the season and closing it at the end. The respondents may have chosen not to regard these activities as operations.

Agency officials were also asked about main system operations in the LSS. Officials from all INMAS and Mahaweli schemes said that main system operations are carried out by agency officers. In MANIS schemes, however, the situation is different. Officials from 3 MANIS AB schemes (25%) and from 6 MANIS C schemes (38%) reported farmer involvement in operating the headworks. Similarly, officials from 3 MANIS AB schemes (25%) and from 7 MANIS C schemes (44%) reported farmer involvement in operating main or branch canal gates. In two PD schemes, one INMAS scheme and one MANIS scheme, some or all of the main sluices were operated by the farmers under the auspices of the FOs. Farmer involvement in operations even at this high level is not uncommon, particularly in smaller schemes. This latter finding indicates the capability of FOs to handle operations even at main system level, provided adequate technical knowledge and responsibility is given to FOs. These findings also emphasize the differences in agency involvement in system operations; agency involvement is generally much higher in Mahaweli and INMAS schemes than in the smaller MANIS schemes.

Distributary Channel Head Gates DC head gate operation is also supposed to be a function of the irrigation agency. Table 2.13 shows the responsibilities as reported by FO office-bearers from the LSS. There are some clear differences shown among the programs.

- In Mahaweli schemes, DC head gates are still operated overwhelmingly by MEA officers. This partially reflects the existence of a higher density of gate operators in Mahaweli schemes than in other schemes. RS and PD data shows that FO representatives assist the gate operators in water distribution at the DC level, but do not take direct responsibility. In some cases, MEA gate operators depend heavily on FRs for advice and assistance. This situation can be attributed to the recentness of the FO restructuring program under Mahaweli.
- In both MANIS AB and MANIS C schemes, half or more of the FOs did not respond to the question. RS and PD data suggest that this may be due to the fact that DCs do not exist in many of these schemes. It is also the case in some schemes that gate operations are unplanned and left to interested persons. In MANIS AB schemes, however, about 40% of the FOs report that the ID personnel operate the gates while far fewer FOs report ID operations in MANIS C schemes that receive less attention.
- In both INMAS schemes, agency personnel reportedly operate only about 40% of the DC head gates. Unlike MANIS schemes, in INMAS schemes FOs or farmers take explicit responsibility for DC head gate operations. PD and RS data shows that in most of these cases control of the DC headgates has been explicitly turned over to the FOs.

Table 2.13: Distributary Channel Head Gate Operations

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs or Farmers (%)	No One or No Response (%)
INMAS	61	39 %	2 %	45 %	15 %
MANIS AB	24	42 %	0 %	8 %	50 %
MANIS C	24	17 %	4 %	17 %	63 %
Mahaweli	63	86 %	3 %	3 %	8 %

Although the majority of DC head gate operations are still carried out by agency staff, there has thus been a significant take up of responsibility by FOs.

Field Channel Gate Operations Under participatory management, FOs are to take responsibility for operating FC head gates and other distributary channel and field channel structures. Table 2.14 shows how FO office-bearers in the LSS reported the responsibilities. Again there are clear differences among the programs.

- In Mahaweli systems, responsibility for operating FC head gates still lies largely with MEA personnel although the number of FOs to take over this responsibility will probably increase as participatory management is spread in Mahaweli systems.
- In MANIS AB and MANIS C systems, as seen for other operations, many FOs failed to answer this question. In many cases, this reflects lack of gates to operate (we believe that the question led respondents to think only of gates rather than of opening and closing channels in other ways). In both cases, however, a significant number of FOs reported farmer operation of the gates.
- In the INMAS schemes, well over half reported FO management of FC head gates showing a major shift from agency handling of this responsibility.

RS and PD data shows that functioning FOs rarely have difficulties handling FC gate operations.

Table 2.14: **Field Channel Head Gate Operations**

Program	# of Sample FOs	Agency Alone (%)	Agency and FOs (%)	FOs or Farmers (%)	No One or No Response (%)
INMAS	61	8 %	2 %	62 %	28 %
MANIS AB	24	13 %	0 %	25 %	62 %
MANIS C	24	4 %	0 %	21 %	75 %
Mahaweli	63	70 %	3 %	18 %	8 %

2.4.4 *Evaluation of FO Water Distribution Performance*

Getting adequate water to the field depends on the availability of water to the scheme, condition of the physical system, and efficiency of water distribution.

In the LSS, in both INMAS and Mahaweli schemes, all of which are in the Dry Zone, only 50% of the FO office-bearers said that there generally was adequate water for their scheme. However, during 1993/94 Maha, there was adequate water to most DCO areas due to heavy rains. In MANIS AB schemes, 34% of FO office-bearers and, in MANIS C schemes, 47% of FO office-bearers felt that water availability was adequate. For both MANIS AB and MANIS C schemes, the small size of the schemes means that adequacy of water is a smaller problem.

When adequate water is not received by the scheme, the DCOs in both INMAS and Mahaweli schemes resort to strictly enforcing rotational issues and requesting the irrigation agency for additional water. 34% of INMAS FO office-bearers indicated that they inform the JMC to take action. In MANIS and Mahaweli schemes, there is a lesser degree of involvement of JMCs in solving water inadequacies. In Mahaweli schemes, only 13% of FO office-bearers said that they seek JMC intervention in situations of inadequate water. In MANIS AB schemes, 43% of the FO office-bearers said that they enforce strict rotations. This option is difficult in most MANIS AB schemes as the systems do not have water controlling devices to enforce rotations.

Water delivery performance can be measured by adequacy, timeliness, and reliability of water delivery. In the LSS, farmers were asked whether water deliveries to their farms were adequate, timely, and reliable. The results are shown in Table 2.15. These results can be summarized as follows:

- The majority of farmers in INMAS, Mahaweli, and MANIS AB schemes are satisfied with water delivery performance as measured by all three indicators.
- The majority of farmers in MANIS C schemes were not satisfied with water distribution performance. This indicates either that FOs do a poor job of water distribution or the agency does a poor job of distributing water to the FOs or both. RS and PD data do not help to explain which because none of the RS or PD sites fall into the MANIS C category. One probable explanation is that poor physical conditions make it difficult for both the agency and the FOs to deliver water efficiently.
- As expected, satisfaction was higher in head areas of the FOs than in tail portions of the FOs. The implication is that water distribution is not fully equitable within the FO area.
- Differences in satisfaction between head and tail are somewhat greater in Mahaweli schemes than in INMAS and MANIS schemes. This implies that Mahaweli FOs do a poorer job of distributing water equitably than do either INMAS or MANIS FOs. It is quite likely that the reason is because MEA Irrigators are more directly involved in water distribution within FO areas than are ID employees in INMAS and MANIS schemes.

- The difference in satisfaction between head and tail farmers in MANIS C schemes is small. This suggests that poor distribution is found throughout the FO areas.

These results clearly indicate that FOs in INMAS, MANIS AB, and Mahaweli schemes are reasonably effective in water distribution. These findings agree with the 74% of the irrigation agency officers questioned during the LSS who said that participatory management has improved water distribution. The biggest disappointment is that FOs do not maintain equity in distribution within the FO areas. This finding was documented by studies of water distribution in the PD sites which are described in Annex C.

Table 2.15: Farmer Organization Water Distribution Performance

Location within FO Area	Stage of Season	Indicator	INMAS		Mahaweli		MANIS AB		MANIS C	
			N	%	N	%	N	%	N	%
Head	Crop Growth	Adequacy	52	85	58	92	18	78	9	36
		Timeliness	51	84	58	92	18	78	9	36
		Reliability	51	84	57	90	18	78	9	36
	Land Preparation	Adequacy	47	77	56	89	17	74	9	36
		Timeliness	45	74	56	89	17	74	9	36
		Reliability	46	75	58	92	17	74	9	36
Tail	Crop Growth	Adequacy	43	70	34	54	15	65	6	24
		Timeliness	37	61	41	65	15	65	6	24
		Reliability	38	62	44	70	15	65	6	24
	Land Preparation	Adequacy	39	64	32	51	13	57	7	28
		Timeliness	34	56	38	60	13	57	7	28
		Reliability	34	56	43	68	13	57	7	28

2.4.5 Farmer-Agency Cooperation in Operations

A notable change that has resulted from participatory management is a greater willingness of the irrigation agency officers to listen to and react positively to farmer requirements in operational issues.

Extension of water issues is one of the most important issues where FOs and agency officers take decisions jointly. ID positive response to FO requests for extension of water issues were reported from INMAS schemes Muthukandiya and Muruthawela in 1993/94 Maha and from Rajangana in 1994 Yala. In Rajangana, the IE responded to the FO request at the PMC to extend the water issue by two additional weeks. In MANIS schemes Mahananneriya, Mannankattiya and Wennoruwa the ID staff extended the water issues on FO request.

The RS and PD data shows that kanna meeting decisions about dates of water issues are frequently amended on FO request. In most INMAS schemes the requests have been to extend the water issue dates due to delayed sowing, delayed land preparation, or other climatic changes. Every time such requests were made under INMAS schemes, ID personnel responded positively. Under the INMAS program, most requests are channeled through the DCOs and JMCs. However, in certain systems like Muruthawela where the JMC is not strong, the affected DCO complains directly to ID officials. In some INMAS systems, for example Kaudulla and Tabbowa, water distribution is implemented jointly by the DCOs and ID officers. Though there is good cooperation between the FOs and agency, the efficiency of water distribution depends heavily on the condition of the physical system. Poor physical condition has been a problem in Muruthawela, Tabbowa, Dewahuwa, and other schemes.

Operational problems were observed when ID Irrigators were not available on time, especially on week-ends, when delivery schedules had to be implemented. A case was reported from Muthukandiya where the Irrigator had gone home out of the scheme during the week-end when water deliveries were in operation. In such situations, the farmers are unable to get water on time. However, in some schemes, Irrigators have given gate keys to DCOs for operational purposes when they are absent from the scheme. This was reported from Rajangana.

In Mahaweli schemes, FO-agency cooperation in water distribution has not developed as much as in INMAS schemes. However, there is good cooperation between FOs and agency in water distribution at FC level. Decisions are taken jointly at UCCs and implemented (gate openings) by the MEA Irrigators. We observed a change in the attitude of MEA Irrigators who now respond positively to FO requests to increase gate openings. This cooperation is usually restricted to FC level. As in INMAS schemes, there are occasional problems when the Irrigator is not available to operate gates. In this situation at Mahaweli RS sites, Galnewa, Diyawiddagama, and Talawa, the Irrigator and FR jointly operate the gates but the gate key at times is kept at the FR's house.

In Mahaweli schemes, there appears to be good communication in conveying operational problems. The communication system that is developing in Mahaweli schemes is that the FR takes farmer operational problems to the MEA Technical Officer, Engineering Assistant or Irrigation Engineer, then the relevant decision is finally taken by the Block Manager. This system was observed for particular operational problems brought by two individual farmers to the FR of Serupitiya FO in System C. A similar request to increase the water rotational period was reported from Galkiriyagama in System H. Here, the UCC responded positively by altering the rotational schedule to satisfy the FO. These changes indicate positive attitudinal changes in the MEA staff in support of participatory management. Though the changes have not proceeded as far as in INMAS schemes, the trend is apparent.

In some MANIS schemes, actual gate operations are done by the Work Supervisor or Irrigator. However, requests for gate openings or adjustments come from the FOs. As DCs do not exist in many MANIS schemes, such as Murapola or Ma Ela, most operations are of MC gates. In Mediyawa, the sluice gates are opened by the Work Supervisor but water distribution from the six anicuts in the system is done by FRs. In Mahananneriya, the FO appointed two FRs for water distribution who follow the kanna meeting decisions on schedules.

In most MANIS systems, communication between farmers and agency staff regarding operations is direct. In case of need, the FO directly communicates with the WS/Irrigator/TA depending on the requirement. Water delivery requests do not go through the PMC as in INMAS schemes. In some places, one reason is non-existence of PMCs. However in places where the PMCs are strong, requests for additional water deliveries go through the PMC. This procedure was followed at Mannankattiya in 1993/94 Maha with regards to a request to increase the main gate opening.

RS and PD data indicates that there is a trend to bring problems to the FO rather than directly to ID personnel. Where the FO can solve the problems, they go no further. If not the FO takes them to the PMC or to the Project Manager for solution.

Though there is a developing trend on joint operations, the actual task had become difficult due to badly deteriorated physical systems, a common complaint in many MANIS schemes. It is not clear, however, that physical rehabilitation is the sole answer. In Wennoruwa where rehabilitation has been completed under NIRP, and in Gampola Raja Ela where rehabilitation has almost been completed, one does not observe any improvement in FO participation in water distribution operations. In Wennoruwa, most operations are done by the Irrigator and the FOs do not interact much with the Irrigator. Two factors explain this situation, one, abundant supply of water in the scheme (Wennoruwa is also fed by a town

Municipality canal) and type of land ownership (mostly tenant cultivators). In Gampola Raja Ela, most operations have long been carried out by farmers themselves directly. Where there is a need for cooperation, as when rotations are needed toward the end of Maha season, the FOs play no part and the PMC does not function at all.

2.4.6 *Shift in Operations Responsibility*

These findings indicate a gradual shift of responsibility from the agencies to FOs. As pointed out for MANIS C schemes, this shift has occurred earlier in places where the agency has not been able to give adequate attention. The findings show a clear willingness on the part of FOs to take operational responsibility at FC, DC and even, in some schemes, MC levels. Farmers sometimes insist that they are willing to take operational responsibilities as long as the systems are in operational condition.

2.5 Farmer Organization Maintenance Performance

Because the major irrigation systems were built by the government, maintenance of most portions of these systems has been the responsibility of the irrigation agency in the past. Maintenance of the field channels and below has been the responsibility of the farmers. However, with increasing budgetary constraints, the irrigation agency found it difficult to maintain irrigation systems. Under the participatory management policy, maintenance of the distributary channel and below has become the responsibility of the farmer organizations.

2.5.1 *Maintenance Planning*

Planning for maintenance was the task of the irrigation agency prior to participatory management. In ID schemes, ID staff inspected the systems and noted the maintenance needed for the following year. These maintenance estimates were usually sent by October each year for funding during the following year. Farmers were only silent observers. Participatory management has changed this situation.

In INMAS schemes, the FOs now actively participate in identifying maintenance needs at DCO level. DCO members identify and prioritize maintenance needs and forward the list to the JMC. At the JMC, DCO requests are discussed and further prioritized and forwarded to the Irrigation Department for implementation.

This process was not observed in MANIS systems, in part because the FOs and JMCs are not as well developed as in INMAS schemes. In most MANIS schemes, there was no systematic planning of maintenance.

In Mahaweli schemes, maintenance planning activities had been the responsibility of the MEA officials. With the introduction of participatory management, this has changed. At present, planning of system maintenance begins at the UCC. Here the DCOs present their maintenance proposals. The proposals are studied and discussed for feasibility. As the EA and TO also participate in UCC meetings, a technical assessment of the maintenance requirement is done at this stage. The UCC then forwards the requirement list to the BCC whose chairman, the Block Manager, can make budgetary allocations for maintenance. If the BCC does not have adequate funds for needed maintenance, it forwards the proposal to the PCC for consideration and implementation. In this process the MEA has been transparent in their dealings with FOs. MEA also identifies maintenance contracts that can be given to FOs.

2.5.2 Implementation of Maintenance Activities

Type of Maintenance There are two major maintenance activities carried by FOs: jungle clearing and desilting. FOs are expected to clear the weeds (jungle) from their own FCs by themselves. Clearing DCs had been the duty of the irrigation agency but in most INMAS systems and MANIS systems this activity too is now done by FOs. FOs are expected to desilt their FCs by themselves. Desilting of DCs is sometimes done by FOs on contract with the agency. Besides these major activities, FOs are also expected to attend to small repairs, including undertaking minor earthworks such as bund fillings, and oiling and greasing of canal gates.

All activities other than FC cleaning and desilting are done on a contract basis with the irrigation agency. FC cleaning and desilting are done through organized *shramadana* (voluntary labor) activities or by individual farmers on a *pangu* (share) basis. The shares are either divided according to the extent cultivated by each farmer or each farmer is expected to clean and desilt the section of channel bordering his fields.

Besides undertaking FC and DC maintenance, the FOs in some instances have taken main canal (MC) maintenance. MC maintenance activities were found in several RS and PD schemes, including INMAS schemes Tabbowa and Mee Oya, and most of the MANIS schemes, including Komarika Ela, Radagalpotha, Murapola, Ma Ela, and others. In most cases, MC maintenance works were undertaken on contract with the ID. However, there were cases where MC maintenance had been done by FOs without payment. Cases were reported from Komarika Ela in 1993/1994 Maha and Mee Oya in 1993 Yala. In Tabbowa the DCO constructed a regulator to deliver sufficient water to the D3 channel to fulfil a need. The cost for the construction had been borne by the DCO. Clearly, FOs can undertake maintenance activities beyond simple cleaning and desilting of FCs and DCs. FOs have even attended to service road maintenance as reported from Rajangana and some Mahaweli systems. In Rajangana, about 1.5 km of road that belongs to the FO area had been repaired by the FO at a cost of Rs 11,000.

These cases show that most farmer organizations, particularly those in INMAS and Mahaweli schemes, now have the capability of handling maintenance work provided it answers a felt need or the financial resources are forthcoming.

Quality of Maintenance Clearing and desilting of FCs and DCs undertaken by the FOs alone or together with the agencies are reported as satisfactory. This appears to be a major improvement over the situation prior to participatory management. Earlier, a common complaint from farmers was that the quality of clearing and desilting was inadequately done. Most agency personnel agree that this was the case. Agency maintenance laborers responsible for jungle clearing only cleared the vegetative overgrowth. FOs completely clean the vegetation so that it will not grow again during the season. For desilting, FOs have a problem with excessive silt; in places where silt deposition was excessive, FOs request the assistance of the irrigation agency. Such a request was reported from Muthukandiya after the 1993/1994 Maha rains.

Painting and greasing are usually done before the beginning of each season. In INMAS schemes this activity is done by the ID Irrigator or by an Irrigator appointed by the FO. There are no complaints regarding the quality of work. Besides routine maintenance activities, FOs have undertaken earth works in channels and minor structural repairs. Quality standards have not been an issue in reported cases.

Of the FO office-bearers interviewed for the LSS, 90% from INMAS schemes, 82% from Mahaweli schemes, 90% from MANIS AB schemes, and 53% from MANIS C schemes were satisfied with the quality of maintenance carried out in DCO areas. To further improve maintenance, most respondents said that their FOs need additional funds. In MANIS C systems, training and technical know-how were

also identified as important aspects to improve maintenance. In Mahaweli, training was identified as a needed input to improve maintenance.

On the other hand, the irrigation officers interviewed were not satisfied with the present quality of maintenance. In INMAS schemes, only 33% of the ID officials in sampled schemes were satisfied. In MANIS schemes, only 20% of the ID officials were satisfied. However, in Mahaweli systems, irrigation officials appeared to be satisfied with the level of maintenance, possibly because the MEA officials themselves are still responsible for maintenance of DCs.

Table 2.16: Impact of Participatory Management on System Maintenance (officers' views)

Impacts	INMAS	MANIS AB	MANIS C	Mahaweli
Improved maintenance	42 %	75 %	50 %	25 %
Worsened maintenance	17 %	8 %	-	-
No change	33 %	17 %	29 %	25 %
No response	8 %	-	21 %	50 %

Table 2.16 shows the opinions of the irrigation officers from the LSS sample schemes about the impact of participatory management on maintenance. A majority of ID officers in MANIS AB systems and half or almost half in INMAS and MANIS C schemes felt that participatory management has improved maintenance. This improvement refers primarily to improved farmer contributions (cash and kind) in maintenance and better organization of maintenance activities. These factors assist ID officers to perform maintenance better. The inference is that ID would not have been able to maintain the system in the present condition without participatory management. Note that the low number of responses from Mahaweli schemes (only 4) makes the responses shown in Table 2.16 not very meaningful.

Table 2.17 Irrigation Department Officers' Identified Needs to Improve Maintenance

Needs	INMAS	MANIS AB	MANIS C
Additional funds	54 %	54 %	60 %
Rehabilitation	45 %	61 %	40 %

Table 2.17 shows the LSS sample Irrigation Department officers' perceptions on how to improve maintenance in INMAS and MANIS projects. About half felt that rehabilitation was required; the others felt that additional funds were needed. None identified the problems as ones of management of resources. One would expect the strong support from MANIS schemes where no physical rehabilitation had been done in the recent past. Surprisingly, though, this opinion was also expressed by some officers from INMAS schemes which have had recent rehabilitation. From the LSS sample, officers from Rajangana which was rehabilitated under MIRP and from Ridi Bendi Ela which was rehabilitated under ISMP expressed the opinion that further work was needed on the distributary and lower level channels. Kaudulla, an RS site, also rehabilitated under ISMP, reportedly has the same problem.

It may be that some rehabilitation work was not done well enough so that farmers could manage the channels easily. Some farmers complain that their participation in planning and design was not sought for much of the recent rehabilitation work. Also, in the recent rehabilitation projects, the concrete work was done by the agency but most of the earth work was left for the FOs. As there was little guidance from the agencies on this earthwork, some concrete structures are now deteriorating faster than expected. This situation has been reported strongly by Kaudulla DCOs. The Kaudulla PMC passed a unanimous resolution to petition the Irrigation Department to take back all the DCs handed over to them in 1992.

The systems should have been rehabilitated with explicit farmer participation. Only then can the ID demand better maintenance by the FOs.

Method of Maintenance Jungle clearing, desilting and earthwork are activities that require much labor. The study indicates that there are two main ways of getting these activities done by farmers. Shramadana is the most common type of resource mobilization in most INMAS and MANIS schemes. Mobilizing labor by assigning sections of canal (pangu) to farmers is the other common way of getting the work done; most often the sections are apportioned depending on the extent of land cultivated. Pangu is employed when it becomes difficult to get farmers to participate in shramadana. A third method is common in Mahaweli schemes where most maintenance of DCs in Mahaweli schemes is done by wage labor hired by the FOs which do the work under contract with MEA.

At the early stages of the INMAS program, there was high enthusiasm of farmers. At that time, shramadana was a good method for mobilizing resources for maintenance. However, the same enthusiasm is not observed at present. In most INMAS and MANIS systems, the Irrigation Department pays for the DC maintenance work done by shramadana, but the payments are usually less than the cost of wages for the work performed. It was reported from Rajangana that a DCO used its own funds to supplement the ID funds. In this case, DC cleaning and desilting was completed in three hours by shramadana with over 90% farmer participation. For this activity the DCO spent Rs 500 for refreshments. However, it was a rare occasion to find good participation of farmers in a shramadana. Participation in shramadana activities are declining due to poor returns, non-owner cultivators, lack of confidence and faith in FO leadership, and delayed payment by the ID for work performed. The present status of active participation of farmers in DC maintenance activities as reported by the LSS sample FO office-bearers is given in Table 2.18.

Table 2.18: Percentage Active Participation of Farmers in DC Maintenance

Participation Percentage	Percentage of DCOs			
	INMAS	Mahaweli	MANIS AB	MANIS C
0 - 25	30 %	22 %	34 %	24 %
26 - 50	24 %	39 %	26 %	24 %
51 - 75	15 %	24 %	9 %	24 %
Over 75	31 %	14 %	30 %	28 %

As shown in Table 2.18, in INMAS schemes, 54% of the DCOS have less than 50% participation in maintenance activities. After a decade of participatory management and intense FO activities one would expect better participation. The Recurrent Survey data indicates that farmer participation in group maintenance activities is declining. This was stated by many FRs during the survey, though it was not quantified due to lack of past records. If this trend continues, then maintenance must be done by apportioning maintenance to individual farmers (pangu) in a systematic way or the FOs must hire wage labor to get the work done.

Pangu is found in INMAS schemes Tabbowa and Muruthawela. In Tabbowa, if a farmer does not do his part, he is fined Rs 100. The fines are collected through the JMC. However, collecting fines has been a problem due to lack of necessary legal authority. This lack has now been corrected by the amendment of the Irrigation Ordinance. However, DCOs still have difficulties in collecting fines because of political interventions. At Muruthawela, the DCO collects Rs 50/fathom from each farmer who does not perform his channel clearing duty. It has been difficult to collect all dues due to insufficient legal authority. Here again, though legal authority has now been provided, external pressures are impeding the implementation of legal authority.

FOs have to get the canals cleaned before water issues commenced. If the work is not done by the individual farmers, FOs may have to hire wage labor. Presently funds for hiring labor come, in part, from the ID O&M allocation. If active voluntary participation in maintenance continues to decline, FOs might be assisted by continuing the ID O&M allowance. In certain instances in Mahaweli and INMAS schemes, farmers have chosen to clean the DC according to the availability of O&M allocation. That is, if the funds provided are not enough to cover the wages of the labor needed to complete the job, the farmers clean only the part of the canal covered by the available funds. In this case, one does not observe a sense of ownership or responsibility towards the system.

If farmers do not maintain the DCs individually or collectively, then the irrigation agency may intervene. This type of intervention was reported in Kaudulla, where the FCs at times are cleared by ID. Similar cases of ID intervention were reported from MANIS schemes Mediyawa, Murapola, Mahananneriya, and Wennoruwa. The reasons for poor farmer participation in maintenance in these cases vary from poor physical condition of the system to a high percentage of non-owner cultivators (Wennoruwa) and to owners residing outside the scheme (Mediyawa).

In Mahaweli systems, 61% of FO office-bearers said that active farmer participation in DC maintenance is less than 50%. This can be attributed to the short period during which MEA officers have worked to convince farmers to take responsibility for the system and to the methods of undertaking DC maintenance activities. In Mahaweli schemes, all DC maintenance is undertaken by FOs on contract with the MEA, resulting in a heavy dependency on MEA O&M funds. It appears that in Mahaweli schemes, many farmers have come to view DC maintenance as a way to make money rather than as an obligation.

Table 2.18 shows that MANIS C schemes show the highest level of farmer participation in maintenance. This is likely due to the low agency involvement in management of MANIS C schemes which makes it necessary for farmers to maintain the systems. Farmers were maintaining these systems even prior to the MANIS program. If not for active farmer participation in maintenance, these MANIS systems would not have continued to function.

Table 2.19: Who Clears Jungle from the Distributary Canals?

Program	# of Sample FOs	Agency (%)	FOs (%)	Farmers (%)	Other Answers (%)	No Response (%)
INMAS	61	3 %	57 %	30 %	3 %	7 %
MANIS AB	24	17 %	33 %	38 %	4 %	8 %
MANIS C	24	8 %	21 %	33 %	8 %	29 %
Mahaweli	63	5 %	84 %	2 %	6 %	3 %

Table 2.19 shows who clears jungle from DCs as reported by FO office-bearers from the LSS. This table shows that farmers carry out DC jungle clearing in most cases under all programs; agency involvement in DC cleaning is minimal. The large number of no responses for MANIS C schemes reflects the number of cases where there are no distributary channels. The most interesting difference is that between Mahaweli and the ID schemes. In the Mahaweli schemes, FOs take direct responsibility for DC jungle clearing whereas that is less true in ID schemes. In ID schemes, much is done by the farmers rather than by the FOs directly. The difference is largely due to MEA's practice of awarding contracts for DC jungle clearing to the FOs. Although this is also done in many INMAS schemes and in some MANIS schemes, it is treated as a pure formality covering a grant to the FOs. Thus in these schemes, FOs have often assigned responsibility for clearing sections of the DCs to individual farmers.

Table 2.20: Who Desilts the Distributary Canals?

Program	# of Sample FOs	Agency (%)	FOs (%)	Farmers (%)	Other Answers (%)	No Response (%)
INMAS	61	7 %	52 %	23 %	3 %	15 %
MANIS AB	24	21 %	29 %	38 %	4 %	8 %
MANIS C	24	17 %	13 %	29 %	4 %	38 %
Mahaweli	63	8 %	81 %	2 %	6 %	3 %

Table 2.20 shows who desilts DCs as reported by the LSS sample FO office-bearers. This table shows that the involvement of FOs in DC desilting is similar to involvement in DC cleaning. The major difference is greater ID involvement in desilting in MANIS AB schemes. In Mahaweli schemes, the high FO participation is due primarily to MEA's practice of giving contracts for this work.

Table 2.21: Who Carries Out Minor Repairs to Distributary Canals?

Program	# of Sample FOs	Agency (%)	FOs (%)	Farmers (%)	Other Answers (%)	No Response (%)
INMAS	61	36 %	49 %	0 %	5 %	10 %
MANIS AB	24	58 %	13 %	0 %	0 %	29 %
MANIS C	24	17 %	8 %	8 %	17 %	50 %
Mahaweli	63	59 %	6 %	0 %	14 %	21 %

Table 2.21 shows who carries out minor repairs to DCs as reported by the LSS sample FO office-bearers. This table is a stark contrast to the situation reported for jungle clearing and desilting. In all programs, the agencies carry out a major portion of the work done. Except in INMAS systems, attending to DC repairs has been the responsibility of the irrigation agency. In INMAS systems, turnover has included responsibility for minor canal repairs. Attending to minor DC repairs by FOs was reported from INMAS systems Rajangana (including a service road repair), Muruthawela (earthwork), and Dewahuwa (earthwork) during the RS studies. The high number of no responses is indicative of lack of recent repairs, largely due to lack of resources. All except for one of the "other answers" indicated that the work was carried out jointly by the FO and the agency. Canal repairs are being done with significant participation of both farmers and agencies in all programs.

Table 2.22 shows who carries out FC maintenance tasks as reported by the LSS sample FO office-bearers. This table shows that the FOs (through shramadana or other means) or the farmers (through share systems) carry out most of the FC maintenance jungle clearing and desilting. Farmers were responsible for these activities even before participatory management. In Mahaweli schemes, however, most of the FCs are cleaned and desilted by FOs. This development could be attributed to the recent organization of FCGs and awarding contracts for FC maintenance. At the beginning of the INMAS program, most FC maintenance was done by FCGs, but with the development of DCOs, organizational emphasis shifted to the DCOs, leaving the FC maintenance to individual farmers. This development can be expected in Mahaweli schemes with the passage of time. In MANIS systems, development of farmer organizations began at DC or equivalent levels in the absence of DCs. Thus, FCs, where they exist, always have been cleaned by individual farmers themselves.

As with DC repairs, Table 2.22 shows that the agencies are involved in FC repairs, particularly in Mahaweli schemes. Only in INMAS schemes do the FOs and farmers take the main responsibility for these repairs. Again the high values for the no responses generally indicate that the work has not been done recently.

Table 2.22: FO and Farmer Involvement in Field Channel Maintenance

Activity	INMAS	MANIS AB	MANIS C	Mahaweli
Jungle Clearing				
By FO	16 %	13 %	8 %	73 %
By farmers	79 %	65 %	46 %	25 %
By agency	0 %	0 %	8 %	2 %
Other answers	2 %	0 %	0 %	0 %
No response	3 %	21 %	38 %	0 %
Desilting				
By FO	11 %	17 %	4 %	68 %
By farmers	74 %	54 %	46 %	25 %
By agency	2 %	0 %	0 %	5 %
Other answers	2 %	0 %	0 %	0 %
No response	11 %	29 %	50 %	2 %
Minor Repairs				
By FO	61 %	8 %	8 %	14 %
By farmers	3 %	4 %	17 %	3 %
By agency	9 %	33 %	21 %	56 %
Other answers	4 %	12 %	4 %	6 %
No response	18 %	42 %	50 %	21 %

Operation and Maintenance Allocation The practice of releasing funds to suit the O&M needs has reversed to one of adjusting O&M needs to suit the allocation (Weerakoon 1990). This has happened primarily because of budgetary constraints imposed by the Treasury and the low priority given to O&M. Turning DCs over to FOs for O&M is one of the methods adopted to reduce the burden on the O&M allocation from the Treasury.

In many systems, farmers, as well as irrigation agency officers, complain of inadequate O&M funds. Usually the funds allocated for O&M are about half of the estimates submitted. Present O&M allocations are insufficient for the irrigation agencies to maintain the systems without the cooperation of FOs. The irrigation agencies complain that other maintenance costs, eg for vehicles, buildings, etc, have to come from the same O&M allocation. The problem of insufficient allocations has been partly "solved" by contracting with FOs for DC maintenance work but paying them less, often much less, than the work would cost if all of the labor were paid for. The presumption is that the FOs will carry out the work out of self interest. Under this situation, FOs often complain of inadequate payment for the work performed. FOs too cannot perform the expected duties because of the economic and political environment. FOs cannot always perform maintenance by shramadana. FOs at times have to hire labor to carry out maintenance. The O&M allocation from the irrigation agency aids the FOs in this situation. Many officers and farmers assert that FOs are not financially strong enough to supplement O&M allocation shortfalls.

Farmers have come to expect the maintenance allocations from the government. Some farmers are of the opinion that if the systems can be properly rehabilitated with full farmer participation, the FOs may be

able to maintain the systems without O&M allocations. However, the farmers also say that major repairs must continue to be the responsibility of the irrigation agency.

2.6 Farmer Organization Non-O&M Activities

As the INMAS program developed, FOs adopted various activities either on their own or at the suggestion of IMD officers. The same happened in the other two programs. These activities were seen as means to strengthen the organization and encourage members to be a more cohesive group. In the Mahaweli and INMAS schemes there has been concentrated effort by agency officials to promote the organizations to undertake non-O&M activities, particularly business activities. For IMD, this was a response to the obvious need for FOs to have sources of income to cover O&M costs. For the MEA, there was a policy decision in some schemes to promote agribusiness through the FOs. The activities can be divided into two categories:

- Business activities providing monetary benefits to the FO fund
- Activities providing non-monetary benefits to the membership

Business Activities Initially, FOs were encouraged to deal in agricultural inputs such as fertilizers, agro-chemicals and the distribution of paddy seeds to members. One means was to obtain a dealership from the National Fertilizer Corporation. Farmers who are members of the FO could obtain these inputs at a cheaper price than from a private dealer. The inputs are also given on credit to farmers with an interest rate that varies from 6 to 10% per year. The farmer organizations take a markup of 3-5% from the sales. The sale of seeds as a business has been started recently among some of the FOs. Seeds sold are not only paddy but other crops as well, such as potato in Ambewela scheme.

In other cases, FOs act as a guarantor for farmers to obtain the inputs from the Agrarian Service Centre (eg Kanugolla FO in Komarika Ela). In System C, prior to restructuring, the FOs were solely dealing with agricultural inputs. All the FOs operated fertilizer and agro-chemical sales centers. In System C presently, certain DCOs, (eg Diyawiddagama and Hungamalagama) have a practice of selling shares to members which entitle the share owners to purchase fertilizer and agro-chemicals on a loan basis.

The profit to FOs from the sale of agricultural inputs varies among programs. A MANIS FO in Komarika Ela makes about Rs 1625/season, while an INMAS FO, Eksath FO in Kaudulla, makes about Rs 3449/season. In comparison, Hungamalagama FO in System C makes about Rs 6000/season.

Table 2.23 shows the business activities reported from the Recurrent Survey sites for three seasons. This table shows that the sale of agricultural inputs varies from season to season. The main reason for the discontinuity of activities in most FO is the non-repayment of credit and the misuse of funds by the FO office-bearers. For example, in Serupitiya DCO in Mahaweli System C, the President misused FO funds amounting to Rs 40,000. The matter has gone to the Police but still the money has not been recovered.

Table 2.24 shows business activities of the LSS sample FOs as reported by the FO office-bearers during Yala 1994. As shown in this table, the LSS survey data indicates that the percentage of FOs involved in business activities as of 1994 Yala was low except in INMAS schemes where there was 45% involvement.

Table 2.23: Farmer Organization Businesses from 1993 Yala through 1994 Yala

Construction Contracts	Fertilizer Sale	Agro-chemicals	Seeds	Purchasing Paddy	Other
1993 Yala					
Radagalpotha Wennoruwa Mannankattiya Mediyawa	Komarika Ela Radagalpotha Ma Ela	Radagalpotha			Komarika Ela Wennoruwa (Vilgoda) (Udawalpola)
1993/94 Maha					
Muruthawela Rajangana (Nawajeevana) (Ranketha FO) Tabbowa (Thevanuwara) (Perakum)	Rajangana (Nawajeevana) (Ranketha FO) Muthukandiya Tabbowa (Perakum)	Tabbowa (Perakum)	Tabbowa (Perakum) Muthukandiya Rajangana (Ranketha)		Muruthawela Muthukandiya Rajangana Tabbowa Muruthawela
1994 Yala					
Tabbowa (Perakum) (Thevanuwara) Rajangana (Nawajeevana) Radagalpotha Ma Ela Muthukandiya Kaudulla	Rajangana (Ranketha) Komarika Ela Kaudulla	Rajangana Komarika Ela Tabbowa Kaudulla	Ambewela Kaudulla	Muthukandiya Rajangana (Ranketha)	Muthukandiya Muruthawela Dewahuwa Komarika Ela

Table 2.24: Farmer Organization Involvement in Business Activities

Program	Total FOs Responding	Yes		No	
		#	%	#	%
INMAS	60	27	45	33	55
MANIS AB	21	1	5	20	95
MANIS C	19	3	16	16	84
Mahaweli	63	14	22	49	78

The types of business activities that were found in the various FOs in the LSS sample are given in Table 2.25 as reported by the FO office-bearers. Sale of fertilizers and sale of agro-chemicals are the most common, generally due to assistance provided by the government agencies such as Agrarian Service Centers, ID Officials and MEA officials.

Table 2.25: Types of Businesses (Yala 1994)

Business	INMAS (N=60)	MANIS AB (N=21)	MANIS C (N=19)	Mahaweli (N=63)
Fertilizer	22	-	-	9
Agro-chemicals	9	-	-	7
Seed Paddy	7	-	-	4
Purchasing Paddy	6	-	-	9
Other	3	1	3	1

The commissions and profits obtained from the rehabilitation and maintenance contracts given by the agencies have made a major contribution to FOs. Data reported by LSS FO office-bearers shows that, except in MANIS AB schemes, more than half of FOs undertake such contracts (Table 2.26). Over two-thirds of FOs in INMAS and Mahaweli schemes take contracts because it is the agency policy to offer them. A major portion of FO funds is earned from O&M contracts given by agencies. In addition to the income that can be earned by this activity, farmers also gain experience in maintenance of their systems.

There are different methods by which these contracts benefit FO funds. Table 2.27 shows the arrangements reported by the LSS sample FO office-bearers. This table shows that in INMAS and Mahaweli systems 54% and 32% respectively of the FOs undertake the contracts as organizations. In this case, the full profit goes into the FO fund. The other major method is to subcontract the work to individual farmers or others. In this case, a commission, generally 5% of the estimated cost, is given to the FO fund. Subcontracting is relatively more common in MANIS schemes than in INMAS or Mahaweli schemes.

Table 2.26: Farmer Organizations Taking Contracts from Irrigation Agencies

Program	# of Sample FOs	FOs taking Maintenance Contracts (%)	FOs taking Rehabilitation Contracts (%)	FOs taking Both Contracts (%)
INMAS	61	56 %	2 %	10 %
MANIS AB	24	29 %	8 %	8 %
MANIS C	24	42 %	0 %	8 %
Mahaweli	63	60 %	5 %	10 %

Subcontracts with outsiders may not provide good quality work since private contractors try to do work at minimum cost. However, the FOs give subcontracts because of the inability of the FO to organize farmers to do the required work. Some cases where FO office-bearers have taken the subcontracts have given rise to criticism from FO members as they feel that the commission is generally never remitted to the fund. Examples were found by the RS and PD studies in Thewanuwara FO at Tabbowa and Thissara FO at Muruthawela. In Diyawiddagama FO in Mahaweli System C, the FO President undertook subcontracts without informing the FO. In Talawa and Mahawelitenna DCOs in System H, commissions from contracts undertaken by the leaders were not found in the funds.

Table 2.27: Farmer Organization Contract Arrangements

Arrangement	INMAS (N=61)	MANIS AB (N=24)	MANIS C (N=24)	Mahaweli (N=63)
All members involved	33	7	4	20
Subcontracting	18	8	4	17
Others	3	1	4	5

Some FOs have hired out agricultural implements to members. Most frequently tractors are purchased by the FO from the Department of Agrarian Services. This facility is provided by the Department to recognized and effective organizations, eg Wennoruwa and Muruthawela. Profits earned after paying for the tractor are given to the FO fund. Other implements such as sprayers and water pumps are also hired out to FO members. Eksath FO in Dewahuwa has started special projects such as a Highland Development Program and Animal Husbandry Program under which cashew and coconut are grown.

Other Activities In Mahaweli schemes, the FOs are involved in nonmonetary activities especially during the "Mahaweli Week." These activities are initiated and enforced by MEA. The activities are;

- Construction of homes for poor families
- Maintenance of roads in the area
- Support the community health program implemented by MEA.

For these activities, funds are given from the MEA or in certain instances money from the FO fund is utilized.

In INMAS and MANIS schemes there are no similar community activities organized by the FOs except for the "*Vap Magul*" ceremony. However, the majority of FOs in Mahaweli and INMAS schemes participate in social and religious activities. Religious rituals are performed to evoke blessings from the Gods on the cultivation. Also many FOs perform "*Aluthsahal Mangalla*" (offering of the first rice after the harvest to God) to thank the supernatural powers for protecting and giving them a good harvest. The social functions undertaken by FOs were building community halls, undertaking community health programs, creating women's association and many others. All these activities were focussed on group participation, thus strengthening the farmer organization.

Problems with Non O&M Activities Non-O&M activities, particularly business activities, require enhanced organizational capabilities to be sustainable. Many FOs started such activities without proper guidance and directions. This has led, in some cases, to ad hoc management and creation of various problems among members of the organizations.

2.7 Credit

Only a minority of FOs have provided credit to their members, either in kind or cash. Credit has been mainly given for agricultural purposes and for the purchase of agro-chemicals and fertilizer. None of the FOs have the required funds to give loans to the farmers except in the case of some of the Mahaweli DCOs. In other cases, FOs obtain credit facilities from the Department of Agrarian Services.

Table 2.28 shows credit activities reported by the LSS sample FO office-bearers. In INMAS and Mahaweli schemes, credit is mainly given through the FOs. In these instances, the Agrarian Services Centre gives the money to the FO which then distributes it among the members. Credit facilities are not extended from season to season as repayment has been poor. Thissara FO in Muruthawela obtained bank loans in 1992/1993 Maha through the intervention of PIDA. This arrangement was not continued into the next season as the loans were not repaid due to crop damage. A similar case occurred in Thevanuwara FO in Tabbowa where the farmers are unable to obtain loans from the Agrarian Services Centre for the coming Yala season because of failure to repay loans. This inability to obtain loans continuously then leads the farmers to borrow from private sources at a much higher rate of interest. There has been an instance of group credit been given in Peramuna FO in Dewahuwa which has proved to be more effective method when repayment of loans are considered. In Mahaweli schemes, agricultural inputs are given on credit basis to farmers with a 5-10% interest.

Table 2.28: **Farmer Organizations Providing Credit Assistance to Farmers**

Arrangement	INMAS (N=61)	Mahaweli (N=63)	MANIS AB (N=24)	MANIS C (N=24)
Through FO	7	7	1	2
Guarantor of bank loan	3	8	5	-
Guarantor of other loan	4	1	1	1

Some FOs act as a guarantor to banks to help FO members obtain credit. In Mahaweli systems, farmers who are share holders of the FOs have an additional advantage where agricultural inputs can be obtained on credit from the organization. In the Serupitiya DCO in System C, the organization has helped members to obtain bank loans for housing. With guarantees from their FO, farmers in Komarika Ela have obtained machinery plus fertilizer from the Rural Development Bank.

More directly, Perakum FO in Tabbowa has managed loans to its members from the Agrarian Services Centre under an Agriculture Ministry special project in which farmers were entitled to Rs 3000/acre at 16% interest for 6 months. The DCO was responsible for the repayment and would be entitled to 2% interest from the Agrarian Services Centre as a service fee.

There have been cases where the guarantee by the FO has not been accepted since repayment of loans have become questionable. For credit to be given to farmers from these organizations, greater funds must be held by the FO. Farmers prefer to obtain loans from the organization as they find commuting to banks in towns a time consuming and costly exercise. Also due to outstanding loans and problems of land ownership farmers prefer to deal with their own farmer organizations.

2.8 Farmer Organization Strength

FO performance depends on the willingness of individual members to participate in group activities. Eliciting this willingness and organizing the resultant activities is the organizational task of an FO. To deal with the difficult notion of how capable a farmer organization is of mobilizing and organizing its own resources, we developed a concept of "Farmer Organization Strength" (see Docter 1993). The concept was codified into a measure of FO strength that takes into account the following factors:

- Internal Structure
- FO Membership
- FO Leadership
- Mechanisms for mobilizing resources, particularly money
- Mechanisms for managing resources, particularly money
- Mechanisms for communication within the FO

For each factor, we consider its conceptual basis, the performance of the FO in following the concepts, and the outcome. The FO Strength measure is discussed and evaluated in Volume 3 of this report. Here, we describe the findings on each of the factors and then consider the overall strength of FOs.

2.8.1 Internal Structure

Organizations which follow constitutional procedures in their activities can be considered as formal organizations. Most FOs are externally promoted local organizations whose constitutions were developed by the government authorities which supervise their functions. Only a few FOs incorporated their own codes of conduct into these agency developed constitutions.

There are two widely used constitutions:

- The concept of farmer organization was developed first under the INMAS program administered by the Irrigation Management Division (IMD). IMD therefore developed a model constitution for INMAS FOs. Many MANIS FOs also use the IMD constitution.
- A constitution was developed by the Department of Agrarian Services (DAS), which is the government agency that has legal authority to support and monitor all FOs, including those outside of irrigation systems. The majority of the Mahaweli FOs and many MANIS FOs use the DAS constitution.

Some feel that the IMD constitution better reflects most farmers' ideas and makes the FOs less dependent upon the government. The great majority of FOs have adopted one or the other of these constitutions virtually unchanged. The main problem of both constitutions is that they specify that members must be legal land owners or allottees. But in most schemes, tenants and encroachers constitute a significant fraction of the farmers. These farmers should be incorporated into the FO membership.

The differences between the two constitutions are not large. The important factor is that a majority of the sample FOs follow their constitutions in their activities. Table 2.29 shows the existence of constitutions among FOs in the four programs as reported by the LSS sample FO office-bearers.

Table 2.29: **FO Constitutions**

Program	# of Sample FOs	# with Constitutions		# without Constitutions	
		N	%	N	%
INMAS	61	60	98 %	1	2 %
MANIS AB	24	22	96 %	1	4 %
MANIS C	24	20	83 %	4	17 %
Mahaweli	63	62	98 %	1	2 %

Among other things, a constitution provides for an internal structure for the FO. There are two interrelated aspects: internal groupings and leadership positions.

According to the INMAS model, FOs are supposed to have field channel groups (FCGs) as internal groupings. This is important not only to have smaller and more manageable groups to carry out activities, but also as a means for selecting the Farmer Representatives (FRs) that govern the FO. Table 2.30 shows the numbers of LSS sample FOs reporting the existence of FCGs.

Table 2.30: **Existence of Field Channel Groups in Farmer Organizations**

Program	Have FCGs		No FCGs		No Answer	
	N	%	N	%	N	%
INMAS	43	70 %	18	30 %	-	0 %
MANIS AB	4	17 %	18	75 %	2	8 %
MANIS C	2	8 %	21	88 %	1	4 %
Mahaweli	59	94 %	4	6 %	-	0 %

This table shows that very few MANIS FOs have FCGs. To a large degree this is because many MANIS schemes lack DCs and FCs on which to base these groupings. This subject is taken up separately later. However, the lack of FCGs in MANIS schemes is also due to the lower effort expended in organizing

FOs. The INMAS procedure calls for organizing the FCGs first. But this procedure requires a great deal of effort. It is much faster and easier to get an FO started by having FRs selected in some other way, such as through a general meeting. Many Project Managers and others have chosen to use this method at the beginning, apparently with the intention of organizing subgroups at a later time when more personnel become available to work with the FOs.

The surprising figures are those for INMAS, where 30% of the FOs do not have FCGs. One would expect a higher percentage in the INMAS schemes because of the much longer organizing period. Two factors seem to be at work in the INMAS schemes to explain the relatively low percentage of FOs with FCGs. First, in some schemes IMD assigned Project Managers without other support and, as in many MANIS schemes, they followed the easier organizing approach. Second, in some schemes, FCGs have withered away. Over time, all government support and help has come to be focussed on the DCOs and it appears that farmers have not found it useful to keep up the FCGs. In some INMAS FOs, they have begun to select the FRs at a general farmer meeting of the DCO where the farmers from each field channel can select their representative. In this way, they keep the benefit of having a representative to speak for them and obviate the need for FCG meetings and separate activities.

In Mahaweli schemes, the very high percentage with FCGs is probably due to the recent reorganization which has given prominence to the INMAS model of organization. It is likely that, over time, the situation will come to resemble the INMAS situation.

2.8.2 Membership

A strong FO will include most of the farmers in the FO area as members so as to have influence over their actions. Despite the constitutional definitions of eligibility for FO membership, most farmers in the FO localities can become members of the FOs irrespective of land status. In recruiting, FOs have managed to resolve the matter of granting membership. Most times land ownership is considered the prime criterion, but certain FOs consider cultivation of land plot under a particular irrigation canal, regardless of ownership, as a sufficient qualification for FO membership.

Table 2.31 FO Membership Percentages

Program	# of Farmers Responding	% FO Members
INMAS	119	92 %
MANIS AB	48	88 %
MANIS C	46	83 %
Mahaweli	125	93 %
Overall	338	90 %

Table 2.31 shows membership in the FOs as reported by the farmers surveyed under the LSS. This table shows that 90% of all farmers claims membership. However, when the FO office-bearers were asked about how many of the potential members were FO members, the results were quite different as shown in Table 2.32. This table shows that INMAS and Mahaweli FOs both have percentages above 70% while the MANIS percentages are just above 50%. This difference reflects the lesser time and effort given to the MANIS program.

A breakdown of the LSS sample FOs by percentage of members is given in Table 2.33. This shows that while the numbers of FOs with less than 50% membership is similar in the INMAS and Mahaweli

programs, INMAS FOs have a larger percentage of those with over 75% membership. The two MANIS categories are remarkably similar.

The surprising finding is the number of FOs with less than 50% membership: around 20% for the INMAS and Mahaweli programs, and 34% for both MANIS categories. While this finding can be explained in the MANIS cases by the relative lack of time and attention given to the program, it seems high for the other two cases. There is a need for detailed investigation of this situation.

Table 2.32: Overall Membership Percentages

Program	Farmers	Members	% Members	Active Members	Active Members as	
					% of Farmers	% of Members
INMAS	10,483	7,709	74 %	4,399	42 %	57 %
MANIS AB	3,101	1,648	53 %	823	27 %	50 %
MANIS C	2,784	1,471	53 %	764	27 %	52 %
Mahaweli	7,230	5,118	71 %	3,146	44 %	61 %
Overall	23,598	15,946	68 %	9,132	39 %	57 %

Not all FO members are active. An active member is generally defined as one who pays his dues, comes to meetings, and takes part in FO activities, particularly shramadanas. Table 2.32 shows the average active membership for FOs in the four programs as given by FO office-bearers. All four programs show 50-61% of members are active members. This finding is expected since groups of farmers can be expected to show roughly similar rates of commitment to the organizations.

Table 2.33: Percentage Range of Membership of Farmer Organizations

Program	< 25%		25-50%		50-75%		>75%	
	FOs	%	FOs	%	FOs	%	FOs	%
INMAS	4	7%	9	15%	8	13%	40	66%
MANIS AB	3	13%	5	21%	4	17%	12	50%
MANIS C	4	17%	4	17%	5	21%	11	46%
Mahaweli	4	6%	9	14%	20	32%	30	47%

2.8.3 Leadership

Effective leadership is a key factor which contributes to strength of FOs. Leaders' skills, energy, personality characteristics, and style of leadership often determine whether the FO functions well or not. Some examples include:

- The FO President of the RS sample FO in MANIS scheme Ma Ela is a well respected person. Therefore, he has overall command over his members and is very influential in directing his members toward FO community actions.
- The Chairman of the (INMAS) Kaudulla SLFO has shown innovative and dynamic leadership characteristics; as a result his FO is functioning very well.
- In Rajangana, an INMAS scheme, the Ranketha DCO reappointed the former DCO President after a lapse of one year. According to the DCO members, there had been great improvement in economic standards of the general membership during his earlier tenure, but all improvements stopped when he left. In recognition of his services, the membership re-elected him.

- In Komarika Ela, a MANIS scheme, the effective leadership of the Kanugolla FO has made the organization sustainable and viable despite the departure of an energetic and effective Project Manager. In this FO, the FO provided agriculture credit to the value of Rs 90,000 and fully 95% of the farmers repaid despite some crop difficulties. The Kanugolla FO has been able to hire their water pump to ID and to collect Rs 17,000 as hiring charges.

Strong leadership also can compensate for weak management systems. An extreme example is one FO in Gampola Raja Ela Scheme (MANIS) where the management systems are largely non-existent but the President has been able to get a large number of activities successfully carried out, including construction contracts.

It was found that whenever the members selected their leaders without outside interference, the leaders generally emerged as effective mobilizers of their groups. They are also more accountable to farmers. According to RS and PD data from Mahaweli schemes, Unit Managers have often interfered in the selection of FO leaders. Generally the selected leaders are individuals who have links with the Unit Managers. In many MANIS systems, FO leaders are individuals with support from local political authorities. In the past, such political support resulted in their appointment as Vel Vidanes or Yaya Palakas. In other cases, leaders are selected following open or behind-the-scenes nomination by irrigation officials. In all these cases, the FOs tend not to be very strong.

Selection of leaders, ie FO office-bearers such as President, Secretary, and Treasurer, is reportedly done most commonly through general farmer meetings. Of farmers interviewed in the LSS, 63% of INMAS farmers, 88% of Mahaweli farmers and 79% of MANIS farmers said that this was how their leaders were selected. However, 37% of INMAS farmers said that selection of leaders were done by Farmer Representatives.

In some cases, FO leaders have used their positions for their own benefit to the detriment of the FO. Examples of misuse of FO funds were given in Section 2.6. Many of these cases come from Mahaweli schemes, where, as noted, there has been a relatively high degree of influence of MEA officers in selection of FO leaders. The cases from Mahaweli, however, refer to leaders selected prior to the recent reorganization of FOs in Mahaweli schemes.

Despite these problems, as shown in Table 2.34, most farmers interviewed for the LSS in all three programs are satisfied with the FO leaders. As expected, the degree of satisfaction is highest in INMAS schemes where there has been the most time and effort spent to develop FOs and lowest in MANIS C schemes where there has been the least time and effort spent.

Table 2.34: Farmers' Satisfaction with FO Leadership

Program	Satisfied		Not Satisfied		No Answer	
	N	%	N	%	N	%
INMAS	100	82 %	19	16 %	3	2 %
MANIS AB	36	75 %	9	19 %	3	6 %
MANIS C	31	65 %	12	25 %	5	10 %
Mahaweli	101	80 %	24	19 %	1	1 %

2.8.4 Raising Funds

Table 2.35 shows the important sources of FO income as reported by the LSS sample FO office-bearers. This table indicates that FOs raise money from number of sources. Noteworthy is the high dependence

on contracts with the irrigation agencies, particularly for INMAS and Mahaweli FOs. This implies a continued high degree of dependence on government help. The category "others" includes business activities, prizes, and contributions from other agencies.

Table 2.35: Sources of Farmer Organization Income

Program	Sample FOs	Fees/Shares	Contracts	O&M Allocation	Others	None Reported
INMAS	61	84 %	49 %	46 %	28 %	11 %
MANIS AB	24	83 %	50 %	17 %	25 %	8 %
MANIS C	24	58 %	29 %	4 %	29 %	25 %
Mahaweli	63	92 %	60 %	30 %	14 %	3 %

Table 2.35 does not imply that the FOs have a significant amount of funds. Table 2.36 shows the amounts of funds reported by the LSS sample FO office-bearers. This table shows that, while many INMAS and Mahaweli FOs deal with significant amounts of funds, only some MANIS AB FOs do and very few MANIS C FOs do. In this table, the funds reported for the Mahaweli FOs is high largely because of one System C FO (Serupitiya). They reported Rs 1,430,000; this very high sum came from a prize of Rs 1,250,000 that they won from the MEA. If this FO is not included, the average Mahaweli FO fund is only Rs 16,274 and the maximum is Rs 110,000. These figures more accurately represent the state of the Mahaweli FO funds; on average they handle less than do INMAS FOs.

Table 2.36: Farmer Organization Funds

Program	# Sample FOs	# FOs Reporting Funds	Average Reported (Rs)	Range (Rs)
INMAS	61	49	27,107	1800 - 125,000
MANIS AB	24	22	7,554	250 - 30,000
MANIS C	24	14	5,143	1000 - 16,000
Mahaweli	63	61	39,450	250 - 1,430,000
Overall	172	146	27,211	

2.8.5 Financial Management

A strong FO that handles funds must have good management procedures and facilities to ensure that funds are handled properly. Such procedures and facilities generally include keeping well organized accounts, storing funds in a bank account, having and respecting rules for disbursement of funds, and having and following procedures for reporting financial affairs to the FO membership.

Table 2.37: Farmer Organization Financial Management Features

Program	# Sample FOs	FOs that Keep Books	Expenditure Approval Rules	Official's Approval for Withdrawal	Regular Reports to Members
INMAS	61	93 %	95 %	77 %	90 %
MANIS AB	24	79 %	96 %	4 %	88 %
MANIS C	24	58 %	58 %	8 %	46 %
Mahaweli	63	81 %	94 %	38 %	89 %

Table 2.37 shows key financial management features reported by the FO office-bearers interviewed for the LSS. This table shows clearly that INMAS FOs have the most developed financial management systems, although Mahaweli FOs are not far behind. The amount of government attention is also reflected in the requirement in 77% of the INMAS FOs that bank withdrawals require the signature of a government official, usually the Project Manager. This requirement has been imposed on these FOs, as it has also on some Mahaweli FOs. MANIS C FOs have the least developed financial management features because of the least government attention and because many do not handle significant funds.

Reporting to FO members about finances is also a key requirement for good financial management. Table 2.37 shows that most FOs claim to make regular financial reports to the FO members, usually at the general membership meetings. Again, MANIS C schemes are an exception, largely because most have no funds.

According to the RS and PD findings, financial management is a major problem for many FOs. Although the LSS data seem to indicate that financial management mechanisms exist, other data show that the rules are often not followed and may be only partially understood. Accounting and reporting to the membership seem to be the weakest links. Without these, it is easy for FO leaders to abuse their control over FO funds. As discussed earlier, FO leaders were criticized by farmers for abuse of FO funds, particularly in Mahaweli FOs. Problems of misuse of funds are much less frequent in INMAS systems, probably because of more democratically selected leadership and closer monitoring by Project Managers. Most MANIS FOs handle only small amounts of funds and many have no financial management procedures.

2.8.6 Internal Communication

Communication within FOs is often problematic and is one of the main causes of organizational weakness. When asked, FRs say that the main method of communication among members is by word of mouth. Unfortunately, that channel requires an effort to spread information.

One way of organizing communication and decision-making is through meetings. All FOs hold meetings, generally of two kinds: FO committee meetings and FO general membership meetings. The frequency of meetings is a crude measure of internal communication. Tables 2.24a and 2.24b show the reported frequencies of FO committee and general membership meetings respectively.

Table 2.38: Reported Frequency of Farmer Organization Committee Meetings

Program	FOs Responding	Monthly	Bi- monthly	Season- ally	Annual- ly	As Needed	Never
INMAS	53	75 %	8 %	2 %	2 %	-	13 %
MANIS AB	15	47 %	20 %	7 %	-	13 %	13 %
MANIS C	19	47 %	21 %	-	-	21 %	11 %
Mahaweli	63	60 %	13 %	2 %	3 %	6 %	16 %

Tables 2.38 and 2.39 show the frequency of, respectively, FO committee meetings and FO general membership meetings as reported by LSS sample FO office-bearers. Table 2.38 shows that the great majority of INMAS FO committees reportedly meet either monthly or bimonthly, while the MANIS and Mahaweli FOs do so with a lower frequency. The number reporting not meeting at all is surprisingly constant across the programs. Overall the differences are rather small indicating that these meetings serve a basic management need.

As shown in Table 2.39, there is far less uniformity with regard to general membership meetings. Here we see that 65% of INMAS FOs meet seasonally or annually. The next highest percentage in MANIS C FOs where 45% meet seasonally. Surprisingly, 42% of MANIS AB FOs report never holding general membership meetings. On the other hand, 32% of Mahaweli FOs report monthly general membership meetings. These are, in fact, the same as the committee meetings rather than separate meetings. The practice is to hold an open meeting. The great variation suggests that, except in INMAS schemes, general membership meetings have not yet been seen as necessary. For many FOs, they are not yet seen as a regular part of FO activities.

Table 2.39: Reported Frequency of Farmer Organization General Farmer Meetings

Program	FOs Responding	Monthly	Bi-monthly	Seasonally	Annually	As Needed	Never
INMAS	60	10 %	8 %	33 %	32 %	-	17 %
MANIS AB	24	4 %	17 %	8 %	21 %	8 %	42 %
MANIS C	20	15 %	10 %	45 %	-	15 %	15 %
Mahaweli	63	32 %	14 %	17 %	6 %	6 %	24 %

At FO committee meetings, Farmer Representatives communicate among themselves. Our PD data shows, however, Farmer Representatives often fail to consult their constituents when decisions are to be made and often fail to communicate decisions to them. In addition, the attitude toward general membership meetings, as contrasted with the attitude toward FO committee meetings, suggests that, except in INMAS schemes, the Farmer Representatives have not yet come to realize the necessity of regular communication with their constituents. Overall, then, failures of communication between FRs and ordinary members of the FO is a common problem.

2.8.7 Variations in FO Strength

As discussed in detail in Volume 3 of this report, the measure of FO Organizational Strength combines evaluations of these key characteristics into a single index number. When this is done for the FOs studied in the Recurrent Surveys and Process Documentation, the results vary widely even within programs. On the whole, however, the highest ranked FOs are from the INMAS program, particularly those from Rajangana and Kaudulla. Mahaweli FOs generally rank next followed by the MANIS FOs.

2.9 Farmer Organization Strength and Farmer Organization Performance

The relationship between FO strength, as described in Section 2.8 and FO performance in water distribution, maintenance and other activities, as described in Sections 2.4, 2.5, 2.6, and 2.7, is not a determinant one.

- Some tasks are simple enough that no formal organization is required. FOs are required only when tasks a) are important to farmers, and b) require a formal organization to carry out.
- On the other hand, if an organization cannot perform at least some tasks adequately, it is unlikely that farmers will support it. This will make it a weak organization.

Taken together, these points suggest that the tasks assigned to the FO must be ones that are important and that are not too difficult (see Uphoff et al 1985 for more discussion on this point).

While a strong FO is likely to perform its tasks well, some organizationally weak FOs also perform some tasks well. First, as was pointed out in Section 2.8, strong leadership can compensate for an otherwise

weak organization. However, dependence on strong leadership means that the performance is likely to suffer greatly if the strong leader leaves. Such dependence explains the variation in performance levels of some FOs from season to season.

Unless there is a great abundance of water, water distribution and system maintenance are tasks very important to farmers. One key question then is to determine the factors that define how difficult it is to carry out these tasks. Such factors include:

- Extreme shortage of water. If there is an extreme shortage, no amount of organized work can solve the problems.
- Bad system physical condition. If the condition of the system makes control of water flow very difficult, it may be beyond the capacity of the FO to distribute water effectively.
- Response of agencies to the FO. If the agencies controlling the main system will not respond to FO requests for assistance, then farmers may ignore the FO in their attempts to get the water they need.

For example, the FOs at Kaudulla have a reputation for being among the strongest FOs in Sri Lanka. Kaudulla was a site where:

- There is a moderate shortage of water, but one which can be ameliorated by organized political activity to get the Mahaweli Water Management Panel to release water to the scheme.
- Main system rehabilitation under the ISMP made it possible for the farmers and agency together to deliver water effectively to the FOs; FO involvement was important for equitable delivery.
- There was an energetic and supportive IMD Project Manager who, together with a generally supportive Irrigation Department staff, was able to make sure that agency responses to the FOs were generally positive and helpful.

Recently the situation has changed. With the departure of the IMD Project Manager and a delay in recruiting his replacement, there has been a decrease in agency responsiveness. At the same time, delays in completing rehabilitation works have been frustrating the FOs in their efforts to improve water distribution, particularly on the DCs. The changed situation has made a number of farmers vocally dissatisfied with both the FOs and the government. Some are threatening to withdraw from participatory management. Our evidence and that of others suggests that the level of water management performance by the Kaudulla FOs has dropped over the last two years and that at least a few FOs seem weaker than they were before. It is not clear what will happen. Some members of the IIMI/ARTI team believe that the situation will continue to deteriorate without some extra help. Others believe that the situation will stabilize at a lower level of performance by the FOs and the system as a whole.

Most of the stronger FOs in the RS and PD sample were associated with the same set of supporting factors as those described for Kaudulla. For example,

- Both Ranketha and Nawajeevana FOs in Rajangana, an INMAS scheme, show the characteristics of strong FOs. In Rajangana, the system has sufficient water but requires some effort to distribute it; rehabilitation has made the systems easy to operate; and there have been supportive and active IMD and ID staffs. However, not all FOs in Rajangana are as strong as the two considered here.
- In Komarika Ela, an RS MANIS AB scheme, there is adequate water but a long canal requiring some effort to distribute water; the canals are in good condition because of a well-accepted IRDP funded rehabilitation; and, until recently, the FOs were supported by the ID Technical Assistant who served as an effective Project Manager. As a result, Kanugolla FO in Komarika Ela has taken over desilting of the MC and taken on other activities such as planting mango trees to help protect the canal bunds.

On the other hand, very little agency support has, in some cases, motivated farmers and led to good performance, though not always to strong FOs.

- In Abakolawewa, part of the Mee Oya scheme, an INMAS PD site, the FOs have taken over all water distribution, including operation of the tank sluices. Here, although a INMAS site, frequent changes of Project Managers, little presence of catalyst agents, no rehabilitation, and relative neglect by an Irrigation Department Division that deals with many separate systems, have led the farmers to take on the responsibilities themselves. The Abakolawewa FOs, however, show some but not all of the characteristics of strong FOs.
- Kotikapitiya, a MANIS C scheme studied in the LSS, is a case where there has been little agency support, and a weak formal FO structure, but the system is well managed by farmers. Kotikapitiya is a drainage scheme of Minneriya and thus has plenty of water. When there was a need for maintenance or a structural repair, the farmers as individuals get together to contribute labor or money or both as needed. The FO leadership is dedicated and educated and have made sure that the system operates even without ID help.

The above cases indicate that FO performance thus depends not only on FO strength but also on other factors, including availability of water and the physical condition of the system.

2.10 Farmer Organization Structure and Scheme Type

The INMAS organizational model is the model being used by all three programs for creating FOs. This model has the following key characteristics:

- FOs are created on hydrological boundaries.
- The lowest level unit is the field channel group (FCG), an informal group that distributes water on and maintains its field channel, and selects a Farmer Representative (FR) to lead the FCG and to speak for them.
- The FCGs on a distributary channel are to be federated into a distributary channel organization (DCO) which distributes water on and maintains the DC.
- The DCO is a formal and legally recognized organization that is governed by a committee made up of the Farmer Representatives from the FCGs. DCO officers are selected from among the FRs.

Reference has already been made to the fact that many FOs do not fit this model. In Section 2.8.1, it was pointed out that many FOs do not have FCGs. Here we explore some of the reasons for these and other variations on the INMAS model.

Bases for Farmer Organization The FOs in all of the INMAS and Mahaweli schemes are organized on the basis of the INMAS model. The INMAS model of a farmer organization presupposes the existence of field channels and distributary channels. Virtually all of the larger Dry Zone schemes have a structure with FCs and DCs. According to the irrigation officials interviewed in the LSS, all the INMAS and Mahaweli sample schemes have a canal network that includes at least, a main channel, distributary channels, and field channels. Therefore, all INMAS and Mahaweli schemes have formed their FOs on hydrological boundaries.

For INMAS schemes, FOs were initially based on field channels and then federated into distributary canal organizations. The same was true for FOs in Mahaweli System H and Uda Walawe. However, in the late 1980s, Unit based FOs were created in System B and System C. Those FOs have since been reorganized into ones based on hydrological boundaries like the INMAS FOs. However, as shown in Section 2.8, FO office-bearers in INMAS schemes told a slightly different story; only 70% of the

INMAS FO office-bearers said that their FOs had FCGs for field channels. On the other hand, 94% of Mahaweli system FO office-bearers said that FCGs were their basic unit of organization.

Many medium schemes do not have a canal structure with main canals, distributary canals, and field canals. Canal networks with all three exist in only 50% of MANIS AB sample schemes and in only 47% of MANIS C sample schemes. The non-existence of FCs and DCs make it difficult to organize groups based on FCs and DCs. For this reason, a large number of MANIS schemes are organized on other bases. Table 2.40 shows the bases of FO formation in MANIS schemes in the LSS sample as reported by the institutional development officers. The table shows that only 38% of all MANIS schemes have FOs organized on a hydrological basis. The reports from MANIS FO office-bearers gave very similar results to those shown in Table 2.40.

Table 2.40: Bases of Farmer Organizations for Sample MANIS Schemes

Formation Basis	MANIS AB Schemes		MANIS C Schemes		% of all MANIS
	N	%	N	%	
Hydrological	7	58 %	2	17 %	38 %
Village or Hamlet	2	17 %	4	33 %	25 %
Tract	3	25 %	2	17 %	21 %
Others	0	-	4	33 %	17 %

There are also other types of FO formation in MANIS schemes. Due to their own inherent characteristics and the farming community, a single FO has been formed in Radagalpotha and Mahananneriya, both MANIS AB schemes, and Kotikapitiya, a MANIS C scheme. While Radagalpotha and Kotikapitiya are water abundant drainage schemes, Mahananneriya is a water short scheme.

It is possible to identify some MANIS scheme types that differ significantly from the model of MC, DCs, and FCs. These include single main canal schemes, low country drainage schemes, kattimaru schemes, and schemes dependent on pickup anicuts.

Single Main Canal Schemes In 33% of the MANIS AB sample schemes and in 18% of the MANIS C sample schemes, there exists only a single long canal with few or no subsidiary channels. These schemes are mostly anicut schemes and are more common in the up-country. In this type of system, there is no hydrological basis for FCGs and DCOs. Instead, therefore, farmers have organized themselves on a village or tract basis. FOs in seven of the eight single main canal schemes in the LSS are organized on tract or village basis. The lone exception, Galgamuwa, a MANIS AB scheme, has some identifiable FCs.

Review of the RS data on similar schemes shows that there are variations on this theme. In Ma Ela, a single main canal scheme, the farmer organizations were formed on the basis of Grama Niladhari divisions. This decision was influenced by the small farmer development project conducted by DAS/FAO a decade ago. However, Ma Ela also has come under the Hanguranketha Water Management Project carried out by the Nation Builders Association. This program emphasized formation of FOs on hydrological boundaries; however, the farmers did not modify their FOs. Since the introduction of the MANIS program in Ma Ela, a renewed effort has been made to organize farmers on small hydrological units. However, farmers prefer to identify their FOs on the basis of Grama Niladhari divisions.

Murapola and Gampola Raja Ela are schemes where most of the fields are directly irrigated from the main channel through small off-takes that lead to very short channels not recognized officially as field channels. Each off-take has its own gate. In Murapola, the farmer organizations were formed by including several off-takes to form one organization. In Gampola Raja Ela, however, a tract basis was

used to form organizations. Some of the FOs actually include both farmers in the command and farmers outside of the command.

The Ma Ela example also points up the fact the officers charged with organizing farmers under the participatory management policy generally try to organize on a hydrological basis and, if possible, on the INMAS model. On the other hand, DAS officers and others may not be concerned with hydrological units. It is not surprising that most of the hydrologically based MANIS FOs are found in MANIS AB schemes where greater attention has been paid to the FO formation process by Irrigation Department staff even though the percentage of schemes with FCs and DCs is lower in MANIS AB schemes than in MANIS C schemes.

Low Country Drainage Schemes During the LSS, some MANIS C schemes turned out to be a distinct type. These schemes are located in the Wet Zone low country where drainage is just as important as irrigation. Four such schemes were found in the original MANIS C sample. Unfortunately, only one of the four, Bentota Right Bank, could be included in the final sample. No examples were included in the RS and PD samples. Therefore, we have very little information about these schemes even though they seem to form an important group of MANIS C schemes.

There are 20 FOs in Bentota Right Bank Scheme, all organized on tract basis. They are not generally concerned with water distribution but they are concerned with maintenance of the channels and with non-O&M activities. The channels are mainly important as drains. In these circumstances there is no need for hydrologically based groupings and any basis familiar to the farmers could be chosen.

Kattimaru Schemes The canal network is not the only factor that affects the suitability of the INMAS model. Land tenure too may play an important role. One such case, Mannankattiya, was found from the MANIS RS and PD studies.

At Mannankattiya, there is an old irrigated area and a new irrigated area. The old area, the Raja Ela command, has a complex land tenure pattern related to the settlement pattern. Along the Raja Ela and a parallel shorter main canal called the Meda Ela, land has been divided into sections named for the places of origin of the groups of settlers. The sections are rectangular strips of land placed perpendicular to the two canals and crossing both. Generally there are two sections for each of the five groups of settlers. Many farmers have land in both sections identified with their group. With each section, land is arranged in strips running across the full width of the area irrigated by the two canals. The point is that when water is short, whole sections can be cut and the shortage is still distributed more or less evenly among the farmers. The Mannankattiya old area land tenure system is similar to the traditional "kattimaru" system described by Leach (1961).

In this case, most farmers own land in two or more places, thus greatly complicating membership in hydrologically defined FOs. Until 1993, the Mannankattiya scheme had been operated, including the main sluice, by five Vel Vidanes selected to represent the five settlement groups. The earliest FOs developed there in 1990 were based on the land sections in the old area. However, in August 1993, Institutional Organizers assigned by NIRP reorganized the FOs on an explicitly hydrological basis, even though this meant that many farmers must be members in more than one FO. As a result of this and other factors, including the continued existence of the Vel Vidanes, the sudden presence of Irrigation Department officers to operate the scheme while NIRP rehabilitation is going on, and the existence of another larger farmer organization created by the Department of Agrarian Services, the FOs have not taken on any important functions other than assisting in rehabilitation nor do they show many signs of strength.

Systems dependent on Pickup Anicuts Another type of scheme identified during the study includes the schemes in which water from a tank is released into a natural stream bed and picked up by anicuts for delivery to the fields. Mediyawa, Mahananneriya, and Wennoruwa from the RS sample all belong to this category.

In these schemes, the organizations are based on hydrological units, ie the command irrigated by one anicut is taken as a farmer organization area. In both Mediyawa and Mahananneriya, however, there is also an system level farmer organization at system level to coordinate water distribution to the anicuts. These two schemes, unlike Wennoruwa, suffer greatly from water shortages and damage to the anicuts and other parts of the system. In these schemes, a form of the INMAS model modified to deal with the varying commands under the anicuts can be successfully applied.

Usefulness of the INMAS Model of Organization These various examples of MANIS schemes show that the INMAS model of farmer organization is not universally appropriate. In single main canal schemes, an important and common type of scheme, as well as in the less common low country drainage schemes, kattimaru schemes, and schemes where internal distribution depends upon pickup anicuts, the INMAS model must be modified to fit the scheme structure or the land tenure system to make the FOs effective in water management.

The INMAS model was primarily developed to form FOs to overcome water shortage situations in a specific type of scheme, it can be successfully implemented to solve water distribution problems found in INMAS and Mahaweli systems in the Dry Zone. However, the needs for organization may be different. If water is abundant, as in Kotikapitiya, or where drainage is the problem, as in Bentota Right Bank, there may be no strong need to introduce a formal organization system to manage different aspects of water management. Similarly, in Ambewela and Murapola the major problem for the farmers was marketing of vegetables. In such cases it would be advisable to organize farmers to overcome their marketing problem and get the same organization to attend to water distribution as a subsequent priority.

This discussion suggests that the INMAS organizational model should not be taken as a blueprint for forming FOs in all schemes. The internal structure of the FOs should be adopted both to the system characteristics and to the primary management needs of the farmers.

2.11 Social, Economic and Political Influences on FOs

This section discusses social factors hypothesized to affect the strength and performance of farmer organizations. The three factors discussed are:

- Ethnic groups and castes
- Land tenure
- Interventions in FO affairs by outsiders.

Each is taken up separately below.

2.11.1 Ethnicity and Caste

For security reasons, all of the data collection was conducted in predominantly Sinhala areas. In some schemes, particularly INMAS and the Mahaweli schemes, settlers are mostly Sinhalese but there are significant groups of Tamil and Muslim farmers. Sinhala and Muslim farmer membership of one farmer organization was reported in Kaudulla and Wennoruwa.

RS and PD observations indicate that multi-ethnic FO membership usually does not hinder FO activities. However in Wennoruwa, Sinhala and Muslim communities have clashed over construction of a cemetery by the Sinhala community. This rivalry spread to FO activities. When a Muslim person was nominated for the post of Vice President, the Sinhala community nominated a Sinhala farmer to oppose the Muslim candidate for ethnic reasons. Wennoruwa, in fact, is the only scheme which had a large population of Muslims (86%) among the Recurrent Survey sample. In Tabbowa, there is a small number of Tamil farmers. There was no conflict between the two communities in FO activities or otherwise. The majority Sinhala community gave protection to the minority Tamil community during 1983 ethnic disturbances in Tabbowa.

The majority of sample farmers in the LSS belong to the high *Govigama* (cultivator) caste, while a significant minority in some places were found to be the low "*Padu*" (*Salagama*) caste. The non-Govigama caste members were most prominent in Tabbowa, where 32% of the Thewanuware DCO belonged to Padu caste and 6% belonged to the lower Hali caste. In Mahananneriya, though a *purana* village, many outsiders have bought land recently. These outsiders belong to different castes.

Farmers did not report any obstacles to FO development due to caste differences. The best example for this statement comes from Tabbowa. In the Thewanuware DCO in Tabbowa, both the recently appointed Chairman and Treasurer belonged to the low Padu caste. However, the Chairman participates in all official and social functions in the village without being treated differently due to his caste.

2.11.2 Land Tenure

The land tenure system in the country includes owner-cultivation, government allotment, different forms of leases, and encroachers. In many MANIS schemes, there has been subdivision of lands leading in some cases to very small holdings. These are made economic through lease arrangements or through *thattimaru* systems where shareholders in a piece of land alternate cultivation. In almost all INMAS and Mahaweli schemes, land is still officially the property of the government and has been allotted to settlers under many restrictions. However, due to population growth, there is a high rate of sale, mortgages and encroachments of land as well as landlessness among 2nd and 3rd generation settlers.

Table 2.41 shows the land tenure reported by the LSS sample farmers. As shown in this table, most land is cultivated by owners or allottees. In Mahaweli schemes only 22% of the lands are cultivated by non-owners or non-allottees. INMAS schemes have a significant percentage of encroached land while MANIS schemes have a significant percentage of sharecropping (*ande* tenants).

Table 2.41: Land Tenure in 1994 Yala (percentage of total reported area)

Land Tenure	INMAS	MANIS AB	MANIS C	Mahaweli
Owner (allottee) cultivated	68 %	74 %	62 %	78 %
Mortgage	2 %	2 %	0 %	5 %
Short term mortgage	6 %	2 %	0 %	4 %
Lease	2 %	0 %	-	3 %
Ande tenants	9 %	21 %	32 %	4 %
Encroached	14 %	2 %	5 %	6 %

According to the constitutions of most FOs, to be a member of the FO one has to be the owner or allottee or *ande* cultivator of the land. In most INMAS FOs, all farmers cultivating lands are offered membership in the organization irrespective of land tenure arrangement. In most MANIS schemes, only tenants and owners of land are given membership. In Mahaweli FOs, generally only owners and

allottees are offered membership although in Galnewa and Uda Walawe some encroachers and ande tenants have also been able to obtain membership. Table 2.42 shows the distribution of land tenure membership criteria among LSS sample FOs as reported by the office-bearers.

Table 2.42: Land Tenure Criteria for Farmer Organization Membership

Land Tenure Category	INMAS (N=61)	MANIS AB (N=24)	MANIS C (N=24)	Mahaweli (N=63)
Landowners or allottees	41	20	17	63
Share owners	24	5	3	6
Ande tenants	28	14	15	3
Lessees	15	1	1	-
Mortgagees	11	-	2	1
Encroachers	10	-	1	7
Others (inc all farmers)	13	5	9	12

The multiplicity of the land tenure arrangements has led to problems in the implementation of participatory management. A common reason for non-participation of farmers in maintenance activities is tenure. Table 2.43 shows the reasons for farmers not participating in maintenance given by LSS sample FO office-bearers. This table shows that nearly 40% of the FOs report lack of attendance to maintenance tasks by short term lessees. Farmers from both Mahaweli and INMAS schemes do not participate in maintenance activities due to either lack of knowledge or their dislike or mistrust in group activity. Many farmers among this group are either short term lessees or encroachers. 79% of FOs report problems in getting maintenance activities performed because of the tenure arrangements and being only a part time farmer. Short term lessees or those with insecure tenure like encroachers try to cultivate with the least investment, which means the least amount spent on maintenance.

Table 2.43: Reasons Cited by FOs for Farmers not Participating in Maintenance Activities

Program	Non-settler	Renter	Encroacher	Sub-family*	Part-time farmer	Ignorance	Social-political factors	Distance**
INMAS	14	19	9	10	15	30	9	5
MANIS AB	-	-	-	-	-	4	-	1
MANIS C	2	2	-	-	3	6	-	1
Mahaweli	14	31	3	2	4	35	2	1

* Refers to persons cultivating relative's, generally parents', land who lets the relative take on all responsibilities.

** Distance from residence to irrigated land.

In addition to lack of maintenance, land tenure affects other aspects of FO performance:

- Violation of irrigation schedules are found. For example, in Muruthawela and Dewahuwa schemes, lessees have refused to abide by schedules arguing that since they have a financial deal with owners, profit is their main concern.
- Lack of concern with the sustainability of the system is common among those with insecure tenure. In schemes where there are large land owners who have put the land under various tenant agreements, there is a general lack of cooperation in FO activities which is proving to affect the working of the FO. For example, in Mahananneriya, 100 acres of the 350 acres under this scheme is cultivated by ande farmers. These farmers do not do any maintenance in their areas but they do attend to the maintenance of the anicuts.

In some cases, these problems have been overcome:

- In Tabbowa (Perakum FO), the ande farmers who do not attend shramadana activities, pay for labor.
- In Rajangana (Ranketha), the organization did not face problems with farmers who are not members of the FO, as the land owners have taken responsibility for implementing the DCO decisions with regard to O&M activities.

Fragmentation and subdivision of lands have led to problems. Eksath FO (Dewahuwa) is a case where there were 137 original land owners. Now there are 288 because of the fragmentation of the land among the present generation. Though all cultivate the lands they cannot all be included in the FO which then creates problems where FO decisions have to be followed by the farmers in that DCO. This problem is now also found among Mahaweli farmers.

2.11.3 Outside Interventions

The different types of intervention in FO affairs by outside forces can be broadly categorized as follows:

- Interventions by outside politicians
- Internal politics allied with line agencies
- Interventions from FO members allied with powerful outsiders

In INMAS schemes influences from ministers and local political leaders have affected FO activities:

- In Perakum FO (Muruthawela), both the MP and Minister of the area have interfered in water distribution. At a PMC meeting, a decision was taken that 200 hoses used for illegal water tapping were to be taken into custody. Due to pressure and interference from the politicians, these were handed back to the owners.
- In Rajangana (Nawajeevana FO), the Minister ordered the construction of a new tank in order to irrigate 50 acres of bare land. The proposal included a construction of a new canal to supply water to the tank which would affect the water supply to the rest of the farmers during the Yala season.

There have been instance where officials from line agencies have used their official positions to create problems for the organizations.

- In Muthukandiya (Sri Vijithapura FO), the Agrarian Services Divisional Officer (DO) of the area was the sole fertilizer agent, but with the formation of the FO it also began selling fertilizer. This led to a drop in sales for the DO, which has led him to be interfere in the FO's getting fertilizer from the Agrarian Services Centre.
- In Nawajeevana FO (Rajangana), traders who are also members of the FO criticize the FO activities since they have had a drop in sale of inputs due to the competition from the organization.

Another slant to official interference from agencies is in the election of office bearers of organizations, where pressure is applied to elect supporters of politicians.

- In Dewahuwa (Eksath FO), the DO was a strong supporter of the ruling party while the Chairman and Secretary of the organization are on the opposite camp. This has led the DO, who is now a Pradeshiya Sabha member, to develop another organization and assist this organization while curtailing assistance to the Eksath FO.

- In Kaudulla (Eksath FO), Pradeshiya Sabha members have interfered in organizational activities or tried to bring pressure through the area police. This has led to disunity among the farmers in the organization.

Powerful farmers in organizations have interfered in activities which has been detrimental to the progress of the organization.

- In Wennoruwa (Udawalpola FO), the Work Supervisor of the scheme is also a member of the FO. This has led to a pull for power between the WS and the FO President.
- In the same organization, the general elections of 1994 brought the activities of the FO to a standstill as all the office bearers were strong political party supporters. This led them to neglect FO work for election work.
- In Mahaweli System C, the unit level farmer organizations that formerly existed were started by the MEA officers who were heavily involved in party politics. This led to local political leaders becoming leaders of the FOs. In the recent restructuring of FO's, a majority of the leaders have been reelected.
- In System H, there was no apparent political intervention as in System C, but the DCO leaders are leaders who have helped MEA officials as turn out leaders since 1980. Outside interventions came in the form of the original selection of turn out leaders being affected by district level politicians.

When there is interference from political forces or outside sources, it affects the unity and progress of FO activities. Though each individual has a right to his own political ideology this should not be used in the activities of the farmer organization. Despite these incidents, most FOs have been largely free from problems due to outside interference. In part this has been because of their political unimportance. As their power grows, however, there may be an increase in the number of problems.

2.12 Farmer Organization Legal Status

At the time of formation of farmer organizations, legal authority for farmer organizations was not thought essential because it was believed that the group social strength would provide the authority needed. In addition, it was felt that it would be better to experiment first before codifying participatory management into law. However, for the past few years, it has been realized that the FOs need some sort of legal authority to function efficiently; in many cases, social pressure needs legal backing.

2.12.1 Enforcement of Farmer Organization Decisions without Legal Powers

During the Recurrent Survey, many FOs said that they do not have adequate legal authority to reprimand defaulters. Almost all FOs have realized that legal authority was essential to get farmers to work to the decided schedule in all activities although a few FOs have been able to enforce sanctions even without legal backing. Some cases where FO had imposed sanctions against farmers are:

- In Tabbowa, Parakum FO has taken action against cattle damage; the Grama Niladhari was fully supportive in this case.
- In Kaudulla, Eksath FO has sealed off the inlets of those farmers who did not agree to *bethma* cultivation.
- In Rajangana, Ranketha FO has sealed off pipe inlets of those who do not abide by rules. The FO has also imposed fines of Rs 100 each from those who do not clean their part of the DC.
- In Tabbowa, Parakum FO decided to seal off the pipe inlet of those who do not do canal cleaning. However, this is not possible to do at times, especially when one pipe inlet feeds land owned by more than one farmer.

- In Komarika Ela in 1992, Kanugolla FO decided to impose a fine of Rs 100 per day on those who did not participate in the shramadana to construct a new canal. Six farmers did not pay. In response, during 1993/94 Maha, the FO sealed off their pipe inlets. Subsequently three farmers paid and the remaining three requested more time.
- In Wennoruwa, Udawalpola FO decided to impose a fine of Rs 50 from those who do not maintain the canals and Rs 150 from those who do not participate in shramadana. However, it has not been implemented.

Though these actions had no legal support, they have been implemented with a certain degree of success. Strong leadership has been a major factor in most of these cases. In contrast, in Wennoruwa farmers do not comply with FO decisions. Thus the FO has to seek the assistance of the Grama Niladhari to settle problems. The Vice Chairman of the FO is the former Vel Vidane. Under the Paddy Lands Act of 1958, now replaced by the Agrarian Services Act of 1979, he had legal powers to fine farmers. Now he complains of inadequate authority.

In Mahaweli systems, legal authority does not appear to be a serious concern at present. Most of the FOs are registered under MEA, and they act according to their own constitution. They too have fines for defaulters but in most cases the fines have not been imposed.

2.12.2 Legal and Official Recognition of Farmer Organizations

Under participatory management, the FOs have to work together with government agencies. To do so, they must be recognized by the agencies.

The key agencies are the Irrigation Department and Irrigation Management Division in INMAS and MANIS schemes, and the Mahaweli Economic Agency in Mahaweli schemes. The Department of Agrarian Services in many places also recognizes the FOs in order to deal with them concerning input supplies. Some banks, through the intercession of the IMD, recognizes many INMAS FOs. Other agencies do not pay much attention to FOs in their routine functions. The present state of recognition as stated by LSS sample FO office-bearers is given in Table 2.44.

Not unexpectedly, Mahaweli FOs are recognized by MEA divisions, banks, and by local government authorities but not by other agencies. Irrigation Department FOs are recognized by the other agencies but not by MEA.

Recognition is increasing. For example, in Radagalpotha, a MANIS scheme, the Crop Insurance Board gave authority to the FO to assess crop damage in 1993/94 Maha. With time and functional stability, FOs will be recognized by most line agencies and rural institutions. However, this process can be expedited if national level recognition is given to FOs by accepting participatory management as the mode of future irrigation management.

2.12.3 Legal Registration of Farmer Organizations

To enter into contracts with FOs, the Irrigation Department and Irrigation Management Division began registering FOs. Later MEA began doing the same for the same purpose. However, recognition by agencies or registration with ID, IMD, or MEA does not constitute legal recognition. To remedy this situation, in 1991 the government amended the Agrarian Services Act of 1979 to provide legal recognition of FOs. Specifically, clauses 56(a) and 56(b) were added. Both permit the Commissioner of Agrarian Services to recognize an FO. This provides a simpler alternative to registration of an FO under the Companies Act.

Table 2.44: Recognition Agencies as Reported by the Farmer Organizations

Agency	INMAS (N=61)	MANIS AB (N=24)	MANIS C (N=24)	Mahaweli (N=63)
Irrigation Department	93 %	87 %	87 %	-
Irrigation Management Division	92 %	13 %	12 %	-
Agrarian Services	88 %	87 %	84 %	6 %
Divisional Secretary	80 %	69 %	83 %	24 %
Grama Niladhari	82 %	78 %	69 %	62 %
Banks	69 %	69 %	48 %	71 %
MEA/IDU	-	-	-	95 %
MEA/Irrigation	-	-	-	92 %
MEA/Agriculture	-	-	-	92 %

By registering under 56(a) of the amended Agrarian Services Act of 1991 a FO becomes eligible to perform the following functions:

1. Preparation of a agricultural implementation schedule for the FO area of jurisdiction.
2. Attending to improvements (repairs) to irrigation physical system within the area of jurisdiction.
3. Attending to sales of produce and distribution of agro-chemicals and fertilizer within the FO area.
4. Coordinating agricultural activities in the area and improving the relationship between the farmers and state agencies.
5. Any other activity authorized by Commissioner of Agrarian Services and intended to be beneficial to farmers.

Registration under clause 56(b) permits an FO to enter into legally enforceable contracts and to be recognized by the courts. However, the requirements for registration under clause 56(b) are more stringent than for registration under clause 56(a). One requirement is prior registration under clause 56(a) for at least six months.

Normally, registration under either clause is handled by the Assistant Commissioner of Agrarian Services in the district. In Mahaweli schemes, the powers of the Commissioner of Agrarian Services are delegated to the Resident Project Managers of the MEA.

Complying with the registration requirement, FOs from the three programs have registered with respective agencies. Table 2.45 shows the present (as of Yala 1994) status of registration as reported by LSS sample FO office-bearers.

Table 2.45: Percentage of Farmer Organizations Registered

Type of Registration	INMAS	Mahaweli	MANIS AB	MANIS C
Clause 56(a)	62 %	68 %	69 %	64 %
Clause 56(b)	20 %	-	-	-
ID	49 %	-	74 %	48 %
IMD	64 %	-	-	-
MEA	-	32 %	-	-

As shown in Table 2.45, most of the FOs registered under their respective implementing agencies have also registered with the DAS. It is encouraging to note that more than 60% of FOs in all programs have registered under 56(a) of the Agrarian Services Act. Table 2.45 does not indicate any DCO registered under 56(b) in the Mahaweli, MANIS AB and MANIS C programs. In fact, one FO under each program was registered under 56(b) but does not appear in Table 2.45 because of rounding off. Overall, only 11% of the FOs from the total sample were registered under 56(b).

2.12.4 Amendment to the Irrigation Ordinance Act No. 13 of 1994

Registration under clauses 56(a) or 56(b) of the Agrarian Services Act does not give the FOs any particular powers to enforce their decisions with regard to irrigation management. To rectify this situation, the Irrigation Ordinance was amended in 1994. With this amendment, FOs were given the status enjoyed by Cultivation Committees under the Irrigation Ordinance of 1968. Cultivation Committees, however, no longer legally exist. With Cultivation Committee status, FOs have the authority to take action against those who do not comply with FO orders.

The amended Irrigation Ordinance authorizes the FOs to take over O&M of their areas. In return they are exempted from paying irrigation rates. This amendment thus also provides the legal basis for turnover that underlies the 1988 Cabinet Paper on participatory management. The Ordinance also authorizes FOs to impose a levy on the farmers to cover O&M of the distributary canal system and any other cost for work that may be beneficial to the farming community under area of authorization. It also specifically gives the FO the power to fine those who do not comply with FO decisions. This authority vested in the FO by the amended Irrigation Ordinance may solve the problems of lack of authority raised by most farmer organizations. However, some are concerned because it does not provide the FO with the legal power to deny water to defaulters.

Although not stated in the Ordinance, it is expected that the Ordinance confers these powers only on legally recognized FOs, that is on FOs registered under clause 56(b) of the Agrarian Services Act or, possibly, under the Companies Act.

To date there is no information about the effect of this law. At present, most FOs are not aware of the authority given by the amended Ordinance. It will take some time for them to learn of the authority they now have from the amended Ordinance.

Though FOs have been critical about lack of authority, they also say that, they would like to settle disputes of defaulters amicably. FOs are undecided as to which action they should take in solving disputes. One reason for reluctance to use punishments is a reluctance to weaken the spirit of cooperation that IOs and others have tried to instill in the FOs. In addition, the FOs may be subjected to political pressures if they attempt to penalize farmers. It may be very difficult to fine a large number of farmers for not attending shramadana or to take a large number of farmers to court.

2.13 Overall Evaluation of Farmer Organizations

Approximately 85% of the 199 major and medium irrigation schemes under the INMAS, MANIS and Mahaweli participatory management programs now have farmer organizations. This is good progress.

However, the FOs vary greatly in many characteristics, including basis for organization, size, strength and performance. With regard to performance, the study shows

- FOs are quite successful at distributing water, although they do not achieve perfect equity even within their own areas. Many have shown ability to manage distribution effectively not only on FCs

and DCs but also at higher system levels. In Mahaweli schemes, however, operations are still dominated by MEA staff and have resulted in a lower degree of satisfaction with water distribution than in INMAS and MANIS schemes. FOs are beginning to take on more distribution responsibilities in Mahaweli schemes.

- With regard to maintenance, FOs generally do jungle clearing and desilting well. For the most part they do not take on other maintenance tasks. However, irrigation officers are not satisfied with the maintenance. It is probable that without FO involvement, maintenance would have been even less well performed because of the low maintenance allocations given to the Irrigation Department. The irrigation agencies continue to provide resources to the FOs to undertake maintenance. While some argue that the FOs will not be able to raise these resources by themselves, giving them government resources also raises the expectation that the government will continue to subsidize their activities.
- A minority of FOs have taken up business activities of various kinds. While many are successful, the degree of success varies.

Overall, the most successful FOs are those in the INMAS program, although there are some FOs in both of the other programs that are as effective as any in the INMAS program.

Farmer organization strength, term used here to refer to the ability of an FO to govern itself and mobilize resources, varies also. Again, INMAS FOs generally show the greatest strength.

The farmer organization structure varies with the structure of the physical system and vary greatly in activities and capabilities. There is a need to reconsider the use of the INMAS organizational model for many MANIS schemes for which the INMAS model is not appropriate.

The activities and capabilities of farmer organizations depend not only on experience of the organization but also on the strength of leadership, interest and dedication of the members and involvement and support of the agency staff. The condition of the physical system and agency support are of great importance also.

It is clear that there are large differences between the programs with respect to FO strength and performance. The differences can largely be attributed to differences in the level of inputs to participatory management given by different implementing agencies and to the effective age of the program. INMAS and Mahaweli have had more resources than MANIS for institutional development, with the result that these two programs show better results overall than does MANIS. The INMAS program is older than the Mahaweli program in its present form, thus partly explaining the fact that INMAS FOs do better than do Mahaweli FOs.

However, while resources are essential to develop FOs, improper use of the resources can create dependency. Thus, implementing agencies should be mindful of this fact and should attempt to create self-reliant and independent organizations to serve both the farmers and the nation more effectively.

CHAPTER 3

JOINT MANAGEMENT COMMITTEES

3.1 Basic Features of Joint Management Committees

3.1.1 *Objectives of Joint Management Committees*

Joint management committees (JMCs), comprising farmers and agency officials, have been established to plan, implement, and oversee all seasonal activities and management of major irrigation schemes. The JMC acts as the chief coordinating body for the two major stakeholders involved in participatory irrigation management: agencies and farmers.

Prior to the introduction of participatory management, it was not necessary to establish joint management committees because farmers were viewed as beneficiaries rather than active partners in management. The only forum that existed for agencies and farmers to share their views prior to participatory management was the kanna meeting. The kanna meeting was generally not a forum in which farmers and agency staff could interact effectively over scheme management (see Murray-Rust and Moore 1983). This was mainly due to the following reasons:

- Kanna meetings were held to decide important dates for cultivation activities for the forthcoming season and not to discuss other management aspects of the scheme such as O&M plans, etc.
- Kanna meetings were usually attended by a large number of farmers and were too unwieldy to be used as a forum for discussions on management.

Establishment of JMCs fulfilled the need for a coordinating body. The establishment of JMCs:

- Provided opportunities for FOs to nominate a representative to present their concerns at a decision making body like the JMC,
- Provided a forum for the two groups to meet on a regular basis to discuss and resolve problems on a formalized basis.

3.1.2 *Structure of Joint Management Committees*

Section 3.2 describes the structural differences of JMCs in each of the three programs. The general structure of the JMCs as applicable to all systems is described below.

Three different features of the JMC structures are discussed here.

- **Membership** JMC membership includes Farmer Representatives representing the farmer organizations in the scheme or subarea, and officers from the government agencies directly and indirectly involved in the management of the scheme, such as irrigation agencies, banks, agriculture insurance agencies, and others. The local area administration is represented in the JMCs by Grama Niladharis or Divisional Secretaries.
- **Physical Area Represented** Size of the scheme and hydrological boundaries are the basic criteria considered in establishing a hierarchical structure for JMCs. The following categories of JMCs exist at present.
 - Single JMC representing the entire scheme (for small schemes).
 - Project and sub-project level JMCs (for large schemes).

- Project level, sub-project level, block level and unit level (for the very large Mahaweli projects).
- **Relationship of JMCs to the Irrigation Agency and FOs** The JMC provides a forum for both line agencies such as ID, DOA, DAS, IMD, etc, as well as farmers, represented by FRs, to voice their concerns at the regular meetings organized by the JMC. This provides an opportunity for both parties (management agencies and farmers) to build a good working relationship, in the management of the schemes.

3.1.3 *Roles and Functions of Joint Management Committees*

The roles and functions as described in the planning documents of participatory irrigation management approach (INMAS Information Booklet No. 2 and MEA's document on the introduction of participatory management in Mahaweli schemes) can be summarized into two main categories:

- Seasonal planning
- Monitoring and evaluation of cultivation programs.

These are described in more detail below.

Seasonal Planning A major function of the JMC is to make decisions on the seasonal cropping program for the scheme and on water allocation and coordination of various resources for the seasonal cropping program. The following specific activities are carried out by JMCs under the above function.

- **Resource Allocation** JMCs are responsible for the allocation of three major resources in an irrigation scheme: land, water, and funds. The JMCs decide on the area to be cultivated, and the locations under the command that will receive water. This decision is based on the availability of water resources. Allocation of water for cultivation in terms of quantity and timing is decided by the JMCs. JMCs are also supposed to decide on how agency funds are to be allocated for scheme maintenance and operations.
- **Input Coordination** JMCs prepare plans to coordinate the input delivery programs of various line agencies which are expected to provide specific inputs for the seasonal cultivation program. The agency and the nature of inputs are as follows:
 - Irrigation Department: Money, technical assistance, water and land
 - Department of Agriculture: Technical advice
 - Department of Agrarian Services: Legal support for FOs, other inputs like seed, fertilizer, agro-chemicals, etc
 - Banks: Credit

In Mahaweli systems JMCs coordinate the delivery of services provided by the following divisions of the MEA:

- Water Management Division: Money, technical advice, water and other equipment for O&M
- Agricultural Division: Technical advice
- Institutional Development Unit (IDU): Strengthening of FOs
- Marketing: Support to FOs for marketing, etc (inputs and production)

JMCs are expected to coordinate with all of the above agencies in arranging delivery of these inputs to the FOs.

- ***Monitoring and Evaluation of the Cultivation Program*** Monitoring and evaluation is another important activity undertaken by JMCs during the cultivation season. Once the resource allocation and input coordination functions are taken care of in the initial stage of seasonal planning, the JMC begins monitoring and evaluation of the input delivery process by the agencies and of cultivation by the FOs. Monitoring and evaluation by the JMCs is facilitated by the following:
 - Both agency representatives and Farmer Representatives on JMCs are responsible for implementation of the decisions taken at the JMCs. Since they are personally involved in the decision making process they know the details and the rationale of such decisions.
 - Regular meetings of the JMC provide opportunities for follow up and monitoring and evaluation activities.

3.2 Joint Management Committees in the Three Programs

3.2.1 Joint Management Committees in INMAS Schemes

JMCs in INMAS schemes have a long history compared to the other two programs. The specific features of the INMAS JMCs are discussed under two aspects: structure and roles and functions.

INMAS JMC Structure The representatives of the following agencies are involved in project level JMC activities:

- Irrigation Department: Technical Assistants and Irrigation Engineers
- Department of Agriculture: Agricultural Instructors and Agricultural Officers
- Department of Agrarian Services: Divisional Officers
- Land Commissioners Department: Colonization Officers and Land Development Officers
- Agriculture Development Authority : Managers

The JMC structure depends on the size of the scheme. There is always at least one JMC, called the Project Management Committee (PMC). If it is a large scheme, say over 20,000 acres, then JMCs may also be set up for hydrologically defined subareas within the scheme, particularly if the subareas are socially or hydrologically quite distinct. These JMCs are called Subproject Committees (SPCs). SPCs are subordinate to, and send representatives to, the PMC. Generally, SPC meetings are held prior to PMC sessions and the concerns of the SPCs are forwarded to the PMC.

Farmer representation depends on the size of the scheme. If there are SPCs, the number of FRs to be represented at the PMC is decided by these SPCs. However, JMC guidelines for INMAS recommends that in any INMAS system the total number of FRs represented at PMC should not be less than 15 and should exceed the number of officers.

IMD guidelines for INMAS suggest that at the initial stages of operation of the JMCs, the IMD Project Manager should chair JMC sessions. At later stages when FRs develop their capabilities, then FRs should be selected to lead the JMC sessions. In such an event, the IMD Project Manager functions as the secretary to the JMC sessions.

When originally instituted, the PMC of each scheme was also linked to the District Agricultural Committee. In every case, the IMD Project Manager sat on this committee and in some cases Farmer Representatives were also invited. However, because of the devolution, districts are no longer functional governing units and this linkage has ceased to have any importance.

Functions of JMCs in INMAS The functions of JMCs in INMAS schemes are more or less similar to the overall functions described in section 3.1.3. The JMCs generally meet each month to discuss irrigation and other agricultural issues. The implementation of the functions of JMCs differ from scheme to scheme and is discussed in greater detail in sections 3.3 to 3.6.

3.2.2 Joint Management Committees in MANIS Schemes

A single project level JMC, called the Project Management Committee (PMC), has been established in most schemes under the MANIS program. Because of the small size of the schemes, there are no subproject committees.

Structure of MANIS PMCs As in INMAS schemes, membership includes both Farmer Representatives in the scheme and officers from the relevant agencies. The MANIS Project Manager, generally the ID Technical Assistant in charge of the scheme, chairs the PMC. The basis of farmer organizations differs from scheme to scheme and therefore different types of FRs attend. They include FRs from FOs based on hydrological units as well as FOs based on tracts or welas (old Vel Vidane units).

On the agency side the main role is played by ID, because the ID TA acts as both Technical Assistant and Project Manager. Line agency officials from DOA, DAS, as well as representatives from other agencies such as the State Banks, Agriculture Insurance Board and Grama Niladharis are also expected to attend the PMC sessions.

Roles and Functions of MANIS PMCs Like INMAS JMCs, MANIS PMCs are expected to meet each month, to prepare seasonal plans, to monitor seasonal progress, and to solve problems during the season.

3.2.3 Joint Management Committees in Mahaweli Systems

Although the Mahaweli system initiated farmer involvement in system management in the 1980s, no attempts were made initially to establish JMCs. Beginning in 1992, the Managing Director of MEA set in place an effort to reorganize participatory management in Mahaweli schemes. Under this program, it was decided to establish joint management committees to coordinate participatory irrigation management activities. Mahaweli JMCs are described under two aspects: structure and functions.

Structure of Mahaweli JMCs A four tier structure has been set up for the JMC in Mahaweli systems to make it compatible with the hierarchy of the MEA organization. The tiers starting with the lowest level are:

- Unit Coordinating Committee (UCC)
- Block Coordinating Committee (BCC)
- Subproject Coordinating Committee (SPCC)
- Project Coordinating Committee (PCC)

Subprojects are not an MEA management unit; generally The SPCCs cover an area consisting of two Blocks.

The following arrangements for official MEA representation have been made at different tiers of JMCs.

- **Unit Coordination Committee** Membership includes the MEA Unit Manager, Unit Field Assistant, and the Unit Technical Officer. The UCC is chaired by a Farmer Representative and the Unit Manager serves as secretary.
- **Block Coordinating Committee** Membership includes the Block Manager, Block Irrigation Engineer, Block Agricultural Officer, Block Land Officer, Block Institutional Development Officer, Block Community Development Officer, Unit Managers, Engineering Assistant(s), Technical Officers, and Field Assistants. The Block Manager chairs the BCC and the Block IE serves as secretary.
- **Sub-Project Coordinating Committee** Membership includes the Deputy Resident Project Manager (Agriculture), Project Irrigation Engineer, and relevant Block Managers, Community Development Officers, Block IEs, and Block Land Officers. The DRPM (Agriculture) chairs the SPCC and the Project IE serves as secretary. SPCC sessions are held in the Block offices within the SPCC area on a rotational basis. Therefore, at each SPCC session, Engineering Assistants of the Block where the meeting is held also attend SPCC meetings.
- **Project Coordinating Committee** Membership includes the Resident Project Manager (RPM), Deputy Resident Project Manager (Water Management), all other DRPMs, Project Irrigation Engineers, Project Land Officers, Block Managers, IDOs, and the Assistant Manager (Institutional Development). The RPM chairs the PCC and the DRPM (Water Management) serves as secretary.

The farmers are represented as follows:

- **Unit Coordinating Committee** Membership includes the president, secretary and treasurer from each FO within the Unit.
- **Bloc Coordinating Committee** Membership includes three FRs from each UCC.
- **Sub-Project Coordinating Committee** Membership includes three FRs from each BCC, ie 6 FRs from two blocks.
- **Project Coordinating Committee** Membership includes three FRs from each BCC.

Functions of JMCs in Mahaweli The nature and functions of Mahaweli JMCs are similar to the roles and functions of JMCs described in section 3.1.3. The Mahaweli approach is more complicated from that taken in the other two programs, due to the hierarchical nature of the JMC and MEA structure.

- Seasonal planning starts from the bottom level committees, ie the UCCs. The inputs for unit level seasonal planning are provided by FRs and field level officials who represent the agency. Each UCC prepares tentative plans for the cultivation season based on the concerns of the FRs and agency officials of the particular unit. This tentative seasonal plan is then forwarded to the seasonal planning sessions of the BCC. The BCC prepares its tentative seasonal program for the block based on the inputs provided by all the UCCs in the block and then takes the plan to the PCC. The PCC receives inputs from all the BCCs in the scheme for use in developing a scheme level plan. The process of seasonal planning explained above can be summarized in the flow chart in Figure 3.1.
- UCCs, BCCs, and SPCCs meet each month to monitor the performance of the ongoing cultivation season. PCCs generally meet each quarter. JMC sessions are scheduled so that monitoring of seasonal agricultural activities starts from UCC and goes up to PCC. Since agency officials and FRs who are supposed to implement the seasonal activities attend the JMC meetings at each level, JMCs can focus on the real problems they face. The existing monitoring and evaluation procedures followed by the JMCs in Mahaweli systems is shown in Figure 3.2.

3.3 Findings

3.3.1 Existence of Joint Management Committees

Both the Mahaweli and INMAS programs have been able to establish JMCs in all schemes. The MANIS program has not been able to achieve the targets set. Data from the LSS first round survey showing the success achieved by the three programs in establishing JMCs is shown in Table 3.1.

Table 3.1: Existence of Joint Management Committees

Program	Sample Schemes	Schemes with JMCs	% with JMCs
INMAS	12	12	100 %
MANIS AB	12	10	83 %
MANIS C	14	2*	14 %
Mahaweli	4	4	100 %

* Three MANIS C schemes reported "other" types of JMCs; which some farmers referred to as kanna meetings. We have therefore excluded them as not proper JMCs.

Using these figures we estimate the total number of schemes with JMCs as follows. The number of schemes with JMCs includes all 35 INMAS schemes, all 4 Mahaweli schemes, 83% of 59 MANIS AB schemes (= 49), and 14% of 101 MANIS C schemes (= 14) for a total of 124 schemes. Therefore approximately 51% (102 out of 199) of all schemes in the four programs have JMCs.

Factors Influencing the Creation of JMCs We observed that generally three factors influenced the creation of JMCs. These factors influence in various degrees the formation of JMCs in different schemes under three programs. The three factors are:

- Interest and degree of agency involvements in creating JMCs.
- Availability of catalysts (change agents or Institutional Organizers) and their involvement in creating JMCs.
- Special programs and projects implemented in the particular projects.

All three factors are external to the particular scheme; the creation of JMCs is heavily dependent on external intervention largely because the must have official representation. Although the M&E study covered a large number of schemes under its data collection program no scheme reported that farmers themselves attempted to establish a JMC without external intervention. Once farmers became aware of the possibilities of JMCs many have come to see JMCs as important features of participatory management. We observed this trend in schemes where farmer awareness was enhanced through various types of external interventions.

Agency Involvement JMCs do not exist where the relevant government agency(s) had very little interest or involvement in applying participatory irrigation management approach (see Table 3.1).

In the Mahaweli system, there was keen interest by the top management to establish JMCs. The newly appointed Managing Director was largely instrumental in accelerating the formation of JMCs in the system. Therefore, despite the large size of the Mahaweli systems, the four tier JMC structure was established within a short period of time (1992 - 1993), even prior to the strengthening of the FOs. The restructuring of FOs in the system, which was expected to precede the JMC formation, also took place parallel to the formation of JMCs. A separate task force created in the Headquarters of the MEA provided impetus to the program. The task force members visited the field regularly to monitor the

progress of JMC establishment. The farm leaders and RPMs in each system made every possible attempt to complete the formation of JMCs on schedule. An Institutional Development Unit (IDU) was created to introduce and promote participatory management in each system. This unit undertook the overall responsibility for the formation of JMCs at all levels.

In INMAS schemes, the IMD was responsible for the establishment of JMCs. Since IMD was solely responsible for creating the necessary conditions for participatory management, it could fully concentrate on achieving its objectives. Each major scheme under the INMAS program was provided with a separate Project Manager, IDO and IOs such that they could devote more time for creating JMCs. For example, out of 12 INMAS schemes we visited during LSS Round 1, nine schemes had separate Project Managers while the other 3 had part time Project Managers. The IDOs and IOs were working full time in all the schemes. Since the Project Managers' performance was assessed in terms of the number of FOs and JMCs created, they were under pressure to achieve their targets.

The situation prevailing in MANIS program is different. The ID Technical Assistant responsible for O&M of the scheme was expected to create the necessary conditions for participatory management. Our observations in PD MANIS schemes and occasional interviews with TA/PMs in MANIS systems during the Recurrent Surveys clearly indicated a general lack of motivation towards the creation of FOs and JMCs. There were a few exceptional cases who were personally interested in creating FOs and JMCs but the majority of cases were not committed to this cause. We observed the following obstacles in MANIS schemes with regard to the establishment of JMCs.

- The TA/PM was more concerned with maintenance work in the canal system than with creating FOs and JMCs.
- No incentives were given to the TA/PM for the additional responsibilities given.
- The ID top management assessed the performance of TA's in terms of their O&M responsibilities rather than their performance in creating FOs and JMCs.

The attitudes of TA/PMs were some what different in the MANIS schemes in which special projects were implemented; this is discussed in a later section.

Availability and Degree of Involvement of Catalysts Our observations of the catalysts' (Institutional Organizers in ID systems and Institutional Organizer Volunteers in Mahaweli Systems) role indicate that they were quite influential in creating an awareness among farmers and FRs of the benefits of participatory management. The awareness created among farmers/FRs had been quite helpful in motivating them to support the creation of JMCs, because they understood the benefits of working collectively with agencies.

The LSS Round 1 data shown in Table 3.2 shows that there is only one case where IOs have been used in a sample scheme but did not result in formation of a PMC. On the other hand, there are several cases where JMCs have been formed without IOs; in these cases, the irrigation agency officials have worked with the farmers to form the JMCs.

Our observations and RS data reveal that IOs helped to facilitate JMC performance by creating awareness among farmers about the importance of the JMCs and by acting as messengers between FRs and Agency officials in conveying information about JMC meetings.

Table 3.2: **Institutional Organizers and Joint Management Committees**

Program	Sample Schemes	Schemes with JMCs	Schemes with IOs and JMCs	Schemes with JMCs but no IOs	Schemes with IOs and no JMCs
INMAS	12	12	12	0	0
MANIS AB	12	9	5	4	0
MANIS C	14	2	2	0	1
Mahaweli	4	4	3	1	0

Special Programs and Projects Implementation of special programs or projects has induced changes to management approaches within schemes. Most of the special projects were irrigation system rehabilitation projects. Although the major objectives of special projects were to improve physical infrastructure, almost every project included a component for institutional development. Table 3.3 compares the existence of special projects in the LSS Round 1 sample schemes and the existence of JMCs in those schemes.

Special projects that have affected a large number of schemes have included: Gal Oya Water Management Project, Irrigation Systems Management Project, the Major Irrigation Rehabilitation Project, the National Irrigation Rehabilitation Project, the Northwestern Province Water Resources Development Project, and various district integrated rural development schemes, among others. The first three dealt only with INMAS schemes. The latter two deal with both INMAS and MANIS schemes.

Table 3.3: **Joint Management Committees and Special Projects**

Program	Sample Schemes	Schemes with JMCs	Projects and JMCs	JMCs but no Projects	Projects and no JMCs
INMAS	12	12	10	2	0
MANIS AB	12	9	7	0	5
MANIS C	14	2	2	0	1
Mahaweli*	4	4	0	4	0

* There have been some special projects in portions of Mahaweli schemes. These are not considered here since they had no effect on JMCs.

These special projects influenced the formation of JMCs in the following manner:

- Providing resources for appointment of IOs
- Assisting in the formation of JMCs to discuss the rehabilitation activities with farmers and agency officials.
- Providing training for farmers and agency officials.

Establishment of JMCs Mahaweli and INMAS schemes have received both special agency attention and interest in creating JMCs. The MANIS schemes coming under NIRP have also benefitted somewhat because JMCs have been created to discuss the rehabilitation proposals and implementation arrangements with farmers and agency officials. Therefore additional attention is required only for the MANIS C schemes which have not received any special attention to create JMCs.

The ID can take special interest and encourage TA/PMs to establish JMCs in the MANIS schemes where JMCs have not been established. TAs need some incentives, such as recognition for their additional responsibilities, transport facilities, travelling allowance etc. If ID can provide the TAs with the support of IOs, the JMC creation process could be accelerated.

3.3.2 Joint Management Committee Seasonal Planning

Seasonal planning is a major function of JMCs. The strengths and weaknesses of JMCs in performing their function of seasonal planning and other factors affecting JMCs are discussed here. Areas that need improvement are also identified. Strengths and weaknesses of JMCs in performance seasonal planning are assessed using the following indicators:

- Representation of the ordinary farmers' problems and concerns.
- Unbiased negotiations in decision making.
- Integrity and comprehensiveness of planning.

Underlying these is a concern for the ability of Farmer Representatives to contribute effectively to JMC meetings, and the ability of agency officers to respond appropriately.

Representation of Ordinary Farmers' Problems and Concerns Our findings from the PD and RS work indicate various degrees of strength in the three programs. The ability of the FRs to represent farmer concerns adequately depends upon several factors, including:

- One factor is whether the FRs attend meetings. Our PD observations indicated that there can be problems with attendance in some schemes in all programs, but most commonly in MANIS schemes. In our opinion, attendance was a problem in all six PD schemes, rarely were more than 75% of the FRs present. However, according to reports from the institutional development officers interviewed during the LSS, FR attendance was satisfactory in all INMAS and Mahaweli schemes. In MANIS AB schemes, of the nine (out of 12) sample schemes with JMCs, FR attendance was reported satisfactory in eight. In MANIS C sample schemes, of the five (out of 14) with JMCs, FR attendance was reported satisfactory in four.
- Where there are multiple levels of JMCs, as in large INMAS schemes and in the Mahaweli schemes, it is essential to ensure that the discussions at the lower levels are taken into account at the higher levels. No INMAS scheme has more than two levels - Subproject Committees and the Project Management Committee. Generally, the FRs at the PMC are selected by the SPCs in order to ensure that SPC discussions are reflected in PMC discussions. Our observations seem to indicate that this works fairly well. SPCs, however, often confine their activities to seasonal planning. Mahaweli schemes have a larger problem because of the four level JMC structure. There this problem is solved by a system that tries to ensure that a high percentage of FRs are represented within the four tier structure of the JMCs. For example, in System H, each month 37 UCC meetings for 370 FRs and 9 BCC meetings for 135 FRs are held. SPCC and PCC meetings are held less often but SPCC meetings are supposed to have 6 FRs each and the PCC meetings to have 18 FRs. In System C, 79 UCC meetings for 1983 FRs and 10 BCC meetings for 182 FRs are held each month. The three SPCCs are supposed to have 79 FRs among them but the PCC to have only 12 FRs. Although attendance of the FRs has not been up to these levels, the potential is there.
- An additional major concern is communication between the FRs who attend the JMCs and the farmers within the FOs. As pointed out in Section 2.8.6 observations and discussions indicate that lack of communication between FRs and other FO members is a major problem in many FOs.

In MANIS schemes, PMC performance in seasonal planning was poor. LSS data shows that JMCs in MANIS schemes are not involved in seasonal planning. We observed that farmer representation is not effective at the JMC planning sessions in the PD studies at Mannankattiya and Gampola Raja Ela and in the RS schemes. One reason was that FRs who attend JMC planning sessions do not represent the scheme proportionately. Some areas of the scheme are over-represented, while other areas are under-represented. Also, many FOs in MANIS schemes do not hold meetings as often as required; Table 2.39 shows that 26% of MANIS AB FOs from the LSS and 32% of MANIS C FOs do not hold scheduled FO committee meetings; FCG meetings are even less common. Mahaweli and INMAS have a developed system of holding types of FO meetings and therefore FRs at JMC sessions have a better understanding of the concerns of the ordinary farmers.

Degree of Unbiased Negotiation in Decision Making A basic concern is that the JMC decision making process be one that allows for effective farmer input. This depends largely upon the way the meetings are run, but also to some degree on the skills of the FRs in making their input.

At the Mahaweli process documentation sites, we observed variances among the different levels of JMCs. At UCC level, farmers dominate in decision making mainly because UCC is chaired by a FR and the number of FRs attending UCC are much higher than the number of officers attending. In system C, Pahala Rathkinda Unit, FRs outnumber the officials 8 to 1 at UCC meetings (33 FRs vs 4 officials).

The situation is quite different at BCC and above. Although BCC and SPCC are attended by a larger number of FRs, we observed that the planning process is agency dominated, largely because the BCC is chaired by the Block Manager. Prior to participatory management virtually all decisions were taken by the Block Manager independently. Since participatory planning was introduced only recently, the Block Managers tend to revert to their previous practice. Although FRs attend BCC planning sessions they are not assertive enough to express their genuine opinions in front of Block Manager and his deputies. This situation is also found in the SPCCs and PCC.

In INMAS systems, our experience in attending PMC planning sessions indicates that effectiveness in managing planning sessions is heavily dependent on the capacity of IMD Project Manager to ensure effective discussion. The Farmer Representatives in INMAS systems have developed some capacity. This may be due to intensive general management and technical training given to FRs. Compared to Mahaweli and MANIS programs, INMAS had a strong training component for both FRs and officials, especially with support of ISMP, MIRP and other special projects. We could observe unbiased discussions between FRs and agency officials in all schemes which had special project support.

In MANIS schemes, we observed agency domination in negotiations between FRs and agency officials in the two PD sites, Mannankattiya and Gampola Raja Ela. Although the large scale survey indicates that representatives from other agencies attend MANIS PMC planning sessions, our observations in two PD sites show that ID TA attended most of the sessions with minimal or no attendance from other agencies. Our observations also reveal that these sessions are dominated by the TA/PM while FRs hesitate to express their opinions. This occurred because the TA/PM is regarded by farmers as the authority for the scheme and they tend to accept the TA/PM's views without further discussions. Also, FRs have not received training and they lack capacity for useful negotiations with agency officials.

Integrity and Comprehensiveness of JMC Planning Processes Integrity and comprehensiveness of JMC planning process refers to the following: a) integration of different inputs (irrigation, agriculture and other inputs) in the seasonal planning process, b) allocating land, water and financial resources for the season, and c) communicating seasonal plans to the farmers.

- **Integration of Inputs** In Mahaweli schemes, since MEA provides all the required inputs it is somewhat easier to coordinate inputs. JMCs at different levels hold pre-seasonal meetings and attempt to incorporate the concerns of different divisions including water management, agriculture, land etc. However, we observed that JMC pre-seasonal planning sessions have not so far developed to a level that they produced a comprehensive integrated planning document to be submitted to the respective higher level of JMC. Instead, the officer in charge of the particular activity prepares the reports based on his experience and FRs' opinions and submits it to the upper level JMC. That is, the Unit agricultural plan is prepared by the Field Assistant and the Unit irrigation plan by the Technical Officer. The Block agricultural plan is prepared by the Agricultural Officer and the Block irrigation plan by the IE. The scheme level plan is prepared by the DRPM (Agriculture) and the irrigation plan by the DRPM (Water Management). JMC sessions are utilized for discussing the plans prepared by the respective officials. This works well as long as the officials attend the meetings. LSS interviews with both institutional development officers and with some farmer members of the PCC (who also attend the other JMCs) indicate that official attendance is good. We also observed good attendance at the PD sites.

Unlike Mahaweli schemes, INMAS schemes are served by separate agencies that provide inputs and assistance. However, PD and RS data showed that planning discussions are dominated by irrigation concerns and the ID personnel play a dominant role. Agricultural officers in both Mee Oya and Rajangana complained about the lack of concern for crop planning and other aspects of agriculture. Despite these complaints, as shown in Table 3.4, neither institutional development officers nor farmers interviewed for the LSS felt that attendance of the officials from other agencies in INMAS schemes was unsatisfactory, except for officials from the Land Commissioner's Department.

Table 3.4: Officials' Attendance at Joint Management Committee Meetings in ID Schemes

Program	Schemes with JMCs	Irrigation Department	Irrigation Management Div.	Agriculture Dept.	Agrarian Services Dept.	Land Commissioner's Dept.
Schemes with satisfactory attendance reported by institutional development officers						
INMAS	12	12	11	11	9	6
MANIS AB	9	7	-	5	4	1
MANIS C	2	2	-	2	2	0
Schemes with satisfactory attendance reported by farmer JMC members						
INMAS	12	11	11	11	10	6
MANIS AB	9	9	-	4	3	1
MANIS C	2	2	-	1	2	0

MANIS schemes, however, show poor performance in integrated planning because, as shown in Table 3.4, in many schemes, only ID representatives and FRs attend regularly.

- **Resource Allocation** In Mahaweli System H, JMCs deal with decisions on allocating land for cultivation, especially in Yala seasons. JMCs at different levels assist FOs to organize bethma. For example in the 1993 PCC planning sessions in Mahaweli H, FRs themselves designed a procedure for allocating lands for Yala cultivation. Land allocation is not a problem in Mahaweli C because it is not a water short system. We also observed in Mahaweli JMCs that allocation of public funds for maintenance was a transparent process. Mahaweli engineers submit the funds allocated for maintenance at block levels to the JMCs for their discussion.

In INMAS schemes also, JMCs help FOs to allocate lands in the command area for cultivation depending on the water availability in the reservoirs. In Mee Oya for example, the PMC helped farmers to decide the areas to be cultivated in Yala 94, depending on the water availability in the three tanks. Although INMAS JMCs have a long history of development they have not yet reached the level of Mahaweli JMCs in terms of transparency in funds allocated for system maintenance, largely because of reluctance of ID officials to disclose the allocated amounts.

MANIS JMCs have not progressed sufficiently to deal with resources allocation for seasonal planning. Therefore land and water resource allocation matters are discussed at kanna meetings.

- ***Communicating Seasonal Plans to Farmers*** Our observations in PD schemes under the three programs indicate that no clear mechanism has been developed or practiced to communicate seasonal plans to the farmers.

In MANIS systems there is no mechanism for holding FR committee meetings. FRs who attend JMC meetings do not have a forum to convey PMC planning decisions to the farmers unless they communicate with them individually. Therefore farmers learn about JMC plans only at the kanna meetings. This hinders harmonious decision making at kanna meetings.

In INMAS schemes, FR committee meetings are held once a month. But there is no specific meeting scheduled after JMC seasonal planning sessions are over. Therefore, JMC planning decisions are not communicated to the farmers effectively. FRs also do not hold FCG meetings to convey the FR committee meeting decisions or discussions to the farmers. Although, there are FCG meetings held in some schemes, there are no specific meetings scheduled to convey JMC planning decisions to the farmers in a particular field channel.

The situation is similar in Mahaweli schemes. The only difference is that a large number of FRs in the scheme can be represented at all four tiers of JMCs. Therefore, it provides opportunities for a larger number of FRs to know about JMC planning decisions.

Effectiveness of JMC Seasonal Planning The opinions about the effectiveness of JMC seasonal planning given by persons interviewed for the LSS sample schemes are shown in Table 3.5. Overall, it seems that most believe that their JMCs function well for seasonal planning, particularly in INMAS and Mahaweli schemes. This table also shows relatively few differences of opinion among the three groups of interviewees. The only significant difference is that for INMAS, MANIS C, and Mahaweli schemes, farmers are less happy with JMC seasonal planning than are the officials.

In these interviews, some explicit reasons for ineffectiveness were given, other than those discussed earlier. In one MANIS AB scheme, an irrigation officer said that the farmers do not follow the PMC decisions. Farmers in an INMAS scheme and a MANIS C scheme felt that the PMCs could not plan well because they did not have accurate information about water and desires of farmers. Farmers in another INMAS and a MANIS AB scheme said that farmers ignored the PMC decisions; in another MANIS AB schemes the interviewed farmer said that the irrigation officials ignored the PMC decisions.

Table 3.5: **Opinions on Effectiveness of JMCs in Seasonal Planning**

Program	Schemes with JMCs	Schemes where JMCs do Seasonal Planning	Schemes where JMCs Seasonal Planning is Effective
As reported by institutional development officials			
INMAS	12	12	12
MANIS AB	9	6	6
MANIS C	2	2	2
Mahaweli	4	3	3
As reported by irrigation officials*			
INMAS	12	-	12
MANIS AB	9	-	7
MANIS C	2	-	2
Mahaweli	4	-	4*
As reported by farmer JMC members			
INMAS	12	12	10
MANIS AB	9	7	7
MANIS C	2	0	0
Mahaweli	4	3	2

* Irrigation officials were not asked whether JMCs do seasonal planning. Note that the Mahaweli irrigation officials in System B disagree with the other two groups about whether seasonal planning was done by JMCs.

Improving JMC Seasonal Planning We have identified three areas of JMC seasonal planning that need improvement in the schemes under discussion. The magnitude of the efforts required would vary depending on the current state of progress.

Well functioning FOs are a necessary condition for improving farmer representation at JMCs. The FOs have to perform the dual function of adequately representing, the interests of all farmers at the JMCs and then communicating the planning decisions taken at the JMCs to the farmers. LSS data shows that in the Mahaweli and INMAS systems, FR committee meetings are conducted satisfactorily. However, the two way communication link between the JMCs and ordinary farmers is weak.

Communication could be improved in the following manner. The FRs should conduct FC group meetings prior to the JMC planning meetings, and communicate the farmers concerns to the JMC FRs. Farmer leaders attending JMCs should communicate JMC decisions, first to FR at committee meeting where each FR should be instructed to convey the information to farmers by holding FC group meetings.

For MANIS schemes, the efforts required are somewhat more complex. A mechanism must be evolved among JMC - FRs to consult other FRs prior to JMC sessions. The non JMC FRs should consult with other farmers in their areas and convey their opinions to the JMC-FRs. Even if agencies feel that regular FR committee meetings and FC group meetings are not necessary, such meetings should be held at least prior to and after JMC planning meets to improve the communication link between farmers and agency personnel.

Negotiations can be improved, including negotiations among different agencies or divisions involved in planning and negotiations between FRs and agency officials.

The JMC planning sessions can be conducted on the basis of a well prepared agenda. Each line agency member or members of each division can be given separate time slots to submit their proposals. The FRs of each tract/block should also be given separate time slots to discuss their views. If this method is adopted then individual members of JMC would be compelled to be well prepared prior to the sessions. This method will address the problem of integrity and comprehensiveness also. FRs as well as different agency representatives would submit their own plans and it would be the responsibility of the overall manager of the JMC session to prepare an integrated seasonal plan.

3.3.3 Joint Management Committee Monitoring and Problem Solving

Once the seasonal planning process is over, the JMCs hold sessions to monitor progress and solve problems that may arise during the cultivation season. JMC performance in monitoring and problem solving can be assessed using the following criteria/indicators.

- Existence of plans for monitoring and problem solving.
- Representation of common farmer problems at JMCs and the efficacy of feedback mechanism.
- Success in solving non-irrigation problems (other agricultural and community related problems).
- Value of JMCs to farmers and officials.

Existence of JMC Plans for Monitoring and Problem Solving According to LSS interview data all existing JMCs undertake problem solving. However, our RS and PD observations suggest that this is not entirely true.

In Mahaweli schemes, priority has been given to JMCs. We observed that JMC meetings are held regularly as expected; unless there are unavoidable circumstances, no JMC meeting is canceled or postponed. Problem solving is the main purpose of JMC meetings. While the four tier structure of Mahaweli JMCs facilitates referring problems to the proper level, no mechanism has been developed for systematic recording or collecting of field data on the problems faced by farmers.

Observations indicate that JMC meetings are also held regularly in INMAS schemes that have a resident IMD Project Manager. JMC meetings are not as regular where the Project Manager resides elsewhere, as does the Mee Oya Project Manager. INMAS schemes rehabilitated under MIRP and ISMP programs have established systems for recording problems faced by FOs. This monitoring system of INMAS has been discussed in detail in Volume 3 of this report. In some schemes, the agenda of the monthly PMC session is based on FO level data collection.

Our observations indicate that PMCs are not involved much in monitoring and problem solving in MANIS systems. This is primarily due to the low frequency of JMC meetings held during the cultivation season. PD and RS data indicate that most of the MANIS JMCs hold their sessions only during the planning phase of the season but not during operation phase. Many of the MANIS AB PMCs were established through the NIRP. In our two PD sites, we found that the PMCs were almost exclusively concerned with the rehabilitation work rather than with irrigation and agricultural problem solving. None of the MANIS schemes have mechanisms to monitor field activities at FO level. Therefore, problem solving in MANIS schemes is based on PMC participants' views and experience.

Representation of Farmer Problems at Problem Solving JMC Sessions In Mahaweli and INMAS schemes regular FO committee meetings are held. Therefore, the FRs have the opportunity to discuss their problems among themselves prior to attendance at JMC sessions. However, it is questionable whether all farmer problems are discussed, because mechanisms (regular meetings) between FRs and ordinary farmers have not been established even in Mahaweli and INMAS schemes.

In MANIS schemes, except in occasional cases, there is only the seasonally held JMC sessions for monitoring and problem solving. There is no meeting between officials and FRs and also between FRs and ordinary farmers (except in NIRP projects in which they get together to discuss rehabilitation plans) for either monitoring or problem solving.

Therefore in general in all the schemes under the three programs the success of representing farmers problems at JMCs is heavily dependent on the behavior of JMC FR members.

Success in Solving Non-irrigation Problems by JMCs According to PD, RS and LSS findings the following non-irrigation problems are discussed at the JMC sessions:

- Land problems
- Credit problems
- Seed paddy problems
- Agro-chemical and fertilizer problems
- Institutional problems

Since the Mahaweli and INMAS JMC sessions are attended by line agency officials who are responsible for the activities mentioned above, it is possible to draw their attention to the farmers' concerns about their services. In MANIS systems, although FRs bring a variety of problems to the attention of the PMC, many sessions are attended by the ID personnel only. Therefore non-irrigation problems are not resolved.

In the LSS, we asked both institutional development officers and farmers who were members of the JMCs about types of problems discussed and satisfactorily resolved. Table 3.6 gives the responses as percentages of schemes with JMCs (INMAS = 12; MANIS AB = 9; MANIS C = 2; Mahaweli = 4). This table shows that while there are differences, for the most part the officials and the farmers agreed about the categories of problems discussed at their JMCs. However, they do not agree about whether those problems were satisfactorily resolved. Farmers more often felt that problems were not satisfactorily resolved by the JMCs than the officials.

Table 3.6: Problems Discussed and Resolved at JMC Meetings (% of schemes with JMCs)

Program	Categories of Problems											
	Land		Credit		Seed		Inputs*		Institutional		Others	
	Disc.	Res.	Disc.	Res.	Disc.	Res.	Disc.	Res.	Disc.	Res.	Disc.	Res.
As reported by institutional development officers.												
INMAS	92	67	75	33	92	92	100	58	75	58	67	42
MANIS AB	56	33	22	22	33	33	33	33	78	67	56	33
MANIS C	100	0	50	0	100	50	50	0	50	0	100	100
Mahaweli	100	50	100	50	100	100	100	75	100	75	100	75
As reported by farmer JMC members.												
INMAS	67	33	75	17	42	25	92	67	75	42	67	25
MANIS AB	67	33	44	22	56	56	44	44	44	22	44	33
MANIS C	100	50	50	50	100	100	0	0	0	0	50	50
Mahaweli	100	75	100	25	100	75	100	50	100	25	75	0

* Inputs refers to fertilizers and agro-chemicals.

successful, particularly with agricultural input related problems. MANIS C JMCs have been reasonably successful in farmers' opinions but quite unsuccessful in the officers' opinions. However, the MANIS C sample size is too small to be confident of this finding. Mahaweli JMCs discuss everything and appear to have been reasonably successful in resolving problems.

In the PD and RS work, we observed that JMCs are being used as a forum for FRs to discuss other problems in addition to those already mentioned. For example, the Madatugama and Galkiriyagama BCCs in Mahaweli System H discussed production and consumption of illicit liquor. Tank bed cultivation was discussed in the Mee Oya and Rajangana PMCs (INMAS) and by various JMCs in System H and others. The Komarika Ela (MANIS AB) PNC took a decision to plant trees. Also, JMCs in Mahaweli Systems H and C took decisions to holding rituals related to cultivation, such as ceremonies on first water issue dates, and after harvesting.

Overall, then, JMCs have become useful as places for discussion of a variety of problems in addition to irrigation problems, particularly in INMAS and Mahaweli schemes. They have, so far, had only moderate success in resolving many of these because of the various weaknesses mentioned earlier.

Value of JMCs to Farmers and Officers In all three programs, most farmers and officers accept that the JMC is an essential component of participatory management. Reasons given by officers interviewed in the PD and RS efforts include:

- They can understand farmers' views and opinions with regard to seasonal planning.
- They can understand the problems faced by farmers with regard to water delivery and other service required by farmers from time to time.

Some reasons cited by farmers are:

- They can meet all relevant line agency/divisional officials at one place without making individual visits to separate offices/divisions.
- They can point out strengths and weaknesses of the services of the line agencies and divisions.
- They can develop/improve interactions/relationships with different agency/divisional officials.

In general, the knowledge held by farmers, other than JMC members, about JMCs is poor. Since Mahaweli and INMAS schemes hold the FO committee meetings, FRs have knowledge about JMC discussions and decisions. Although FRs accept that JMCs are essential, they are critical about the progress of JMCs. They pointed out in a majority of the schemes under three programs that when different officials get together they take decisions but these are often not followed up by actions. At various discussions, government officers pointed out to us that there are some shortcomings in the FOs that prevent the successful implementation of JMC decisions. The FRs also give less priority for implementation of JMC decisions perhaps due to the lack of individual incentives.

3.5 Overall Evaluation of Joint Management Committees

Joint management committees are an essential part of participatory management in Sri Lanka. However, progress in establishing and making JMCs function is rather poor. JMCs exist in only a little over half of the schemes, although they exist in all INMAS and Mahaweli schemes. Overall, JMCs do not function well in the MANIS schemes where they exist and there are important weaknesses even in INMAS and Mahaweli schemes. A major problem in MANIS schemes is failure to hold meetings.

One weakness is that, except in some INMAS schemes, there are no established mechanisms to allow the JMCs to gathering information about seasonal progress. We recommend that a mechanism be developed for monitoring and problem solving. FO committee meetings can be motivated to document the problems faced by them, and submit it to respective JMC sessions for discussions. This will lead to the improved representation of ordinary farmers' problems at JMC sessions.

In MANIS systems, prior to the introduction of proper mechanisms it is necessary to motivate the TA/PM to hold monthly JMC sessions with participation of relevant agency officials. Once this is adopted, we can think of instituting a mechanism for monitoring and problem solving.

Another problem is the relative inability of JMCs to address non-irrigation problems even though farmers are interested in using the JMCs for this purpose. This is caused in large part by the failure of personnel from the other agencies, except in Mahaweli schemes, to attend JMC meetings or to pay attention to JMC concerns. The agenda of JMC sessions should allocate time for discussions of non-irrigation problems and mechanisms must be sought to get the attention of the relevant agencies.

Another major problem is lack of awareness among the general farming community about JMCs and their functions. In systems in which IOs are working, the task of creating awareness can be given to IOs. In Mahaweli System C the same approach can be followed. In System H the UMs with the assistance of IDOs can conduct a series of training sessions to educate farmers about JMCs. The FRs who attend JMCs can also be requested to help to create awareness among the ordinary farmers.

We recommend that JMCs should take decisions only on the problems which can be solved within the capacity of each agency or division. This will reduce unnecessary burdens on the JMCs. The JMC should prepare implementation plans including mechanisms to monitor the progress of JMC session.

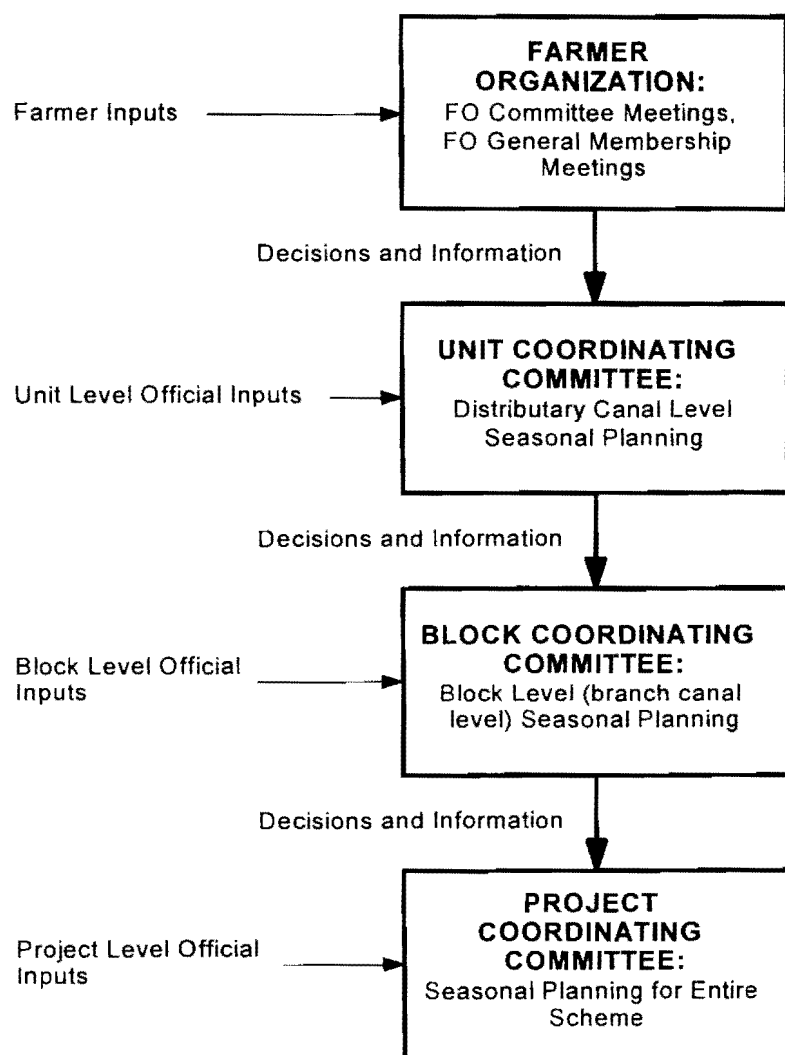
The JMC structure under the three programs has been discussed in detail in several places in this chapter. Two recommendations relating to JMC structure are dealt with here.

- Most INMAS and all MANIS schemes have only a single level of JMC. This restricts discussions to a relatively small number of farmers. Therefore, it would be useful for the managing agency to organize another forum for frequent dialogues between farmers and agency officials. Such joint dialogues could include: a) dialogue among Work Supervisors, Irrigators and farmers at DC level on performance of O&M activities, on a monthly or bi-monthly basis, and b) dialogue among Technical Assistants and FRs of DCs (one or two FRs from each DCO can participate) on a branch canal basis. Even in the smaller MANIS schemes joint dialogue can be arranged between WS and farmers. The above mentioned joint dialogue can be informal monitoring and problem solving centers. These fora will provide opportunity for both parties to learn from each other, to identify and seek solutions to problems.
- There is a tendency for some agencies to avoid carrying out JMC decisions. They do not perceive JMCs as legal entities having authority to take decisions as well as implement them. Therefore, unless participating agencies perceive that JMCs decisions must be supported by them, the JMCs would not become effective. One problem is that, because of the centralized nature of most of these agencies, the representatives on JMCs often have to seek approval from their superiors to take action. Because the superiors have no obligation to the JMCs, they may not respond positively. We recommend that each participating agency in the JMCs should give due recognition to JMC decisions. They should not feel that JMC sessions are mere meetings in the nature of other conventional sessions.

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This last problem has been partly resolved by the 1994 amendment to the Irrigation Ordinance that specifically recognizes the authority of JMCs to make seasonal planning decisions.

Figure 3.1 Mahaweli Joint Management Committee Seasonal Planning Process



CHAPTER 4

TURNOVER

4.1 The Turnover Policy

Under the participatory management policies of the government it is intended to turn over some of the system management responsibilities at and below the distributary canal level to farmers. Before this became government policy some attempts had been made to implement this policy informally, in schemes such as Kimbulwana Oya and Minipe through the efforts of a few enthusiastic irrigation officials. Turnover first occurred in ISMP as a condition stipulated by the USAID to continue assistance for the project. Turnover was later initiated in other schemes under INMAS, MANIS and the Mahaweli.

The Cabinet Paper specifically states that those farmers who accept turnover of O&M responsibilities for distributary channels will be exempted from payment of irrigation fees. The amended Irrigation Ordinance authorizes the FOs to take over O&M of their areas. In return they are exempted from paying irrigation rates. This amendment thus also provides the legal basis for turnover that underlies the 1988 Cabinet Paper on participatory management. Also the Ordinance authorizes FOs to impose a levy on the farmers to cover O&M of the distributary canal system and any other cost for work that may be beneficial to the farming community under area of authorization. This provision is to provide the FOs with a means to finance the responsibilities taken over.

Turnover has occurred in the INMAS, MANIS, and Mahaweli programs at varying levels and in different forms. There are different views and varying interpretations about turnover among agency officials including a view that only joint management is possible. But in general turnover has been adopted in the irrigation sector of Sri Lanka.

4.2 Frequency of Turnover

Turnover can take place either formally or informally. Under formal turnover an agreement is signed between the agency and the relevant FO specifying the responsibilities to be fulfilled by the parties concerned. Informal turnover is a verbal agreement between the two parties. The level of formal and informal turnover in Yala 1994 in sites selected for recurrent surveys (RS) and process documentation (PD) as well as in LSS schemes is shown in Table 4.1 and is discussed here.

As shown in Table 4.1, the situation we found in Yala 1994 was as follows:

- Turnover had occurred for 69% of the RS and PD sample INMAS FOs and 80% of the LSS sample FOs, but formal turnover had occurred only in 31% and 44% of these samples respectively.
- Turnover has taken place for 50% of the RS and PD MANIS AB FOs and in 38% of the LSS MANIS AB sample FOs, but formal turnover had occurred in only 8% and 8% of these samples respectively. In two of the RS and PD schemes - Mannankattiya and Mahananneriya - farmers were managing O&M activities on their own for a long period prior to ID intervention.
- There were no MANIS C RS or PD sites. In the MANIS C LSS sample, responsibilities had been handed over to 21% of the FOs, but a formal agreement had been signed only with one FO (4%).
- Neither formal nor informal turnover had occurred in the Mahaweli RS and PD sites in System H and System C. However, according to the LSS, O&M responsibilities had been handed over to 37% of the Mahaweli sample FOs. O&M responsibilities had been formally handed over to 10% of the sample FOs. In the Mahaweli schemes greater attention is being paid to turnover recently.

Table 4.1: Turnover in Sample Farmer Organizations

Program	PD and RS Sample FOs			LSS Sample FOs		
	Total	Informal Turnover	Formal Turnover	Total	Informal Turnover	Formal Turnover
INMAS	13	38 %	31 %	61	36 %	44 %
MANIS AB	12	42 %	8 %	24	29 %	8 %
MANIS C	0	-	-	24	17 %	4 %
Mahaweli	9	0 %	0 %	63	27 %	10 %

It can be seen that turnover in INMAS schemes was common (80%), but turnover in MANIS and Mahaweli systems was at a fairly low level, with the lowest level being observed in the latter. Turnover had occurred mostly informal in all three programs, although formal turnover was prevalent in some INMAS schemes.

4.3 Responsibilities Turned Over

In the sites selected for RS and PD four categories of turnover has taken place under operation and maintenance. Two types of responsibilities have been handed over under operations:

- Operation of FC gates
- Operation of DC gates and above

Under maintenance, two types of responsibilities have been handed over:

- DC jungle clearing and desilting only
- DC jungle clearing, desilting and minor repairs, greasing and painting, and/or MC level cleaning and desilting.

Operation and maintenance at the FC level has been the practice of farmers for a long time and therefore these activities are not included within the definition of turnover.

Responsibilities Turned Over in RS/PD Schemes As shown in Table 4.2, all four responsibilities have been handed over in only two of the RS/PD sites. In Mee Oya, the responsibilities for operation and maintenance, have been handed over up to the MC level, and in Dewahuwa up to DC level. Turnover of maintenance responsibilities is more common than turnover of operational responsibilities. The FOs in Tabbowa scheme have recently begun to take over responsibilities for clearing the MC through contracts. In the four sites where O&M responsibilities have not been handed over, the respective FOs have been undertaking DC jungle clearing and desilting.

As shown in Table 4.3, all four responsibilities have been taken over by the FOs in two out of 12 MANIS RS/PD sites (17%). Lesser responsibilities have been turned over in four additional sites (33%). Although O&M responsibilities had not been actually handed over in Mediyawa and Wennoruwa, the FOs had been involved in water distribution below the DC level, and in jungle clearing and desilting. In Murapola Scheme, the FO had been involved in maintenance activities such as jungle clearing and desilting. In Ma Ela and Gampola Raja Ela, maintenance contracts for main canal maintenance have been given to the FOs.

Table 4.2: Responsibilities Turned Over in INMAS RS/PD Sample Sites

Program	Farmer Organization	Turnover	Formal Turnover	Operation		Maintenance	
				FC Gates	DC Gates	Clearing/ Desilting	All*
Dewahuwa	Eksath	N					
	Permuna	Y	Y	x	x	x	x
Kaudulla	Eksath	Y	Y	x		x	x
Muruthawela	Gemunu	N					
	Perakum	N					
	Thissara	N					
Muthukandiya	Sri Vijitha	Y	N			x	
	Hamlet 3	Y	N			x	
Rajangana	Nawajeevana	Y	Y	x		x	x
	Ranketha	Y	Y	x		x	x
Tabbowa	Perakum	Y	N			x	
	Thewanuwara	Y	N			x	
Mee Oya	Parakrama	Y	N	x	x	x	x

* Does not include structure repairs.

Table 4.3: Responsibilities Turned Over in MANIS AB RS/PD Sites

Scheme	Farmer Organization	Turnover	Formal Turnover	Operations		Maintenance	
				FC Gates	DC Gates	Clear/ Desilt	All*
Buttala	Medagama	Yes	Yes	x	x	x	
Mannankattiya	Siri Perakum	Yes	No	x		x	
Mahananneriya	Mahananneriya	Yes	No	x	x	x	x
Mediyawa	Mahasen	No					
Murapola	Girambe	No					
Komarika Ela	Kanugolla	Yes	No	x	x	x	
Radagalpotha	Radagalpotha	Yes	No	x	x	x	x
Wennoruwa	Uda Walpola	No					
	Vilgoda	No					
Ambewela	Thennakoonwela	Yes	No	x		x	
Ma Ela	Ekamuthu	No					
Gampola Raja Ela	Kurukude Ekamuthu	No					

* Does not include structure repairs.

In the Mahaweli RS/PD sites, O&M responsibilities have not been turned over formally or informally to the nine sample FOs. However, all FOs have been undertaking contracts for DC jungle clearing and desilting. In one PD sites -DC 305-D3 in System H - it was observed that the FO was informally undertaking FC gate operations.

DC jungle clearing and desilting and FC gate operations are the two most prevalent responsibilities handed over to FOs in all schemes. In the RS and PD sites, all FOs, whether responsibilities have been handed over or not, undertake DC jungle clearing and desilting, although in some cases this is carried out under contract to the irrigation agency. FC gate operations were undertaken in 7 INMAS PD/RS sites (54%) and 10 MANIS RS/PD sites (83%), whether this responsibility was handed over or not.

LSS Data on Responsibilities Turned Over Data was obtained from the LSS on turnover of O&M activities under three categories a) distribution of water within the DC (FC gate operation), b) operation of DC gates and, c) DC jungle clearing and desilting. The data are shown in Table 4.4.

In INMAS schemes, in 21 out of the 61 FOs (34%), all three responsibilities had been handed over; lesser responsibilities have been turned over in another 46% of the FOs. In MANIS AB systems, all three responsibilities have been taken over in 2 out of 24 FOs (8%); and lesser responsibilities in another 78%. Other responsibilities includes maintaining anicuts and similar tasks. In MANIS C schemes, all three responsibilities have been taken over by 2 FOs (8%) while lesser responsibilities have been turned over to another 13 % of the FOs. Four out of 63 FOs (6%) in the Mahaweli schemes have taken over all three responsibilities and another 30% have taken over lesser responsibilities.

Table 4.4: Responsibilities Turned Over in LSS Sample Farmer Organizations

Program	Sample FOs	Turnover Cases	Responsibilities Turned Over (Cases)					
			A	B	C	AC	ABC	Other
INMAS	61	49	4	1	2	21	21	
MANIS AB	24	9	2	1	2		2	2
MANIS C	24	5			3		2	
Mahaweli	63	23	3		6	10	4	

Key: A - Distributing water within the DC (FC gate operation)
 B - Operating DC gates
 C - DC jungle clearing and desilting

The LSS data showed that the most prevalent responsibilities handed over to FOs are FC gate operation and DC jungle clearing and desilting. In INMAS schemes, FC gate operation has been taken over by 46 FOs (94%) and DC jungle clearing and desilting by 44 FOs (90%) out of a total of 49 FOs which have reported to have taken over O&M responsibilities. In MANIS schemes, DC jungle clearing is undertaken by 9 FOs (64%) out of a total of 14 FOs where turnover has occurred. In Mahaweli schemes, 20 out of 23 FOs (87%) which had reported that turnover had occurred are undertaking DC jungle clearing and desilting. FC gate operations are being undertaken by 17 FOs (74%).

4.4 Turnover of Operations

Water distribution within the FCs (field level) is a responsibility required of all FOs, and it was observed that all FOs in the sites selected for RS and PD are undertaking this activity. At the next level, the FOs in these sites have taken over responsibility for gate operations at different levels from DCs to MCs. Data from LSS shows that a few FOs in INMAS and MANIS systems have taken over operations at MC level (INMAS 5 FOs and MANIS 4 FOS).

In sites where operations responsibilities have been handed over either formally or informally the irrigation agencies have withdrawn their Irrigators and the FOs have appointed their own. The ID makes payments for operations through O&M contracts from their O&M allocations for the channels from which the Irrigators have been withdrawn. The FOs pay for their Irrigators from these payments retaining a small percentage for the FO fund. In all of the INMAS schemes that came under ISMP, it was found that the Irrigators of the ID had been withdrawn from all DCs and the relevant FOs have appointed their own Irrigators.

There was no turnover of operations responsibilities reported in any of the PD or RS sites in the Mahaweli schemes except in the site on DC 305-D3 in System H. In this DC the FO was informally

undertaking the operation of FC gates, although the Irrigator was still officially responsible for it. This is reported to be practiced in other schemes as well.

Under all programs, including Mahaweli, even where operations responsibilities have not been handed over either formally or informally, FOs have been involved in these activities at various levels. In these schemes, the FOs are working closely with the agency Irrigators, who in turn consulted often with the FOs. Close cooperation between Irrigators and FOs was particularly evident in the Mahaweli sites. Such cooperation was also observed in INMAS systems such as Tabbowa and Rajangana where the Irrigators operated the DC gates in consultation with the FOs.

Where agency Irrigators did not work closely with the FOs the farmers were critical of agency water distribution, leading to conflicts between agency officials and farmers. Such a situation prevailed in Muruthawela scheme under INMAS and in Mediyawa scheme under MANIS. Thewanuwara FO in the Tabbowa scheme resolved this problem by appointing a Irrigator from their own area. Farmer interest in working closely with Irrigators indicate their willingness to be involved in water distribution.

Apart from water distribution, the FOs are also involved in preparing operations schedules at different levels in the JMCs. In most INMAS and MANIS schemes, preparation of schedules and decision making takes place at the PMC level. In the Mahaweli schemes, field level water distribution plans are discussed at the UCC and the BCC. Water distribution schedules prepared at higher levels were later amended by the UCCs in Galkiriyagama and Pahala Rathkinda to suit local field conditions. In Mee Oya, an INMAS scheme, where all gate operations are now undertaken by the FOs, water management committees had been set up to take decisions on water distribution and prepare operations schedules in consultation with farmers and the officers. In systems where turnover has occurred, water scheduling among the FCs is the responsibility of the FOs.

4.5 Turnover of Maintenance

As in the case of field level water distribution, FC jungle clearing and desilting, is also a required responsibility of the FOs. All FOs have taken over this responsibility in the PD and RS sites.

The foremost maintenance responsibility taken over by FOs under all three programs is DC jungle clearing and desilting. In schemes where turnover has occurred formally, responsibilities assigned to FOs include DC jungle clearing, desilting, minor repairs of bunds and structures, greasing and painting, and road maintenance. If the handing over is informal, the responsibilities are usually limited to jungle clearing and desilting. This was observed in PD and RS sites. However, there are instances of FOs undertaking maintenance activities such as DC bund and road repairs. Undertaking DC jungle clearing and desilting has become almost a norm for FOs.

In the MANIS anicut systems where there is not much canal differentiation, the jungle clearing and desilting of the MC and anicut maintenance are undertaken by the FOs. In Mediyawa, the FOs have been responsible for the maintenance of the anicut for a long time.

In some sites the FOs have undertaken responsibility for main canal jungle clearing and desilting in addition to DC level maintenance. This responsibility has been handed over to FOs in the INMAS schemes of Tabbowa and Mee Oya and in the MANIS schemes of Ma Ela, Mahananneriya, Murapola and Komarika Ela. Whether or not those maintenance responsibilities have been handed over, the relevant agencies provide funds for these activities from their annual O&M allocations by contracting with the FOs.

In schemes where the formal turnover agreements have been signed, FOs are expected to do greasing, painting, small repairs etc. on their own. In three sites in the Kaudulla and Rajangana schemes under INMAS where formal agreements have been signed, FOs were reported to be doing minor earthwork repairs and greasing. In the Mee Oya scheme where no formal agreement has been signed, the FOs are doing minor earthwork repairs on their own, including repairs to the MCs.

Voluntary maintenance work had been reported in sites where turnover has not occurred. In INMAS schemes, the Eksath FO of Dewahuwa and Gemunu FO in Muruthawela had undertaken repairs of the DC and BC bunds. In Murapola and Komarika Ela under MANIS, the FOs completed MC clearing and desilting. In Galkiriyagama in System H and Diyawiddagama site in System C, DC bund repairs, desilting and MC jungle clearing had been undertaken by FOs through shramadana efforts.

Five modes of implementing maintenance contracts by the FOs were observed in sites selected for PD and RS.

- Complete the work through shramadana and credit the full payment to FO fund.
- Distribute the work (desilting and jungle clearing) among farmers and credit the full amount to FO fund.
- Implement the work through shramadana and share the payment among the participants with or without contributing some percentage to FO fund.
- Contract the work to FO leaders (Office bearers or FRs) and credit some percentage (usually 5%) to the FO fund.
- Subcontract to private contractors and charge them some percentage (usually 5%) of the estimate for the FO fund.

The first mode of implementation is the most prevalent. Maintenance contracts are the major source of funds raised by many FOs. Out of 16 maintenance contracts carried out by RS and PD sample FOs in INMAS schemes, 9 (56%) were done through shramadana and the total income was credited to the FO funds except in one case where income was shared among the participants while crediting 5% to the FO fund. Three contracts (19%) were completed on an individual basis and all income had been credited to FO funds. Thus almost 75% of the income from maintenance contracts was credited to FO funds.

In MANIS schemes, 11 (85%) out of 13 maintenance contracts were implemented through shramadana and the funds credited to the FO accounts. In the Mahaweli schemes, 9 (41%) out of a total of 22 maintenance contracts were done through shramadana and the income credited to FO funds. Another 5 (23%) had been completed individually and the income credited to FO funds. Thus in the Mahaweli schemes, income from 64% of the work done had been credited to FO funds.

In the INMAS, MANIS, and Mahaweli System C RS/PD sites, routine maintenance work is done prior to the commencement of the season. In Mahaweli System H, jungle clearing and desilting is done on a monthly basis. However, jungle clearing in both System H and C is to be done once in two months, while desilting is to be done once a season, beginning in Yala 1994 as instructed by the Managing Director.

Allocation of funds for maintenance, particularly for DC jungle clearing and desilting, is made by ID and MEA annually. In the Irrigation Department, the TAs initially prepare estimates for jungle clearing and desilting. The amount allocated for each distributary canal is decided according to a formula that takes into account the length of canals. Sometimes essential minor repairs of earthwork too are included in maintenance contracts. Other structural repairs are usually undertaken with improvement funds. A similar system is followed by the MEA; the allocations to each DC are made taking into account the

lengths of the DCs. The responsibility of preparing the priority lists for other maintenance work is given to the FOs by both these agencies. In all three programs, the availability of funds and allocations made for each DC are discussed at the JMCs. However, although the MEA seems to make full disclosures of available maintenance funds, farmers reported reluctance on the part of ID officials in many schemes to make known maintenance allocations.

According to our findings, planning for maintenance work to be undertaken by the FOs is done at FO committee meetings. At these meetings the mode of implementation and the target dates are also decided.

4.6 Effects of Turnover

4.6.1 Effects on Operations

Both farmers and irrigation officials say that water distribution has improved after under participatory management whether turnover has occurred or not; this is documented in Chapter 6.

Farmers interviewed in PD sites gave the following reasons for improvement following turnover:

- It is now easier to make necessary adjustments according to field level requirements.
- Farmers' irrigation problems can be resolved easily.
- There is more equitable distribution of water.
- It is time saving as there is no need to go to the TA, WS and Irrigators whenever they have a problem.
- Obtaining increased water supplies whenever necessary is possible through the FO.
- Irrigation problems have been reduced.

On the other hand, there are also allegations that FOs have not performed well after turnover. Major causes cited include poor involvement of the FRs in water distribution at the field level and favoring close associates in water allocation. But DCO office bearers, particularly the Presidents, have been observed to participate actively in water distribution.

Improvements that have taken place after FO involvement in water distribution include setting up of water management committees comprising farmers and officers in some schemes (eg Rajangana and Mee Oya) and planning for system level water distribution. In Mee Oya, there are three water management committees (JMCs), one for each of the three tanks in the scheme, so that intense involvement of the ID is not required. In Mee Oya, overall turnover appears to have benefitted the farmers and improved water distribution.

Though many of the FOs have been given the responsibility for water distribution within the DCs it is doubtful whether the FOs have been provided sufficient knowledge and training on water management, rotational scheduling, etc. In some cases in Polonnaruwa schemes, it was observed that the farmers lack training on water distribution scheduling. In sixteen DCs selected for detailed study of maintenance in the three schemes of Parakrama Samudra, Kaudulla and Gal Oya, it was observed that though the responsibility of all canal operations have been handed over to the FOs, scheduled deliveries were not being undertaken. The FO leaders said that such schedules were not necessary in the Maha season as water supply is adequate and there was sufficient rain. However, it was seen that the farmers were practicing simultaneous irrigation since the water supply was sufficient; FRs were involved only when problems surfaced. The situation may be different in Yala season but the underlying factor was that farmers were not trained in internal water scheduling and operation, despite being given the responsibilities for water distribution. Perhaps the agency operated in the same manner before turnover.

It was observed that the Irrigators appointed by the FOs usually come from the office bearers. In some places, this position is rotated among the office bearers, thus providing a means of earning an additional income from the operations fee paid by the ID.

There are at least two major benefits resulting from the take over of operation responsibilities by FOs.

- FOs can appoint their own Irrigators replacing those of the agency. More accountability and better performance can be expected from the Irrigators appointed by the FOs.
- FOs can now effectively negotiate with the Agency for adequate and more reliable as well as timely supplies of water.

4.6.2 *Effects on Maintenance*

As mentioned previously, whether turnover has occurred or not farmers are undertaking jungle clearing and desilting in their canals, including distributary canals in almost all schemes. Undertaking maintenance contracts is a principle source of income for the FOs. In most sites, maintenance work had been implemented as a cooperative effort.

With regard to jungle clearing and desilting, both farmers and officers feel that the quality of the work is good and sometimes better than when it was done by the agency. According to available RS/PD data, the quality of work done in 10 out of 14 maintenance (71%) contracts undertaken in INMAS schemes, including three for MC clearing and desilting, was good, according to relevant agency officials. Similarly in MANIS schemes, good quality work was done in 7 out of 9 (78%) maintenance contracts, according to officers. According to the LSS, 89 out of a total of 122 farmers (73%) in INMAS sample stated that the quality of the maintenance work done by their FOs was good. In the Mahaweli sample, 91 out of 126 farmers (72%) stated that the quality of FO maintenance work was good.

In a separate maintenance study, farmers in 18 DCs in Parakrama Samudra, Kaudulla, and Gal Oya schemes stated that the quality of their work was better than that of ID. This was admitted by some of the relevant technical staff in these schemes as well. The reason both farmers and officers gave for the poor quality of work done by ID was the lack of commitment of the wage laborers employed to do this work prior to the responsibilities being handed over to the FOs.

In most of the systems, annual O&M allocations have gradually been reduced. Payments are made on the basis of availability of funds rather than on the work done. However, farmers very often complete more than the estimated quantum of work. For example the amount assigned to Kaudulla Eksath FO for maintenance for the year 1993 was Rs 8310. But the total value of the work done by the FO was estimated at around Rs 18,000. One could not have reached the level of participatory management achieved so far without the commitment of the farmers to take over such responsibilities. There were a few isolated instances of farmers cleaning only the area specified in the contract at the initial stages but such occurrences have declined.

Greater contribution of farmer resources, especially labor for maintenance work, is another development of turnover. For example, farmers had cleaned the MCs in Mee Oya under INMAS, Komarika Ela under MANIS and Galkiriyagama under Mahaweli, providing several hundred mandays of voluntary labor inputs.

Another practice is undertaking maintenance jointly with the agencies. Farmers provide labor while the agencies provide materials and machinery. This happens most often when allocations for O&M are insufficient to do the specified work. In one such instance the ID provided only 62 gunny bags while the FO provided material, labor and financial contributions from other farmers to complete the repair of one

of the anicuts in the Mediyawa scheme at a total cost of Rs 15,532. As shown above, farmers have put in more efforts and resources into maintenance than they did before turnover and possibly more than the amount put in by the agency.

Participatory management policies have still not resulted in full turnover of responsibilities as yet. Observations made during this study indicate that the farmers are not yet willing to take full responsibilities as expected. Generally, farmers demand that the contribution of funds from the agencies continue. There were instances, when repairs that could have been done by the FOs were not undertaken on the premise that the agency would do it. This attitude is likely to prevail as long as the agencies continue to do most of the maintenance planning and decision making as well as provide funds for such work. Under such circumstances, it is logical for farmers to try to get the agencies to provide the resources needed for maintenance rather than to supply their own resources.

Though the O&M payments have been the major source of FO funds there is little evidence in the PD and RS data to suggest that these funds have been used for maintenance work, except for a few insignificant expenditures. Some FOs have raised substantial funds, for example, about Rs 75,000 by Ranketha FO in Rajangana, about Rs 150,000 by Kanugolla FO of Komarika Ela, and about Rs 100,000 by Talawa FO in System H. However, these funds have generally not been used for maintenance work.

4.7 Turnover Process

4.7.1 Past Conditions

Certain factors have had an influence on the level of FO involvement in O&M, particularly in maintenance, in some systems. The INMAS program having the longest experience in turnover has had the opportunity to transfer more O&M responsibilities to FOs. In several INMAS schemes, the agencies also have had the opportunity to hire Institution Organizers (IOs) to strengthen the FOs and motivate them to takeover O&M responsibilities. Additionally, INMAS has had special projects such as MIRP and ISMP for rehabilitating the schemes, which has made it easier to transfer O&M functions.

The situation in MANIS is different. Due to the low level of agency involvement prior to participatory management, farmers were compelled to undertake the required O&M to get water to their fields. In many MANIS schemes, therefore, farmer involvement in O&M has long been very high, even without the FOs and JMCs established under the participatory management policy.

In the Mahaweli schemes, in the past, O&M was heavily supported by the agency even for FC bund earth repairs. Therefore, in the past, FO involvement in O&M in the Mahaweli schemes was at a very low level.

4.7.2 Turnover Process

The three programs have similar policies with regard to turnover of operation and maintenance responsibilities in distributary canals. There are similarities in the implementation of this program as a result, for example all believe that a certain period of time should be allowed for strengthening FOs and for learning how to implement their responsibilities.

In INMAS schemes, the period of initial buildup and strengthening of the FOs is followed by a period during which the FOs and the officials prepare and implement annual, seasonal and monthly plans so that the FOs learn from the process and gain experience. This is then followed by periods of informal joint management during which the agency provides funds for the FOs for operation and maintenance and FOs do the work. Full turnover is the next step. Prior to full turnover, the FOs are evaluated on maintenance

and operation performance and FO organizational and financial strength. Though agreements have been signed for full turnover, in fact full turnover has not yet occurred. Instead, a joint management arrangement could be observed.

Under MANIS, there is no planned program for turnover except that operation and maintenance responsibilities are to be handed over after NIRP system rehabilitation. In some systems canals had been handed over for joint management.

The MEA has initiated a planned program for turnover over a four year period beginning in 1994. This has been prepared with the guidance of the Managing Director and is being implemented under his direct supervision. Under this program, turnover would take place in two stages, an initial agreement for joint management, and then full turnover after a subsequent agreement. A program has been prepared for joint management and full turnover, beginning with the strengthening of the FOs. In the Mahaweli schemes, it could be seen that the program is now being implemented from the initial stage of appointing Institutional Organizer Volunteers for strengthening the FOs and implementing training programs for farmers and officers. In some schemes agreements for joint management have been signed.

Although a detailed program for training FOs for turnover has been drawn up under INMAS, the training provided for farmers has not been up to expectations. In the Mahaweli such training has just begun.

It could be seen that an informal process has developed in the present turnover program during this period, consisting of the following four stages:

1. Buildup and strengthening of the FOs. This stage has been accepted as necessary in all three systems and is being practiced.
2. Gradual take over of O&M responsibilities by FO. With the strengthening of the FOs they gradually take up responsibilities in operation and maintenance, starting from field level water distribution and FC maintenance, to DC level responsibilities. The sites in Muruthawela under INMAS and in Mediyawa, Murapola and Ma Ela under MANIS are at this stage.
3. Informal joint management. At this stage FOs take responsibility informally for DC level operation and maintenance. The sites in Muthukandiya and Tabbowa under INMAS, and in Mahananneriya, Komarika Ela and Ambewela in MANIS are at this stage.
4. Formal joint management. An agreement is signed between the agency and FOs. Agencies provide funds while the FOs implement the work. Sites in Kaudulla and Rajangana under INMAS and those in Buttala under MANIS are at this stage.

The present turnover programs have progressed up to the stage of formal joint management. Full turnover has not occurred yet. It is necessary to fulfill three conditions to proceed from the stage of joint management to full turnover.

- Improvement of management capacity of FOs,
- Improvement of technical capacity by imparting necessary technical know how to farmers,
- Willingness and genuine support of agency to provide technical and other necessary assistance.

In addition, it will be necessary to make a firm policy decision to stop subsidizing FO maintenance work.

The legal basis for turnover is the 1994 Irrigation Ordinance. Some have raised possible quibbles over the compatibility between the existing turnover practices and the wording of the Ordinance. Specifically, it has been asserted that the Ordinance requires the FO to request turnover; that is, turnover initiated by the government is not legal. This is not likely to be a problem, but if so, a legal expert will be needed to determine how to resolve the issue.

4.8 Can Farmers Afford Turnover?

The question whether farmers can afford to take over O&M of distributary channels has been raised. A detailed economic analysis is carried out in Chapter 6. Here the issues are outlined and the analysis is summarized to allow us to draw some conclusions.

The key problem is maintenance. Operations on a distributary channel require only a little decision making time and one or at most a few persons to spend a time during the season for opening and closing gates. Maintenance, on the other hand, requires substantial amounts of labor at fixed times and, in the case of structural repairs, can require the expenditure of cash or other resources in relatively large amounts. Thus deciding this issue requires determining how much maintenance actually costs. This could conceivably be done by defining a standard for maintenance and then costing it. This is not actually an effective procedure because maintenance requirements vary a great deal depending upon system characteristics.

For purposes of this analysis, we collected data on O&M allocations for various schemes, including the PD schemes and others for 1993. The amounts analyzed covered annual O&M allocations, including main system, not just for distributary channel O&M. The highest reported figure was Rs 364 per acre for System H and the lowest was Rs 62 per acre for Gampola Raja Ela. Overall, we decided to take Rs 300 per acre as a reasonable estimate of needs.

Based on collected data on farm income for farmers in the PD systems, excluding the one system where farmers incurred a loss, this Rs 300 per acre represents 10-12% of net income from one season of irrigated farming when family labor is included as a cost of production. On this basis, we conclude that farmers could cover the costs of O&M, particularly since the figure of Rs 300 assumes labor at standard wage rates.

However, whether the farmers can continue to afford turnover depends on their profit margins not declining. If profits from irrigated farming, particularly paddy farming, fall, the conclusion reached that farmers can afford turnover may no longer be true.

The question of whether farmers can afford turnover was asked from leading farmers (generally members of JMCs) during the LSS Phase 1 survey. Of 37 farmers who responded, ten (27%) said that farmers can afford turnover. Twenty two (59%) said farmers do not have sufficient funds. The others did not know. These results suggest that farmers' reluctance to take over O&M responsibilities is mostly because of their belief that it would cost them a great deal. However, twelve of these leading farmers (44%) also mentioned lack of sufficient technical and managerial skills as a reason that farmers cannot take full O&M responsibility.

RS, PD and other data clearly shows that FOs can afford to undertake water distribution within DCs, jungle clearing, desilting and small earthwork repairs of DCs, without much difficulty. In several cases mentioned above farmers managed FC gate operation on their own and did routine maintenance of the DC including jungle clearing and desilting without financial assistance. In many MANIS systems, eg Mannankattiya, farmers had long been used to operate and maintain the systems with little or no assistance from the government.

4.9 What should be Turned Over?

4.9.1 *Need for a Decision*

The progress of turnover is at different stages and takes different forms in the irrigation schemes in Sri Lanka. In some places only the responsibility of DC jungle clearing and desilting has been given to farmers and in some only that of operating FC gates has been given. On the other hand there are cases where the farmers are handling operation and even maintenance particularly jungle clearing and desilting up to MC level.

The participatory management policy envisions total turnover of management responsibility for distributary channels and below to farmer organizations. This includes full responsibility for all activities and for mobilizing the resources required for those activities. However, this study did not identify a single instance where total turnover as envisioned by the policy has occurred. Whenever turnover had taken place, it was in the form of joint management, since the agencies still provide O&M funds despite allocations being reduced; the agencies generally provide other services as well. For the ISMP, USAID imposed a condition that at least 30 FOs in Polonnaruwa should agree to take total responsibility for O&M, in order to release additional funds to complete the ISMP project. Although agreements were signed, the government continues to provide resources to these FOs as it does to other FOs. A major reason was that it was felt that it would be unfair to provide assistance to one set of FOs while withholding it from others. Findings of a maintenance study in the Gal Oya scheme show that the FOs had signed the agreements on the informal condition that provision of O&M allocations would be continued as for other FOs.

Many ID officials firmly believe that the ideal form of turnover is that of joint management in which the agency provides funds and farmers do the operation and maintenance at DC level. It is their contention that only this form of handing over is feasible and effective as it is highly improbable that the farmers would undertake these activities on their own. This opinion may be motivated in part because of possible loss of prestige and jobs if full turnover occurs. However, we cannot ignore their field experience in our evaluation of the turnover process.

At present, the operation of FC gates and the jungle clearing and desilting of DCs are the major activities taken over by the FOs. Whether paid or not, farmers now clearly know that certain operations and maintenance responsibilities will be handed over to them. What is now necessary is to decide what will constitute full turnover so that both agencies and farmers will know what the goal of the program is.

Our findings suggest:

- Water distribution has improved from turnover.
- DC and FC maintenance has not suffered from turnover.
- Farmers can afford turnover as long as the profitability of irrigated agriculture does not fall.

The latter two findings are disputed by those who advocate joint management.

If our findings are accepted, there is no irrigation or agricultural reason why full transfer of DC and FC responsibilities to farmers should not be effected. This conclusion is strengthened by the known cases of MANIS systems, such as Mannankattiya, where farmers operated and maintained the systems for a long period without substantial assistance from the government. It is true that many (but not all) of these systems are currently quite dilapidated. However, given that some of the Mahaweli systems are being rehabilitated after less than 15 years of use, farmer performance does not seem bad.

Finally, current thinking suggests that rehabilitation of irrigation systems is a natural need. Maintenance should not be expected to keep the system as good as new. Rehabilitation after an appropriate period allows for both better repair work than is possible under regular maintenance and for redesigning the system to serve new needs and to take advantage of new technology. Like any other capital good, an irrigation system should be depreciated over time. The trick is to balance investment in maintenance with investment in rehabilitation to get the least cost option. This implies that we should not expect farmers to do a perfect job of maintenance, any more than we can or should expect the irrigation agency to do so.

4.9.2 Possible Alternatives

Although there is no reason to believe that farmers cannot maintain distributary channels and below, there are other issues that need decision. Most importantly, transferring to farmers the full responsibility for all maintenance of distributary channels and below will impose higher costs on farmers. The issue is whether the government wishes to continue to subsidize irrigated farming by paying some or all of these costs in addition to the costs of constructing the systems and of operating and maintaining the headworks and main systems. This is a political decision.

Full Turnover Full turnover would mean that FOs are given the full responsibility for O&M below the DC head, or an equivalent point on systems without DCs. Full responsibility would include paying all of the costs; there would be no subsidies beyond the subsidy provided in the O&M of the main system.

The arguments in favor of full turnover include:

- Making farmers completely responsible for maintenance of distributary channels and below clarifies and simplifies responsibilities. At the moment, some FOs do only the maintenance work they are paid for and others do not make repairs well within their capability while trying to get the government to make the repairs. Once responsibilities are clarified, this would not happen.
- Completing turnover will make it possible for the agencies to focus their attentions to maintenance of the main system and may improve the sustainability of the systems as a whole.
- Completing turnover means that the financing of maintenance of distributaries and below will not be subject to problems of public finance.

The argument against completing turnover is that imposing the full cost of maintenance of distributary channels and below on farmers will increase the cost of production to farmers. In a few cases, this will make it uneconomic to maintain the systems or to continue irrigated agriculture. The number of such cases is likely to increase if the profitability of paddy production, already low, declines further.

The current situation is unsatisfactory because some farmers continue to expect government assistance that is only partially provided.

Alternatives to Full Turnover There is no serious opposition to turnover of operations responsibilities for DCs and below to FOs; virtually all agree that it has improved water distribution and relieved the irrigation agencies of some of their burden. The problem is maintenance. To find appropriate alternatives to full turnover of all O&M responsibilities, including financing, we should consider just what the maintenance issues are.

As mentioned earlier, maintenance covers a variety of activities that can be classified under four heads, each of which applies to both DCs and FCs:

- Jungle clearing and desilting (jungle clearing)
- Concrete and masonry structure repairs (structure repairs)
- Earthwork repairs (earthwork)
- Maintenance of metal parts (painting, greasing, etc)

There is reason to separate jungle clearing from desilting since the latter can require a great deal more effort than the former. However, most farmers and irrigation officers treat the two as a single category since they are generally done at the same time; we follow their practice here.

From the farmers' point of view, the key questions are the technical requirements of the work, the labor needed, and the costs in terms of cash or other resources. We distinguish labor costs from other costs because farmers are often willing to contribute labor when they are not willing to contribute cash. When special machinery or special skills are required they can be purchased with cash. Rating the four activities on the basis of these requirements gives the results shown in Table 4.7. We can see that farmers can easily undertake jungle clearing and desilting except when desilting labor requirements become high. Also, they can easily take on painting, greasing, etc. Small earthwork repairs are also well within farmers' capabilities, but large ones may require more labor and cash than they would be willing to spend. Similarly structure repairs can require both more cash and technical knowledge and skills than they have.

Table 4.7: Requirements for Maintenance Activities

Maintenance Activity	Technical Requirements	Labor Requirements	Cash Requirements
Jungle clearing	Low	Moderate/high	Low
Structure repairs	Moderate/high	Low	Moderate/high
Earthwork	Low/moderate	Moderate/high	Low/moderate
Painting, greasing, etc	Low	Low	Low

This evaluation suggests the following alternatives to full turnover of maintenance responsibilities to FOs:

- **Alternative 1** (low technical and financial burden on farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs. As pointed out, FOs are already doing this and farmers have come to accept it.
- **Alternative 2** (low technical and moderate financial burden on farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs.
 - FOs would take responsibility for painting, greasing, etc.
 - FOs would take responsibility for small earthwork repairs.
 - All other work, including heavy desilting and major earthwork, would be the responsibility of the irrigation agency.
- **Alternative 3** (moderate technical and financial burden of farmers):
 - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FCs and DCs.
 - FOs would take responsibility for painting, greasing, etc.
 - FOs would take responsibility for small earthwork repairs.

- FOs would take responsibility for simple structure repairs.
- All other work, including heavy desilting, major earthwork, and large or complicated structure repairs, would be the responsibility of the irrigation agency.

Note that here the term "responsibility" means complete financial and planning responsibility. It is not meant to refer to a version of the current system where the irrigation agency carries out planning and pays part of the costs.

Other alternatives can be envisioned. In each case, the definitions of such terms as "small earthwork repair" would have to be worked out and the expected cost to the government worked out so that the subsidy implied by these alternatives can be known.

All of these alternatives imply changes in the way that the irrigation agencies provide support to the FOs for maintenance. The current system of using contracts is rather detrimental since it removes much of the planning responsibility from the farmers but does not provide the resources to actually carry out the work as planned.

We see two alternative ways to provide the maintenance subsidy to FOs.

- The first and simplest is simply to give them a cash grant based on the average needs for their particular DC. While it might be objected that this gives the FOs too much freedom to misuse the funds and to neglect maintenance, we suggest that farmers are too responsible (they would suffer) to treat maintenance like that. A simple solution would be to cut the subsidy if after some reasonable period - say a couple of years - maintenance is not carried out.
- A more complicated way to give a maintenance subsidy and yet leave the planning responsibility to the FOs is to set a grant limit each year for each FO and then ask them to define plans to use that grant. The funds would then be given either on receipt of the plans or after the work is finished. This would increase the likelihood that the funds are actually used for maintenance but would increase the management burden on the irrigation agency.

As pointed out earlier, a decision to continue a subsidy to farmers for maintenance cannot be justified on the grounds that farmers do not have the resources and abilities to carry out maintenance. However, continuation of a subsidy through one of these forms may be a more acceptable way to resolve the question of what to turn over.

4.10 Some Other Factors to be Considered

4.10.1 *Turnover and Irrigation Rates*

Turnover of O&M responsibilities to an FO will, under the 1988 Cabinet Paper and under the 1994 Irrigation Ordinance, exempt the FO from payment of irrigation rates. On paper, this provision provides a major motivation for farmers to take over O&M responsibilities. In fact, since irrigation rates are not being collected except in a small way in a few places, this provision has no effect. Seen in one light, virtually all farmers are acting in defiance of the law.

It would be useful to resolve the issue of the relation between irrigation rates and turnover. The current policy in theory gives farmers the right to decide between turnover and paying irrigation rates. One possible approach is to enforce the rates and make the farmers choose. This approach is not likely to be politically popular.

A more viable approach is to decide to abolish the rates and make turnover compulsory. This approach would allow the government to explain to the farmers that it is doing this so that farmers will no longer be acting in a manner that is technically illegal and yet is solving the financial problem that gave rise to the need to collect irrigation rates.

4.10.2 *Conditions Precedent to Successful Turnover*

There are some conditions that should be fulfilled before handing over of O&M responsibilities if the handing over is to be effective. Some of these are given below.

- Need of strong and effective FOs. This has been accepted as a necessary condition in all three programs and all are having their own institutional development programs. It is necessary to evaluate the organizational strength and the performance level of the FOs before handing over. At present such evaluation is done in the INMAS program and is planned for the Mahaweli program. Particular attention should be paid to strengthening and evaluating the build up of the FO management capacity.
- Need of a clear turnover process and plan. Except for the Mahaweli program, there are no clear processes and plans for turnover. Without such a defined process and plan, the implementing agencies cannot have clarity in implementing the program. The result in both INMAS and MANIS schemes is that turnover is being implemented in an unsystematic manner that varies from scheme to scheme. It is too early to comment on the progress in the Mahaweli schemes.
- Need for providing necessary technical knowledge to farmers beforehand. Adequate technology transfer should take place before the handing over to farmers both in operation and maintenance. This should take place at the joint management stage. In the maintenance study it was observed that there was no such technology transfer.
- Need for repairing the system to an operable level. The definition of an operable level is controversial, but both farmers and irrigation officers believe that the government should repair the system before turnover. Our thinking also supports this view as farmers would be more willing to take over and be accountable for maintenance of the system if the canals are handed over after repairs. Experience in Uda Walawe has shown that the process of accountability of farmers is strengthened when the canals are handed over after rehabilitation. In the DC in Uda Walawe studied under another IIMI project, farmers were very much concerned about the protection of the canals and roads and some earth work repairs were undertaken on their own. In contrast it was observed in the maintenance study mentioned earlier, that the farmers were not concerned about the protection of canals which had been handed over in a dilapidated condition. In fact farmers cannot undertake proper maintenance of such canals.
- Need for a decision about the relationship between irrigation rates, irrigation financing, and turnover.
- Willingness and firm commitment of the Agency officials.

There would be some consequences that must be planned for in the decision to complete turnover.

- There will be a need to reduce the irrigation agency field staff although the reduction may not be a major one.
- It will be unfair to transfer responsibilities wholly to some FOs while others continue to get support and services. Unless there is a system level handing over plan such individual occurrences would be a de-moralizing factor for effective FOs since weaker FOs are more benefitted than the effective ones.

4.11 Conclusions on Turnover

The participatory management policy has clearly succeeded in getting farmers much more involved in system management than they were in the past, except in some MANIS systems that had been neglected by the irrigation agencies. However, turnover has not progressed as expected in two different ways:

- On the one hand, fewer than expected agreements have been reached in all programs. Only the INMAS program has made much progress in achieving some form of turnover, although the MEA is now seriously trying to make turnover work. There has been very little progress in MANIS schemes, although the NIRP mandates turnover.
- On the other hand, full turnover has not occurred in any of the three systems and the progress has stopped at a joint management stage. In particular, there is reluctance of the part of both agencies and farmers to have the full responsibilities for maintenance turned over to the FOs. Payments continue to be made by agencies for O&M activities to FOs that have taken over responsibilities, either informally or formally.

Farmer involvement in operation and maintenance has brought forth some improvements. Farmers generally believe that water distribution has improved after the involvement of the FOs and many farmers believe that there is an improvement in the quality of the maintenance work done by the FOs. Also the farmers contribute resources for maintenance, mainly labor for system maintenance even up to the MC level. Therefore, it could be concluded that even though full turnover has not occurred there have been many improvements in operation and maintenance after the farmers take over these responsibilities.

The most prevalent activities undertaken by the FOs are DC jungle clearing and desilting and FC gate operation. Of these DC jungle clearing and desilting is now being done by almost all the FOs, as they consider this as their responsibility. It is now accepted that farmer responsibility up to this level has been attained, although payments are still made by agencies.

There is no general consensus about how far turnover should proceed. Many Irrigation Department officers strongly assert that to turn over full maintenance responsibilities to farmers would mean that the systems will deteriorate physically faster than they should. Personnel from other agencies and organizations believe that this assertion is not true. Farmers themselves say that they cannot afford turnover of maintenance; however, it is clearly in their interest to say this to keep the subsidies coming.

Therefore, an immediate need is to define clearly just what responsibilities will be turned over to FOs and what, if any, will be the subsidy given by the government.

We strongly recommend that payment should not be made to FOs for FC gate operation and DC jungle clearing and desilting. It is our firm belief that farmers can take over these activities without the provision of outside funds. We recommend that such payments be stopped for these two activities, at least on an experimental basis. Stopping these payments can also be used as a preparatory test for full turnover. By not making such payments, farmers will be made to understand that they should undertake these activities with their own resources. Provision of funds should be made only for other maintenance work such as repairs etc.

In deciding the responsibilities to be handed over, an affordable turnover level for farmers should be decided. Experience has shown that the farmers can easily afford FC gate operation and DC jungle clearing, desilting and minor repairs. The farmers have been already doing this in some schemes without any agency involvement. FOs can also take on other operational duties; some have asked to do so and many have done so without being asked.

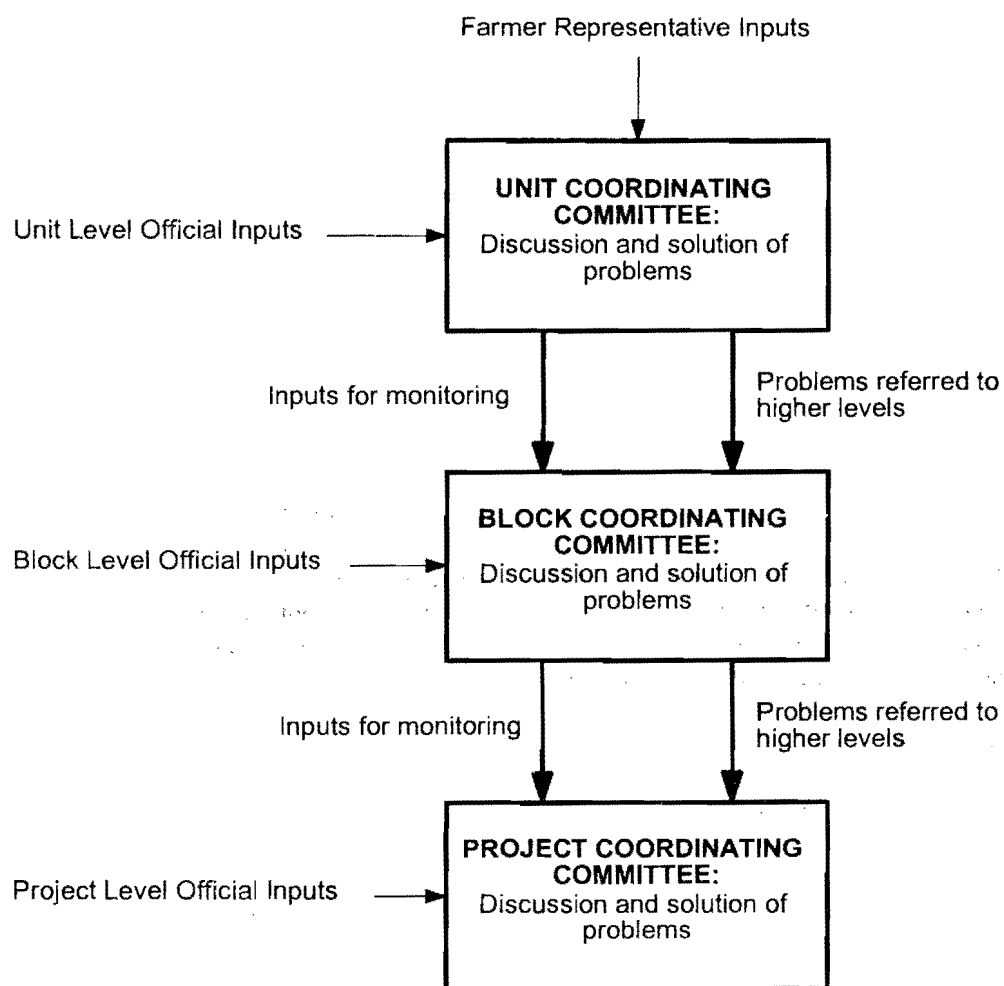
Once there is agreement on what is to be turned over, then effective plans can be made. At the moment, only the MEA has an overall plan. With regard to a process or plan to implement the turnover program, we suggest that the natural process that has been developed over time in this exercise be followed. It could be described to consist of five stages; building up and strengthening the FOs, gradual assigning of O&M responsibilities to FOs, informal joint management, formal joint management and, finally full turnover. A total plan should be prepared with a time frame together with the ID, IMD, and MEA so that any division of ideas can be made minimal and the program can be implemented jointly. The ID should be given more responsibilities than the IMD in implementing this program.

Next, it is recommended that funds, if any, should be provided as a grant rather than on a contract basis as it would be helpful in instilling a sense of financial responsibility in farmers. The current contracting practice removes planning responsibility from farmers and, in some cases, encourages farmers to view maintenance as a way to make profits.

Before full turnover occurs it is necessary to provide farmers with the necessary technical know how in operation and maintenance. The present class room type training should be changed. Participatory rural appraisal methodologies should be used for this technology transfer to develop the farmers' knowledge base. The agency officials too should be provided with the necessary training on technology transfer and support services after turnover. Technology transfer and development of farmers' knowledge base should be undertaken during the formal joint management period. Responsibilities should be shared and the roles and functions of farmers and officers clearly decided at this level.

Finally, there are some conditions that must be fulfilled before turnover. Foremost is building a strong and effective FO. Next, the canals should be repaired to an operable level, otherwise, expected objectives of turnover may not be achieved.

Figure 3.2 The Mahaweli JMC Monitoring and Problem Solving Process



CHAPTER 5

AGENCY SUPPORT FOR PARTICIPATORY MANAGEMENT

5.1 Need for Agency Support

Agency support for participatory management includes:

- providing catalysts to encourage farmer organization development,
- recognition of FOs,
- providing assistance to farmers through FOs,
- giving guidance to FOs and farmers,
- taking part in JMC and other meetings,
- and conducting training.

Through the development and progress of INMAS and MANIS programs, it had been evident that agency support had been directly responsible for the strength and sustainability of farmer organizations. The concept of participatory management is often limited to the participation of farmers. The process has often been conceived by most policy makers and planners as one in which the only change required is to organize the farmers. It is often forgotten that the other side, agency participation and support, is as vital as organizing farmers. After almost two decades of participatory management, it is becoming evident that strength and weakness of farmer organizations and joint management committees depends in part on the catalyst agents, the mode of agency participation, commitment of agencies to farmer organizations and accountability of agencies to farmer organizations.

5.2 Catalysts and the Organizational Process

Role of Government Agencies Some FOs have been initiated by non-government organizations (NGOs). The RS turned up two cases where the initiation of FOs was done by NGOs:

- In Muthukandiya, an INMAS scheme, the National Development Foundation initiated and established FOs at field canal level.
- In Ma Ela, a MANIS scheme, the initial FO development efforts were taken by Nation Builders Association under the Hanguranketha Water Management Project.

NGO involvement in FO development process has at times created problems when the NGOs supposed to work in accordance with the government policy guidelines. Thus there were some conflicts at Muthukandiya between the National Development Foundation and IMD over how the work should proceed.

Despite occasional NGO involvement, the great majority of FOs under the three programs have been created at the initiative of government agency staff. FOs created under INMAS were basically initiated by IMD staff (PM and IOs). In MANIS schemes, ID staff initiated the process. In Mahaweli schemes, it was the MEA officials. The Department of Agrarian Services (DAS) has also created FOs, for example, at Mannankattiya and Dewahuwa. In Dewahuwa, the DO created FOs to compete with the INMAS FOs. Such rival FOs have often created problems for farmer organization development.

The Catalytic Process Two models for initiating FO development have been used. The most common model, derived from early experiences at Gal Oya, has been to use dedicated catalyst agents, Institutional Organizers (IOs), who work full-time with individual farmers to convince them of the value of

organizing and of participatory management. The second model, derived from experiences at Kimbulwana Oya, is for a dedicated irrigation officer to act as a catalyst to show and convince farmers to organize and to work with him in managing the scheme. The Gal Oya model clearly requires more resources. The Kimbulwana Oya model requires particularly dedicated and capable irrigation officers.

Catalysts have played a major role in farmer organization formation and development. Initially, they convinced individual farmers to participate in group activities. This they did through individual visits to farmers and through awareness training. Secondly, catalysts provided direct assistance to new FOs in handling some of its functions as they attempted to develop into sustainable organizations.

There have been large differences in the intensity of organizing efforts depending on the program and resources.

- From the beginning, INMAS schemes have had full-time catalysts in the form of the Project Managers. Most have also had Institutional Organizers to work directly with the individual farmers. Some have had IOs over periods of time ranging from two years to eight years. Until 1990, only schemes with special donor funded projects had IOs, but that included all the largest schemes and many of the smaller INMAS schemes. Since 1990, IMD has made it a policy to provide IOs to all INMAS schemes. Due to budget cuts, however, virtually all IOs were discontinued at the end of 1993. A few have since been rehired. Note that the Gal Oya model asserts that IOs are to be **temporary**.
- In contrast, no MANIS schemes were assigned IOs until 1991. At first, the MANIS program explicitly tried to adopt the Kimbulwana Oya model of organization. After 1990, in consonance with the policy change within IMD, the ID has supplied IOs to MANIS schemes wherever they can be funded from a rehabilitation project. Since 1992, a large number of IOs have been provided to MANIS AB schemes under the National Irrigation Rehabilitation Project. However, in no scheme has the ID been able to supply IOs at the same level as in most of the INMAS rehabilitation projects. Also, INMAS schemes have never had full-time Project Managers.
- Mahaweli schemes have not suffered from a shortage of manpower or finances. However, until 1992, MEA officers were generally dedicated to tasks other than organizing farmers, even after the adoption of participatory management as a policy in Mahaweli schemes in 1989. Since 1992, however, the MEA has assigned full-time staff to promoting participatory management. Each scheme has an Assistant Manager (Institutional Development) and has an Institutional Development Officer assigned to each block. In addition, part-time Institutional Organizer Volunteers have been recruited for three of the schemes.

The longer time and greater investment in catalytic efforts in INMAS schemes has paid off, as shown earlier, in FOs that are stronger and perform their tasks better on the average than FOs under the other programs. Efforts in Mahaweli schemes have been made at a lower level and for a shorter time, hence the FOs are, on the whole, both weaker and perform less well. MANIS FOs perform at the lowest levels, corresponding to the least amount of inputs to the organizing process.

Weaknesses in the Catalytic Process The study findings reveal that farmer organizations are increasingly becoming disappointed with IOs.

- In Muruthawela, FOs complain that the reduced number of IOs (from five to one after 1993) has affected FO development.
- In Rajangana, farmers feel that IO input in conducting awareness programs was below expectation. Farmers said that when the IOs heard that their services will be discontinued after 1993, they lost their enthusiasm and innovativeness which they possessed at the beginning.

- In some schemes, for example, Muruthawela, Tabbowa, and Gampola Raja Ela, IOs have been reduced to messengers carrying messages between the FOs and agency staff.
- In Wennoruwa, the FOs has started to complain about the activities of the IOs even though they have been there only since late 1992.
- In Ambewela and Kande Ela, the activities of IOs are considered to be poor. The FRs complain that the IOs only attend shramadanas and important meetings. One reason for poor IO participation in these two schemes is lack of proper transport facilities for the difficult terrain.

However, in Dewahuwa, the FO office bearers who were interviewed spoke well of the IOs. This was surprising as Dewahuwa was considered to be a backward scheme with respect to institutional development. Similarly, in Mediyawa, the ID staff and FO both appreciate the functions of the IOs who have been instrumental in building awareness of participatory management.

A major reason for the reduced role of IOs at present is the reduced number of IOs presently working in the schemes. For example, in Rajangana after 1993, there were only 4 IOs to work in with 56 FOs. In Tabbowa, all of the IOs were withdrawn, leaving the Project Manager to deal with the scheme alone. Low IO density makes it difficult for IOs to work directly with individual farmers. The IOs try to compensate by dealing with groups but at the cost of reduced effectiveness.

Training of IOs Training is a key factor in IO development, which invariably supports FO development. Inadequate training, especially in-service training, was mentioned by most IOs as a problem. Over the past few years, the number of training sessions has declined greatly due to financial constraints. In the LSS, lack of training for IOs had been identified as a major problem under INMAS schemes. Table 5.1 shows the judgements of institutional development officers interviewed for the LSS on the adequacy of training in three key areas.

Table 5.1: Adequacy of Training Received by IOs/IDOs (% officers feeling training is adequate)

Program	Motivation of Farmers	Organizational Development	Technical Subjects
INMAS	64%	64%	64%
MANIS AB	46%	38%	31%
MANIS C	14%	31%	38%
Mahaweli	66%	33%	-

The training received by IOs in the INMAS programs refers mainly to IOs' initial training. If training were continued in a systematic and regular manner, the percentage should have been at least 75% - 85% in all three topics for INMAS schemes.

Transport Another problem mentioned, particularly for MANIS schemes, is lack of proper transport facilities. Transport is important if IOs are to be able to work with all of the farmers.

5.3 Dependency

Creation of Dependency Beginning with Gal Oya, every attempt has been made to hire young people as IOs and to harness their enthusiasm for helping farmers. It was hoped that they would identify with the farmers. Also, they were hired on fixed term contracts for three reasons:

- To be able to recruit fresh persons with high enthusiasm,
- Because the IO role is supposed to be temporary since a goal is to make the FOs self-reliant,

- To avoid a major long term commitment of funds.

An important observation made during the study is that IOs are moving away from the catalyst function as initially conceived and becoming more like a field level government officers. IOs and other catalysts now often try to work themselves into a permanent role, generally one of being intermediaries between the farmers and the agencies.

The Project Manager position in INMAS and MANIS schemes is now considered a permanent position, although the permanency of the position was questioned when the INMAS program started. As with IOs, Project Managers often act in ways to make themselves indispensable to farmers by becoming go-betweens with other agencies. Many Institutional Development Officers (IDOs) also seem to be working to make the FOs dependent on them.

Probably the major reason for the change of attitude from the early days of Gal Oya and INMAS is the search for assured employment. One constant demand from IOs is that they be given permanent jobs.

These acquired functional responsibilities have created dependency by the FOs on the Project Managers, IDOs, IOs, and others involved in promoting participatory management. That is, instead of promoting self-reliance, the catalyst agents have begun to promote dependency, albeit a new type of dependency than the old dependency on the irrigation agency for irrigation services.

- In Kaudulla, an enthusiastic IMD Project Manager, while getting the FO development on path, had created a sense of dependency that became obvious with the PM leaving the scheme. In this case, the FOs were used to the Project Manager's rather autocratic style of management. This style functioned well during the Project Manager's time, resulting in the Kaudulla scheme FOs becoming known as the most successful in the country. However, since the Project Manager's departure in 1993, the performance level and satisfaction level of the FOs has declined. The SLFO President now asserts that the FOs need an "official" always in the scheme to serve them in times of need.
- In Muruthawela, the FOs totally depended on the former Project Manager for all functional purposes. In this case the Project Manager gave a great deal of his own time for FO development. According to farmers, he visited the scheme almost every day and attended to FO problems. His replacement is seldom seen in the scheme and the FOs do not know how to handle some of their problems.

Consequences of Neglect While many of the Project Managers, IDOs, and IOs, through their manner of solving FO problems for them, have created dependency, there are other cases where the catalysts have not been active. While inactivity clearly does not create dependency, it can have either bad or good consequences depending on other factors and other aspects of the organization process.

For example, in Abakolawewa, a tank within Mee Oya scheme, an INMAS scheme, there has been relative neglect. Several IMD Project Managers have been assigned to the scheme over the years. In several cases, they were responsible for other schemes as well. The present Project Manager is responsible for Dewahuwa and Inginimitiya as well as Mee Oya. Also, until 1990, IMD provided no assistance for the Project Manager. Even in 1990, the number of IOs provided was small. One of their first actions was to totally reorganize the FOs, hence the farmers have only had a few years experience with the present FO structure. Also, Mee Oya has not had any rehabilitation and most of the control structures in the channels no longer function. Despite this neglect relative to other INMAS schemes, such as Kaudulla, the Abakolawewa FOs are now managing all aspects of water delivery, including operating the tank sluices. Also, both with and without contracts from the ID, they take responsibility for both DC and main channel maintenance.

On the other hand, in Muthukandiya, another INMAS scheme, the Project Managers have also not been enthusiastic and active and, as in Mee Oya, have not had IOs and other assistance. While the FOs have avoided dependency they have also not shown any real initiative to take charge of their own affairs. One complicating factor has been efforts by an NGO, the National Development Foundation, with funding from Australian AID, to create FCGs in Muthukandiya. At times, these efforts conflicted with IMD efforts to create higher level organizations. This conflict has confused farmers. Also, Australian AID paid for some repairs to the system.

Probably, the major differences between the Mee Oya and Muthukandiya cases are:

- Abakolawewa can operate independently of the rest of the Mee Oya System, thus Abakolawewa farmers, by taking the initiative with an Irrigation Division that deals with many other systems, can gain control over their water resources. This independence does not exist in Muthukandiya. In Muthukandiya, farmers would have to take over the whole system rather than a small part.
- The presence of the NGO and Australian AID perhaps has created an expectation that outsiders will provide assistance.

It is important to note that total neglect may not result in effective participatory management along the expected lines. Thus, although Mee Oya farmers have been neglected relative to some other INMAS schemes, their basic organizational patterns and even the idea that they should take responsibility for themselves derive in part from INMAS. That is, Mee Oya farmers have learned from the IMD employees who worked there.

MANIS Schemes In MANIS projects, one finds a mixture of situations, where FO dependency on the IO or Project Manager depends on the degree of involvement of the PM. In Kimbulwana Oya water management through FOs was very well established during the former Project Manager's period. There was a FO structure institutionalized for water management and it performed well due to the consistent involvement of the former Project Manager. However, when the Project Manager left the scheme, the farmer organization found it difficult to maintain the same level of functioning.

A different situation, however, prevails in other MANIS schemes. In Ambewela and Komarika Ela, FOs have been actively involved in system O&M. In both schemes, involvement of the Project Managers was significant in getting participatory management operating as planned. As in Mee Oya, however, the Project Managers did not take over functions that should be played by the FOs.

Lower dependency of FOs is generally found in MANIS systems for the following reasons:

- Many MANIS schemes had been operated and maintained by farmers themselves over a long period of time because they were largely neglected by the Irrigation Department. This was true in several of the sample MANIS schemes, including Ambewela, Komarika Ela, Mannankattiya, Mediyawa and Mahananneriya. There was less dependence on the Irrigation Department even prior to participatory management than in other schemes.
- Project Managers in MANIS systems are Irrigation Department Technical Assistants and Irrigation Engineers. Unlike IMD Project Managers, they have never been concerned about whether their jobs will be phased out. Hence, they have had no need to make themselves indispensable to FOs. This fact also means that they are not as motivated as IMD employees to get the FOs operating well.
- Though Project Managers were appointed under MANIS, they did not have resources or incentives to be used to promote participatory management. Even if motivated, they had less facilities to do things for FOs to create dependence.

- Because MANIS schemes are generally smaller than INMAS or Mahaweli schemes, farmers can take over management of larger portions of the scheme. If they want, farmers can reduce their dependency on ID employees more easily than can INMAS or Mahaweli farmers.
- INMAS and Mahaweli schemes are settlement schemes where most of the farmers have resettled from elsewhere within the last 70 years, in many cases within the last 20 years. In general, these farmers have not developed self-governing villages or other units. On the other hand, in many (but not all) MANIS schemes, long established villages and other self-governing units exist.

Avoiding Dependency Both MANIS and Mahaweli programs should make the effort to avoid creating dependency of FOs on IOs and Project Managers as has happened in some INMAS schemes. Unfortunately, in some MANIS schemes, eg Kande Ela, dependency has already started.

In the case of MEA, because it is a highly bureaucratic agency, unless a conscious effort is made to avoid creating dependency, it will be unavoidable. For the recently commenced IOV program in Mahaweli schemes, they have recruited 78 IOVs for System C, 53 IOVs for System B, 49 for Uda Walawe and hope to recruit 44 IOVs for System H. This recruitment pattern gives a IOV densities ranging from 708 hectares per IOV in System H to 269 hectares per IOV in System C. Thus the IOV density is not high. Therefore, MEA will have to monitor closely the effectiveness of IOVs with respect to their roles and functions in FO formation and development to ensure that the IOVs work with individual farmers.

The involvement of catalysts in the FO development progress is essential. If not for the involvement of IOs, the FOs in INMAS would not exist, as these FOs are not voluntary organizations created by farmers for their own need but government created organizations. However, a conscious and sustained effort is needed to keep catalysts from promoting dependency on their services.

5.4 Supportive Agency Actions

Participatory management implies not only that farmers organize themselves to participate in system management, but also that the irrigation agencies work with the farmer organizations. Achieving agency commitment to the development of participatory management is a paramount concern.

Irrigation Management Division The initial success of the INMAS program can be attributed to the commitment shown by the IMD staff. However, after a decade of operation, we observed a decline in the commitment of the IMD staff to the INMAS program. The number of IOs have declined due to financial constraints and there are a large number of vacancies for Project Managers. Though the number of IOs are supposed to be reduced as FOs grow in capabilities, drastic reductions or complete withdrawal as happened in December 1993 was not supportive to the development of FOs. The non-availability of Project Managers due to delayed recruitment also has made the work harder for remaining IMD staff such as IDOs.

Because of the negative impacts that these staff problems have had, IMD reappointed IOs on a reduced scale by mid 1994. This action has helped in schemes like Rajangana and Kaudulla where the FOs are strong but require outside assistance occasionally. In schemes like Muruthawela and Muthukandiya, the low density of IOs is not likely to be very effective because the farmers still need their services to strengthen the FOs. In this situation the two IOs appointed to Muruthawela and one IO to Muthukandiya are grossly inadequate. Withdrawal of IOs should be dependent on the degree of strength of FOs.

With the establishment of the PMCs, the Project Manager became an important person in irrigation system management. When a vacancy exists in such a post, it becomes paramount importance to fill the vacancy at earliest possible. However when delays occur it affects the functioning of the PMC. The line

agency commitment also is reduced due to irregular meetings. This was one of the problems that came up in the management of Kaudulla system after the former Project Manager left office.

The Project Manager is expected to coordinate the efforts of other line staff through the PMC to support the FOs' efforts to increase productivity. It was envisaged that other line agency staff, particularly the Irrigation Department, Department of Agrarian Services, and the Agriculture Department, would give their fullest support to FOs.

Our evidence indicates that, generally, IMD Project Managers, the IDOs, and the IOs attend JMC meetings regularly and DCO meetings on request, and organize training for FOs. Most IMD employees provide advice and give other assistance to FOs as their particular positions require. As pointed out earlier, there has been a falloff in enthusiasm among IMD employees in the past couple of years because of budget cuts and other causes, including discussions of a possible merger of the IMD with the Irrigation Department. Training programs have also been reduced during the past year due to lack of funds. The reduction in training programs may have an unfortunate effect on future FO leaders.

Irrigation Department Without supportive actions by the Irrigation Department, participatory management could not have gotten started. It is imperative that ID personnel respond positively to FO requests; if they do not, farmers have far less reason to support the FOs. One of the problems in the early experiments at Gal Oya was that many ID staff members, particularly TAs, often were not available to deal with farmer concerns. The program succeeded in large part because of support from the then Deputy Director of the Ampara Range. Thus the most important support that the Irrigation Department can give to the FOs is to work with them, including attending JMC and other meetings, and responding to the FO concerns.

Support by the Irrigation Department staff in INMAS schemes has varied over time and space. Support has increased since the start of the INMAS program, although there were many cases of conflict between IMD and ID staff in the earlier years. These cases of conflict have decreased as ID staff, IMD staff, and farmers learned to work together and as ID staff came to accept the changes. Today, for the most part, ID staff members in INMAS work together with FOs cooperatively, although not always to the full satisfaction of both parties.

In MANIS projects, the support of ID staff has also changed over time. Although the MANIS program was formulated in 1986, it was not until after declaration of the participatory management policy in 1988 that ID staff in MANIS schemes began to make real efforts under some pressure from Director of Irrigation. Prior to 1990, however, the MANIS program was not provided with any extra resources. Even now, the personnel and other resources available to the program are less than for the other programs.

ID personnel have also regularly taken part in training programs for farmers conducted by IMD. With respect to sponsoring training courses, ID has done its best with the limited resources available. However, training had not been regular and systematic.

A key form of assistance has been offering construction contracts to FOs under rehabilitation projects. For many FOs this opportunity has made it possible to develop skills and to earn funds.

Some specific supportive actions other than standard work recorded in the RS data during 1993/94 Maha and 1994 Yala seasons include:

- At Muruthawela, on the request of the FO, the ID provided the services of a tractor and pipes to help an FO undertake maintenance.

- At Rajangana, the ID provided technical advice and the services of a tractor for contract work by an FO.
- At Wennoruwa, ID officers gave a training course for FO office-bearers.
- At Komarika Ela, ID officers provided training on financial management.
- At Radagalpotha, ID officers organized a tour for farmers to Dambulla to learn about growing big onions.

This list is not comprehensive by any means. The most important support that can be provided is the daily willingness to work with the FOs.

Other Agencies in INMAS and MANIS Schemes In INMAS and MANIS schemes, the IMD and the ID are clearly the most important agencies whose support is needed for participatory management. However, FOs are strengthened when other agencies provide services to farmers through the FOs.

Other agencies' support has varied a great deal of time and space. Generally, the other agencies have not been obstructive but in many cases they have not been helpful. Attendance at JMC meetings of personnel from other agencies is often erratic. On the other hand, there are cases of specific supportive acts. Some instances from RS schemes during Maha 1993/94 and Yala 1994 include:

- The Department of Agrarian Services provided two wheel tractors to a number of FOs. They also provided training to FO members at Wennoruwa and Mediyawa.
- In Rajangana, the Paddy Marketing Board named an FO a paddy collecting agent.
- In Rajangana, the Crop Insurance Board has chosen to work through FOs to estimate crop damages.
- In Muruthawela, the Land Commissioner's Department is working with FOs to solve boundary problems.

There were many other such cases. However, they are generally sporadic and not consistently carried out as a general policy.

Mahaweli Economic Agency In Mahaweli schemes, all support of whatever kind is provided by the appropriate division of the MEA. Until 1992, support for FOs was overall quite weak. The MEA was created as an organization dedicated to establishing new settlers in the Mahaweli schemes. This was interpreted to mean that, at least initially, virtually all services would be provided for the settlers. In the eyes of most MEA officers, there was neither need nor place for FOs and JMCs in this conception. The major exception to this generalization was the work carried out in System B, and partly in System C, by the MARD project to help FOs develop marketing and agribusiness capabilities (see Hettige and Muller 1995).

Since 1992, however, all MEA staff have been instructed to work with the FOs and a JMC structure has been established as a mechanism for joint decision making and problem solving. Also, MEA has made consistent efforts to support FOs by offering maintenance contracts, not just for DCs as is done in INMAS schemes, but also for main system and other work.

As with ID, the main support that can be provided by the MEA is to work with the FOs to solve irrigation problems and make operating decisions. As with ID at first, there has been some reluctance on the part of MEA irrigation staff to change their established ways of doing things by including FOs. With the strong support of the MEA Managing Director, this reluctance is rapidly reducing.

MEA's Institution Development Units, and other units within the MEA, are now using the FOs as a means of providing training to farmers on irrigation and agricultural matters. Support by other divisions

of MEA is also required. To date, there is little evidence that other divisions are working with FOs consistently. Given the Managing Directors' support, this situation is likely to change.

Summary of Supportive Actions Table 5.2 shows the opinions of FO office-bearers interviewed in the LSS about agency support. According to these responses:

- IMD has been actively participating in INMAS systems in supporting and sustaining FOs in INMAS schemes.

Table 5.2 Satisfaction with Agency Support (percentage of FO office-bearer responses)

Support	INMAS	MANIS C	MANIS AB	Mahaweli
Irrigation Management Division / MEA Institutional Development Units				
Meetings	84 %	4 %	13 %	82 %
Training	79 %	4 %	13 %	65 %
Encouraging Farmers	51 %	8 %	-	73 %
Coordination	59 %	4 %	9 %	24 %
Financial control	67 %	8 %	13 %	60 %
Irrigation Department / MEA Irrigation Units				
Meetings	69 %	60 %	65 %	79 %
Technical Training	46 %	8 %	35 %	25 %
Technical Advice	63 %	48 %	39 %	60 %
Encouraging FOs	21 %	44 %	9 %	48 %
Problem solving	42 %	52 %	4 %	67 %
Department of Agrarian Services				
Meetings	44 %	40 %	39 %	2 %
Registration	33 %	48 %	13 %	2 %
Input supply	41 %	52 %	30 %	2 %
Department of Agriculture / MEA Agriculture Divisions				
Meetings	43 %	40 %	39 %	73 %
Training	51 %	12 %	17 %	63 %
Providing seed paddy	38 %	52 %	-	57 %
Extension services	38 %	32 %	13 %	56 %
Land Commissioner's Department / MEA Land Divisions				
Meetings	21 %	4 %	4 %	52 %
Solve land disputes	29 %	-	-	62 %

- The MEA Institutional Development Units have also been actively and effectively working in support of FOs in Mahaweli schemes.
- Irrigation Department institutional development support in MANIS schemes clearly is not rated as high as IMD's and MEA's support is rated in the other schemes.
- Irrigation Department participation in meetings is reasonably well rated in both INMAS and MANIS schemes.
- MEA Irrigation Division is well rated except for technical training.
- Support by other agencies is not well rated except in Mahaweli schemes.
- In Mahaweli schemes, all divisions of MEA are reasonably well rated. Note that MEA does not have a true equivalent of the DAS hence the figures for DAS are very low.

Non-supportive Actions In addition to supportive actions, there were number of incidents of non-supportive actions reported by FOs. These non-supportive actions have an discouraging effect on the development of farmer organizations. Occurrence of such incidence should be kept at minimum by line agency officials. Some of these incidents as reported by FOs are given below:

- At Muruthawela, the FO reports that the present IMD Project Manager and Irrigation Engineer fail to visit the field frequently.
- At Tabbowa, FOs report poor participation by the Irrigation Engineer, DAS Divisional Officer, and Grama Niladhari at JMC meetings. They are also disappointed with DAS' performance in paddy marketing.
- At Dewahuwa, FOs report a total lack of support by the DAS Divisional Officer for political reasons. The DO has formed his own organizations and rejects any request from INMAS FOs.
- At Murapola, FOs report poor participation of line agency officials in PMC meetings. Only ID officials participate in most meetings.
- At Mahananneriya, FOs report poor participation of line agency officials in PMC meetings. Only ID officials participate. Also the DAS does not provide any assistance. They also report that the Divisional Secretary is arrogant and non-cooperative.
- At Wennoruwa, FOs report no cooperation from Agriculture Department staff.

These are typical complaints about line agency officials. The reasons for the perceived failures are sometimes logistical, especially in the case of non-attendance in JMC meetings (lack of transport). In some cases, the cause is non-acceptance of FOs as proper unit for the agency to work with.

For the MANIS program, lack of resources is a major cause of non-supportive actions.

- First, MANIS Project Managers, because they are also Technical Assistants or Irrigation Engineers, are expected to promote participatory management while at the same time carrying a full load of technical responsibilities. They cannot devote the time that IMD staff or MEA institutional development staff can afford to give to this work. Moreover, at times, the two roles may conflict. For example, it may be necessary to make a decision about how to use maintenance funds. The Project Manager, in his technical role, may make one judgment while the farmers make another. To support participatory management, the Project Manager should either submit to the farmer's decision or argue them out of it. The latter course takes time and effort. It is easier to simply override the farmers or, easier yet, not submit the question to them.
- Transport facilities to engage in institutional development work are inadequate, even where NIRP support is available. ID officers rarely live within the MANIS schemes, because most have other responsibilities as well or because of personal reasons. Often Project Managers have to depend on ID pool vehicles, which are not always available when needed.

Resolving these problems requires a greater commitment of resources from the Irrigation Department.

5.5 Training for Farmers

Training has been one of the strongest components of support given to the farmer organizations. Tables 5.3, 5.4, and 5.5 show the numbers and types of training sessions held in the RS and PD schemes during 1993/94 Maha and 94 Yala. As can be seen from these tables, a wide variety of subjects were covered. Six of the seven sample INMAS and both of the sample Mahaweli schemes were included. However, only seven of the eleven sample MANIS schemes reported training sessions over the period.

Table 5.3: Training Courses for FO Members in RS/PD Sample INMAS Schemes*

Subject	Dewahuwa	Kaudulla	Rajangana	Murut hawela	Muthu-kandiya	Tabbowa
1993/94 Maha Season						
Agri. Insurance					2	
Animal Husbandry					1	
Land Preparation						1
Participatory Mgmt	1					1
Disease Control						1
FO/FR Responsibilities	2	1		1		2
Financial Management	1	1		1		1
Tractor Maintenance		1				
Farmer Pension Scheme					1	
Fertilizer Application			1			
Agri. Mgmt. Practice			1			1
Crop Production	3					
1994 Yala Season						
Entrepreneurship						1
MEF System						1
Agriculture Training						1
Self Employment						
Gherkin Cultivation				1	1	
Water Management						

* Includes only those schemes where such courses were held.

Table 5.4: Training Courses for FO Members in RS/PD Sample MANIS Schemes

Subject	Wenno-ruwa	Medi-yawa	Mura-pola	Radag-alpotha	Ambe-wela	Komarika Ela	Mannankattiya
1993/94 Maha Season							
FO/FR Responsibilities			1				
Financial Management		2	1	1			
Tractor Maintenance		1					
Contract Procedure		1					
Use of Agri Inputs		1					
Seed Paddy Cultivation		1					
O & M	2						
Water Management	1			1			
Crop Diversification	1						
Assessing Crop Losses				1			
1994 Yala Season							
Farmer Organization		1					
NIRP					1		
Handing Over O&M to FO	1						
Seed Paddy Training						1	
Agrochem's/Fertilizers						1	
Role of FO						1	
Contract Procedures							1
Rice Processing			1				

* Includes only those schemes where such courses were held.

Table 5.5: Training Courses for FO Members in RS/PD Sample Mahaweli Schemes

Subject	System H	System C
1993/94 Maha Season		
Animal Husbandry		1
Disease Control		1
FO/FR Responsibilities		1
Financial Management		1
Fertilizer Application		1
Agricultural Management Practice	1	
Contract Procedure		1
O & M		1
Gherkin Cultivation		1
New Threshing Machines		1
1994 Yala Season		
Water Management		1
Compost Fertilizer Production		1
Training of Masons	1	

CHAPTER 6

IMPACTS OF PARTICIPATORY MANAGEMENT

6.1 Impacts of Participatory Irrigation System Management

This study attempted to determine the outcomes and impacts of participatory management as well as its progress. The key direct outcomes of the three programs for implementing participatory management are formation of farmer organizations, formation of joint management committees, and turnover. We can distinguish among impacts on the basis of the distance of their connection from these direct outcomes.

As was discussed in Chapter 1 (see Figure 1.2), we expected participatory management to result in

- Improved agency response to farmer concerns
- Improved operations (water delivery) and maintenance.

In turn, these first order impacts should lead to

- Increased crop production

which should lead to higher returns to irrigated agriculture for the farmers or

- Increased farm income.

Also, turnover was expected to lead to

- Reduced government expenditure on irrigation system operations and maintenance

while, as noted, operations and maintenance was to improve.

This section assesses these impacts. The first two impacts listed above can be viewed as the intermediaries leading to the last three. Most of the section deals with the last three, all of which are economic or financial in nature.

6.2 Perceptions of Impacts

As part of the Large Scale Survey (LSS), we asked farmers what the primary benefits of participatory management were. The results for the FO office-bearers and other farmers combined are shown in Table 6.1. These results show the following:

- Very few farmers found no benefits.
- Over half of all farmers identified improved relations with agency officials as a major benefit. In our PD and RS studies, we found that, to farmers, improved relations with the officials means that the officials respond as positively as they can to farmer concerns.
- Over half of all farmers identified “adequate and timely water supply” as a major benefit, implying that participatory management has improved water distribution.
- Over 40% of all farmers identified resolution of disputes as a major benefit. We have seen from the PD studies and in other studies, that disputes decrease dramatically as water distribution improves. This benefit is thus tied to improved water distribution.

- Few farmers identified either decreased cost of crop production or increased yields and income as benefits from participatory management.
- About a quarter of all farmers found other benefits. These more important ones included general “betterment of farmers” and “opportunities for crop diversification.”

Some clear differences can be seen among the programs. The results for the INMAS and Mahaweli programs are similar, except that more Mahaweli farmers identified improved relations with officials and improved water distribution as benefits. The relatively large difference between the two with regard to “decreased cost of production,” “increased yields and income,” and “others,” is mainly due to an increase in production of non-paddy crops in Mahaweli schemes with the encouragement of the MEA. The larger number of Mahaweli farmers who found no benefits may be due to the relative newness of the program in Mahaweli schemes. Fewer farmers in the MANIS schemes saw benefits from participatory management as is to be expected from the level of effort and support given the MANIS schemes.

Table 6.1: Benefits of Participatory Management as Identified by Farmers

Program	# of Farmers	A %	B %	C %	D %	E %	F %	None %
INMAS	183	52	57	49	12	7	22	12
MANIS AB	72	44	38	26	11	1	14	13
MANIS C	72	47	19	36	11	15	21	24
Mahaweli	189	62	67	47	23	17	33	22
Total	516	54	53	43	16	11	25	17

A = Improved relations with agency officials.

B = Adequate and timely water supply.

C = Resolution of disputes.

D = Decreased cost of production.

E = Increased yield and income.

F = Others.

In this list, the only concrete benefit is improved water distribution. As was shown in Chapter 2 (see Table 2.15), most farmers are satisfied with FO water distribution. However, it is not just the FOs’ performance that has improved water distribution but also the fact that irrigation agency officials are more responsive to farmer concerns. Discussions with farmers in the PD and RS studies indicate that improved water distribution is linked partly to improved relations with agency officials.

In the LSS we posed the same question to institutional development officials. The results are shown in Table 6.2. These respondents are, of course, interested showing that participatory management has benefits. Like the farmers, most, in this case the great majority in INMAS and Mahaweli programs, show improved water distribution as a major benefit. Fewer saw improved maintenance as a benefit and, except in Mahaweli schemes, very few saw other benefits.

Table 6.2: Benefits as Identified by Institutional Development Officials

Program	# of IDOs	A %	B %	C %	D %	None %
INMAS	12	92	67	25	17	0
MANIS AB	12	58	25	17	8	0
MANIS C	14	57	36	7	7	7
Mahaweli	4	100	100	75	75	0

A = Improved water distribution.

B = Improved maintenance.

C = Increase in irrigated area.

D = Others.

Overall these officers agree with farmers on two points, participatory management has improved water distribution and has not made major changes in crop production.

In the LSS, we specifically requested the interviewed irrigation officials to tell us whether water distribution and maintenance have improved, worsened, or stayed the same following participatory management. The results are shown in Table 6.3. As this table shows, the great majority of irrigation officers interviewed in all programs except Mahaweli feel that participatory management has improved water distribution; none feel that it has made water distribution worse. The failure of half of the Mahaweli officials to respond is mostly due to the size of the schemes; they would not give an opinion in general.

Table 6.3: Irrigation Officials' Opinions on Changes from Participatory Management

Program	# of Offs	Water Distribution				Maintenance			
		Better	Worse	Same	NR	Better	Worse	Same	NR
INMAS	12	10	0	2	-	5	2	4	1
MANIS AB	12	12	0	0	-	9	1	2	-
MANIS C	16	7	0	4	5	7	0	4	5
Mahaweli	4	2	0	0	2	1	0	1	2

NR = No response.

However, as shown in Table 6.3, the officials' opinions about maintenance are not as strong. With regard to maintenance, not only did fewer see improvements, but some claimed things had gotten worse. Surprisingly, it is the officials in the MANIS schemes who were most numerous in claiming improvements in maintenance. This may be due to the fact that many of these schemes had largely been neglected by the agencies until this program.

Overall, then, the following conclusions can be drawn:

- Farmers and officials agree that participatory management has led to improved water distribution. Note that our studies of actual water distribution (see Annex C) show that water distribution by FOs is not perfectly equitable, agreeing with findings reported in Chapter 2 showing that FOs do not do a fully satisfactory job of water distribution.
- Farmers feel that participatory management has improved their relations with the agency officials.
- While a large number of officials feel that participatory management has improved maintenance, this point is more controversial and it was not specifically identified as a benefit by the farmers.
- Finally, few farmers or officials see any direct benefits in terms of crop production or improved profitability of irrigated agriculture.

6.3 Issues Addressed in the Economic Evaluation of Participatory Management

6.3.1 Issues Addressed

The remainder of this section assesses the economic impacts of participatory management in major and medium irrigation systems. Direct economic impacts can be categorized into those that benefit the farmer, those that benefit the country, and those that benefit both. Increase in farm income falls into the first category, while increase in productivity and production falls into the third category. Reduction in government expenditure as a result of participatory management falls into the second category. This section also looks at a related issue of whether farmers can afford to take over the operation and maintenance of irrigation systems.

Apart from the direct economic impacts, there are significant indirect impacts which may have economic consequences that cannot be easily estimated. One such impact is that improved distribution of water could result in greater reliability of water supply and reduction of risk in cultivation. Also, greater cooperation among farmers and improved conflict resolution resulting from turnover could lead to better management of the resources and thus have an indirect economic impact.

A quantitative assessment supplemented by a qualitative analysis of the economic impacts will be made due to the paucity of data on aspects of the study. A rigorous quantitative analysis would require more disaggregated data of greater precision over a longer period of time. Trends of yields and area cultivated will be analyzed and will be supplemented by opinions of farmers and officials on possible impacts. A good assessment of income increases or cost reductions due to participatory management can be made only if we have detailed cost of production data stretching over a period prior to and after take over of management by farmers.

The economic parameters to be assessed by the study are considered important for the overall evaluation of the progress and impacts of the participatory management policy implemented by the Government of Sri Lanka. It will be particularly useful in determining policy with regard to the continuance of financial support in the maintenance of a valuable national resource such as the irrigation infrastructure of the country. The major economic issues addressed by the study are the following:

- What is the impact of participatory management on crop production?
- What is the impact of participatory management on farm income?
- What is the impact of participatory management on government expenditure on system O&M?
- Can farmers afford to take over the operation and maintenance of distributary and field canals in irrigation systems?

An assessment of the impact of participatory management on agricultural productivity must be based on data on productivity prior to and after turnover. The impact will also depend on the duration and degree of turnover. There could be other reasons for increased productivity that should be precluded before attributing it purely to turnover. These other factors may be more important to productivity than turnover.

Increases in farm income are also dependent on increases in yield or area cultivated or decreases in production costs. Farmer involvement in the marketing of agricultural inputs and outputs have reduced cultivation costs to farmers in some instances. Farmers' capacity to finance O&M will depend on farm income and the proportion of this income that has to be contributed for this purpose.

With regard to government expenditure on O&M, one would expect this to diminish gradually with the take over of these activities by the farmers. However it is more likely for government expenditure to increase initially and decline gradually thereafter. The increase in government expenditure in the short run may be due to the initial high expenditure in the establishment of institutions and the training of farmers to take over responsibility for O&M. Once the farmers are trained and the institutions are well established, agency involvement could be withdrawn without any impact on production. The initial period of increased costs may last up to five years followed by a decline over the next ten years and stabilization thereafter.

6.3.2 Data Sources

Data for this analysis was collected through Process Documentation (PD), Recurrent Surveys (RS) and Large Scale Survey (LSS).

Process Documentation Detailed record keeping of returns from irrigated farming was begun at two PD sites (Rajangana and System H) on a sample of 5 farmers at each site from Yala 1993. This was later extended to all the six sites chosen for PD. Thus farm records from 30 farmers in these schemes are available for the economic analysis. These data provide fairly accurate estimates of farmer incomes and profitability of irrigated farming. The loss of precision due to the small sample size is compensated somewhat by the greater accuracy of data from record keeping. However since the sample size is still relatively small compared to the total population, one should be cautious in generalizing the results to the national level. Other economic or financial data obtained from PD sites may not be consistent and thus strictly not comparable with each other, and will be of less value for analytical purposes.

Recurrent Surveys The following is a list of the economic and related variables collected by the Recurrent Surveys:

- Amounts and means of resources mobilized for maintenance.
- Performance in the sale of agricultural inputs and profits from such activities.
- Other business ventures, their performance and profitability.
- O&M cost, number of attendants replaced by FO appointees, value of maintenance work in distributary channels by FOs. Annual cost to agency of maintenance of field channels and distributary canals and the number and cost of agency personnel within distributary canals and field channels.
- Special funding, their type and amount of funds.
- Technical assistance and other support, their type, amount and usefulness of such support.
- Financial management performance of FOs, amounts and means of cash funds raised.
- Labor and material contribution by farmers.
- Degree of turnover, gate operations, maintenance activities and formal turnover agreements.

Although the above listing seems to suggest that sufficient in-depth data required for the economic analysis was obtained, in reality it is not the case. The recurrent surveys provided more qualitative than quantitative data. As in the case of PD, the data gathered from RS also suffered from inconsistency. For example, data on a single variable gathered from two sites differed in format and were not strictly comparable with each other.

Large Scale Survey The LSS included several questions pertaining to the economic aspects of the evaluation. Productivity and O&M aspects of the economic assessment are based largely on LSS and PD data.

Other Sources The data collected from the above surveys were supplemented by data obtained from regional irrigation offices, particularly relating to O&M expenditure. Data culled from PD and RS were used in the qualitative analysis. Data from farm record keeping was used in analyzing farm incomes, but it was not available for a sufficiently long period to examine the trends in farm income.

6.3.3 Methodology

Impact on Crop Production The impact of participatory management on productivity is difficult to isolate from available data. Time series or cross-section data on all factors affecting productivity are

required to make such an estimation. In the case of area expansion however, it would be possible to estimate expansion in area cultivated due to participatory management from data gathered from FOs and farmers in the LSS and RS. The impact on crop production is assessed by estimating the following:

- Increase in area cultivated.
- Increase in productivity.
- Decrease in production costs.

Increases in area cultivated can result from increased cropping intensity or from increases in the area brought under irrigation (increase in command area). It is presumed that both are consequences of improved water management as a result of turnover of management of the distributary canals and field channels to farmer organizations. One has to preclude area increases due to other causes, if such causes can be easily identified. Data on cropping intensity and increase in command area were gathered through FO, Farmer Representative (FR) and farmer interviews. These data supplemented with data obtained from agency personnel are analyzed in the study.

Increases in productivity can be measured by estimating increase in yield per unit area and increase in the extent converted to high value crops. Productivity increases are possible through improved cropping practices such as the use of high quality seed, use of adequate levels of inputs such as fertilizers and agro-chemicals and better cultural practices motivated by more reliable and equitable supplies of water as a result of turnover. Pre and post turnover information is not available consistently in all RS and PD sites. Therefore data mainly from LSS is used in the analysis, which examines increase in productivity due to all causes.

Decrease in production costs could indirectly impact output through higher levels of input use, increases in cropping intensity and higher profitability. Data on production cost were gathered through the record keeping exercise under PD studies. Although the sample is small, it does provide a good estimate of current costs of production. The problem was to obtain data on production costs for the period prior to turnover. An alternative would be to use data from any previous cost of production studies to estimate production costs prior to turnover. Similar studies are conducted island wide by the Department of Agriculture for various crops on an annual basis. However the problem of how to relate production costs to actual production remains unresolved. Some factor can be derived to describe this relationship, but we have neither an empirical nor theoretical basis for estimating such a factor.

Impact on Farm Income Impact on farm income can be estimated using farm record data as well as data from RS and LSS. Farmer income includes both farm and non farm income, both of which can increase due to turnover. On-farm income includes income from hiring out of labor and profit from farming activities including that due to a decrease in production cost. Off-farm income can arise from increased employment opportunities outside of the farm. Other income from off-farm business opportunities, including that of FOs, regular government or private sector employment of family members should be taken into account, in estimating impact. Contracts awarded to FOs are another source of off-farm income.

Impact on Government Expenditure on System O&M An assessment of the impact on government expenditure on system O&M would require the estimation of agency expenditure over a sufficiently long period before and after the process of turnover. Data were collected from irrigation offices in six PD sites on agency costs. Cost breakdown was available at the scheme level for most schemes, but further breakdown at the distributary level was not available in the majority of the schemes. Data on agency costs of O&M were also obtained from the LSS for the analysis.

Can Farmers Afford to Take Over O&M? The hypothesis being tested is that farmers are making sufficient profits to afford the take over of O&M activities. Current regulations require farmers to undertake O&M of field channels. Thus the major issue to be examined is whether farmers can afford to take over O&M of distributary canals in addition to their responsibilities for O&M of field channels.

The following methodology was adopted to determine the validity of the hypothesis:

- Estimate income levels of farmers and profitability of their enterprise (irrigated agriculture).
- Establish what would be an adequate level of O&M and the cost of such a level of O&M.
- From the two above, determine the proportion of the farmers' net profits that would be required to finance the take over of O&M activities.
- Ascertain whether the farmers could/would contribute this amount of resources for O&M and if so in what manner this contribution would be made.

6.4 Impact of Participatory Management on Crop Production

It was expected that participatory management would enable farmers to improve both yields and area irrigated and thus increase crop production.

Area Cultivated RS and PD data included reports of isolated cases of additional areas being brought into cultivation through the efforts of FOs after turnover. To look at this potential impact, we considered changes in cropping intensity for the LSS systems over the past few years.

Data on area cultivated in the LSS schemes from 1988 to 1993 is shown in Table 6.4. These data show no discernible trend for annual cropping intensities in these schemes over these years. The highest cropping intensities were reported from the MANIS AB schemes followed by INMAS schemes. The LSS data indicate that the highest turnover (82% of FOs) was in the INMAS schemes, followed by MANIS AB (38%), Mahaweli (37%) and MANIS C (21%). This suggests that there is no correlation between degree of turnover and cropping intensity. In Mahaweli schemes, cropping intensity appeared to have increased with the diversion of more water to the system. In INMAS and MANIS schemes, cropping intensities appear to be weather-related. Rehabilitation of these schemes has also improved cropping intensities: nine out of the twelve INMAS schemes were rehabilitated during the last ten year period and six MANIS schemes were also rehabilitated in recent times. Therefore cropping intensities seem to be closely related to climatic or other factors, rather than to turnover.

In some schemes, encroached areas make up a significant proportion of the total command area. Since, as shown earlier, participatory management seems to have improved operations, it may also have improved the quality of irrigation services to encroached areas as well as authorized areas. However, there are no clear measures of this change.

In some LSS schemes (6 of 12 INMAS schemes, 7 of 24 MANIS AB schemes, 1 of 24 MANIS C schemes, and 1 of 4 Mahaweli schemes), Irrigation Officers and Project Management Committee Farmer Members interviewed indicated that there has been an increase in the area cultivated as a result of turnover. Table 6.5 shows the additional areas cultivated; except for MANIS AB schemes, these estimated additional areas fall between 5-10% of the total command areas of the schemes. Therefore the available evidence seems to suggest that, although there may have been a small expansion of cropped area due to participatory management, the major proportion of the changes in crop production were due to climatic or other factors.

Yields The impact of participatory management on yields is more difficult to estimate because of the numerous factors that affect yields. Participatory management may affect yields through improved distribution of water and greater reliability of supplies from greater farmer involvement in scheme management. Only 11% of the farmers interviewed in the LSS (Table 6.1) felt that participatory management had increased yields. Over 90% of the FOs interviewed in the RS reported that there were no increase in yields due to participatory management. Of the three FOs that reported yield increases (all from the Muthukandiya scheme) in either Maha 93/94 or Yala 94, only one FO indicated that it was due to increased knowledge of water management and crop production gained through participatory management. The other two attributed yield increases to higher levels of fertilizer use or better seeds, perhaps also due indirectly to participatory management. The majority of the FOs reported a decline in yields mostly due to bad weather conditions.

Table 6.5: Increase in Area Cultivated due to Participatory Management

Scheme	Command Area (Acres)	Irrig. Officer Est. of Additional Area (Acres)	Farmer Est. of Additional Area (Acres)
INMAS			
Dewahuwa	2,340		700
Kantalai	15,000	1,500	2,000
Mapakada	925		20
Nachchaduwa	5,889	300	
Padaviya	13,800		150
Rajangana	14,600		500
Sub-total	52,554	1,800	3,370
MANIS AB			
Bodi Ela	350		100
Buttala	1,250		450
Galgamuwa	403	403	
Kande Ela	1,100	100	
Kumbukkan Oya	1,683		200
Mahatotilla	700	50	
Waduwwala	486	80	
Sub-total	5,972	633	750
MANIS C			
Badulu Oya	530	50	25
Sub-total	530	50	25
Mahaweli			
Uda Walawe	47,000	2,965	1,000
Sub-total	47,000	2,965	1,000
TOTAL	106,056	5,448	5,145

Source: Large Scale Survey

Table 6.4: Irrigable Command and Cultivated Areas (acres)

Scheme	Cmd Area	Maha 88-89	Yala 89	Maha 89-90	Yala 90	Maha 90-91	Yala 91	Maha 91-92	Yala 92	Maha 92-93	Yala 93	Maha 93-94
INMAS												
Dewahuwa	2,340	na	na	1,500	1,500	1,500	1,500	3,000	1,500	1,500	1,500	3,000
Gal Oya	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Mahawillachiya	2,664	na	800	na	2,800	2,800	2,800	2,800	1,100	0	2,800	2,800
Mapakada	925	1,355	1,355	1,355	1,355	1,355	1,355	1,355	1,355	1,355	1,355	1,355
Nachchaduwa	5,889	na	1,200	5,889	6,200	6,200	800	6,200	na	6,274	2,600	6,274
Nuwarawewa	2,400	1,800	na	na	2,400	2,400	2,400	na	2,400	2,400	0	2,400
Padaviya	13,800	1,000	na	na	na	3,750	1,000	2,972	1,000	13,800	0	13,800
Rajangana	14,600	14,240	13,036	14,240	13,268	14,260	14,260	14,632	14,632	14,632	14,632	14,632
Ridibendi Ela	6,000	6,000	4,000	6,000	4,500	6,000	2,925	6,000	na	6,000	4,000	6,000
Tabbowa	2,292	2,092	850	na	850	1,119	226	2,092	434	647	1,092	2,092
Wahalkada	2,000	750	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Totals	62,910	37,237	33,241	40,984	44,873	51,384	39,266	51,051	34,421	58,608	39,979	64,353
Cropping Intensity			1.12		1.36		1.44		1.36		1.57	
Adjusted Totals		34,437	31,241	40,984	41,223	51,384	39,266	38,851	32,021	58,608	39,979	64,353
Adjusted CI			1.83		1.97		1.44		1.46		1.57	
MANIS AB												
Buttala	1,250	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	1,600
Ethimale	1,002	1,002	0	1,002	0	1,002	0	1,002	0	1,002	0	1,002
Galgamuwa	403	na	na	na	na	na	na	na	30	403	0	403
Hattota Anicut	495	na	na	na	na	na	na	na	357	495	250	505
Kande Ela	1,100	2,300	1,000	2,300	1,500	2,300	1,500	2,300	1,500	2,300	1,500	2,300
Kumbukkan Oya	1,683	1,683	845	1,683	845	1,683	845	1,683	845	1,683	845	1,683
Mahagalwewa	404	404	404	404	100	100	100	na	na	404	404	404
Mahatotilla	700	400	400	400	400	400	400	450	450	450	450	450
Waduwwala Ela	486	na	na	na	na	na	na	400	380	486	380	486
Wellawa	450	na	na	na	na	na	na	na	na	na	0	450
Wennoruwa	475	475	475	475	475	475	475	475	475	475	475	475
Totals	8,448	7,864	4,724	7,864	4,920	7,560	4,920	7,910	5,637	9,298	4,304	9,758
Cropping Intensity			1.49		1.51		1.48		1.60		1.61	
Adjusted Totals		7,864	4,724	7,864	4,920	7,560	4,920	7,910	5,250	8,894	4,304	9,758
Adjusted CI			1.90		1.93		1.89		1.97		1.65	
MANIS C												
Badulu Oya	530	530	150	530	150	530	150	530	200	530	200	530
Balahuruwa	210	210	0	210	0	na	na	na	0	210	100	210
Bentota RB	2,385	na	na	na	715	697	700	840	0	0	0	964
Bowatenna	270	300	300	300	300	300	300	300	300	300	300	300
Diyatura	383	500	225	500	225	500	225	500	225	500	225	500
Kospothu Oya	287	447	447	447	447	447	447	447	447	447	447	447
Kotikapitiya	600	na	na	na	na	na	na	na	0	600	600	600
Ranmaduwewa	200	na	5	na	na	na	na	na	0	200	0	200
Tempitiya	430	132	84	132	60	60	60	64	64	64	80	84
Walalgoda	650	325	325	0	325	0	325	480	325	650	325	650
Totals	5,945	2,444	1,536	2,119	2,222	2,534	2,207	3,161	1,561	3,501	2,277	4,485
Cropping Intensity			0.67		0.37		0.80		0.79		0.97	
Adjusted Totals		2,444	1,531	2,119	1,507	2,534	2,207	3,161	1,561	3,501	2,277	4,485
Adjusted CI			1.44		1.31		0.96		0.96		0.97	
Mahaweli												
System C	52,000	30,465	32,326	34,804	35,990	38,627	38,913	40,962	39,563	46,193	48,538	50,053
System B	40,000	21,253	23,003	25,273	26,578	26,845	25,422	26,815	28,011	43,512	40,777	45,022
System H	77,000	55,919	0	73,686	46,480	74,872	51,842	76,527	7,905	74,797	29,034	79,591
Uda Walawe	47,000	27,787	27,895	29,961	29,188	30,846	29,813	30,841	9,840	32,079	29,963	33,393
Totals	216,000	135,424	83,224	163,724	138,236	171,189	145,990	175,145	85,319	196,581	148,312	208,059
Cropping Intensity			1.14		1.43		1.49		1.31		1.65	
All Systems Totals	293,303	182,969	122,725	214,691	190,251	232,667	192,383	237,267	126,938	267,988	194,872	286,655
Cropping Intensity			1.04		1.38		1.45		1.24		1.58	
Adjusted Totals		180,169	120,720	214,691	185,886	232,667	192,383	225,067	124,151	267,584	194,872	286,655
Adjusted CI			1.15		1.50		1.46		1.26		1.58	

Adjusted figures ignore *not available* (na) information; some LSS systems not included because of lack of data.

Table 6.6 shows the trends of paddy yields in some sample LSS schemes over the period 1989-1994. In most schemes, yields have either remained stagnant or declined. Only three schemes showed slight increases. Dewahuwa was the only scheme which showed a high level of turnover accompanied by an increase in yield. Other schemes with high or moderate levels of turnover showed either stagnant or declining yields. As with cropping intensity, therefore, there appears to be no relationship between average yields and participatory management. Other factors such as weather, pests, and market and input prices have greater affects.

Conclusion on Crop Production Participatory management appears not to have had a significant impact on crop production through increases in area cultivated or through yield increases. Although it may not have had a significant impact on yield turnover, appears to have had a beneficial impact on water distribution and improved the reliability of water supplies. This has resulted in the reduction of risks of cultivation, which may in the long term help to raise yield levels. Such a change cannot be tested with the present data, since they cover only a few years.

Table 6.6: Average Paddy Yields (Bushels/Acre)

Scheme	Command Area (Ac.)	Average Yields										Yield Trend	Degree of Turnover*
		Yala 1989	Maha 89-90	Yala 1990	Maha 90-91	Yala 1991	Maha 91-92	Yala 1992	Maha 92-93	Yala 1993	Maha 93-94		
INMAS													
Dewahuwa	2,340		80	38	85	35	110					Increase	3
Gal Oya	10,000	70	70	68	75	68	70	68	65	50	50	Decline	2
Padaviya	13,800		80		80		80		80		80	No Change	0
Ridibendi Ela	6,000	95	100	84	101	59	90		101	90	102	No Change	3
Tabbowa	2,292	62		37	27	13	66	29	25	30	46	Decline	0
Wahalkada	2,000				65	65	65	65	65	65	65	No Change	1
MANIS AB													
Buttala	1,250										78		1
Ethimale	1,002				50		67		45		68	Increase	2
Kande Ela	1,100						95		95		70	Slight Decline	1
Kumbukkan Oya	1,683							50	105	90	45	Slight Decline	2
Mahagalwewa	404		80	80			90		80	60	60	Decline	0
MANIS C													
Badulu Oya	530	31	33	14	34	21	33	69	83	31	31	No Change	2
Balahuruwa	210									60	75	Increase	1
Bowatenna	270	58	58	67	67	67	67	67	67	67	67	No Change	0
Hingura Ara	550	120	120		105	100	110	120	100	90	72	Slight Decline	0
Kokulu Oya	186										60	No Trend	na
Ranmaduwewa	200		70		70				70		60	Slight Decline	0
Tempitiya	430	65	65	65	60	65	60	65	60	65	55	Slight Decline	0
Uyanwewa	243										70	No Trend	0
Mahaweli													
System C	52,000	79	83	93	97	82	92	84	91	87	73	Slight Decline	1
System B	40,000	90	90	70	94	77	84	81	85	87	65	Slight Decline	1
System H	77,000	50	107	66	108	53	94	49	98	69	83	Slight Decline	0

Source: Agricultural Officers interviewed for the Large Sample Survey; blank cells are missing figures.

Note: 0 = Low Turnover, 3 = High Turnover

6.5 Impact of Participatory Management on Farm Income

Participatory management might increase income from irrigated agriculture through increased yields, reductions in the cost of production or by facilitating a change to a more remunerative crop. As

discussed in the previous section, we could find no discernible increase in yields or decline in costs of cultivation as a result of participatory management.

Correlation between Average Farm Incomes and Participatory Management Net farm incomes for Maha 1993/94 excluding family labor costs estimated from data obtained from the LSS are presented in Table 6.7. These net incomes varied from a negative return of Rs 840/acre (Wahalkada) to Rs 8656/acre (Mapakada) in INMAS schemes. INMAS schemes showed an average net farm income of Rs 2688/Acre. The three schemes with the highest degree of turnover, Rajangana, Ridi Bendi Ela and Dewahuwa had net average farm incomes of Rs 1609/acre, Rs 3137/acre and a negative income of Rs 653/acre, respectively. Mahawillachiya, Mapakada, Tabbowa and Padaviya with low levels of turnover, showed higher net farm incomes. In Mahaweli systems, the highest net farm income (Rs 20,198/acre) was recorded in System H, which had the lowest turnover rate in the system. A similar pattern was observed in the MANIS AB and MANIS C systems. Kande Ela and Mahatotilla schemes with the highest net farm incomes had a very low degree of turnover. In the MANIS C systems, Walalgoda, Madulla, Bowatenna and Uyanwewa schemes with the highest net farm incomes had the lowest degree of turnover. Diyatura with the highest level of turnover showed negative net farm returns.

An examination of the average net farm incomes in the different programs indicates that MANIS AB schemes obtained the highest average net farm income of Rs 5113/acre as compared to Rs 3331/acre in MANIS C schemes and Rs 2714/acre and Rs 2899/acre in Mahaweli and INMAS schemes respectively. However the highest turnover was in the INMAS system followed in order by Mahaweli, MANIS AB and MANIS C systems. Overall there appears to be little correlation between participatory management and farm incomes.

It seems therefore that participatory management has had little impact on farm income. A majority of the farmers and FO office bearers stated in RS and LSS interviews that farm incomes have not increased as a result of participatory management.

Crop Diversification Diversification to more remunerative crops could also increase farm income. However it would be very difficult to establish that this was a consequence of participatory management. In the following analysis we have examined the degree of diversification to other field crops (OFCs) that has taken place in the sample schemes selected for the LSS and PD sites.

Among the PD schemes, substantial diversification to OFCs has taken place only in System H. However, it is well established that diversification in System H was due to Mahaweli Authority programs that preceded participatory management within System H. In most RS sites, the FOs had little involvement with OFCs. In two sites, Ambewela and Komarika Ela, the FOs were involved in helping their members with getting seed and with marketing OFCs. However, in these two sites, the planting of OFCs preceded the formation of the FOs. In both sites, OFCs were far more important than paddy thus the involvement of FOs is logical.

Table 6.8 presents data collected from some of the LSS schemes showing the proportion of the irrigated area planted with OFCs in the different systems during both Yala and Maha seasons over the period from Yala 1988 through Maha 1993/94. The areas under OFCs varied considerably ranging from a low of 1.2% in Maha 90/91 to a high of 28.8% in Yala 88. These figures may be distorted by the figures for Mahaweli systems which are based only on System C and System H. The fraction of area under OFCs in System H during Yala seasons is known to be high. It appears that, despite the high variation from year to year, there may be a trend to higher percentages of OFCs in INMAS and MANIS AB systems, particularly during Yala seasons. No such trend is visible for MANIS C and Mahaweli systems. Also the high values of OFCs during Yala seasons in Mahaweli systems masks any such trend for all of the systems taken together. Because of the dominance of System H in the Mahaweli figures, and because the

prevalence of OFCs in System H is known to be a product of programs of the Mahaweli Authority rather than of participatory management, it appears that for Mahaweli schemes there is no relationship with participatory management. No relationship is visible for MANIS C schemes. However, it may be that participatory management has assisted in the spread of OFCs in INMAS and MANIS AB schemes through making the farmers more willing to work with government programs aimed at encouraging the cultivation of OFCs. However, of possibly greater importance was the fact that there was a squeeze on the profitability of rice over the same period.

We believe that these data are inconclusive and that probably there is little relationship between participatory management and OFCs. The RS data suggest that, if farmers decide to plant OFCs for their own reasons, the FOs may be used by the farmers as a way to assist with getting seed and with marketing. However, the presence of the FOs themselves probably has little influence on the decision to plant OFCs; this decision is based on other factors such as the relative profitability of various crops and the ease of marketing. Only if the FO were to take up marketing in a major way would it affect these considerations significantly. No sample FO has taken up the marketing of OFCs in a big way as a service to FO members.

Cost of Production Only 16% of the farmers interviewed in the LSS (Table 6.1) were convinced that turnover had reduced cost of cultivation. Marginal declines in input costs of fertilizers, chemicals and tractor hires resulting from FO intervention have been reported in a few instances. But these interventions have not had any significant impact on overall costs of cultivation.

Conclusion on Profitability Although participatory management may give a small boost to crop diversification, there is no evidence that it has had any significant impact on the profitability of irrigated farming.

6.6 Impact of Participatory Management on Government Finances

Changes in O&M Expenditures It was expected that turnover would enable the government to reduce expenditures on system O&M. Estimates of per acre O&M expenditure for 31 selected schemes under the INMAS, MANIS and Mahaweli programs are presented in current and constant rupee terms for the period 1988-1994 in Tables 6.9 and 6.10.

Inspection of Tables 6.9 and 6.10 show that per acre O&M expenditures have varied widely among schemes and among different years. Overall there are few clear patterns of expenditures. For both tables, we have identified those few cases where expenditures were monotonically increasing or decreasing over the full period. In addition, however, we have tried to use our judgement to identify schemes where expenditures appear to have been on an increasing trend or a decreasing trend. In some cases we have made these judgements because the earlier years have uniformly higher or lower expenditures than the later years, even though a monotonic sequence is not visible. In other cases, the sequence would be monotonic except for one, or at most two, years.

The LSS data on O&M expenditures in current rupees in Table 6.9 shows that O&M expenditures for INMAS, MANIS AB, and MANIS C schemes fluctuated considerably, increasing and decreasing, before reaching the current levels. In Mahaweli schemes, O&M expenditures generally increased consistently from 1989 to 1993 and then declined marginally in 1994. Per acre O&M expenditures for Mahaweli schemes were generally more than twice the per acre expenditures for the Irrigation Department schemes. The highest expenditure for O&M in 1993 was in the Mahaweli H area (Rs 364/acre), and the lowest in Badulu Oya (Rs 34/acre).

Table 6.7 Returns from Paddy Farming in Current Rupees - Maha 1993/94

Scheme	Command Area	Sample Farmers	Ave Farm Size (ac)	Total Farms (ac)	Maha 1993/94					Turn-over
					Cult Area (acres)	Gross Rets (Rs)	Rets/Acre (Rs/ac)	COP (Rs/ac)	Net Rets (Rs/ac)	
INMAS										
Dewahuwa	2,340	6	3.83	23.0	23.0	135,000	5,870	6,500	(630)	3
Gal Oya	10,000	6	2.00	12.0	9.0	102,550	11,394	6,800	4,594	2
Kantalai	15,000	22	5.13	112.9	113.0	1,204,950	10,663	6,800	3,863	2
Mahawillachiya	2,664	4	2.69	10.8	10.8	125,700	11,693	5,800	5,893	1
Mapakada	925	4	2.12	8.5	8.5	122,454	14,406	5,750	8,656	1
Nachchaduwa	5,889	10	7.75	77.5	24.0	174,000	7,250	6,000	1,250	1
Nuwarawewa	2,400	6	5.50	33.0	28.0	182,700	6,525	6,000	525	2
Padaviya	13,800	10	2.80	28.0	28.0	267,750	9,563	5,900	3,663	0
Rajangana	14,600	38	2.07	78.7	64.0	538,175	8,409	6,800	1,609	3
Ridibendi Ela	6,000	8	2.14	17.1	17.0	151,075	8,887	5,750	3,137	3
Tabbowa	2,292	4	2.50	10.0	10.0	88,000	8,800	5,750	3,050	0
Wahalkada	2,000	4	2.38	9.5	9.5	46,800	4,926	5,750	(824)	1
Totals/Aves	77,910	122	3.41	420.9	344.8	3,139,154	9,032	6,133	2,899	
MANIS AB										
Buttala	1,250	6	2.75	16.5	15.5	135,200	8,723	5,850	2,873	1
Ethimale	1,002	4	2.88	11.5	8.0	120,950	15,119	6,000	9,119	2
Galgamuwa	403	2	1.00	2.0	2.0	12,000	6,000	5,600	400	2
Hattota Anicut	495	4	2.25	9.0	10.0	72,000	7,200	6,000	1,200	1
Kande Ela	1,100	9	0.78	7.0	7.8	145,000	18,710	5,950	12,760	1
Kumbukkan Oya	1,683	8	3.09	24.7	24.8	398,675	16,108	6,100	10,008	2
Mahagalwewa	404	2	3.00	6.0	6.0	38,000	6,333	5,700	633	0
Mahatotilla	700	2	0.63	1.3	1.3	23,300	18,640	5,700	12,940	0
Waduawala Ela	486	2	3.25	6.5	6.5	25,000	3,846	5,300	(1,454)	2
Wellawa	450	2	1.13	2.3	2.3	14,725	6,544	5,300	1,244	0
Wennoruwa	475	4	2.06	8.2	8.3	99,975	12,118	5,600	6,518	0
Totals/Aves	8,448	45	2.07	95.0	92.3	1,084,825	10,849	5,736	5,113	
MANIS C										
Badulu Oya	530	2	0.75	1.5	1.5	19,200	12,800	6,200	6,600	2
Balahuruwa	210	2	1.25	2.5	2.5	46,750	18,700	7,150	11,550	1
Bentota RB	2,385	20	1.88	37.6	20.0	76,725	3,836	5,400	(1,564)	2
Bowatenna	270	2	1.25	2.5	2.5	26,700	10,680	6,000	4,680	0
Diyatura	383	4	1.69	6.8	6.8	25,475	3,774	5,350	(1,576)	3
Hingura Ara	550	2	3.00	6.0	8.0	45,000	5,625	5,000	625	0
Kospothu Oya	287	2	1.50	3.0	3.0	24,645	8,215	5,400	2,815	3
Kotikapitiya	600	2	3.75	7.5	7.5	21,000	2,800	4,900	(2,100)	na
Madulla	343	2	5.25	10.5	10.5	130,200	12,400	6,250	6,150	0
Paragaha Ara	250	2	1.00	2.0	2.0	16,500	8,250	5,950	2,300	1
Ranmaduwewa	200	2	2.00	4.0	4.0	36,160	9,040	5,950	3,090	0
Tempitiya	430	2	1.75	3.5	3.5	31,000	8,857	6,200	2,657	0
Uyanwewa	243	2	3.00	6.0	6.0	60,000	10,000	6,200	3,800	0
Walalgoda	650	2	6.00	12.0	12.0	168,020	14,002	6,400	7,602	0
Totals/Aves	7,331	48	2.43	105.4	89.8	727,375	9,213	5,882	3,331	
Mahaweli										
System C	52,000	36	2.43	87.5	87.5	661,840	7,564	6,900	664	1
System B	40,000	26	2.56	66.6	61.5	477,875	7,770	6,700	1,070	1
System H	77,000	34	2.67	90.8	70.5	1,033,865	14,665	7,100	7,565	0
Uda Walawe	47,000	30	2.55	76.5	76.5	562,750	7,356	5,800	1,556	1
Totals/Aves	216,000	126	2.55	321.3	296.0	2,736,330	9,339	6,625	2,714	
Overall	309,689	341	2.63	942.6	822.8	7,687,684	9,611	5,989	3,622	
Tots/Aves										

Source: large scale Survey; Cost of Production (COP) estimated from other sources; 0 = Low Turnover, 3 = High Turnover

Table 6.8: **Areas Under Other Field Crops** (areas in acres)

Program*	Yala Seasons						Maha Seasons					
	1988	1989	1990	1991	1992	1993	88/89	89/90	90/91	91/92	92/93	93/94
INMAS												
Total Area	18,842	16,850	16,850	17,651	14,934	18,592	19,942	19,500	24,369	26,064	33,947	36,892
OFC Area	206	446	768	1,635	1,076	1,452	112	296	525	1,373	3,640	2,066
% OFC	1.1	2.6	4.6	9.3	7.2	7.8	0.6	1.5	2.2	5.3	10.7	5.6
MANIS AB												
Total Area	3,849	3,849	4,045	4,045	4,349	2,749	6,989	6,989	6,685	6,585	6,989	6,989
OFC Area	0	0	50	10	30	61	0	0	0	0	0	0
% OFC	0.0	0.0	1.2	0.2	0.7	2.2	0.0	0.0	0.0	0.0	0.0	0.0
MANIS C												
Total Area	534	539	610	510	564	680	1,172	1,172	890	894	1,304	1,324
OFC Area	80	100	95	94	85	85	0	0	0	0	0	0
% OFC	15.0	18.6	15.6	18.4	15.1	12.5	0.0	0.0	0.0	0.0	0.0	0.0
Mahaweli												
Total Area	12,199	13,082	33,375	36,728	19,210	31,393	34,959	43,905	45,932	47,547	48,964	52,466
OFC Area	9,905	3,384	11,031	11,436	4,026	10,235	1,165	1,306	430	761	4,611	3,774
% OFC	81.2	25.9	33.1	31.1	21.0	32.6	3.3	3.0	0.9	1.6	9.4	7.2
All Systems												
Total Area	35,424	34,320	54,880	58,934	39,057	53,414	63,062	71,566	77,876	81,090	91,204	97,671
OFC Area	10,191	3,930	11,944	13,175	5,217	11,833	1,277	1,602	955	2,134	8,251	5,840
% OFC	28.8	11.5	21.8	22.4	13.4	22.2	2.0	2.2	1.2	2.6	9.0	6.0

These include the following: INMAS (6 schemes) - Dewahuwa, Gal Oya RB, Padaviya, Ridi Bendi Ela, Tabbowa, Wahalkada; MANIS AB (4 schemes) - Buttala, Ethimale, Kumbukkan Oya, Mahagalwewa; MANIS C (5 schemes) - Badulu Oya, Balaharuwa, Bowatenna, Ranmaduwewa, Tempitiya; Mahaweli (2 schemes) - System C, System H.

Table 6.9 shows expenditures in actual rupee terms for each year. Analysis of these data indicate that there were only three cases of monotonically increasing expenditures -- one each from MANIS AB, MANIS C, and Mahaweli programs. There were no cases of monotonically decreasing expenditures. We, however, judged that eight of the cases showed increasing trends -- two each from MANIS AB and MANIS C programs and all four from the Mahaweli program. Two cases -- one each from MANIS AB and MANIS C programs - appeared to show decreasing trends. Only one average -- Mahaweli -- showed an increasing trend and none showed a decreasing trend. Overall, there appeared to be no trend. These findings suggest that there has been an overall increase in O&M expenditures in Mahaweli schemes but no clear trend for Irrigation Department schemes. The probable increase in Irrigation Department schemes has been very small.

When evaluated in constant rupees (1993 rupees in this case), the outcome is quite different as is shown in Table 6.10. In this table, none of the cases shows a monotonically increasing trend and three cases - one each from the INMAS, MANIS AB, and MANIS C programs - show decreasing trends. We judged that only two cases - both Mahaweli schemes - show increasing trends. On the other hand, we judged that 11 cases (35%) - four INMAS schemes, five MANIS AB schemes, and two MANIS C schemes - show decreasing trends. In our judgement, the average expenditures for both INMAS and MANIS AB schemes show decreasing trends while the average expenditure for Mahaweli schemes shows an increasing trend. Overall expenditures, however, despite the increasing trend for Mahaweli schemes, appear to show a decreasing trend.

To summarize, this analysis suggests that, although expenditures vary widely, there has been a small overall increase in rupee expenditures over time, mostly in the Mahaweli program. However, when inflation is taken into account, there appears to have been an actual decrease in expenditures. In constant rupees, expenditures on Mahaweli schemes has increased but this increase has been more than

compensated by the decrease in expenditures on Irrigation Department schemes, particularly on INMAS and MANIS AB schemes.

Connection between Participatory Management and Government O&M Expenditures Interviews with irrigation officials and others have made clear that expenditures are not determined solely by needs. Allocations for O&M are usually insufficient for all identified needs and thus expenditures are often based simply on how much money is available. Allocations for O&M are not made on the basis of actual needs. Ceilings on expenditure are set by the Treasury for individual agencies or Ministries. Allocation between programs and projects within a particular Ministry or agency is determined by the priorities set by the individual agency or by the nature of the progress made by individual projects or programs. In this process, O&M programs are usually relegated lower priority, and therefore end up with varying allocations each year. Once overall funding limits have been set by the Treasury, individual agencies will allocate O&M funds on a rational basis. Usually allocation decisions of agencies are based on past expenditure patterns or other considerations such as special needs of a particular scheme for which a case has been made by the regional irrigation official.

Table 6.9: Government O&M Expenditures in Current Rupees

Program/Scheme	Command (acres)	1989 (Rs/ac)	1990 (Rs/ac)	1991 (Rs/ac)	1992 (Rs/ac)	1993 (Rs/ac)	1994 (Rs/ac)	Trend
INMAS								
Dewahuwa	2,340	-	176	241	171	174	183	No Trend
Gal Oya RB	10,000	139	141	102	185	174	143	No Trend
Mahawillachiya	2,664	-	-	76	-	129	89	No Trend
Mapakada	925	133	172	138	147	148	118	No Trend
Nachchaduwa	5,889	-	-	76	-	137	49	No Trend
Nuwarawewa	2,400	-	-	79	-	129	46	No Trend
Padaviya	13,800	-	-	-	95	148	117	No Trend
Rajangana	14,600	109	82	92	146	72	-	No Trend
Ridibendi Ela	6,000	61	82	79	65	79	73	No Trend
Wahalkada	2,000	-	-	-	95	148	117	No Trend
Average		110	131	110	129	134	104	No Trend
MANIS AB								
Buttala	1,250	66	175	36	60	-	-	No Trend
Ethimale	1,002	124	140	60	80	98	86	No Trend*
Galgamuwa	403	79	95	101	75	82	76	No Trend
Kande Ela	1,100	57	64	-	-	122	97	No Trend**
Kumbukkan Oya	1,683	-	139	48	78	103	72	No Trend
Mahatotilla	700	39	44	-	209	84	67	No Trend
Wellawa	450	-	-	-	111	156	162	Increase
Wennoruwa	475	-	116	147	168	70	38	No Trend
Average		73	110	78	112	102	85	No Trend
MANIS C								
Badulu Oya	530	34	29	38	60	34	142	No Trend
Balahuruwa	210	174	-	190	106	-	76	No Trend*
Bowatenna	270	-	-	-	193	226	233	Increase
Diyatura	383	-	43	144	78	105	94	No Trend
Hingura Ara	550	-	-	-	64	78	75	No Trend
Kospothu Oya	287	-	28	87	70	-	45	No Trend
Madulla	343	122	69	91	48	190	63	No Trend
Uyanwewa	243	77	196	185	77	210	205	No Trend**
Walalgoda	650	-	-	-	87	137	108	No Trend
Average		102	73	123	87	140	116	No Trend
Mahaweli								
System C	52,000	61	101	140	151	235	246	Increase
System B	40,000	69	99	139	230	236	128	No Trend**
System H	77,000	133	161	205	313	364	344	No Trend**
Uda Walawe	47,000	53	91	58	128	110	187	No Trend**
Average		79	113	136	205	236	226	No Trend**
Overall Average		90	107	111	122	142	112	No Trend

Source: LSS; all sample schemes for which we have three years data are included.

* Judged probable decrease (2 schemes)

** Judged probable increase (5 schemes plus Mahaweli average)

Table 6.10: Government O&M Expenditures in Constant Rupees

Scheme	Command (acres)	1989 (Rs/ac)	1990 (Rs/ac)	1991 (Rs/ac)	1992 (Rs/ac)	1993 (Rs/ac)	1994 (Rs/ac)	Trend
GDP Agric. Deflator		0.52	0.69	0.81	0.90	1.00	1.10	
INMAS								
Dewahuwa	2,340	-	255	298	190	174	166	No Trend*
Gal Oya	10,000	266	204	125	206	174	130	No Trend
Mahawillachiya	2,664	-	-	94	-	129	81	No Trend
Mapakada	925	256	249	171	164	148	108	Decrease
Nachchaduwa	5,889	-	-	93	-	137	44	No Trend
Nuwarawewa	2,400	-	-	97	-	129	42	No Trend
Padaviya	13,800	-	-	-	105	148	106	No Trend
Rajangana	14,600	210	119	113	162	72	-	No Trend*
Ridibendi Ela	6,000	117	119	98	73	79	66	No Trend*
Wahalkada	2,000	-	-	-	106	148	106	No Trend
Average		212	189	136	144	134	94	No Trend*
MANIS AB								
Buttala	1,250	127	254	44	67	-	-	No Trend*
Ethimale	1,002	238	202	74	89	98	78	No Trend*
Galgamuwa	403	153	138	125	83	82	69	Decrease
Kande Ela	1,100	110	92	-	-	122	88	No Trend
Kumbukkan Oya	1,683	-	202	91	87	103	65	No Trend*
Mahatotilla	700	76	64	-	232	84	61	No Trend
Wellawa	450	-	-	-	123	156	147	No Trend
Wennoruwa	475	-	168	283	187	70	34	No Trend*
Average		141	160	151	124	102	78	No Trend*
MANIS C								
Badulu Oya	530	65	43	74	67	34	129	No Trend
Balahuruwa	210	335	-	366	118	-	69	Decrease
Bowatenna	270	-	-	-	214	226	212	No Trend
Diyatura	383	-	62	276	87	105	85	No Trend
Hingura Ara	550	-	-	-	71	78	68	No Trend
Kospothu Oya	287	-	40	168	77	-	41	No Trend
Madulla	343	235	101	175	53	190	57	No Trend*
Uyanwewa	243	147	284	356	86	210	186	No Trend
Walalgoda	650	-	-	-	97	137	98	No Trend
Average		196	106	236	97	140	105	No Trend
Mahaweli								
System C	52,000	118	147	269	167	235	224	No Trend**
System B	40,000	133	143	267	256	236	116	No Trend
System H	77,000	255	233	395	348	364	312	No Trend**
Uda Walawe	47,000	102	132	111	142	110	170	No Trend
Average		152	164	261	228	236	206	No Trend**
Overall Average		173	155	213	135	142	102	No Trend*

Source: LSS; all sample schemes for which we have three years data are included.

* Judged probable decrease (8 schemes plus INMAS and MANIS AB averages and overall average)

** Judged probable increase (2 Mahaweli schemes plus Mahaweli average)

Because O&M expenditures are defined largely by the Treasury limits, the only direct process by which participatory management can be translated into decreased government expenditures on O&M would be by decreased O&M budget requests from the irrigation agencies. Such requests would come about presumably because turnover has decreased the need for staff and for materials for O&M of distributary channels. Some irrigation officials have reported that participatory management has resulted in less

work for agency staff, who have been given other responsibilities in main system O&M. Also less cost is expended on supervision by agency staff (transport, travel, etc.) for distributary canal maintenance, due to contracts being given to FOs rather than to private contractors.

On the other hand, irrigation officers have stated that money saved as a result of increased participatory management has been used for main canal or head works maintenance or operations. Agency staff reduction due to participatory management has been minimal. Some casual workers involved in operation and maintenance and water distribution have been laid off or retired and others have been absorbed into the permanent cadre. In the opinion of these officials, there has been little opportunity for reduction in budget requests for O&M because the allocations have not been adequate (Wijesuriya 1990). The decreases in expenditures shown in Table 6.10 therefore reflect not participatory management but rather limitations imposed by the Treasury.

To illustrate the nature of the changes, a breakdown of O&M expenditure for the Anuradhapura Irrigation Division is given in Table 6.11. This table shows that allocations made for operation has increased from 25% in 1987 to 65% in 1993. The proportion of labor cost for operation ranged between 72 and 80%, while that for maintenance cost ranged between 84 and 95% during the period 1987 to 1992. This pattern of expenditure seems to be the norm for Irrigation Department divisions. This change appears to reflect the fact that operations costs have first priority - failure to carry out operations has immediate repercussions while the consequences of failure to carry out maintenance are generally delayed. Thus this change reflects the decreasing availability of O&M funds over time. As maintenance allocations have declined, amounts distributed to FOs for distributary channel maintenance have declined as a result.

Table 6.11: **Breakdown of O&M Expenditures in Anuradhapura Irrigation Division**

Year	Operations (%)	Maintenance (%)
1987	25	75
1988	43	57
1989	61	39
1990	55	45
1991	73	27
1992	68	32
1993	65	35

Source: Anuradhapura Irrigation Engineer's Office

Conclusion Our findings are:

- Overall expenditures for O&M have decreased in real terms for Irrigation Department schemes and have increased for Mahaweli schemes. These changes have not been responses to demands but to limitations imposed by Treasury allocations.
- Overall demand for O&M resources has not been satisfied with the present allocations even with participatory management since there are main system needs and deferred maintenance needs not yet fully covered.
- Earlier (see Chapters 2 and 6.2) we showed that participatory management has improved irrigation services and may have improved maintenance. This improvement has occurred despite decreasing government allocations for O&M.

The major conclusion is that while participatory management *has not reduced government expenditures* as hoped, it has *improved the effectiveness of government O&M allocations*. Although dramatic changes have not occurred, more is being done with less government resources.

6.7 Can Farmers Afford to Take Over Operation and Maintenance?

The question of whether farmers can afford to take over operation and maintenance is addressed as a single issue in this study. However, the scope and extent of farmer involvement in these two functions differ somewhat. Operations on a distributary channel requires only a few man days of labor inputs to open and close gates and some of the farmers' time to take collective decisions on water distribution. Maintenance on the other hand requires substantial labor inputs (80-90% of costs) at fixed times during the season and cash inputs for structural repairs and earthworks. The amount of cash required would vary, but could be quite high if the system is run down.

Transfer of the operations function to farmers has been easier and has met with greater success than transfer of maintenance because of the nature of work involved. The major problem with the transfer of maintenance has been that many farmers are unwilling to take over on the argument that they cannot afford it.

In deciding this issue, the first step was to determine the actual costs of O&M, which were obtained from both PD sites and LSS schemes over a period of five years beginning 1988. The next step of determining how much a reasonable level of maintenance would cost is more difficult, because it would require defining a standard for maintenance and then estimating the cost of such a level of maintenance. Although some estimates of maintenance requirements have been made in previous studies, we felt it would be of very little value in our analysis because of the large variation in the physical and operational condition of the schemes. For comparative purposes we have also estimated current levels of O&M funding in the LSS schemes and the requirements as specified by irrigation officers in the LSS. From these figures and from the expenditures incurred in the six Process Documentation sites we estimated a reasonable average figure for O&M needs. The proportion of net farm incomes required to finance O&M was estimated to complete the analysis.

The highest reported expenditure in the PD sites for O&M in 1993 was Rs 337/acre (inclusive of main system O&M) on the basis of area cultivated and Rs 364/acre on the basis of the area under command in System H. The lowest was Rs 67/acre for both cultivated and command area in Gampola Raja Ela. Average O&M expenditures for the period 1989-1994 of sample schemes of the LSS are presented in Table 6.9 (current prices) and Table 6.10 (constant 1993 prices). In these tables, the highest O&M expenditure for 1993 was reported in System H (Rs 364/acre) and the lowest in Badulu Oya (Rs 34/acre). The average O&M expenditures for 1993 were Rs 134/acre for INMAS schemes, Rs 102/acre for MANIS AB schemes, Rs 134/acre for MANIS C schemes, and Rs 236/acre for Mahaweli schemes. The overall average for all schemes was Rs 142/acre. The responses from irrigation officers in the LSS as to what would be the cost of a reasonable level of maintenance, is presented in Table 6.12. The average requirement for O&M estimated by them was Rs 300/acre for INMAS schemes, Rs 337/acre for MANIS AB schemes, Rs 404/acre for MANIS C schemes, and Rs 698/acre for Mahaweli schemes. The average for all schemes was Rs 368/acre.

From this data presented, we suggest that Rs 300/acre is a reasonable cost (in 1993 rupees) for the operation and maintenance of distributary channels that is to be turned over to farmers. For comparison purposes an O&M cost of Rs 400/acre is also analyzed in Table 6.14. A large proportion of these costs would be for labor (80%), which is usually discounted by the farmer (conversion factor for surplus labor in Sri Lanka is estimated at 0.722). Thus Rs 300/acre would carry greater value if transferred to the farmers than if it was allocated to the agency.

Net farm income was estimated for the PD sites from farm records as shown in Table 6.13. As shown, an O&M cost of Rs 300/acre works out to between 1.8% and 10.9% of one season's net farm income excluding family labor costs in PD sites. If non farm income is included and family labor is not costed, this proportion changes to between 1.8% to 8.2% of household income.

Table 6.12: Operations and Maintenance Requirements as Estimated by Irrigation Officers

Scheme	Command Area	Type of System	Major Problems	Year of Last Rehab.	Maint. Req. (Rs/acre)	Tot. Req. (Rs 000)
INMAS						
Dewahuwa	2,340	Reservoir	b		400	936
Gal Oya	10,000	Reservoir	b	1989	225	2,250
Kantalai	15,000	Reservoir	b,c,d	1985	300	4,500
Mahawillachiya	2,664	Reservoir	a,b,c,d	1977-82	200	533
Mapakada	925	Reservoir	a,d	1985-86	200	185
Nachchaduwa	5,889	Reservoir	a,b,d	1986-90	300	1,767
Nuwarawewa	2,400	Reservoir	b,d	1985-89	500	1,200
Rajangana	14,600	Reservoir	b,d	1985-89	400	5,840
Ridibendi Ela	6,000	Reservoir	b	1989-92	400	2,400
Tabbowa	2,292	Reservoir	a,b,d,e	1982	300	688
Wahalkada	2,000	Reservoir	a,d		75	150
Totals/Average	64,110				300	20,448
MANIS AB						
Buttala	1,250	Anicut	d	1992	450	563
Ethimalc	1,002	Reservoir	a,b,d		300	301
Galgamuwa	403	Reservoir	a,b,c,d,e		200	81
Hattota Anicut	495	Anicut	b,c,d	1994	200	99
Kande Ela	1,100	Reservoir	a,b,c,d,e		330	363
Kumbukkan Oya	1,683	Reservoir	a,b,c,d		500	842
Mahatotilla	700	Anicut	a,b,d		400	280
Waduwwala Ela	486	Anicut	a,b,c,d		150	73
Wennoruwa	475	Reservoir	b,e	1982	500	238
Totals/Average	7,594				337	2,838
MANIS C						
Badulu Oya	530	Reservoir	a,d		170	90
Balahuruwa	210	Reservoir	b,c,d,e	1992	500	105
Bentota RB	2,385	Other	a	1988-92	200	477
Bowatenna	270	Anicut	b		300	81
Diyatura	383	Anicut	a,b,c,d		280	107
Kospothu Oya	287	Anicut	a		56	16
Madulla	343	Anicut	a,c,d,e	1994	200	69
Paragaha Ara	250	Anicut	b,d		300	75
Tempitiya	430	Reservoir	a,d,e		800	344
Uyanwewa	243	Reservoir	a,b,d		1,234	300
Totals/Average	5,331				404	1,664
Mahaweli						
System H	77,000	Reservoir	a,c,d,e		688	52,976
Uda Walawe	47,000	Reservoir	b,d,e	1993	708	33,276
Totals/Average	124,000				698	86,252
Overall Totals/Ave	201,035				368	111,202

* Data from Large Scale Survey; includes only those schemes where irrigation officers estimated maintenance needs.

a - System physical deficiencies

b - Inadequate funds for O&M

c - Insufficient water supply

d - Head-tail differences or poor water distribution

e - Inadequate cooperation among farmers and agencies

A similar analysis carried out with LSS data is presented in Table 6.14. This table shows that an O&M cost of Rs 300/acre works out to about 16% of net farm income excluding family labor for all schemes. It varied between 3.5% (Mapakada) to 57% (Nuwarawewa) in INMAS schemes and averaged 15.0% for all INMAS schemes. For MANIS AB schemes it varied from 2.3% (Mahatotilla) to 75% (Galgamuwa), averaging 19.7% for all schemes. For MANIS C schemes, it varied between 2.6% (Balahuruwa) to 48% (Hingura Ara), averaging to 11.2% for all schemes. For Mahaweli schemes, it varied from 4% (System H) to 45% (System C), but averaged to 24.1% for all schemes. In 20 of the 41 schemes studied (49%) it was below 10%, and in 15 schemes (37%) it was greater than 10%. Six of the 41 schemes (14%) showed negative returns and are not used for these calculations.

Table 6.13: Analysis of Farm Records in Process Documentation Sites

Scheme	Crops	Farm Size (acres)	COP (Rs/fm)	Farm Yield (tons)	NFI (Net Farm Income) (Rs)	HI (Hshld Income) (Rs)	1993 O&M Exp (Rs/ac)	1993 O&M as % of NFI	1993 O&M as % of HI	Rs 300/ac as % of NFI	Rs 300/ac as % of HI
System C	M-rice Y-mixed	2.36	15,570	3.6	13,215	22,639	252	4.5 %	2.6 %	5.4 %	3.1 %
System H	M-rice Y-mixed	1.13	15,930	1.6	19,013	19,042	337	2.0 %	2.0 %	1.8 %	1.8 %
Rajangana	M-rice Y-rice	1.73	13,152	2.3	6,755	11,990	176	4.5 %	2.5 %	7.7 %	4.3 %
Mee Oya	M-rice Y-rice	1.6	13,805	2.6	9,320	9,320	93	1.6 %	1.6 %	5.2 %	5.2 %
Gampola RE	M-rice Y-mixed	0.98	12,210	0.93	(1,156)	(250)	67	na	na	na	na
Mannankattiya	M-rice Y-rice	1.13	8,921	1.4	3,098	4,112	150	5.5 %	4.1 %	10.9 %	8.2 %

COP - Cost of Production

M - Maha, Y - Yala

The above data indicate that in more than 50% of the schemes, the amount that farmers have to spend annually for O&M would be a small fraction of their net income from a single season's earnings from irrigated farming. In the PD sites, where farm income was estimated from the far more reliable source of farm records, in four of the five schemes (80%) where farmers had positive returns, the proportion of O&M costs of Rs 300/acre to net farm income was below 10%. This demonstrates the fact that with more reliable data on farm income, we are able to show clearly that farmers can afford turnover. This conclusion is further strengthened by the fact farmers usually value their own labor at much below the market cost so that their envisaged cost would be less than the specified amount of Rs 300/acre used in our analysis. **Therefore in general we can conclude that farmers can afford to take over O&M, at a rate that is just below the highest amount spent on annual O&M currently.** It should be remembered that this analysis is based on net income from a single season's crops, while in most schemes, farmers get two crops per year.

If a much higher level of expenditure is deemed to be necessary to ensure the sustainability of the system, then the whole question of affordability has to be re-examined in the light of new evidence. This however, does not resolve the issue whether farmers are willing to absorb this additional burden, even though it is a small proportion of their net income. The majority of the irrigation officers and institutional officers interviewed in the LSS were of the opinion that farmers cannot afford to take over O&M entirely. Many farmers and FO office bearers interviewed in RS also indicated their unwillingness to take over the financial burden of O&M. If profits from irrigated farming, particularly paddy farming decline further, the conclusion reached may no longer be valid.

6.8 Conclusions on Impacts

Our conclusions on the impacts of participatory management are the following:

- Most farmers perceived benefits, including improved relations with agency officials and improved water distribution as the main ones.
- The impact of participatory management on crop production appears to be marginal or non existent. However, improved water distribution brought about by participatory management may reduce the risks of cultivation, even in encroached areas. The value of this risk reduction cannot be easily estimated but, over the long run, participatory management should help raise the average productivity.
- Overall, participatory management has had little discernible impact on farm income. There has been no increase in either yields or area cultivated, hence there has been no increase in salable production. Although participatory management has enabled many FOs to venture into agriculture related businesses that have reduced costs of inputs and services to the farmer, the benefits have been limited to specific areas, and overall have not had a large impact. Diversification to more remunerative crops appears to be unrelated to participatory management.
- While government expenditure on operations and maintenance has, except for Mahaweli systems, generally decreased over time in real terms, this is not directly caused by participatory management. Participatory management has reduced the work load of irrigation officials as well as costs; the savings and the officials' time have been transferred to main system O&M. In the long run, more attention to the main systems may increase the period between rehabilitations and reduce the long-term costs of maintenance. More importantly, water distribution has improved and maintenance has at least remained at the same level despite generally decreasing real expenditures on O&M.
- Our findings indicate that adequate funding for O&M of distributary channels costs farmers less than 10% of the net farm income for a single season in a majority of the schemes. Thus it appears that farmers can afford to take over O&M in a majority of the cases. Further, farmers would be able to make more efficient use of the resources and therefore accomplish the same amount of work for less funds than the agency. However the farmers may not be willing to take over the additional burden of O&M. If profits from farming and particularly paddy farming declines, the conclusion reached that farmers can afford to take over O&M, may no longer be valid.

Overall, then, participatory management has not yet shown that it will improve agricultural production significantly, but it appears that it is contributing to the government's ability to reduce government expenditures on irrigation system management without significant harm to agricultural production.

Table 6.14: Returns from Paddy Farming, Maha 1993/94

Scheme	Sample Farmers	Sample Farm Area (acres)	Sample Cult Area (acres)	Gross Income (Rs)	Revenue (Rs/ac)	Cost of Prod (Rs/ac)	NIPA (Net Inc/ac)	Rs 300/ac as % of NIPA	Rs 400/ac as % of NIPA
INMAS									
Dewahuwa	6	23.0	23.0	135,000	5,870	6,500	(630)	na	na
Gal Oya	6	12.0	9.0	102,550	11,394	6,800	4,594	6.5 %	8.7 %
Kantalai	22	112.9	113.0	1,204,950	10,663	6,800	3,863	7.8 %	10.4 %
Mahawillachiya	4	10.8	10.8	125,700	11,693	5,800	5,893	5.1 %	6.8 %
Mapakada	4	8.5	8.5	122,454	14,406	5,750	8,656	3.5 %	4.6 %
Nachchaduwa	10	77.5	24.0	174,000	7,250	6,000	1,250	24.0 %	32.0 %
Nuwarawewa	6	33.0	28.0	182,700	6,525	6,000	525	57.1 %	76.2 %
Padaviya	10	28.0	28.0	267,750	9,563	5,900	3,663	8.2 %	10.9 %
Rajangana	38	78.7	64.0	538,175	8,409	6,800	1,609	18.6 %	24.9 %
Ridibendi Ela	8	17.1	17.0	151,075	8,887	5,750	3,137	9.6 %	12.8 %
Tabbowa	4	10.0	10.0	88,000	8,800	5,750	3,050	9.8 %	13.1 %
Wahalkada	4	9.5	9.5	46,800	4,926	5,750	(824)	na	na
Totals/Averages	122	420.9	344.8	3,139,154	9,032	6,133	2,899	15.0 %	20.0 %
MANIS AB									
Buttala	6	16.5	15.5	135,200	8,723	5,850	2,873	10.4 %	13.9 %
Ethimale	4	11.5	8.0	120,950	15,119	6,000	9,119	3.3 %	4.4 %
Galgamuwa	2	2.0	2.0	12,000	6,000	5,600	400	75.0 %	100.0 %
Hattota Anicut	4	9.0	10.0	72,000	7,200	6,000	1,200	25.0 %	33.3 %
Kande Ela	9	7.0	7.8	145,000	18,710	5,950	12,760	2.4 %	3.1 %
Kumbukkan Oya	8	24.7	24.8	398,675	16,108	6,100	10,008	3.0 %	4.0 %
Mahagalwewa	2	6.0	6.0	38,000	6,333	5,700	633	47.4 %	63.2 %
Mahatotilla	2	1.3	1.3	23,300	18,640	5,700	12,940	2.3 %	3.1 %
Waduawala Ela	2	6.5	6.5	25,000	3,846	5,300	(1,454)	na	na
Wellawa	2	2.3	2.3	14,725	6,544	5,300	1,244	24.1 %	32.1 %
Wennoruwa	4	8.2	8.3	99,975	12,118	5,600	6,518	4.6 %	6.1 %
Totals/Averages	45	95.0	92.3	1,084,825	10,849	5,736	5,113	19.7 %	26.3 %
MANIS C									
Badulu Oya	2	1.5	1.5	19,200	12,800	6,200	6,600	4.5 %	6.1 %
Balahuruwa	2	2.5	2.5	46,750	18,700	7,150	11,550	2.6 %	3.5 %
Bentota RB	20	37.6	20.0	76,725	3,836	5,400	(1,564)	na	na
Bowatenna	2	2.5	2.5	26,700	10,680	6,000	4,680	6.4 %	8.5 %
Diyatura	4	6.8	6.8	25,475	3,774	5,350	(1,576)	na	na
Hingura Ara	2	6.0	8.0	45,000	5,625	5,000	625	48.0 %	64.0 %
Kospothu Oya	2	3.0	3.0	24,645	8,215	5,400	2,815	10.7 %	14.2 %
Kotikapitiya	2	7.5	7.5	21,000	2,800	4,900	(2,100)	na	na
Madulla	2	10.5	10.5	130,200	12,400	6,250	6,150	4.9 %	6.5 %
Paragaha Ara	2	2.0	2.0	16,500	8,250	5,950	2,300	13.0 %	17.4 %
Ranmaduwewa	2	4.0	4.0	36,160	9,040	5,950	3,090	9.7 %	12.9 %
Tempitiya	2	3.5	3.5	31,000	8,857	6,200	2,657	11.3 %	15.1 %
Uyanwewa	2	6.0	6.0	60,000	10,000	6,200	3,800	7.9 %	10.5 %
Walalgoda	2	12.0	12.0	168,020	14,002	6,400	7,602	3.9 %	5.3 %
Totals/Averages	48	105.4	89.8	727,375	9,213	5,882	3,331	11.2 %	14.9 %
Mahaweli									
System C	36	87.5	87.5	661,840	7,564	6,900	664	45.2 %	60.3 %
System B	26	66.6	61.5	477,875	7,770	6,700	1,070	28.0 %	37.4 %
System H	34	90.8	70.5	1,033,865	14,665	7,100	7,565	4.0 %	5.3 %
Uda Walawe	30	76.5	76.5	562,750	7,356	5,800	1,556	19.3 %	25.7 %
Totals/Averages	126	321.3	296.0	2,736,330	9,339	6,625	2,714	24.1 %	32.2 %
Overall Tots/Aves	341	942.6	822.8	7,687,684	9,611	5,989	3,622	16.2 %	21.6 %

Source: Large Scale Survey; costs of production estimated from other sources.

CHAPTER 7

EVALUATION OF THE PROGRESS OF PARTICIPATORY MANAGEMENT

7.1 Summary of Main Findings

The main findings of the study can be summarized as follows:

- There has been good progress in establishing farmer organizations. Farmer organizations (FOs) have been established in almost all parts of all of the INMAS and Mahaweli schemes. FOs also exist in most MANIS schemes. Overall, 85% of schemes in the three programs have FOs.
- The organizational strength of the FOs varies greatly among the schemes. FO strength in INMAS schemes is reasonably high; most farmers are members and most have the necessary management systems in place. FO strength in Mahaweli schemes is less good but is improving with assistance from the MEA. FO strength in MANIS schemes varies greatly but the majority are rather weak.
- There has been less progress in establishing joint management committees (JMCs). JMCs exist in all INMAS and Mahaweli schemes but in only a minority of MANIS schemes. Overall, JMCs have been established in about 51% of the schemes in the three programs.
- The performance of FOs in water distribution is generally quite good. Similarly, JMCs have helped improve seasonal planning. It is widely acknowledged that participatory management has improved water distribution. Overall, farmers have shown themselves quite willing to take water distribution responsibilities.
- The performance of FOs and JMCs in maintenance is controversial. Our findings are that the work done by FOs is generally quite good. It is quite probable that without FO involvement in distributary canal clearing and desilting the quality of work would be significantly worse because of the decreased maintenance budgets of the irrigation agencies. On the other hand some Irrigation Department officers assert that FO maintenance performance is not good enough. We also found many cases of FOs taking responsibility for maintenance activities above the distributary canal level, with and without payment from the government for these activities. Work done without payment was primarily concentrated in MANIS schemes where, because of relative neglect by the Irrigation Department, farmers have long been used to taking care of the schemes.
- JMCs have relatively little direct involvement in maintenance, except in Mahaweli schemes. In Mahaweli schemes, JMCs are directly involved in maintenance planning at various levels, including prioritizing needs and allocating funds. In the other programs, JMCs serve mainly as a place for farmers to bring problems to the attention of the Irrigation Department.
- The performance of FOs in other areas is less good. To date only a minority of FOs are involved in business activities, although a few have done quite well. Almost all FOs are dependent to a greater or lesser degree on the government for their funds. Virtually no FO is financially independent of the government.
- The strength and performance of FOs are affected strongly by some key factors. These include water availability, physical condition of the system and land tenure. Ethnicity and caste appear to have little effect. Outside interventions are an occasional problem.

- All three programs are using the INMAS model of farmer organization as the basic form to be achieved. This is appropriate in INMAS and Mahaweli schemes. However, the physical structure, land tenure, and other factors in some MANIS schemes are such that the INMAS organizational model is not appropriate.
- The performance of JMCs in solving irrigation problems varies greatly among schemes and is dependent mostly on agency involvement. In INMAS and Mahaweli schemes, irrigation agency officers attend meetings regularly and respond reasonably positively to farmer initiatives at JMC meetings. The result is that JMCs in INMAS and Mahaweli schemes are effective in solving irrigation problems. In MANIS schemes, however, failure to hold meetings and less responsiveness of Irrigation Department officers makes JMCs less effective.
- JMCs are less effective in solving other types of problems. In INMAS and MANIS schemes, officers from agencies do not regularly attend meetings, and often do not pay attention to the farmer concerns expressed at meetings. Some agencies, e.g., the Department of Agrarian Services (DAS), have policies that hinder the ability to work with farmers through the JMC. In Mahaweli schemes, officers from other divisions of MEA attend the JMC meetings because it is the MEA policy. So far, however, MEA officers have not fully adapted to dealing with farmers through JMCs. Thus, in future, Mahaweli JMCs are likely to be effective in solving many kinds of problems.
- A major organizational weakness that affects both FOs and JMCs is poor communication between Farmer Representatives and their constituents. Another major problem for many FOs is weakness in managing money.
- Turnover comes in several forms. To date, several O&M activities have been taken over by FOs whether or not turnover is recognized. These activities include water distribution among and on field channels and the jungle clearing of distributary channels. On the other hand, recognized turnover, whether formally written into an agreement or not, has not proceeded very far; only in INMAS schemes has turnover been recognized by the government for a significant number of FOs.
- There is general confusion and controversy about turnover. First, except in Mahaweli schemes, there is no well defined process for turnover, although a generally accepted set of stages can be discerned in practice. Second, there is strong disagreement about turnover of maintenance responsibilities. A vocal group of Irrigation Department officers, with support from many farmers, is opposing full turnover of responsibility for maintenance of distributary channels to FOs on the grounds that the farmers cannot afford it. No one seriously opposes turnover of operational responsibilities.
- Agency support for participatory management includes actions directed towards helping FOs and JMCs, such as providing catalyst agents and training. Where such direct support has been provided, it has proved useful and generally effective. The strength of FOs and JMCs is highly correlated with the direct support provided. However, support has not been provided equally to all schemes. INMAS schemes have had at least some direct support over 10 years; many have had a lot of support. Mahaweli schemes have had strong direct support but only since reorganization in 1992-93. Most MANIS schemes have had little or no direct support.
- Agency support also includes working cooperatively with the FOs and JMCs and responding positively to their initiatives. Irrigation Department officers in INMAS schemes have gradually become more cooperative over time so that now they work well with FOs and JMCs. However, the officers of other agencies, except the IMD, do not yet work well with FOs and JMCs. MEA officers are now learning to work with FOs and JMCs. Overall, more progress is needed.

- In some schemes, particularly INMAS schemes, some catalyst agents, including Project Managers, Institutional Development Officers and Institutional Organizers, have worked to make the FOs dependent on their (the officers') services rather than self-reliant. This has created a new kind of dependency. Examples from other systems show that this dependency need not be created.
- Although participatory management has clearly improved water distribution, there is no evidence of increased in crop production or increased farmer incomes resulting from participatory management. However, improved water distribution decreases the risks of irrigated agriculture and thus should raise the long run production.
- There is no evidence of reduction of government O&M expenditures as a direct consequence of participatory management. However, the amounts spent by the government on distributary canal and field channel O&M have decreased over time in real terms, except in Mahaweli schemes where expenditures have remained the same or have increased. The general decrease in expenditures has occurred while participatory management has improved water distribution and has ensured that maintenance continues. In many cases, a greater portion of government O&M funds are now being used on the main system, thus prolonging its life. Overall, participatory management means that more O&M work is being done with a decreased amount of government funds.

7.2 Improving the Results of Participatory Management

Overall, we believe that the participatory management policy is moving in the right direction. Water distribution has improved and we believe that maintenance has also improved. Despite the failure to have some of the expected impacts, the benefits of participatory management in water distribution and potential to increase sustainability are sufficient reasons to continue the policy. However, there is a need to reconsider certain aspects of the organization and support for the policy. Specific recommendations are given in Volume 1 of this report.

7.2.1 Improving Agency Cooperation with FOs and JMCs

Participatory management is a government program; it has not been developed by the farmers for their own purposes. It has been accepted by many farmers because it provides benefits. From the farmers' point of view, the major benefit of participatory management has been to give the farmers more power in negotiating with government agencies over services and resources. Thus the most important form of support to be provided is to make sure that the agencies respond positively to the FOs and JMCs.

A major finding is that government officers, except for some in some agencies, do not yet work well with FOs and JMCs. A major reason that JMCs have not progressed as well as FOs is that dealing with officers is the JMCs' sole function while FOs serve other purposes as well.

This suggests that there is a need to get agencies and officers to work with FOs and JMCs in a more cooperative and supportive manner. This is not just a matter of attitude but also of procedures within the agencies. The legal foundations now exist in the amendments to the Agrarian Services Act and the Irrigation Ordinance. It is now time to change the agencies themselves.

7.2.2 Direct Assistance to Farmer Organizations and JMCs

Because FOs now exist in the majority of schemes, there is no need for large catalyst campaigns to create them. However, as documented above, the existing FOs have a variety of weaknesses that can be remedied through direct assistance.

First, there are many causes of organizational weakness of FOs, including poor organizational management systems -- particularly poor financial management systems -- and lack of communication among members. These problems can be overcome by training farmers. However, the training must not be directed solely at the office bearers and Farmer Representatives. It is more important in the long run that the ordinary FO member be educated in organizational management so that he can demand proper actions from his leaders.

Second, through assistance efforts many farmers have learned much about the technical aspects of irrigation (and about some other subjects as well), but there is still a need to continue educating farmers.

Third, the FOs should be encouraged to take up businesses and activities other than irrigation management so as to make them more valuable to the farmers. For this, they need some training in specific activities of interest. Also, specific programs in particular areas should be developed. For example, the National Fertilizer Corporation's willingness to sell fertilizer wholesale to FOs was a major stimulus for FOs in this area.

Fourth, land tenure problems, and in a few places, other factors, pose special problems for some FOs because farmers are less cooperative than usual. Specific help can be given by making changes in FO rules, i.e. include renters, etc., as members of the FOs, and by local officers acting in ways that support the FO in their dealings with the problematic persons. The amended Irrigation Ordinance now gives the FOs the power to fine uncooperative farmers. It may be necessary in the long run to give the FOs the legal power to cut off water to uncooperative persons.

Education about organizational management is, in the modern world, likely to be of far reaching importance for almost all persons. Thought could be given to including it in the school curriculum.

Creating and strengthening FOs requires that the catalyst agents start with a model of the organization to be achieved. All three programs are now operating with the INMAS model, although we have shown that it is not appropriate for several types of irrigation system coming under the MANIS program. Single main channel schemes and low country drainage schemes are two such types. These schemes are sufficiently numerous that there is a need to develop alternative model organizations.

7.2.3 *Turnover*

There is an urgent need for clarification of turnover policy. At the moment, all involved are confused and arguments are raging. The key question is how maintenance responsibilities for distributary channels are to be divided between the government agency and FOs.

There are several advantages to turning all responsibilities, including financing, over to FOs as was envisioned in the 1988 Cabinet Paper. Complete turnover will make the responsibilities clear to all and should result in more efficient use of government funds since those funds will be concentrated on main system management. We believe that complete turnover will not result in any worse maintenance than would happen if the irrigation agencies were fully responsible; indeed, the evidence indicates that farmers will do a better job than the agency but perhaps not as good a job as if both work together. Our findings also indicate that farmers can afford to pay the O&M costs for field channels and distributary channels. However, if the profitability of irrigated agriculture declines further, farmers may find it difficult to bear the costs. Also, it may be politically unpopular to put the whole burden onto the farmers. Therefore, there is an argument for providing some form of continuing support for maintenance.

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**Monitoring and Evaluation of the
Participatory Irrigation System Management Policy**

**SYSTEMS FOR MONITORING AND EVALUATION
OF PARTICIPATORY IRRIGATION SYSTEM MANAGEMENT**

Volume III

**International Irrigation Management Institute
Hector Kobbekaduwa Agrarian Research and Training Institute**

December, 1997

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ABBREVIATIONS

ADB	Asian Development Bank
ARTI	(Hector Kobbekaduwa) Agrarian Research and Training Institute
BC	branch channel
BCC	Block Coordinating Committee
BM	Block Manager
DAS	Department of Agrarian Services
DC	distributary channel
DCO	distributary channel organization
DRPM	Deputy Resident Project Manager
FC	field channel
FCG	field channel group
FR	Farmer Representative
FO	farmer organization
ID	Irrigation Department
IDO	Institutional Development Officer (IMD and MEA)
IDU	Institutional Development Unit (MEA)
IIMI	International Irrigation Management Institute
IMAC	Irrigation Management Cell (Irrigation Department)
IMD	Irrigation Management Division
IMPSA	Irrigation Management Policy Support Activity
INMAS	Integrated Management of Major Irrigation Schemes
IO	Institutional Organizer (IMD and ID)
IOV	Institutional Organizer Volunteer (MEA)
ISMP	Irrigation Systems Management Project
JMC	Joint Management Committee
LCD	Land Commissioner's Department
M&E	Monitoring and Evaluation
MASL	Mahaweli Authority of Sri Lanka
MANIS	Management of Irrigation Schemes (program)
MARD	Mahaweli Agricultural and Rural Development (Project)
MC	Main Channel
MEA	Mahaweli Economic Agency
ME&F	Monitoring, Evaluation and Feedback (System)
NIRP	National Irrigation Rehabilitation Project
O&M	Operations and Maintenance
PCC	Project Coordinating Committee
PD	Process Documentation
PMC	Project Management Committee
PMU	(MASL) Planning and Monitoring Unit
RPM	Resident Project Manager
RS	Recurrent Survey
SPC	Subproject Committee
SPCC	Subproject Coordinating Committee
UCC	Unit Coordinating Committee

FOREWORD

This volume describes the IIMI/ARTI team's effort to a) review present monitoring and evaluation systems for participatory irrigation system management in Sri Lanka, b) to define improved indicators for monitoring and evaluating the progress of participatory irrigation system management, and c) to define a simple and cost effective system for such monitoring in the future.

The work reported here was carried out by the following: a) Ratnasiri Ekanayake of IIMI was responsible for collecting information on data needs of managers and on present M&E systems, b) L.R. Perera of IIMI carried out the Kaltota experiment described in Chapter 4 and Annexes A and B, including discussing the matter with Irrigation Department personnel, devising the formats, overseeing data collection, and analyzing the data, and c) the whole IIMI/ARTI team was involved in creating, revising, and evaluating the indicators described in Chapter 3.

On behalf of the IIMI/ARTI team, I would like to thank the various IMD, ID, and MEA officers, necessarily anonymous, who provided information and support for this effort.

Jeffrey D. Brewer
Project Leader

CHAPTER 1

INTRODUCTION

The implementation of participatory irrigation system management is a process whose goals and implications change even as the process proceeds. For example, the evaluation made by this study suggests that the impacts that can be expected from the policy are not what was expected at the time of the formulation of the Cabinet Paper in 1988. Moreover, the turnover process turns out to be more complex than anticipated. There is thus a need for monitoring and evaluating the progress and impacts of this process as it proceeds so that changes can be made in policies and programs to make the process most valuable to farmers and to the country as a whole.

Therefore, one of the goals of the study on Monitoring and Evaluation of Participatory Irrigation System Management Policy is to make recommendations to the government concerning improvements to existing systems for monitoring and evaluating the progress and impacts of the policy and programs.

As part of the study therefore, we took the following steps:

- We documented the monitoring and evaluation systems being used by the implementing agencies.
- We interviewed a series of managers in the field to find out what information they felt they needed about the process in order to manage it most effectively.
- We developed measures of key characteristics of farmer organization, joint management committee, and agency performance for use in evaluating the progress and impacts of participatory management. These should be useful for continued monitoring and evaluation efforts.
- We discussed suggestions on monitoring and evaluation with the Mahaweli Economic Agency (MEA) and the Irrigation Department (ID), both of which are developing monitoring and evaluation systems, and offered to carry out a pilot study or assist with their work. The Irrigation Department welcomed the offer and we worked with them to carry out a pilot test of a monitoring and evaluation system in the Kaltota Scheme.
- We also considered the lessons learned in carrying out the IIMI/ARTI study of progress and evaluation of participatory management.

This volume describes these efforts and their results and makes recommendations for improving monitoring and evaluation of participatory management in the future.

We must emphasize here that this report is focused on the monitoring and evaluation of the process of implementation of participatory management. The report does not discuss monitoring and evaluation of irrigation system management, monitoring and evaluation of irrigated agriculture, or other broader issues, although these often overlap with the focus of this particular report.

This volume is organized as follows:

- Chapter 2 reviews the existing systems used by the three implementing agencies.
- Chapter 3 discusses measures and indicators of the key information items required.
- Chapter 4 describes the Kaltota experiment and its results.
- Chapter 5 draws on the IIMI/ARTI experience with collecting data for this study to consider an alternative to the systems discussed in Chapters 3 and 4.
- Chapter 6 presents the conclusions and recommendations of this effort.

CHAPTER 2

EXISTING MONITORING AND EVALUATING SYSTEMS

The need for monitoring and evaluating the programs for promotion of participatory management has been recognized by all of the involved agencies. The systems in use are described succinctly below.

2.1 Irrigation Management Division M&E Systems

Not surprisingly, as the agency whose primary reason for being was the INMAS program, the IMD has been the most concerned with monitoring and evaluating the progress of participatory management in the INMAS schemes.

2.1.1 *Systems Used by the IMD*

The IMD has used three M&E systems:

1. Initially, the IMD developed a reporting system that required the Project Manager in each scheme to prepare a set a regular plans and reports, including annual plans, seasonal plans, seasonal reports, mid-season reports, and monthly reports. Standard formats were used for these plans and reports. The prime focus of these reports was on cultivation progress. Some Project Managers estimated that they spent 50% of their time trying to gather the relatively voluminous data required, mostly from other agencies. Project Managers said that these data were of little use to them and there appeared to be little use made of the data in Colombo. Generally, when IMD officers in Colombo needed data for a particular purpose, they would ask the Project Managers to supply it separately.
2. The Irrigation Systems Management Project (ISMP) developed an alternative monitoring system in 1989. Like the IMD's original system, this required collection of a large amount of data for each system, much of it focused on irrigation and crop performance. In the ISMP systems, special personnel were hired to collect the needed data. While this system would have provided good data on many aspects of performance, it was difficult and expensive to use.
3. In 1991, the ISMP developed a revised M&E system, called the Monitoring, Evaluation and Feedback (ME&F) System that was codified into six forms. Of these, five were primarily concerned with seasonal crop planning and performance. The sixth form is the ME&F's primary means for monitoring the progress of farmer organizations. The ME&F system is well conceived since it does not require the voluminous data needed by the two earlier systems yet provides a basis for diagnosing problems and reporting progress. Initially, it was used only in the seven ISMP schemes but was later spread to others.

The first of these systems was found to be deficient; the second was found to be too difficult to use and has been dropped. Only the last, the ME&F system, warrants closer examination.

2.1.2 *The Monitoring, Evaluation and Feedback (ME&F) System*

The ME&F uses six formats. Formats ME-1 through ME-5 are to be filled out once a season; they are designed for seasonal planning from the field channel level to the scheme level and for evaluation of seasonal performance. Format ME-6 is a monthly evaluation of FO progress and problems. All are to be implemented with the direct involvement of the FOs. Information collected in the six formats are shown in Tables 1, 2, 3, and 4.

Table 1: Data Collected by ME&F Formats 1-3

Format	Information Collected
<u>ME-1</u> DC Level Seasonal Planning	<ul style="list-style-type: none"> - Expected crops and land extent for the season - Planned dates of the cultivation calendar - Services to be provided by the DCO - Estimation of production cost, yield and income - Undertaking of maintenance work by the FO of the total work - Financial plan of the FO for the season - Training required for the season - Services expected by the DCO - Non-farm employment expected to be organized by the DCO - Suggestions to improve water management.
<u>ME-2</u> End of Season DC Level Performance	<ul style="list-style-type: none"> - Crops and land extent of the DCO area - Satisfaction with water delivery - Total extent of cultivation period - Services provided by the DCO - Production cost, yield and income in the DCO area - Total maintenance done by DCO - Financial management (Cash Balance) - No. of Shramadana carried out, participation and estimate of the work done. - Training provided to DCO - Services received by the DCO - Non-farm employment organized by the DCO - Satisfaction over the services provided by agencies - Progress of FO activities (meetings and participation)
<u>ME-3</u> Scheme Level Action Plan	<ul style="list-style-type: none"> - Expected crops and land extent - Water supply and cultivation plan - Service supply plan from the project level - Expected production cost, yield and income - O&M plan (total work, cost and undertaking of DCOs) - Financial management of DCOs (satisfaction over financial management) - No of shramadanas to be conducted and value of them - Training plan - Assistance to be given to DCOs by the PMC - Non-farm income generating plan - Other special programs

The DCO level seasonal plan is to be prepared by the DCO office bearers based on field channel level plans. Next, a scheme level action plan is to be prepared based on those DCO level plans. End of season evaluation of performance against the plans is to be done at both the DCO and scheme levels. Formats ME-1 to ME-5 record these plans and performance reports.

During the season, a monthly progress report is to be forwarded to the Project Manager by the DCOs on Format ME-6.1. The Project Manager is required to tabulate the information in these DCO reports on Format ME-6.2. This tabulation is to be circulated to interested local agencies, including the Irrigation Department, Agriculture Department, and Agrarian Services Department. The Project Manager also sends the tabulation to the IMD head office in Colombo. It is expected that the monthly tabulations will be discussed at the PMC meetings.

Table 2: Data Collected by ME&F Formats 4-5

Format	Information Collected
<u>ME-4</u> End of Season Scheme Level Performance	<ul style="list-style-type: none"> - Crops and land extent - Satisfaction over irrigation water supply - Problems faced in implementing the seasonal plan - No. of DCOs to which the services provided from project level - Average cost, yield and income - Maintenance progress - Financial management progress of DCOs (satisfaction over financial management) - Progress in conducting Shramadana and total value - Progress in providing training to farmers, FRs and officers - Progress in providing services by DCOs - Progress of generating non-farm employment - Performance of PMC (participation of farmers and officers)
<u>ME-5</u> FC Level Seasonal Planning	<ul style="list-style-type: none"> - Basic cultivation data of FC - Expected crops and land extent - Expected farming practices in land preparation, planting and weed control - Input requirements - Services expected from the DCO - Estimated production cost, yield and income - No of shramadana to be held and the value

Table 3: Data Collected by ME&F Format 6.1

Format	Information Collected
<u>ME-6.1</u> Monthly Progress Report from DCO to Project Manager	<ol style="list-style-type: none"> 1. <u>Operation and Maintenance</u> <ul style="list-style-type: none"> - Water availability in the tail-end FCs - Whether the DCO accepted O&M responsibilities - Progress vs plan of maintenance - Expenditures on maintenance - Whether the quality of work was satisfactory - Labor contributions to shramadanas - Constraints faced in doing maintenance work 2. <u>Institutional Development and DCO Management</u> <ul style="list-style-type: none"> - Whether office bearers devoted sufficient time to the DCO - Monthly meetings and attendance at the meetings - Progress in implementing FO activities - Activities of FC groups - Whether training is required for FC groups - Whether assistance is required in handling financial records - Whether financial reports are up-to-date - Whether sufficient funds are available for FO activities - Whether adequate support is given by the PMC - Whether adequate support is given by officers - Progress in problem solving 3. <u>Production Plan</u> <ul style="list-style-type: none"> - Constraints faced by DCO in planned rice cultivation (by type) - Constraints faced by DCO in planned OFC cultivation (by type) - Constraints in organizing non-farm employment (by type) - Special problems

For the seven schemes in the ISMP, the head office prepares a monthly progress summary report based upon this data. The monthly summary report is sent to Project Managers and the Irrigation Engineers of the ISMP schemes. Quarterly and six month progress reports are prepared on the ISM projects and forwarded to the Ministry level.

The IMD plans to establish the ME&F system in all INMAS schemes after the initial trial run in ISMP schemes. Though the ME&F system has been introduced to other INMAS schemes, regular collection of data is occurring in only ten schemes according to head office information sources. These data are analyzed at the head office and results are sent back to the respective Project Managers. Sending these data to higher levels has not yet begun.

A training program was conducted for all the Project Managers and IDOs towards to end of 1994 as a preliminary arrangement for applying the ME&F system in all INMAS schemes. Training has been provided in seasonal planning, controlling progress, end of season evaluation and selecting random samples to collect data. Those who attended this training are supposed to train the DCO office bearers in collecting field level data.

The ME&F system seems to have a major problem. Collecting of field level progress data is supposed to be the responsibility of the DCO office bearers. However, whether they can do so depends on whether FC level planning is done. Field visits to Dewahuwa, Rajangana and Nachchaduwa where the ME&F system is supposed to be functioning showed that the IOs were collecting the data. In Dewahuwa and Rajangana, only the ME1 and ME6 forms were being completed. In Nachchaduwa, the ME3, ME4 and ME6 forms were being completed. The office bearers of some of the DCOs of these projects knew that such forms had been filled in by the IOs on the information provided by them but they did not know for what purpose. When answering the questions they gave vague answers without taking it seriously. In some places the IOs themselves had filled the forms without consulting the DCO office bearers. That is, in some INMAS schemes, perhaps most, the IOs play an essential role in making the ME&F system work, even if only partially. For example, the ME&F system largely fell apart in Kirindi Oya towards the end of 1993 when it became clear that the IOs were to be discontinued.

2.2 Irrigation Department Monitoring and Evaluation Systems

Until very recently, the Irrigation Department has had no regular monitoring and reporting system on the progress and impact of participatory management. In INMAS systems, the Irrigation Department could depend upon IMD reports. In MANIS systems, no extra resources were available for this purpose and the Project Managers had other responsibilities as Technical Assistants. Thus information received by the head office was limited to occasional reports of progress review meetings held at the range and divisional levels. These reports mostly discussed the progress of O&M, progress of rehabilitation construction work (for the NIRP), and other general problems, but might give some details of FO activities.

There are two recent developments. First, under the National Irrigation Rehabilitation Project (NIRP), it is required that FOs be established and agree to take over management responsibilities before rehabilitation work commences. Consultants for the NIRP have been working with ID Project Managers to evaluate the FOs. Their efforts have not been codified into a formal system but they do provide some feedback. In addition, the Irrigation Research Management Unit has been evaluating the progress of FOs under NIRP.

Table 4: Data Collected by ME&F Format 6. 2

Format	Information Collected
ME-6.2 Monthly Progress Report from Project Manager to HQ	<p>1. <u>Operation and Maintenance</u></p> <ul style="list-style-type: none"> - No. of DCOs with unsatisfactory water supply to tail-end FCs - No. of DCOs which had accepted O&M responsibilities - Progress vs plan for total maintenance work of DCOs - Cumulative value of maintenance work done by DCOs - Value of shramadanas done by DCOs - No. of DCOs for which FC maintenance is satisfactory - Constraints faced in doing maintenance work <p>2. <u>Institutional Development and DCO Management</u></p> <ul style="list-style-type: none"> - No. of DCOs in which office bearers did not devote sufficient time - No. of DCOS which failed to hold monthly meetings - No. of DCOS with less than 65% attendance at monthly meetings - No. of DCOs which did not achieve 75 per cent of planned activities - No. of DCOS in which more than half of FC groups are inefficient - No. of DCOs which need training to develop FC groups - No. of DCOs which need assistance in handling financial records - No. of DCOs which do not maintain financial reports properly - No. of DCOs which do not have sufficient funds for FO activities - No. of DCOs which did not get sufficient assistance from the PMC - No. of DCOs which did not receive sufficient support from officers - No. of DCOs which failed to solve 50 per cent of their problems <p>3. <u>Production Plan</u></p> <ul style="list-style-type: none"> - No. of DCOs that faced constraints in implementing production plan in rice cultivation (by type of constraint) - No. of DCOs that faced constraints in implementing production plan in OFC cultivation (by type of constraint) - No. of DCOs constrained in organizing non-farm employment (by type of constraint) - No. of DCOs who faced the special problems (by problem)

Second, in 1994 the Irrigation Department established Irrigation Management Cells (IMACs) in each range office, except Trincomalee and Vavuniya, to :

- facilitate effective, efficient and sustainable management of irrigation systems with the participation of users in order to maximize productivity.
- maximize utilization of available resources in order to increase farmer income.

Each IMAC is to include the Chief Irrigation Engineer/Senior Irrigation Engineer, the Range Training Coordinator, and an Institutional Development Officer.

Monitoring and evaluation of institutional development activities is one of the functions of the IMACs. They have not yet designed a monitoring and evaluation system for institutional development. Some have started to collect some information on the numbers of FO meetings held, details of shramadanas, FO funds, etc. from NIRP schemes.

Project Managers in MANIS schemes report that they get most of the information they need from the monthly PMC meetings and, where they exist, from the IOs. This information is neither formalized nor regularly reported to higher levels.

2.3 Mahaweli Monitoring and Evaluation Systems

The Mahaweli participatory management program is being implemented by the Mahaweli Economic Agency (MEA) which naturally has an interest in monitoring and evaluating the progress of the program. In addition, however, the Mahaweli Authority of Sri Lanka has a separate unit, the Planning and Monitoring Unit (PMU) for, among other things, monitoring the progress of the Mahaweli schemes.

Until 1992, neither the MEA nor the PMU had any systems specifically designed to monitor the progress and impacts of participatory management in Mahaweli systems. Some monitoring went on in System B under the Mahaweli Agricultural Research and Development Project (MARD). Also, Resident Project Managers kept records of the numbers of farmer organizations that existed in their schemes.

Following the establishment of the MEA's Institutional Development Unit (IDU) in late 1992, these records were compiled and updated by IDU officers both in the schemes and in Colombo. In addition, with the establishment of joint management committees (called coordinating committees in Mahaweli schemes) in the schemes in 1993, IDU officers began to prepare regular reports on the progress of these committees.

When the Institutional Development Unit was established in 1992, the Managing Director of the MEA requested the PMU to develop a program to monitor the progress and impacts of participatory management. No action was taken by the PMU until late 1994.

2.3.1 Data Collected by the Planning and Monitoring Unit

In late 1994, the PMU carried out a pilot survey of the strength and performance of a few farmer organizations in two Mahaweli schemes. They have developed plans for a more comprehensive survey that has not yet been carried out, partly because IIMI's larger survey had been carried out by that time and it was felt that PMU's work would be a duplication of effort.

2.3.2 Data Collected by the Institutional Development Unit

The IDU in Colombo is collecting data on coordinating committee activities, training on institution building, legal recognition of FOs, turnover process, and the activities of Institutional Development Officers (IDOs) and Institutional Organizer Volunteers (IOVs).

Coordinating Committees Data collected on coordinating committees include whether meetings at unit, block, subproject and project levels were held as scheduled, officer and FR attendance at the meetings, and the numbers of problems solved in each meeting. Some data on individual participation in meetings are also collected, particularly for the MEA officers. Under problem solving, the total number of problems received at each level, the number solved and the number forwarded to next higher level is recorded.

Data for the Unit Coordinating Committees (UCCs) are provided to the Block Managers each month by the Unit Managers. Block Managers add information on the Block Coordinating Committees (BCCs) and send all of this information to the IDU each month. Data on Subproject Coordinating Committees (SPCCs) are provided by the SPCC secretaries while that of Project Coordinating Committees (PCC) is provided by the Resident Project Managers. This information is sent to the IDU once every two or three months.

Information on the attendance of individual MEA irrigation officers at coordinating committee meetings is provided by the block IDOs and Block Irrigation Engineers. This information is discussed at the monthly

technical staff meetings convened by the DRPM (Engineering). A brief report of this discussion is sent to the IDU of the head office by the DRPM (Engineering).

Training An annual training program is prepared for institution building. Monthly progress reports on training are sent to the IDU by the Assistant Managers (Institutional Development) of each system.

Legal Recognition of FOs Arrangements for getting the legal recognition under sections 56(A) and 56(B) of the Agrarian Services Act are made by the IDU. Therefore, the IDU has a current record of the FOs that have received legal recognition.

Turnover Progress Six steps are followed under the turnover process of the MEA:

- 1) Holding a planning meeting of the irrigation staff,
- 2) Holding awareness programs for DCO office bearers,
- 3) Holding unit level meetings,
- 4) Meeting with individual DCOs,
- 5) Signing of joint management agreements with DCOs,
- 6) Preparing updated plans and water management schedules.

A monthly progress report in implementing these steps is sent by the Assistant Managers (Institutional Development) to the IDU.

IDO and IOV Activity Reports The IOVs prepare weekly activity plans. The respective block IDOs forward monthly progress reports of activities against these plans to the Assistant Managers (ID) in each scheme. Also, a monthly report of the IDOs' work is sent by the Assistant Managers (ID) to the IDU.

Evaluation of the Information From the information received, the IDU prepares the following reports and sends them to the Managing Director:

1. Progress of coordinating committees (quarterly)
2. Progress in providing training (monthly)
3. Progress of IOV and IDO work (monthly)
4. Progress in FO registrations (monthly)
5. Progress of the Turnover Program (monthly)

The progress is discussed with the Managing Directory at the monthly meeting of the IDU and at the monthly meeting with the Assistant Managers (ID) from the schemes.

Because of the size of the schemes and the relatively small number of MEA officers working in institutional development, the amount of information about the FOs provided by these reports is quite limited and is clearly inadequate to judge their strength and performance. At the moment, not only are policy makers in Colombo short of information to evaluate the progress and impact of the program, but so also are the officers responsible for institutional development in the schemes.

Future Plans Because of the need for more information and the delay by the PMU in creating a more comprehensive monitoring system, the IDU has begun developing plans for a more comprehensive monitoring program to include surveys of FOs to evaluate their strength and performance. At the moment, however, IDU monitoring is effective only for JMCs.

2.4 Weaknesses in the Existing M&E Systems

The establishment of participatory management is a process. Various government employees and others are responsible for implementing the participatory management policy. Each such person has some need to know how the process is going. For purposes of discussion, we subdivide these persons into two categories: program implementors and policy makers.

- 1) **Program implementors** include the persons charged with organizing farmers, creating joint management committees, and turning over management responsibilities to the FOs according to the plans prepared for implementing participatory management for each program.
- 2) **Policy makers** include those who are responsible for evaluating the results of the programs and for making changes in the programs as needed to achieve the overall goals of the programs.

Although some persons in the implementing agencies, particularly at the higher levels in Colombo, are involved in both types of responsibilities, these are clearly two distinct sets of responsibilities. For this reason, they are discussed separately.

2.4.1 M&E Needs of Program Implementors

Scheme Level Program Implementors For this study, we conducted a set of interviews on information gaps with officers charged with institutional development and other officers and farmers in the Process Documentation sites. Table 5 gives a summary of the key results for those officers directly responsible for overseeing efforts to promote participatory management in the schemes. The lowest level officers (Institutional Organizers and Institutional Organizer Volunteers) were excluded since their responsibility is to work directly with farmers rather than manage the program.

A look at the responsibilities column in Table 5 shows:

- MEA Assistant Managers (Institutional Development) and their Institutional Development Officers are, as expected, directly concerned with promoting FOs and JMCs.
- MEA Unit Managers did not report any responsibilities with regard to promoting participatory management; the Block Managers were concerned only as far as knowing what the farmers "really" think. However, in their roles as coordinators of efforts, both of these officers should be directly concerned with promoting participatory management.
- IMD Project Managers and Institutional Development Officers in INMAS are, as expected, directly concerned with promoting FOs and JMCs.
- ID Project Managers for MANIS schemes view their duties as Technical Assistants as their primary jobs; their responsibilities for creating and strengthening FOs are secondary.

Review of the reported information gaps shown in Table 5 is surprising:

- The MEA officers indicated a need for better information on the status of the FOs and on farmers' opinions about relevant issues.
- In INMAS schemes, however, the reported concerns was not for such information but for information about agency finances - to pass on to the FOs - and on IO activities. The IMD officers feel that their informal sources of information give them an adequate picture of the functioning of the FOs.

Table 5: Reported Information Gaps Relevant to Promotion of Participatory Management

Position	Responsibilities	Reported Information Gaps
Mahaweli Schemes		
MEA Assistant Managers (IDU) and IDOs	Supervise efforts of IDOs, IOVs, and others to strengthen and/or reorganize FOs and create and strengthen JMCs	- Lack of information on FO status - Lack of "genuine" farmer opinions about FOs and leaders
MEA Block Managers	Coordinate services of specialists so as to make optimal use of resources, including water	Lack of "genuine" farmer opinions about services
MEA Unit Managers	- See that channel clearing/desilting is accomplished by farmers - Help solve farmers' irrigation/other problems	Lack of information about services provided by MEA divisions to help farmers
INMAS Schemes		
IMD Project Managers	- Develop and strengthen FOs and JMCs - Supervise efforts of IDOs and IOs in this task - Coordinate the services of the different line agencies	Lack of information on ID maintenance financing
IMD IDOs	Supervise IOs' efforts to strengthen FOs and help FOs solve farmer problems	Lack of information on IO activities
MANIS Schemes		
ID Project Managers (TAs)	- Manage system O&M - Manage rehabilitation efforts - Supervise IO efforts to create FOs - Respond to farmers' problems	Lack of information on FO activities and status

- MANIS Project Managers, as in the two sample cases, often are stationed far from the schemes, thus making it difficult to get information about the FOs. They are forced to depend upon IOs, if they exist, and on infrequent meetings with farmers, often at Project Management Committee meetings. In one scheme, it was reported by farmers that the Project Manager made use of IOs as "spies" on the farmers. Insofar as they are concerned with promoting participatory management, they have a clear need for information about the status and activities of FOs.

For Mahaweli and MANIS schemes, therefore, there is a reported need for more information on the status of FOs. None of these officers defined highly specific items of information that they wanted, although one IMD Project Manager indicated a desire for more information on FO finances. This suggests that, despite the IMD officers' responses, there is a need for the definition of measures and indicators for FO status and performance. This idea is greatly strengthened by the recommendations of various reports that FO strength and capability should be assessed prior to turning over O&M responsibilities.

Program Implementors above Scheme Level Above individual scheme level, government officers charged with promoting participatory management need measures of progress. Generally these are numbers - how

many FOs formed, how many JMCs formed, to how many FOs have specific O&M responsibilities been turned over. There is neither desire nor need for more complicated measures of progress as there is at scheme level. That is, if the information needs of program managers at scheme level can be met, then the information needs of higher level program managers concerning progress of participatory management can easily be met by simple compilation of scheme level data.

The major weakness that now exists is the lack of good measures for FO status and FO performance.

2.4.2 *M&E Needs of Policy Makers*

We did not conduct a separate survey for policy makers because it is apparent that policy makers turn their attention to participatory management only when it is called to their attention. That is, policy makers do not require monitoring as such. However, when an issue must be settled, they require information on the issue. Currently, for example, a debate is going on over exactly which responsibilities should be turned over to farmer organizations, an issue that affects the proposed reorganization of the irrigation sector and financial planning for the irrigation sector.

Thus policy makers have a need for information relevant to the specific questions that they are facing. Since the key issues arise only at intervals and differ each time, it would be a mistake to establish a formal monitoring program just to provide data for policy makers only. Such an effort costs money and has no guarantee that it will provide the needed information. Insofar as this information can be supplied by the information available to program managers, there is no need for special efforts. This reasoning suggests that if there are questions that cannot be answered from normal program management monitoring efforts, then a special one time study should be launched.

For example, a key issue being debated at the moment is whether FOs should be expected to take full maintenance responsibility for distributary channels. It has been suggested by some Irrigation Department engineers and others that FOs cannot raise the needed funds and that "handed over" distributary channels are deteriorating physically faster than expected as a result (see the discussion of this issue in Volumes 1 and 2). Unfortunately, none of the monitoring programs provide data on physical condition of the channels, hence the validity of this assertion cannot be tested from existing information. On the other hand, it is probably a waste of effort to collect this information systematically for all farmer organizations. The solution is to commission a special study on this subject. In this case, such a study was commissioned through the Irrigation Research Management Unit with assistance from IIMI.

It is therefore not really possible to define the weaknesses of the existing M&E systems in serving the needs of the policy makers. Instead, the policy makers should have the means to commission special studies when they need them. It is for this purpose that the Irrigation Management Research Unit was created. Also, of course, the Government of Sri Lanka has established various research institutes for this purpose. The most relevant, is of course, the Hector Kobbekaduwa Agrarian Research and Training Institute.

CHAPTER 3

INDICATORS OF KEY CHARACTERISTICS OF PARTICIPATORY MANAGEMENT

As pointed out in Chapter 2, there is a need to develop acceptable measures for farmer organization strength and farmer organization and joint management committee performance in their key activities. Such indicators will be useful for the following purposes:

- To quickly provide policy makers and top program managers with comparative data on the progress and performance of the FOs and JMCs.
- To provide a more objective way to evaluate the strength and performance of FOs before considering them for turnover.
- To provide a means to analyze relationships among aspects of FO performance.

We have developed a set of indicators that may serve the purposes.

3.1 Development of the Indicators

Based on data collected during the first two seasons and on theoretical considerations, the IIMI/ARTI team developed draft indicators for:

- Farmer Organization Strength
- FO Water Distribution Performance
- FO Maintenance Performance
- FO Performance in Non Irrigation Management Activities
- Joint Management Committee Performance

The indicators for the first four items provide measures of basic characteristics for the evaluation of farmer organizations. Farmer Organization Strength refers to an FO's ability to make effective decisions and govern itself. Water distribution and maintenance are two fundamental FO responsibilities. FO performance in non-irrigation management activities is critical for evaluating the sustainability of the FOs. The measure of joint management committee performance allows the evaluation of the second component of participatory management.

These five items, then, make up the five key measures of the status and performance of FOs and JMCs. As shown in Volume II, these five items are, of course, directly related to a large number of other factors. However, we feel that direct measures of these five items will prove the most useful for decision makers.

The IIMI/ARTI team also developed draft indicators for other items, including scheme water availability, agency water distribution to FOs, agency performance in support of FOs, and turnover. However, these indicators were not found to be particularly useful in analyzing the data from the study nor are they likely to be useful for future monitoring and evaluation. The turnover indicator has possible uses and is discussed separately later.

Four basic principles were followed in developing these indicators:

1. Each indicator would provide a numeric score.
2. Each indicator would score the each of the basic activities or characteristics making up the overall item whose performance is to be measured.
3. Each indicator would deal with three key aspects of each activity or characteristic, if relevant: defining what was to be done, how well it was done, and what the outcome was.
4. The data needed to score each item should be relatively easy to collect.

The draft indicators were then tested against data collected from the Recurrent Surveys (RS) and Process Documentation (PD) sites (see Volume II of this report) for Yala 1993. This showed some weaknesses in the ability to gather the information needed. Following the attempt to apply them anew in the field at Kaltota scheme (see Chapter 4), the indicators were revised and simplified. The resulting indicators are shown in Tables 6, 7, 8, 9, and 10.

3.2 Evaluation of the Indicators

We tested these five indicators against data from the RS and PD sites. Table 11 shows the scores for the RS/PD FOs for the first four indicators, and for the JMCs at each RS/PD scheme. Table 12 shows the averages by program. Each of the indicators is discussed separately below.

3.2.1 *The Farmer Organization Strength Indicator*

The Farmer Organization Strength indicator attempts to measure a farmer organization's ability to manage its own affairs. It covers the conceptual basis, performance, and outcome for the organizational structure, membership, leadership, funding, financial management, and internal communication.

Table 12 shows that against a maximum possible score of 36, the RS/PD FOs scored in a range of 5-35. Inspection of the table shows that:

- Within each program, the scores rank the FOs almost exactly as they are ranked by the researchers. As expected, there are a few disagreements because the indicators gloss over many special factors.
- Among programs, as expected, the highest scores and highest average score (29.4) were for the INMAS schemes.
- The next highest average score (20.0) was for MANIS schemes whereas the Mahaweli average score was only 15.9. Also the lowest score was for a Mahaweli FO.

This last point is surprising and suggests a problem with this indicator.

Table 6: Farmer Organization Strength Indicator

Feature	Conceptual Base	Performance	Outcome
Structure	0=FO has no constitution or no clear structure 1=FO has a constitution and formal structure 2=FO has both constitution and formal structure	0=FO has no farmer approval for constitution 1=FO has farmer approval for constitution	0=Required characteristics of FO structure are not met 1=Required characteristics are partially met 2=Required characteristics are fully met
Membership	0=No clear definition for eligibility 1=There is a clear definition for membership		0=Less than 50% of potential farmers are active members 1=Between 50% - 75% are active 2=More than 75% are active
Leadership	0= No procedure or criteria for selecting leaders 1= There is a procedure but no criteria 2=There are both procedures and criteria	0=Neither procedure nor criteria followed 1= Only procedure is followed 2=Both procedure and criteria are followed	0=Leaders are not selected by farmers 1=Leaders are selected by farmers but not by majority of farmers 2=Leaders are selected by majority of farmers
Funding	0=No planned ways to raise funds 1=Funds are raised in an adhoc manner 2=Funds are raised mostly from agency allocations 3=Funds are raised through a sustainable procedure	0=FO has poor funding position 1=FO has a satisfactory funding position	0=No funds 1=Funds primarily obtained from agency O&M allocations and contributions 2=Funds primarily obtained from membership levies 3=Funds obtained from contracts and other FO business activities
Financial Management	0=FO has no financial reporting or disbursement procedures 1=FO has reporting procedures but no disbursement procedures 2=FO has all needed procedures	0=FO does not follow financial reporting and disbursement procedures 1=FO follows financial reporting and disbursement procedures	0=Funds management not reported to membership 1=Funds management acceptable to some farmers 2=Funds management and disbursements acceptable to most farmers
Use of Funds	0=No plans prepared to use funds 1=Plans are prepared to use funds	0=Funds are not used 1=Fund are used for FO activities	0=Use of funds brought no benefit to FO 1=FO activities are diversified with the use of funds 2=Stronger financial position through diversified activities
Internal Communication	0=No defined channel of communication 1=Information passed through informal channels 2=Regular channel is established through meetings	0=No FO meetings held 1=Meetings held irregularly 2=Regular meetings are held	0=No systematic information flow between farmers and FRs 1=Information is passed mainly between FRs and DCO officers 2=Systematic information flow between farmers and FRs

Note: For purposes of judging membership, "potential members" is defined as all farmers (including renters, squatters, etc) served by the distributary channel. The number of "active members" is defined by asking the DCO officers to identify the number of "active members" of their organizations.

Table 7: Farmer Organization Water Distribution Performance Indicator

Activity	Responsibility	Performance
<u>Preparation of Schedules</u>		
Within DCs	0=No schedules or scheduling done by agency 1=Scheduling done by agency and FO 2=Scheduling done by FO	0=Scheduling done only after problems arise 1=Scheduling done in time or is appropriate 2=Scheduling done in time and is appropriate
Within FCs	0=No schedules or scheduling done by agency 1=Scheduling done by agency and FO 2=Scheduling done by FO	0=Scheduling done only after problems arise 1=Scheduling done in time is appropriate 2=Scheduling done in time and is appropriate
<u>Operations</u>		
Within DCs	0=Schedules implemented by agency or not followed 1=Schedules implemented by agency and FO 2=Schedules implemented by FO	0=There is disparity between head and tail in both adequacy and timeliness 1=There is disparity only in timeliness 2=No disparity in either adequacy or timeliness
Within FCs (For FCs, performance is scored only if water supply to FC is adequate & timely)	0=Schedules not followed or implemented by agency 1=Schedules implemented by agency and FO 2=Schedules implemented by FO	0=There is disparity between head and tail in both adequacy and timeliness 1=There is disparity only in timeliness 2=No disparity in either adequacy or timeliness
<u>Problem Resolution</u>	0=FO does not monitor and resolve problems 1=FO resolves problems in an adhoc manner 2=FO resolves problems through an established mechanism	0=Less than 50% of problems solved 1=Between 50% and 75% of problems solved 2=Over 75% of problems are solved

Subjectivity The explanation for a higher average score for MANIS FOs than for Mahaweli FOs comes from two factors:

- Because of the method of selection, both the MANIS and Mahaweli FOs are among the strongest in those programs; however, the few strong MANIS FOs seem to be at least as strong as the strongest Mahaweli FOs. Note that Kanugolla FO in Komarika Ela, a MANIS scheme, was scored at 34, the highest possible score, whereas the highest score among the Mahaweli FOs was only 24. We believe that the Mahaweli FOs are a somewhat more representative sample than are the MANIS FOs.
- The Mahaweli FOs were scored by IIMI researchers who had studied them while the INMAS and MANIS FOs (except for Mannankattiya and Gampola Raja Ela, both PD sites) were scored by the ARTI researchers who studied them. There seems to be a consistent bias on the part of the ARTI scorers to give somewhat higher scores (or IIMI researchers to give lower scores). Mannankattiya was scored separately by both groups of researchers; the ARTI group gave Mannankattiya a score of 23 based on RS data, while the IIMI researchers gave Mannankattiya a score of 7 based on PD data. If a similar

difference is applied to the other Mahaweli and MANIS scores, then the Mahaweli FOs would score at least as well as the MANIS schemes.

The second point implies that there is a strong subjective element in the scoring FO strength. We were aware that there would be some level of subjectivity involved and had hoped to minimize it. The problem of subjectivity was reported by the researchers when they were doing the scoring. The subjective element seems to be large enough that there is a need to have the scoring done by the same group of researchers.

Other Points There are some minor weaknesses:

- On FO structure, the indicator asks whether the required characteristics exist. This refers to the idea that the Farmer Representatives should be selected by appropriately defined subgroups, generally field channel groups. In some FOs, however, the definition of appropriate subgroups may be different because of the non-existence of field channels or because of other peculiarities of the FO's situation.

Table 8: Farmer Organization Maintenance Performance Indicator

Activity	Responsibility	Adequacy
FC maintenance * Cleaning/desilting	0=Done by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately and on time
* Structure repairs / Preventive maintenance	0=Done by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately and on time
DC Maintenance * Cleaning/desilting	0=Done by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately and on time
* Structure repairs / Preventive maintenance	0=Done by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately and on time
<u>Preventive Measures</u>	0=FO has no rules for preventing cattle or other damage 1=FO has rules but no enforcement means (relies on agencies) 2=FO has both rules and enforcement means	0=Rules not enforced properly 1=Rules well enforced

- The indicator assesses the percentage of active members in the FO by asking informants. This is not the best source of information. A better source is watching meetings and activities. However, collecting data by this means is expensive and time consuming.
- Assessing the acceptability of the leaders should be done by surveying members. However, such a survey is expensive and time-consuming. Therefore, we suggest asking a few farmers from the general membership. This will give a good approximation.
- It is easy to get information on the level of funding. Deciding whether the level is satisfactory requires some standards. We cannot, at this time, suggest standards appropriate to all FOs or for groups of FOs.

Yet we feel that this item is so important for the sustainability of FOs, it must be included, and the standards set at a later time.

- As with the acceptability of the leaders, the indicator asks for the acceptability of the financial management procedures. Again, a complete survey of farmers should be approximated by asking a few.

Similar comments can be made about the other specific items.

Table 9: Farmer Organization Non O&M Activities Indicator

Income-Generating and Financial Activities

Activity	Level of Activity	Benefit
Input coordination and supply	0=Not undertaken 1=Coordination of information on needs 2=Retail supply undertaken	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Crop storage and trading	0=No activity 1=Provide common storage facility 2=Trade in crops	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Providing credit	0=No activity 1=Facilitate institutional credit 2=Operate credit facility and facilitate institutional credit	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds
Other income generating activities	0=No activity(s) 1=Facilitate individual farmers to undertake activities 2=Operate additional business(es)	0=No income generated 1=Mostly to those who undertake the activity 2=Income accrues mostly to the FO funds

Non-Income Generating Activities

Activity	Level of Activity	Benefit
Sponsor community rituals and activities	0=No activity 1=FO activities only 2=Other community activities as well	0=None 1=To FO only 2=To wider community
Provide community facilities	0=No activity 1=Provided community hall only 2=Provided several facilities	0=None 1=To FO only 2=To wider community
Sponsor activities for special groups (women, youths, etc)	0=No activity 1=Activities for one group 2=Activities for 2 or more groups	0=None 1=To local community only 2=To wider community

Table 10: Joint Management Committee Performance Indicator

Activity	Performance	Decision Making	Outcome
Seasonal Planning	0=JMC does not undertake seasonal planning 1=JMC undertakes seasonal planning	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change
Maintenance Planning	0=JMC does not undertake maintenance planning 1=JMC undertakes maintenance planning	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change
Monitoring of System Performance	0=Progress/performance occasionally discussed at JMC meetings 1=Progress/performance always discussed at JMC meetings	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=No actions are taken in response to discussions 1=Actions taken in response to discussions
Problem Solving	0=JMC does not try to solve problems 1=JMC tries to solve selected problems; others are forwarded to agencies 2=JMC tries to deal with all problems	0=Only one party, agency or FRs, tries to solve problems at JMC meetings 1=Both parties jointly attempt to solve problems	0=No actions are taken in response to discussions 1=Actions taken in response to discussions

Evaluation of the FO Strength Indicator As shown above, the FO Strength indicator has problems. Most are minor, but the accumulation of small points adds up to a major subjectivity problem. Despite the problem of subjectivity, we believe that this indicator is useful. The subject is important for the long-term sustainability of FOs. Also, the data are generally easy to collect and the results, if scored consistently, give a good picture of differences among FOs. The subjectivity problem can be solved by having the scoring done by a group of workers that agree together on how to interpret the specific points.

3.2.2 The Farmer Organization Water Distribution Performance Indicator

The FO Water Distribution Performance indicator measures the performance of the FOs in distributing water among farmers within the FO area. It covers the FO role and performance in scheduling deliveries on FCs and DCs, the FO role and performance in making deliveries on FCs and DCs, and the FO role and performance in solving distribution problems.

The FO Water Distribution Performance indicator ranks the FOs as we would rank them based on fuller information from the RS/PD studies. Unlike the FO Strength indicator, there are no major difficulties with the FO Water Distribution Performance indicator. There are a few points worth noting:

- The indicator does not touch on FO involvement in water distribution above the DC (or other FO area). It may be worth considering this at some future time.

Table 11: Indicator Scores for RS/PD Sites

Program	Scheme	Farmer Organization	A	B	C	D	E	F
Maximum Possible Scores			36	20	19	28	15	48
INMAS	Dewahuwa	Peramuna FO	32	16	12	11	11	15.5
	Dewahuwa	Ekmuthu FO	32	16	12	11		15.5
	Kaudulla	CP Pura Perakum FO	33	18	12	11	11	17.0
	Kaudulla	Eksath FO	33	18	12	11		16.8
	Mee Oya	Parakum FO	24	17	11	6	12	17.0
	Muthukandiya	Village 3 FO	27	10	8	8	9	12.8
	Muthukandiya	Village 6 FO	25	10	8	8		12.8
	Muruthawela	Pahala Perakum FO	23	9	7	6	8	13.2
	Muruthawela	Thissara FO	23	9	7	6		13.2
	Rajangana	Ranketha FO	35	18	13	11	12	17.2
	Rajangana	Nawajeevana FO	35	18	13	11		17.2
	Tabbowa	Perakum FO	31	15	9	5	10	11.8
	Tabbowa	Thewanuwara FO	31	15	9	5		11.8
MANIS	Ambewela	Tennakoonwela P. FO	22	10	11	2	6	13.2
	Buttala	Medagama Ela FO	24	9	11	3	6	13.2
	Gampola Raja Ela	Kurukude Ekamuthu FO	8	7	8	0	4	12.8
	Komarika Ela	Kanugolla FO	35	13	14	11	3	17.2
	Ma Ela	Ekamuthu FO	20	4	7	2	6	13.5
	Mahanannneriya	Mahanannneriya FO	16	8	9	0	3	12.5
	Mannankattiya	Siriperakum FO	7	6	5	4	6	16.5
	Mediyawa	Mahasen FO	18	7	8	2	3	11.0
	Murapola	Girambe Kolabissa FO	19	8	8	2	6	13.8
	Radagalpotha	Radagalpotha FO	21	8	8	2	-	12.5
	Wennoruwa	Vilgoda FO	31	11	13	7	9	13.2
Mahaweli	System C	Hungamalagama FO	24	15	9	13	13	19.0
	System C	Diyawiddagama FO	21	15	9	13		19.0
	System C	Serupitiya FO	8	13	10	2		17.5
	System C	Pahala Rathkinda FO	17	15	10	10		18.5
	System H	D3/D4/421 FO	24	13	10	10	12	21.0
	System H	D4/204 FO	5	5	5	0		15.0
	System H	D1/313 FO	13	13	10	5		20.0
	System H	D2/101 FO	15	12	10	1		19.0
	System H	D3/305 FO	16	14	8	7		17.5

Key: A = FO Strength; B = FO Water Distribution; C = Maintenance; D = Non-O&M Activities; E = JMC Performance; F = Degree of Turnover (discussed separately in Section 3.2.7)

- The indicator asks about disparity between head and tail in adequacy and timeliness of water deliveries. This is best judged using actual water measurements. However, to reduce costs, we suggest asking the farmers.
- If water delivery at the head of the FO area is unreliable in adequacy and timeliness, it is difficult for the FO to distribute water, particularly at the FC level. Therefore, we advise not trying to score operational performance at the FC level if deliveries to the FO are not timely and adequate.
- The indicator asks about success in resolving problems. The best way to judge this is to look at records of actual problems brought up and solved. These records can be found in FO committee minutes. Asking general opinions from FO office bearers is far less effective.

Table 12: Average Indicator Scores by Program for RS/PD Sites

Indicator	Max Score	INMAS		MANIS		Mahaweli	
		Av.	Range	Av.	Range	Av.	Range
FO Strength	36	29.4	23-35	20.0	7-35	15.9	5-24
FO Water Distribution	20	15.3	9-18	8.3	4-13	12.8	5-15
FO Maintenance	19	10.2	7-13	9.3	5-14	9.0	5-10
FO Non O&M Activities	28	8.5	5-11	3.2	0-11	6.8	0-13
JMC Performance	15	10.4	8-12	4.8	3-9	12.5	12-13
Degree of Turnover*	48	13.8	12-17	13.6	11-17	18.5	15-21

* This indicator is discussed separately in Section 3.2.7.

3.2.3 The Farmer Organization Maintenance Performance Indicator

The FO Maintenance Performance indicator measures FO performance in maintaining the DCs and FCs within the FO area. Specifically it measures FO responsibility and performance in cleaning and desilting and structure repair on DCs and FCs, and the FO means and performance in protection against damage.

As with the FO Water Distribution Performance indicator, this indicator ranks the RS/PD FOs as we would rank them based on full information. Also, there are no major problems in scoring. We have some comments:

- The current practice in INMAS and Mahaweli schemes is that the agencies give contracts for DC cleaning and desilting to the FOs. We consider this joint responsibility rather than FO responsibility.
- In some schemes, FOs undertake cleaning and desilting contracts at BC and MC levels or even take on these responsibilities without contracts. In the future, we may wish to score these activities.

3.2.4 The Farmer Organization Non O&M Activities Indicator

The FO Non O&M Activities indicator measures FO performance in activities not directly related to irrigation. These activities are important for the sustainability of FOs. The indicator specifically looks at the level of activity attempted by the FO and the distribution of the benefits for activities in input coordination and supply, crop storage and trading, providing credit, other income generating activities, sponsoring community rituals and activities, providing community facilities, and sponsoring activities for special groups (women, youths, etc).

As with the water distribution and maintenance indicators, this indicator ranks the RS/PD FOs exactly as we would rank them based on full information. We note the following:

- The FO distinguishes between income generating and non income generating activities. These two types of activity have different significance. Income generating activities initially serve to make the FO more self-sustaining and, in the long run, may offer additional income to the members. Non income generating activities provide community services and bind the members together. For this reason, in the Kaltota experiment described below, these two types were separated into two indicators. Consideration might be given to this separation.
- The list of income generating activities is based on the currently popular business activities among FOs. As FOs take on new activities, there will be a need to update the list.

- At one time we had included the taking of construction contracts for rehabilitation projects in the list of activities because it is a common FO activity. However, we chose to drop it because it is generally not an activity that is sustainable over a long time; also it is closely related to irrigation.

The data for this indicator can generally be obtained directly from the FO Treasurer so data collection is easy.

3.2.5 *The Joint Management Committee Performance Indicator*

The JMC Performance indicator measures the performance of joint management committees in their key tasks. These tasks include seasonal planning, maintenance planning, monitoring of system performance, and problem solving. For each task, the indicator asks whether the JMC performs it, whether the decisions are participatory or one-sided, and whether the JMC's decisions are followed.

As with most of the indicators, this indicator ranks the JMCs in the RS/PD schemes exactly as we would based on the full data. However, there are some concerns:

- Evaluation should be based on the performance of each JMC. In most schemes, there is only one JMC so there is no difficulty. However, in some INMAS and all Mahaweli schemes there are multiple JMCs arranged in a hierarchy. This indicator is not designed to evaluate the performance of such a hierarchy as a whole. There may be a need to deal with such hierarchies as wholes.
- Under outcome for monitoring of system performance and for problem solving, we listed two possibilities only, "No actions have been taken in response to discussions" and "Actions have been taken in response to discussions." It might be better to include an intermediate possibility, namely "Actions are taken in response to some discussions."
- For the Kaltota experiment, the IIMI researcher responsible added another dimension to this indicator, namely JMC communication performance (see Chapter 4). However, because the Kaltota Project Management Committee was non-functional the value of this addition was not tested by the experiment.

3.2.6 *Percentage Scoring*

As presented above, the indicators provide absolute scores for each FO and JMC. However, there are cases where the assumptions underlying the indicator are not fulfilled. In particular, many MANIS schemes lack some or all of the canals that are presumed by the INMAS model of farmer organization. For example, one of the PD schemes, Gampola Raja Ela, lacks distributary canals totally and has only three recognized field canals. Most farmers get their water directly from the main canal. Lack of DCs means that it is not accurate to give scores to Gampola Raja Ela for water distribution on DCs or for DC maintenance. In turn, this means that the raw score for Gampola Raja Ela on the FO Water Distribution and FO Maintenance indicators is not comparable to the raw score for another FO which has DCs.

The solution is to score each FO and JMC on each indicator by taking the percentage it received of the possible score for its particular situation. Thus, Gampola Raja Ela's score for FO Maintenance was 8. The full possible score if DCs are considered is 19. But if DCs are not considered, then the full possible score is only 11. Thus Gampola Raja Ela should be scored as 73%. This would make its performance comparable to that of Wennoruwa, another MANIS scheme, whose score was 13 out of 19 or 68%.

Basically then, in using the indicators, whenever a question is not applicable to an FO, it should be ignored. The FO's final score then will not be the raw score but the percentage of the possible maximum score it can get for its situation. By calculating percentage scores, FO scores are made comparable across situations.

3.2.7 *An Indicator for Degree of Turnover*

The IIMI/ARTI team also developed an indicator for degree of turnover of irrigation management responsibilities. The indicator is shown in Table 13. Inspection of Table 13 shows that the indicator is based on actual responsibilities taken on by the FO, not on recognition of turnover by the government. Specific items covered are who makes the decisions on and who carries out the following activities: operations on FCs, DCs, BCs, MCs/headworks, cleaning, desilting, structure repairs, and earthwork on FCs, DCs, BCs, and MCs/headworks. The greater the responsibility taken by the FO, the higher its score. Note that decision making and carrying out the work are given equal weight. We believe that this indicator covers the essential items. This indicator does not form a part of the set of five indicators discussed above since it overlaps directly with the FO Water Distribution indicator and the FO Maintenance indicator. Unlike them it is not really meant to judge FO or JMC performance, but rather to report on the state of responsibilities at a site.

Table 9 shows the scores for each RS/PD FO and Table 10 shows the average scores and ranges for the three programs. These scores differ significantly from what we expected.

- The ranges are smaller than expected, particularly for MANIS schemes where we found some (e.g. Mannankattiya) that had been largely operated and maintained by farmers for a long time without intervention by the Irrigation Department.
- The averages indicate that turnover in INMAS schemes is about the same as in MANIS schemes and less than that in Mahaweli schemes. This finding contradicts what we know about the three categories of schemes.
- There is significant subjectivity. When Mannankattiya was scored by ARTI researchers based on RS data, they gave it a score of 12.25, whereas IIMI researchers gave Mannankattiya a score of 16.5 based on PD data.

The biggest problem seems to be in the matter of decision making. In the Mahaweli schemes, maintenance priorities at all levels are discussed at JMC meetings. Therefore, all the Mahaweli FOs were given credit for joint decision making for all levels of the system. This overstates their contribution. At the same time, we believe that in some of the MANIS schemes, e.g. Mannankattiya, Mahananneriya, Gampola Raja Ela, the agency contribution has been overstated for two reasons: a) the presence of an ID person is taken to mean that he makes some effective contribution, and b) when some of these schemes were taken up for rehabilitation, the ID increased its involvement in O&M tremendously. The difficulty of judging this matter of ID contribution to decision making versus that of the FOs accounts for the subjectivity found.

Given these problems, we cannot recommend use of the indicator as it stands. We did not make an attempt to further modify and develop this indicator because we do not feel it is as essential as the others. The potential uses are discussed in Section 3.3. However, if a need is felt for an effective indicator for degree of turnover, this discussion can be used as the basis for development of such an indicator.

Table 13: Degree of Turnover Indicator

To give equal weight to operations and maintenance, the total maintenance score is to be divided by 4 before adding it to the operations score to get a total score.

Activity	Planning (decision making)	Implementation
<u>Operations</u>		
* On FC	0 = Operation decisions taken by agency 1 = Operation decisions taken jointly 2 = Operation decisions taken by FCGs (FO)	0 = Implemented by agency 1 = Implemented jointly 2 = Implemented by FO
* Among FCs	<i>same scoring as above</i>	<i>same scoring as above</i>
* On BC (DC gates)	<i>same scoring as above</i>	<i>same scoring as above</i>
* On MC/headworks	<i>same scoring as above</i>	<i>same scoring as above</i>
<u>FC Maintenance</u>		
* FC cleaning	0 = Maintenance decisions are taken by agency 1 = Maintenance decisions are taken jointly 2 = Maintenance decisions are taken by FO	0 = Implemented by agency 1 = Implemented jointly 2 = Implemented by FO
* FC desilting	<i>same scoring as above</i>	<i>same scoring as above</i>
* FC structure repairs	<i>same scoring as above</i>	<i>same scoring as above</i>
* FC earthwork	<i>same scoring as above</i>	<i>same scoring as above</i>
<u>DC Maintenance</u>	<i>scoring same as for FC maintenance</i>	<i>scoring same as for FC maintenance</i>
* DC cleaning		
* DC desilting		
* DC structure repairs		
* DC earthwork		
<u>BC Maintenance</u>		
* BC cleaning	0 = Maintenance decisions are taken by agency 2 = Maintenance decisions are taken jointly 4 = Maintenance decisions are taken by FO	0 = Implemented by agency 2 = Implemented jointly 4 = Implemented by FO
* BC desilting	<i>same scoring as above</i>	<i>same scoring as above</i>
* BC structure repairs	<i>same scoring as above</i>	<i>same scoring as above</i>
* BC earthwork	<i>same scoring as above</i>	<i>same scoring as above</i>
<u>MC Maintenance</u>	<i>scoring same as for BC maintenance</i>	<i>scoring same as for BC maintenance</i>
* MC cleaning		
* MC desilting		
* MC/headworks structure repairs		
* MC earthwork		

3.3 Use of the Indicators

There is a need for measures or indicators of progress in participatory management for two main purposes:

- To provide policy makers and top program managers with comparative data on the progress and performance of the FOs and JMCs within schemes and among schemes.
- To provide an objective way to evaluate the strength and performance of FOs before considering them for turnover.

The five indicators developed above can be used for both of these purposes. We strongly urge that the five indicators be used as a set because each measures an independent aspect of participatory management; none of the strictly correlated with any other.

Comparative Data on FOs and JMCs Because the indicators give numeric scores, they allow simple comparative evaluation. Once scored on the indicators, through the use of percentage scores, individual FOs and JMCs can be compared within schemes to give scheme and program managers comparative information on their progress. Detailed analysis of the scores can even help in analyzing the problems within FOs. For examples see Chapter 4 and Annex B.

The percentage scores can be averaged across schemes, or for Mahaweli schemes, within sections of the scheme, to show comparative progress of schemes or sections of schemes under the responsibility of particular managers.

We have not suggested the creation of a single score because we believe that viewing the five scores together gives a better picture of progress than would a single score. However, it should be clear that a single score can be created for the four FO indicators simply by adding the raw scores and calculating a percentage against the possible raw score for each FO.

Weighing the raw scores for the different indicators may be worthwhile. In particular, the FO Water Distribution and FO Maintenance scores should perhaps be weighted more heavily than they would be if the scores are simply added. A suggested weighing scheme that focuses primarily on O&M under joint management would use multipliers to give the FO Strength, FO Water Distribution, and FO Maintenance scores equal weight while the FO Non O&M Activities score would be given half the value of each of the others. On the other hand, if the sustainability of FOs is of primary concern, greater weight should be given to FO Strength and FO Non O&M Activities.

Once the FOs and JMCs are given the raw scores, the rest of the calculations are simple.

Evaluating FO and JMC Development for Turnover It is a general policy of all of the agencies to evaluate the preparedness of an FO before entering into a turnover agreement with it. The indicators can be helpful in this evaluation. As noted above, either the five indicators can be used as a set or a single percentage score can be calculated for each FO and compared against a set of standards.

Based on the findings of the overall study, we suggest the following as a first approximation of minimum acceptable percentage scores for turnover:

- FO Strength: 61% of maximum
- FO Water Distribution: 61% of maximum

- FO Maintenance: 61% of maximum
- FO Non O&M Activities: 41% of maximum
- JMC Performance: 61% of maximum

These numbers can be refined over time as more experience is gained in rating FOs and JMCs.

Advantages and Disadvantages of Using the Indicators The main advantages are:

- The indicators give numeric scores that provide reasonably accurate rankings of the performance of FOs.
- The data for the indicators are easy and inexpensive to collect (see Chapter 4 below).
- The problems of subjectivity noted for the FO Strength indicator can be overcome by working together to assure consistent scoring.

The main disadvantage is the loss of scheme specific data and other data that will explain the variations in the scores. This loss, however, should be balanced against the simplicity and rapidity with which these measures can provide overall pictures of the state of participatory management.

CHAPTER 4

IMPROVING MONITORING AND EVALUATION OF PARTICIPATORY MANAGEMENT IN A MANIS SCHEME

The Irrigation Management Division is basically satisfied with the ME&F system and the Mahaweli Economic Agency is developing its own M&E system internally. Neither desired help from IIMI to improve its system. However, the Irrigation Department welcomed IIMI's offer to help improve M&E of participatory management in MANIS schemes. This chapter describes and evaluates what was done.

4.1 Defining the Information Desired for M&E of Participatory Management in MANIS Schemes

4.1.1 *Initial Discussions at Headquarters*

An initial discussion was held with the Deputy Director (Operations and Management) to decide the information needed. It was decided to collect information on strength of the FOs, FO performance, JMC performance, agency support for FOs, and performance of the IOs.

Based on the measures developed by the IIMI/ARTI team, draft formats were prepared to collect the following information:

1. **FO Strength:** basis of FOs, FO structure, leadership: Selection of FRs and office bearers and their responsibilities, membership, communication: holding of FO committee and general membership meetings, funding position, use of funds, FO assets, legal recognition of the FO.
2. **FO Performance:** preparation and implementation of water distribution schedules, involvement in maintenance, problem solving, non-O&M activities.
3. **JMC Performance:** communication: holding of JMC meetings, seasonal planning, oversight of seasonal cultivation progress, problem solving.
4. **Agency Support for FOs:** satisfaction with agency support, performance of IOs.
5. **Formal Turn Over**

The draft formats were discussed with the Deputy Director (Operation and Maintenance) and modified to take some Departmental concerns into account.

The Deputy Director proposed testing the formats and data collection procedure in the Kaltota Scheme in the Ratnapura Irrigation Division.

4.1.2 *Discussions with Field Level Officers*

Before testing the formats, discussions were held with the relevant divisional and field level officers to further improve the formats. The IE (Training) attached to the headquarters O&M division who had been actively involved in the previous discussions also participated in discussions with field level officers.

The matters discussed included:

- Need for monitoring and evaluation of participatory management.
- The information required at different levels.

- Selecting the personnel to collect data.
- Deciding on the frequency of data collection.

In discussion, the Divisional IE mentioned that there is no regular systematic information collection at present. Collection of this information was not required as he personally knew most of the details because of his close field level involvement. However, he agreed that the information to be collected with the formats was necessary and proposed collection of additional data on reasons for delay in land preparation. He wanted this additional information for operations and rehabilitation planning.

The NIRP Project Irrigation Engineer fully agreed that there is a need for a monitoring and evaluation system. He too proposed to collect data on the reasons for delay in land preparation so that he could discuss them with the farmers at the PMC and get the farmers to take corrective actions. Delay in land preparation impedes the progress of rehabilitation. He proposed that the IOs collect field level data for the time being and the Project Manager collect the scheme level data.

Discussion with the Project Manager and IOs revealed that the only information sent by the Project Manager to the Divisional level is the seasonal cultivation decisions and seasonal water distribution schedules. The Project Manager made the following comments on the data to be collected through the prepared formats:

- Under Selection of Office Bearers, the names of those selected should also be included in order to send them to the Divisional IE.
- Under Membership, data on membership criteria should also be collected as it may be different for each FO.
- Data on the reasons for delay in land preparation should be collected.
- Some information on the constraints to participatory management should be collected.

It was decided to have the IOs collect the field level data and the Project Manager would collect scheme level data as proposed by the Project IE.

Following discussion with the field officers, another discussion was held with the Deputy Director (O&M) in order to finalize data collection plan. Table 14 shows the plan.

4.2 Field Testing the M&E Plan and Collection of Data

4.2.1 Kaltota Scheme

The formats developed to collect data on the progress of participatory management were field tested in the Kaltota Project.

Kaltota Scheme is an anicut scheme situated in Ratnapura District. The anicut is built across the Walawe river and feeds the Left Bank and Right Bank main canals. The design command area of the scheme is about 1900 acres; the actual irrigated area now is about 2350 acres. Apart from occasional water shortages during Yala seasons, the scheme has an adequate supply of water. The scheme is highly dilapidated and now being rehabilitated under NIRP. Two Institutional Organizers (IOs) were appointed in 1991. Altogether 11 DC level farmer organizations have been formed covering the whole scheme. Three federated FOs have been formed above the DC level.

Table 14: M&E Data Collection Plan for Kaltota

Information to be Collected	Informant(s)	Data Collector(s)	Frequency
1. Strength Of FOs			
1.1 Basis of FOs	PM	PM	Once
1.2 FO Structure	OBs	IOs	Once
1.3 Leadership			
1.3.1 Selection of FRs and responsibilities	OBs	IOs	Once
1.3.2 Selection and duties of office bearers	OBs	IOs	Once
1.3.3 Names of new office bearers selected	OBs	PM	Annual
1.4 Membership details	OBs	IOs	Annual
1.5 Communication			
1.5.1 Holding FO General meetings	OBs	IOs	Annual
1.5.2 Holding FO Committee meetings	OBs	IOs	Annual
1.6 FO Funds			
1.6.1 Funding Position	OBs	IOs	Annual
1.6.2 Use of funds	OBs	IOs	Annual
1.7 Fixed assets	OBs	IOs	Annual
1.8 Legal recognition	OBs	IOs	Annual
2. FO Performance			
2.1 Operation			
2.1.1 Preparation of Schedules	OBs	IOs	Seasonal
2.1.3 Progress in Applying Schedules	OBs	IOs	Seasonal
2.2 Maintenance			
2.2.1 FO Involvement in Maintenance	OBs	IOs	Seasonal
2.2.2 FO Maintenance Progress	OBs	IOs	Seasonal
2.3 Problem Solving	OBs	IOs	Annual
2.4 Non-O&M Activities	OBs	IOs	Annual
3. JMC Performance			
3.1 Communication	PM	PM	Seasonal
3.2 Planning and Implementation	PM	PM	Seasonal
3.3 Progress in Land Preparation	PM	PM	Seasonal
3.4 Seasonal Progress	PM	PM	Seasonal
3.5 Problem Solving	PM	PM	Seasonal
4. Agency Support for FOs			
4.1 Satisfaction on Agency Support and Services	OBs	PM	Annual
4.2 Performance of IOs	OBs	PM	Annual
5. Formal Turn Over	PM	PM	Annual
6. Constraints to Participatory Management	PM	PM	Annual

At the time of the experiment (October 1994), no information on farmer organizations was collected at range or divisional level. There was also no scheme level monitoring and evaluation system in the Kaltota Scheme. Monitoring of the progress of participatory management was limited to monthly activity reports from the IOs. These reports include the number of meetings held, farmer participation in the meetings and other FO activities, etc.

4.2.2 Collection of Data

Data were collected by the Project Manager and the IOs under the guidance of the IIMI Research Officer. The total time taken to fill the formats by the Project Manager according to him was about 30 minutes and it was not difficult. Initially, each IO took about 1.5 hours to collect the data required from one FO. They

took less than one hour when they become used to filling the formats. Both the IOs were fully engaged for one whole day to get all the information required. According to them, collection of data in future would not be time-consuming as they know the data required.

There were no major problems in getting most of the data as almost all the FOs maintained proper records on finance, attendance, membership etc. Problems arose only when collecting data on problem solving since very few instances of problem solving were recorded. Also, there were little recorded data on PMC performance. Data on operation and maintenance under FO performance was initially collected at the system level. However, detailed data on individual FOs were required to evaluate the FO performance more accurately. Therefore, additional field data were collected after improving the formats to fulfill this requirement.

The finalized formats are given in Annex A including much of the data collected from the Kaltota Project.

A discussion was held with the Deputy Director (O&M) after the collection of data to decide which data were required at the head office. Since no information on FOs is normally collected at the head office level, it was decided to report all of the data collected to the head office.

4.3 Evaluation of the Progress of Participatory Management at Kaltota

4.3.1 Indicators

It was planned to use the indicators developed by the IIMI/ARTI team to measure the progress of participatory management for analysis and evaluation of the data. The specific indicators to be used were those for Farmer Organization Strength, Farmer Organization Water Distribution Performance, Farmer Organization Maintenance Performance, Farmer Organization Performance in Non Irrigation Management Activities, and Joint Management Committee Performance.

The FO Strength, FO Water Distribution Performance, and FO Maintenance Performance indicators were used in the form described in Chapter 3. See Tables 4, 5, and 6 for these indicators. Changes were made in the other two indicators:

- The FO Non O&M Activities indicator was separated into two indicators, one for income generating activities and one for non-income generating activities. The two categories have different meanings to people. Non income generating activities are significant because they provide social services and thus help bind the people together. Income generating activities are significant because of their contribution to FO finances although they too may provide services to the community. Effectively the two parts of the indicator shown in Table 7 were treated as separate indicators.
- An additional activity - JMC Communication - was added to the original indicator. JMC communication was evaluated by determining whether a clear communication channel has been created through JMC and FO meetings by taking the meeting as the formal channel of communication. The revised indicator is shown in Table 15.

Table 15: The Revised Joint Management Committee Performance Indicator

Activity	Performance	Decision Making	Outcome
Seasonal Planning	0=JMC does not undertake seasonal planning 1=JMC undertakes seasonal planning	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change
Maintenance Planning	0=JMC does not undertake maintenance planning 1=JMC undertakes maintenance planning	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=JMC plans ignored 1=JMC plans partially implemented 2=JMC plans implemented without change
Monitoring of System Performance	0=Progress/performance occasionally discussed at JMC meetings 1=Progress/performance always discussed at JMC meetings	0=One-sided (officer or FR) decisions are taken 1=Participatory decisions are taken	0=No actions are taken in response to discussions 1=Actions taken in response to discussions
Problem Solving	0=JMC does not try to solve problems 1=JMC tries to solve selected problems; others are forwarded to agencies 2=JMC tries to deal with all problems	0=Only one party, agency or FRs, attempts to solve problems at JMC meetings 1=Both parties jointly attempt to solve problems	0=No actions are taken in response to discussions 1=Actions taken in response to discussions
Communication	0=No set channel of internal communication 1=Information is passed through informal channels 2=Regular communication is established through JMC meetings and FOs		0=No JMC meetings held 1=JMC meetings held irregularly 2=Regular JMC meetings are being held

The data for the different indicators are to be collected on different schedules. In particular, data for evaluation of FO Water Distribution Performance, FO Maintenance Performance, and JMC Performance are to be collected seasonally, while the other data, along with the data on agency support, are to be collected annually. Evaluating FO Strength and FO Non O&M Activities annually was thought to be more appropriate since it gives sufficient time period for FO development. Also, many of the FO activities themselves such as financial reporting, leadership selection, discussing progress, etc., take place annually at general membership meetings.

4.3.2 Evaluation of the Farmer Organizations

Scoring the FOs The indicators were used to evaluate the FOs. The total points received under the FO Strength, FO Water Distribution Performance, FO Maintenance Performance, FO Performance in Income Generating Activities, and FO Performance in Non Income Generating Activities indicators are shown in Tables 16-20.

Some points should be noted about these scores:

- The three sub-system FOs are not generally involved in water distribution or maintenance (except for occasional problem solving), therefore they were not evaluated on these activities.
- The distributary canals for the Puranagama FOs are badly dilapidated and very difficult to manage. Hence no attempt was made to score these FOs on scheduling or operations on the distributaries.
- The Pahathbima FO gets its water totally from drainage; there is no distributary channel. Moreover, the water supply to the field channels is unreliable. Hence, Pahathbima FO was not evaluated on distributary channel scheduling or operations or on outcome of field channel operations. The high score (70%) on water distribution reflects the active involvement of the Pahathbima FO in solving irrigation problems in their difficult circumstances.
- Only eight FOs are engaged in income generating activities, including undertaking rehabilitation contracts, renting two wheel tractors, and provision of credit.
- Three FOs are not engaged in any non income generating activity. The other 11 FOs sponsor community rituals and activities. These activities are not limited to FO members, hence each received two points under level or activity and two points under benefits.

Table 16: Farmer Organization Strength Scores for Kaltota Farmer Organizations

Farmer Organization	Conceptual Base		Performance		Outcome		Total		%
	Max	Score	Max	Score	Max	Score	Max	Score	
Distributary Channel Organizations									
1. LB D1	13	9	8	5	15	10	36	24	67
2. LB D2	13	11	8	7	15	13	36	31	86
3. LB D3	13	9	8	5	15	10	36	24	67
4. RB D1	13	10	8	6	15	12	36	28	78
5. RB D2	13	10	8	6	15	7	36	23	64
6. RB D3	13	9	8	5	15	9	36	23	64
7. RB D4	13	9	8	5	15	9	36	23	64
8. Puranagama D1	13	9	8	4	15	6	36	19	53
9. Puranagama D2	13	6	8	4	15	4	36	14	39
10. Puranagama D3	13	6	8	3	15	3	36	12	33
11. Pahathbima FO	13	9	8	5	15	7	36	21	58
Averages	13	8.8	8	5.0	15	8.2	36	22.0	61
Sub-System Level Organizations									
1. LB FO	13	11	8	7	15	13	36	31	86
2. RB FO	13	11	8	7	15	10	36	28	78
3. Puranagama FO	13	11	8	7	15	10	36	28	78
Averages	13	11.0	8	7.0	15	11.0	36	29.0	81

Table 17: FO Water Distribution Performance Scores for Kaltota Farmer Organizations

Farmer Organization	Responsibility		Performance		Total		%
	Max	Score	Max	Score	Max	Score	
1. LB D1	10	6	10	5	20	11	55
2. LB D2	10	6	10	5	20	11	55
3. LB D3	10	6	10	5	20	11	55
4. RB D1	10	6	10	5	20	11	55
5. RB D2	10	6	10	5	20	11	55
6. RB D3	10	6	10	5	20	11	55
7. RB D4	10	6	10	6	20	12	60
8. Puranagama D1	8	1	8	0	16	1	6
9. Puranagama D2	8	1	8	0	16	1	6
10. Puranagama D3	8	1	8	0	16	1	6
11. Pahathbima FO	6	5	4	2	10	7	70
Average	9.1	4.6	8.9	3.5	18.0	8.0	44

Table 18: FO Maintenance Performance Scores for Kaltota Farmer Organizations

Farmer Organization	Responsibility		Performance		Total		%
	Max	Score	Max	Score	Max	Score	
1. LB D1	10	7	9	5	19	12	63
2. LB D2	10	7	9	5	19	12	63
3. LB D3	10	7	9	5	19	12	63
4. RB D1	10	5	9	4	19	9	47
5. RB D2	10	5	9	4	19	9	47
6. RB D3	10	5	9	4	19	9	47
7. RB D4	10	5	9	4	19	9	47
8. Puranagama D1	8	3	7	4	15	7	47
9. Puranagama D2	8	3	7	4	15	7	47
10. Puranagama D3	8	3	7	4	15	7	47
11. Pahathbima FO	4	2	3	2	7	4	57
Average	8.9	4.7	7.9	4.1	16.8	8.8	52

A Rating Scale for the FOs It was decided to rank FOs on four levels - Very Weak, Weak, Fair, and Satisfactory - based on percentages of possible scores achieved. The percentages used for these levels for each indicator are shown in Table 21.

The following points should be noted:

- For FO Strength, a high value of 90% of the possible score is required to be classed as Satisfactory. This high value was chosen because each aspect evaluated by the indicator is important to the organizational management of the FOs. Also, it is difficult to collect some of the needed data and it is likely that some inflated scores have been given.

Table 19: FO Income Generating Activities Scores for Kaltota FOs

Farmer Organization	Level of Activity		Benefit		Total		%
	Max	Score	Max	Score	Max	Score	
Distributary Channel Organizations							
1. LB D1	8	1	8	0	16	1	6
2. LB D2	8	3	8	4	16	7	44
3. LB D3	8	0	8	0	16	0	0
4. RB D1	8	1	8	2	16	3	19
5. RB D2	8	1	8	0	16	1	6
6. RB D3	8	0	8	0	16	0	0
7. RB D4	8	0	8	0	16	0	0
8. Puranagama D1	8	1	8	0	16	1	6
9. Puranagama D2	8	0	8	0	16	0	0
10. Puranagama D3	8	0	8	0	16	0	0
11. Pahathbima FO	8	0	8	0	16	0	0
Average	8	0.6	8	0.5	16	1.2	9
Sub-System Level Organizations							
1. LB FO	8	3	8	4	16	7	44
2. RB FO	8	3	8	4	16	7	44
3. Puranagama FO	8	3	8	4	16	7	44
Average	8	3.0	8	4.0	16	7.0	44

Table 20: FO Non Income Generating Activities Scores for Kaltota FOs

Farmer Organization	Level of Activity		Benefit		Total		%
	Max	Score	Max	Score	Max	Score	
Distributary Channel Organizations							
1. LB D1	6	2	6	2	12	4	33
2. LB D2	6	2	6	2	12	4	33
3. LB D3	6	2	6	2	12	4	33
4. RB D1	6	2	6	2	12	4	33
5. RB D2	6	2	6	2	12	4	33
6. RB D3	6	2	6	2	12	4	33
7. RB D4	6	0	6	0	12	0	0
8. Puranagama D1	6	2	6	2	12	4	33
9. Puranagama D2	6	0	6	0	12	0	0
10. Puranagama D3	6	2	6	2	12	4	33
11. Pahathbima FO	6	0	6	0	12	0	0
Average	6	1.5	6	1.5	12	2.9	24
Sub-system Level Organizations							
1. LB FO	6	2	6	2	12	4	33
2. RB FO	6	2	6	2	12	4	33
3. Puranagama FO	6	2	6	2	12	4	33
Average	6	2.0	6	2.0	12	4.0	33

- Water distribution is one of the main responsibilities of the FOs. The FOs are supposed to take full responsibility within both the DC and FCs. Therefore, to reach Satisfactory, they must achieve 85% of the possible score.
- The same reasoning applies to maintenance performance as to water distribution performance.
- The percentage of possible score required for each level of FO Performance in Income Generating Activities is lower than for water distribution or maintenance because the FOs may not have the opportunity to engage in the activities mentioned in the evaluation sheet.
- For FO Performance in Non Income Generating Activities, FOs can certainly take on at least one such activity but may have no need for all. Therefore the rating scale used for Income Generating Activities was used.
- Good functioning of the Project Management Committee is also very important for the success of participatory management. High performance in all of the subareas are needed. Therefore, at least 85 % of the potential score is needed for a satisfactory rating.

Table 21: Evaluation Standards for FOs and JMC

Indicator	Rating Criteria			
	Very Weak	Weak	Fair	Satisfactory
Farmer Organization Strength	0% to 40%	41% to 60%	61% to 90%	91% to 100%
FO Water Distribution Performance	0% to 40%	41% to 60%	61% to 85%	86% to 100%
FO Maintenance Performance	0% to 40%	41% to 60%	61% to 85%	86% to 100%
FO Income Generating Activities	0% to 20%	21% to 40%	41% to 60%	61% to 100%
FO Non Income Generating Activities	0% to 20%	21% to 40%	41% to 60%	61% to 100%
Joint Management Committee Performance	0% to 40%	41% to 60%	61% to 85%	86% to 100%

Evaluations of the FOs Table 22 summarizes the scores and rankings of the 14 farmer organizations at Kaltota. These scores show that while most of the DCOs were evaluated as weak in water distribution and maintenance and very weak in income generating activities, those DCOs who get their water from the main channels have satisfactory FO Strength scores whereas the other DCOs are weak or very weak in this item. This seems to reflect emphasis placed upon the DCOs on the main channels by the IOs.

This evaluation also shows that the sub-system FOs, although they do not take part in water distribution or maintenance, show satisfactory FO strength and do undertake other activities satisfactorily. This may imply that the farmers find these organizations useful for non O&M activities.

Detailed evaluation of each FO can be done by using the same indicators. In particular, analysis of the scores for the various aspects of the indicators can help understand some of the weaknesses of each FO. A partial analysis is carried out in Annex B.

Table 22: Evaluations of FO Performance at Kaltota

Farmer Organization	Strength	Water Distribution	Maintenance	Income Generating Activities	Non Income Generating Activities
Distributary Channel Organizations					
1. LB D1	Fair (67)	Weak (55)	Fair (63)	V Weak (6)	Weak (33)
2. LB D2	Fair (86)	Weak (55)	Fair (63)	Fair (44)	Weak (33)
3. LB D3	Fair (67)	Weak (55)	Fair (63)	V Weak (0)	Weak (33)
4. RB D1	Fair (78)	Weak (55)	Weak (47)	V Weak (19)	Weak (33)
5. RB D2	Fair (64)	Weak (55)	Weak (47)	V Weak (06)	Weak (33)
6. RB D3	Fair (64)	Weak (55)	Weak (47)	V Weak (0)	Weak (33)
7. RB D4	Fair (64)	Weak (60)	Weak (47)	V Weak (0)	V Weak (0)
8. Puranagama D1	Weak (53)	V Weak (06)	Weak (47)	V Weak (06)	Weak (33)
9. Puranagama D2	V Weak (39)	V Weak (06)	Weak (47)	V Weak (0)	V Weak (0)
10. Puranagama D3	V Weak (33)	V Weak (06)	Weak (47)	V Weak (0)	Weak (33)
11. Pahathbima FO	Weak (58)	Fair (70)	Weak (57)	V Weak (0)	V Weak (0)
Sub-System Level Organizations					
1. LB FO	Fair (86)	na	na	Fair (44)	Weak (33)
2. RB FO	Fair (78)	na	na	Fair (44)	Weak (33)
3. Puranagama FO	Fair (78)	na	na	Fair (44)	Weak (33)

4.3.3 Scheme Level Evaluation

Scoring of the Project Management Committee Performance of the Project Management Committee was to be scored by using the indicator for JMC Performance. However, the PMC is not functioning properly. Meetings are not being held, even seasonally. The result was that no points could be given to the PMC in any category. According to the ratings shown in Table 21, the PMC is rated as Very Weak.

Evaluation of Agency Support Performance Information on agency performance in support of participatory management was supplied by the Project Manager after consultation with the Farmer Representatives. According to information provided by the Project Manager,

- Support given and services provided by the Agrarian Services Department are not satisfactory.
- Services provided by the LCD are not satisfactory though their support to FOs is satisfactory.
- Services of the IOs are satisfactory except in providing training to farmers.

Status of Formal Turnover According to the Project Manager, no O&M responsibilities have been handed over to FOs formally or informally in the Kaltota project.

Overall Evaluation of Participatory Management at Kaltota Conclusions can be arrived at both system level and individual project level according to above rating of the progress of participatory management.

Overall, while FO Strength is satisfactory, the FOs at Kaltota are weak in actual performance. This implies that more needs to be done to help them with their activities. None of these FOs seems to have yet reached a level appropriate for handing over O&M responsibilities. More can be concluded from the detailed evaluation included in Annex B.

The PMC in Kaltota project is very weak in every aspect; the PMC is not functioning properly in the project. There are some weaknesses in agency support. However, the data are not complete enough to pinpoint the problems. With regard to turnover, none has occurred.

The fact that the FO Strength is relatively strong but FO performance in O&M and other activities is weak suggests that the IOs and Project Manager are working to create FOs but encouraging them to undertake some other activity. Since Kaltota is being rehabilitated under NIRP, which requires FO agreement to the rehabilitation, it is possible that efforts have been directed at satisfying the NIRP criteria to get the physical rehabilitation works done as rapidly as possible.

There may also be some lack of understanding of various aspects of participatory management by the officers. This may explain the weakness of the PMC. If immediate attention is not paid to improving the PMC's functioning, it is likely to affect the progress of the FOs.

4.4 Conclusions on the Kaltota M&E System

The system devised for Kaltota has some strong points:

- The data are easy to collect if the FOs have records. The number of format pages is not small but the questions are mostly direct objective questions and not all data have to be collected at one time. The Kaltota experience showed that it is possible to collect all of the needed information from 14 FOs and scheme officers within a day. Also, most data is collected only twice a year and some only once a year.
- The system is devised to reduce the data on FOs to numeric scores on five key performance indicators. This facilitates analysis of individual FOs and analysis of the progress of the FOs within the whole scheme. The JMC Performance indicator also allows evaluation of that basic element of participatory management. Since the scores can be averaged over a scheme, schemes can be compared to determine overall progress of the program.

There are two weaknesses in its use in other schemes:

- Although data are collected on agency support, it is neither complete enough nor well enough analyzed to provide guidance to project or program managers.
- If the FOs do not keep records, it will be difficult to collect the data needed for evaluation of FO Strength. Collecting data through FO records serves three purposes: a) reliable and accurate recorded data can be collected, b) it saves time, and c) it motivates the FOs to maintain their records and registers properly which in turn would contribute to the better functioning of the FOs.
- The IOs and Project Manager are quite familiar with the scheme and thus able to collect the information rapidly. If there are no IOs, outsiders will have to be used. This will increase the costs and time involved.

The Kaltota M&E system is a very practical approach to monitoring and evaluation of the progress of participatory management in MANIS schemes. Costs are minimal wherever IOs exist. If IOs are not available then some other persons will have to be recruited and perhaps attached to a central unit like the IMAC to work in several schemes. In that case there will also be transportation costs. However, the total labor requirement is small. In the Kaltota case, the IOs were able to handle data collection on seven FOs per day.

The analysis also takes very little time since most of it is actually carried out by the data collectors on the formats. Most of it is tabulation. Overall then this is not an expensive system.

4.5 Comparison of the Kaltota M&E System with the ME&F and MEA Systems

This section compares the system developed for the Kaltota scheme with key aspects of IMD's ME&F system, described briefly in Section 2.1.2, and with the system being used currently by MEA's Institutional Development Unit (IDU). A comparison of data collected is given in Tables 23, 24, and 25.

Comparison with the ME&F System The M&E system devised for Kaltota differs from IMD's ME&F system in two key ways:

- The ME&F system gets more complete information on services to FOs but less complete information on FO performance and FO strength.
- Data on FO progress are to be provided by the FOs themselves whereas the M&E system tested at Kaltota collects data by means of government officers (IOs).

These differences reflect the difference in purpose between the two systems. IMD's ME&F system is designed primarily to provide information to system managers to enable them to improve services to FOs. For example, information is collected on training needs. In this way, it is meant to be useful to farmers. In addition, rather than as the primary purpose, it is meant to provide data to IMD to monitor FO progress.

The primary objective of the Kaltota system, on the other hand, is to monitor and evaluate the progress of participatory management. It does not effectively identify service needs for FOs so it does not directly serve farmers. Thus, unlike the ME&F system, no information is collected on training needs.

Data collection by the farmers, as designed into the ME&F system, is attractive, since it promises to keep government costs low. Underlying this approach is the idea that farmers will find the data collection and analysis through the ME&F system directly useful. Ideally they will be able to use the seasonal planning data and other seasonal data for FO management. Unfortunately, as pointed out earlier, the farmers do not do the work required; apparently they do not feel that the reward is worth the effort. Thus the ME&F system works well only where it is helped along by IOs. One of the authors of this report (Brewer) was involved, through the ADB funded project on Institutional Strengthening of the Irrigation Department and Irrigation Management Division, in developing and disseminating the ideas on which the ME&F system is based. However, the evidence seems to suggest that it does not work properly in the present form.

Table 23: Comparison of Kaltota, ME&F, and MEA Data on FO Strength

Subject	Kaltota Data	ME&F Data	MEA Data
FO Structure	basis, acceptance, appropriateness	not relevant	not relevant
Membership	basis, numbers		
Leadership	selection of leaders, acceptability, responsibilities	adequacy of time spent on FO activities	
FO Finances	total funds, fund sources, reporting and use of funds	availability of FO funds, whether books are up to date, whether FO needs help in reporting	
Communication	FO committee and general meetings and attendance	monthly meetings and attendance	
Fixed Assets	list		
Recognition	legal recognition under 56(a) and 56(b)		legal recognition under 56(a) and 56(b)
Training		requirements and provision in specific areas	progress in providing training

Table 24: Comparison of Kaltota, ME&F, and MEA Data on FO Performance

Subject	Kaltota Data	ME&F Data	MEA Data
Cultivation Plan and Progress		cultivation plan and progress	
Production		production cost, yield and income	
Operations	scheduling, applying schedules, adequacy and timeliness of deliveries	satisfaction with deliveries, adequacy at tail-end	
Maintenance	involvement in maintenance, quality of work, preventive measures	cumulative value of maintenance work, value of shramadana, quality of work and constraints	
Problem Solving	means, success	success	
Non O&M Activities	involvement in various activities, benefits from activities	input supply by FOs, organizing non farm employment	
General Performance		whether implemented 75% of targeted activities	

The Kaltota approach instead takes the position that since the data are needed by program managers, they must be collected by agency employees. However, the labor required is small and information is collected at most only twice a year instead of monthly. Overall then, the ME&F system is more expensive than the Kaltota system.

Reflecting the difference in objectives, the Kaltota system is much more convenient for program managers to use to evaluate the progress of FOs, JMCs, and participatory management in general. In

particular, IMD summary reports include many measures, hence it is difficult to get a good overview of the situation, whereas the Kaltota system makes primary use of only five indicators supplemented by additional reports on a few subjects only.

Table 25: Kaltota, ME&F, and MEA Data on JMCs, Turnover, and Agency Support

Subject	Kaltota Data	ME&F Data	MEA Data
JMC Performance			
Seasonal Planning and Implementation	performance of seasonal planning and monitoring	system level production planning, implementation, problems faced	records of discussions
Seasonal Performance		production cost, yield and income	
Problem Solving	problem solving success		problem solving success
Communication and Participation	holding meetings and attendance, relative participation in decisions	farmer/officer participatory in PMC	holding meetings, farmer/officer participation
Turnover			
Progress	progress in formal turnover	not relevant	progress in formal turnover
Agency Support for FOs			
Support	satisfaction with agency support and services, performance of IOs	whether adequate support given by PMC and officers in O&M, accounting, organizational development	IOV/IDO progress, officer attendance at JMC meetings

Comparison with MEA's Current M&E System At the moment, the IDU is collecting data on JMC activities and performance through the use of JMC minutes and reports. The IDU is not collecting data on FOs comparable to that collected by either the Kaltota system or the ME&F system. The JMC data collected by the IDU are superior to that collected by either the Kaltota system or the ME&F system.

This situation exists because: a) establishment of the JMCs has been a primary mission of the IDU since its establishment in 1992, and b) the presence of MEA employees at all JMC meetings means that they can provide the needed data without making additional provisions. Particular attention is paid to information on officer attendance to ensure the participation of all the required officers in meetings.

As pointed out earlier, the IDU is planning also to collect data on FO status and performance. That is, the IDU system is not fully developed. Given the state of development of the IDU's monitoring effort, it is clearly premature to compare it either to the Kaltota system or to IMD's ME&F system.

CHAPTER 5

RECURRENT SURVEYS AS A MONITORING METHOD

The discussions in the preceding chapters would suggest that an appropriately modified version of the M&E system tested at Kaltota should be recommended for all schemes. However, since the number of irrigation schemes and the number of FOs to be covered under the three programs are large, we present an alternative approach for consideration that might be more cost effective.

The IIMI/ARTI team tried to use recurrent surveys to collect comprehensive data on a wide variety of issues and subjects. This approach turned out to be very difficult and less effective than hoped, primarily because of the difficulty of getting consistent and comparable data from such a variety of sites with different teams of researchers. However, the experience suggests that recurrent surveys, combined with the use of the indicators, would be an effective way to monitor the progress of participatory management.

5.1 A Suggested Methodology

We suggest that the approach developed for Kaltota can be adapted to a data collection procedure in which one or more teams travel to schemes to collect the data needed to evaluate the progress of FOs and JMCs in those schemes. The methodology would have the following features:

- Visits to each FO and scheme would be carried out once a season as planned for Kaltota.
- The data to be collected should be limited and well specified. It should include data on FO strength, FO water distribution performance, FO maintenance performance, FO performance in non O&M activities, JMC performance, status of turnover, and any special problems noted by system managers and farmers. There may be need to add additional items; however, we suggest that additional items be kept to an absolute minimum to make it possible to carry out the work efficiently.
- Formats based on those used at Kaltota would be used as the basis for data collection. These will simplify and routinize the data collection.
- The five basic indicators discussed in Chapter 3, perhaps with small modifications as was done for Kaltota, should be used as the central core for data analysis.

Most information would be gathered from agency officers and FO office-bearers. However, for a few items it would be necessary to interview a few general farmers. There would be no need for a statistically valid sample of farmers.

5.2 Implementation and Costs of the Methodology

Recurrent surveys could be used to cover all schemes or samples could be selected. The total cost is heavily dependent on the number of FOs and schemes to be assessed. Assuming that a trained investigator can collect data on 5 FOs per day, and an additional day is needed for each scheme, then the total number of man-days required to cover all FOs in all schemes under the INMAS, MANIS, and Mahaweli programs would come to 700-800. This would be a full year's work for a team of four persons. In addition, another one or two would be needed for data compilation. Smaller samples cut the labor and transportation costs proportionally.

Our experience is that the samples must be considerably larger than the sample of 30 FOs in 18 schemes that we used. Far too much variation is missed in a sample this small. Also, unlike our sample, the sample must be selected randomly.

One possibility would be to create regional teams. A small team could be attached to each IMAC to cover Irrigation Department schemes, particularly MANIS schemes. Similarly, each Mahaweli scheme could have its own team, attached either to the IDU or to the PMU.

An alternative would be to hire a research institution like the ARTI to undertake sample surveys at regular intervals.

5.3 Conclusions on the Recurrent Surveys Approach

The Kaltota methodology and the recurrent survey idea sketched out here are very similar since both make use of formats to collect data to fit the indicators developed earlier. The indicators are used for the analysis. The major differences between the two lie in who collects and analyzes the data. The Kaltota methodology has it done at scheme level while the recurrent survey methodology would have it done at supra-scheme level.

The main advantage of the Kaltota approach is that it supplies data directly to scheme managers for their use. However, most scheme managers claim that they already have enough information without this extra effort. A second advantage is that, wherever scheme personnel are sufficient, it requires no new personnel and it minimizes transportation costs.

The main advantages of the recurrent survey approach include:

- It can monitor participatory management in all schemes without reference to presence of IOs or other personnel.
- It will help to insure that comparable data are collected from all schemes. Not all system managers will give the same importance to collecting the data as others, thus possibly making the data less comparable than desired, particularly given the subjective nature of some of the evaluations.
- It provides a mechanism for special data collection efforts needed by policy makers.

The recurrent survey approach using the basic tools designed and tested at Kaltota is probably a more cost-effective way to carry out regular monitoring of participatory management than is having participatory management monitored by scheme managers in every scheme.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

Our findings on existing systems for the monitoring and evaluation of the progress of participatory management are:

- IMD's ME&F system has many strong points, including the fact that it is designed to help FOs directly. However, it appears to have some difficulties, primarily an apparent dependence on the presence of IOs to make it work.
- The Irrigation Department does not have a monitoring system at this time. However, the establishment of the Irrigation Management Cells at range level may presage the development of a monitoring system for MANIS schemes, particularly for those under NIRP.
- MEA's existing system provides some good data on the functioning of the JMCs but provides very little data on the FOs. However, both the Institutional Development Unit and the Planning and Monitoring Unit are designing systems to provide more comprehensive data.

Good monitoring systems are needed to allow program managers to make their programs effective. In MEA's case, close monitoring by the Managing Director has brought good results in a short time. However, for lack of a comprehensive monitoring system, the improvements have been concentrated on the JMCs where information exists. Also the Managing Director has been forced to carry out much of the monitoring himself through frequent field visits.

We have identified a major weakness in the existing system in that they do not provide clear numeric data on the progress of individual FOs and JMCs, on the progress of FOs and JMCs in schemes, and on the progress in programs.

We therefore developed and tested a set of five independent indicators, based on a limited amount of easily collected data to provide the basis for such numeric data. The indicators cover:

- Farmer Organization Strength
- Farmer Organization Water Distribution Performance
- Farmer Organization Maintenance Performance
- Farmer Organization Non O&M Activities
- Joint Management Committee Performance

A sixth indicator on Degree of Turnover was developed because it may be useful. However, it is clearly flawed. It could be developed if program managers feel that it would be useful.

We worked with the Irrigation Department to test a monitoring system based on the use of these indicators in the Kaltota Scheme. The results of the work are a set of formats and procedures that provide good and easily understandable information on the progress of FOs (and possibly of JMCs). The system is also inexpensive and easy to manage and provides better data on the progress of participatory management than either the ME&F system or MEA's current system. However, we pointed out that it may be more cost-effective to apply the Kaltota approach by using recurrent surveys carried out by regional teams or by a national team.

On the basis of these findings, we recommend

- 1. That the IMD consider modifying the ME&F system to solve the problem of dependence on IOs for monthly reports. Specifically, they may wish to reconsider the idea that FOs will be interested in collecting data for themselves and for the IMD. The lessons from the Kaltota experiment may be useful.*
- 2. That the MEA install its monitoring and evaluation system as soon as possible. The recurrent survey approach described in Chapter 5, based on the schemes, is recommended.*
- 3. That the Irrigation Department consider developing a recurrent survey type monitoring program for MANIS schemes such as that described in Chapter 5. The program should be based in the IMACs.*

Annex A

DATA COLLECTION FORMATS FOR KALTOTA

Below are given the formats used for the collection and analysis of data from the Kaltota scheme. Data from Kaltota has been filled in.

Improving Monitoring and Evaluation of Participatory management of MANIS Schemes

Project : Kaltota Irrigation Scheme

Year : 1994 Season : 1994 Yala

1. FO Strength

1.1. FO Basis

Basis	Number of Farmer Organizations		
	Base Level	Sub-system Level	System Level
1. Canal Basis: MC, BC, DC, FC	10	3	
2. Village Basis			
3. Tract (Yaya) Basis			
4. Wela Basis			
5. Other			

1.2. FO Structure

Farmer Organization	FO Committee? Y/N	No. of FRs	No. of FC Groups	Constitution? Y/N	Approved by farmers? Y/N
DC Level FOs					
1. LB D1 DCO	Y	6	-	Y	Y
2. LB D2 DCO	Y	13	-	Y	Y
3. LB D3 DCO	Y	4	-	Y	Y
4. RB D1 Perakum DCO	Y	10	-	Y	Y
5. RB D2 Gemunu DCO	Y	15	-	Y	Y
6. RB D3 Mahasen DCO	Y	9	-	Y	Y
7. RB D4 Parakrama DCO	Y	3	-	Y	Y
8. Puranagama D1 DCO	Y	14	-	Y	Y
9. Puranagama D2 DCO	Y	5	-	Y	Y
10. Puranagama D3 DCO	Y	8	-	Y	Y
11. Pahathbima FO	Y	-	-	Y	Y
Sub-System Level					
1. Uggaltota LB FO	Y	-	-	Y	Y
2. Welipotha RB FO	Y	-	-	Y	Y
3. Puranagama FO	Y	-	-	Y	Y

1.3. Leadership

1.3.1. Selection of FRs and their responsibilities

Farmer Organization	Frequency of selecting FRs	How the FRs are selected	FR's Roles
1. LB D1	Annually	By farmers	1,2,3,5
2. LB D2	Annually	By farmers	1,2,3
3. LB D3	Annually	By farmers	1,2,4,5
4. RB D1	Annually	By farmers	1,2,3
5. RB D2	Annually	By farmers	1,2,3
6. RB D3	Annually	By farmers	1,2,3
7. RB D4	Annually	By farmers	1,2,3
8. Puranagama D1	Annually	By farmers	1,2,3
9. Puranagama D2	Annually	By farmers	1,2,3
10. Puranagama D3	Annually	By farmers	1,2,3
11. Pahathbima FO	-		

FR's Roles

1. Attending meetings
2. Water distribution
3. Solving farmer problems
4. Organizing shramadana
5. Communicating

1.3.2. Selection of Office Bearers and their responsibilities

Farmer Organization	Frequency of selecting OBs	How OBs are selected	OB's roles
DC Level			
1. LB D1	Annually	By farmers	1,2,3,4,5,7
2. LB D2	Annually	By farmers	1,2,3,4,5,7
3. LB D3	Annually	By farmers	1,2,3,4,5,7
4. RB D1	Annually	By farmers	1,2,3,4,5,6,7
5. RB D2	Annually	By farmers	1,2,3,4,5,6,7
6. RB D3	Annually	By farmers	1,2,3,4,5,6,7
7. RB D4	Annually	By farmers	1,2,3,4,5,6,7
8. Puranagama D1	Annually	By farmers	1,2,3,4,5,6,7
9. Puranagama D2	Annually	By farmers	1,2,3,4,5,7
10. Puranagama D3	Annually	By farmers	1,2,3,4,5,6,7
11. Pahathbima FO	Annually	By farmers	1,2,3,4,5,7
Sub-system Level			
1. LB FO	Annually	By farmers	1,2,3,4,5,6,7
2. RB FO	Annually	By farmers	1,2,3,4,5,6,7,8
3. Puranagama	Annually	By farmers	1,2,3,4,5,6,7

Roles and responsibilities of Office Bearers

1. Conducting meetings
2. Water distribution
3. Solving farmer problems
4. Representing farmers at higher level meetings
5. Coordinating with officers
6. Assist in providing services to farmers
7. Organizing shramadana & other work
8. Canal maintenance

1.3.3. Names of the Office Bearers

FO	Chairman	Secretary	Treasurer

1.4. Membership

FO	Total Farmers in Area	Membership Criteria	Membership	Paid Membership
DC Level				
1. LB D1	50 (legal)	3	61	61
2. LB D2	118 (legal)	3	141	130
3. LB D3	39 (legal)	3	46	44
4. RB D1	104 (legal)	2	80	80
5. RB D2	127 (legal)	2	66	66
6. RB D3	77 (legal)	2	74	74
7. RB D4	33 (legal)	2	29	29
8. Puranagama D1	150 (approx)	2	44	44
9. Puranagama D2	85 (approx)	2	54	.*
10. Puranagama D3	100 (approx)	2	44	.*
11. Pahathbima FO	250 (approx)	3	191	191
Sub-system Level				
1. LB FO	207 (legal)	3	254	254
2. RB FO	347 (legal)	2	347	347
3. Puranagama FO	500 (approx)	2	166	166

* Membership fee is collected by Sub-system FO

Membership Criteria

1. Legal Owners
2. Owner Cultivators + Ande Farmers
3. All farmers (Except leased-in)

1.5. Communication

1.5.1. Holding FO General Meetings

Farmer Organization	Meeting Frequency	Average Attendance	Date of Last Meeting	Attendance
DC Level				
1. LB D1	4	30	11/07/94	27
2. LB D2	4	50	16/01/94	61
3. LB D3	4	35	17/01/94	36
4. RB D1	4	60	15/03/94	40
5. RB D2	3	40	29/07/94	40
6. RB D3	3	45	09/06/94	35
7. RB D4	4	22	01/01/94	24
8. Puranagama D1	4	30	27/09/93	15
9. Puranagama D2	3	25	08/07/94	34
10. Puranagama D3	3	25	27/06/94	18
11. Pahathbima FO	3	50	30/07/94	39
Sub-system Level				
1. LB FO	3	125	23/01/94	131
2. RB FO	3	80	19/07/94	72
3. Puranagama FO	3	90	08/03/94	43

Frequency of holding FO general meetings:

- | | | |
|-----------------------|-------------------------|-----------------|
| 1. Monthly | 3. Once in three months | 5. Once a year |
| 2. Once in two months | 4. Once a season | 6. Occasionally |

1.5.2. Holding FO Committee Meetings

Farmer Organization	Meeting Frequency	Average Attendance	Date of Last Meeting	Attendance
DC Level				
1. LB D1	1	8	03/07/94	7
2. LB D2	4	13	25/06/94	13
3. LB D3	4	8	11/06/94	8
4. RB D1	4	9	26/02/94	9
5. RB D2	4	5	27/05/94	7
6. RB D3	4	10	08/01/94	11
7. RB D4	4	9	10/05/94	8
8. Puranagama D1	4	7	31/01/94	8
9. Puranagama D2	5	-	-	-
10. Puranagama D3	4	7	20/08/93	8
11. Pahathbima FO	1	9	29/06/94	8
Sub-system Level				
1. LB FO	1	10	07/08/94	8
2. RB FO	4	9	10/07/94	13
3. Puranagama FO	4	9	07/06/94	10

Frequency of holding FO Committee meetings

- | | | |
|-------------------------|-------------------------------|----------------------|
| 1. Monthly | 3. Seasonally | 5. Meetings not held |
| 2. Once in three months | 4. As frequently as necessary | |

1.6. FO Funds

1.6.1. Funding position

Farmer Organization	Total Funds	Funding Sources	Use of Funds	Reporting Procedure	Disbursement Procedure	Last Report
DC Level						
1. LB D1	Rs 3055/=	a,c	5	Y	Y	17/01/94
2. LB D2	Rs 65148/=	a,b,c,d	1,3,4	Y	Y	16/01/94
3. LB D3	Rs 3660/=	a,b,c	5	Y	Y	17/01/94
4. RB D1	Rs 16518/=	a,c,d	5	Y	Y	28/07/94
5. RB D2	Rs 3653/=	a,c	1,4	Y	Y	25/04/94
6. RB D3	Rs 3303/=	a,c	5	Y	Y	24/01/94
7. RB D4	Rs 2114/=	a,c,d	5	Y	Y	30/01/94
8. Puranagama D1	Rs 2130/=	a,d,c	1	Y	Y	31/01/94
9. Puranagama D2	Rs 2500/=	c	5	Y	Y	08/07/94
10. Puranagama D3	Rs 2500/=	c	5	Y	Y	-
11. Pahathbima FO	Rs 2594/=	a,e	5	Y	Y	10/05/94
Sub-system Level						
1. LB FO	Rs 10018/=	a,c,d	1,3	Y	Y	18/01/94
2. RB FO	Rs 36601/=	a,c,d,f	1,2	Y	Y	28/06/94
3. Puranagama FO	Rs 10160/=	a,c,d	1,3	Y	Y	04/01/94

Funding Sources

a. Membership Fee

b. Shares

Use of funds

1. Doing contracts

2. Provision of credit

c. O&M allocations

d. Commission from contracts

3. Buying a tractor

4. Use for O&M

e. Traditional O&M charges

f. Loan interest

5. Funds not used yet

1.6.2. Use of Funds

Farmer Organization	Expenditures					
	Contracts	Supply Inputs	Provide Credit	For O&M	Buy Tractor	Contract Equip.
DC Level						
1. LB D1						10037
2. LB D2	45500				16500	
3. LB D3						
4. RB D1						
5. RB D2				2290		1000
6. RB D3						
7. RB D4						
8. Puranagama D1						7500
9. Puranagama D2						
10. Puranagama D3						
11. Pahathbima FO						
Sub-system Level						
1. LB FO					12500	12000
2. RB FO			8000			5000
3. Puranagama FO					12000	

1.7. Fixed Assets

Farmer Organization	Assets				
	Meeting Hall	Tractor	Const. Equip.	Fert/ag chems	Power Sprayer
DC Level					
1. LB D1			x		
2. LB D2		x	x		
3. LB D3			x		
4. RB D1			x		
5. RB D2			x		
6. RB D3					
7. RB D4					
8. Puranagama D1			x		
9. Puranagama D2					
10. Puranagama D3					
11. Pahathbima FO					
Sub-system Level					
1. LB FO					x
2. RB FO					
3. Puranagama FO		x	x		

1.8. Legal Recognition

Total FOs	Reg. under 56A	Reg. under 56B	Reg. with DAS	Reg. with ID	Reg. with Others
14	3	-	-	11	-

2. FO Performance

2.1. Preparation and implementation of water distribution schedules

2.1.1. Preparation of Schedules where DC and FC Canals Exist

Farmer Organization	Head-works\ Anicut*	MC\BC*	DC*	DC-Done in time	Appropriate?	FCs*	FCs-Done in time	Appropriate?
DC Level	Agency	Agency						
1. LB D1			Ag/FO	Yes	Yes	FO	Yes	No
2. LB D2			Ag/FO	Yes	Yes	FO	Yes	No
3. LB D3			Ag/FO	Yes	Yes	FO	Yes	No
4. RB D1			Ag/FO	Yes	Yes	FO	Yes	No
5. RB D2			Ag/FO	Yes	Yes	FO	Yes	No
6. RB D3			Ag/FO	Yes	Yes	FO	Yes	No
7. RB D4			Ag/FO	Yes	Yes	FO	Yes	No

* State whether Agency, Agency + FO, FO, Farmers, No One

2.1.2. Preparation of Schedules where no DCs and FCs Exist

FO	Outlet*	Done in Time	Appropriate	Field Level*	Done in time	Appropriate
DC Level						
1. Puranagama D1	Agency	Yes	Yes	No one		
2. Puranagama D2	Agency	Yes	Yes	No one		
3. Puranagama D3	Agency	Yes	Yes	No one		
4. Pahathbima FO	-	-	-	FO	No	No

* State whether Agency, Agency+FO, FO, Farmers, No One

2.1.3. Operation where DCs and FCs Exist

Farmer Organization	Head-works*	MC/BC*	DC*	Follow Plan? YN	Head-Tail Diffs?		FCs*	Follow Plan? YN	Head-Tail Diffs?	
					A	T			A	T
DC Level	Agency	Ag'y								
1. LB D1			FO	Y	Y	Y	FO	N	N	N
2. LB D2			FO	Y	Y	Y	FO	N	N	N
3. LB D3			FO	Y	Y	Y	FO	N	N	N
4. RB D1			FO	Y	Y	Y	FO	N	N	N
5. RB D2			FO	Y	Y	Y	FO	N	N	N
6. RB D3			FO	Y	Y	Y	FO	N	N	N
7. RB D4			FO	Y	Y	Y	FO	N	N	N

* State whether Agency, Agency+FO, FO, Farmers, No one

A = adequacy; T = timeliness

2.1.4. Operations where no DC or FCs Exist

Farmer Organization	Outlet*	Follow Plan? Y/N	A	T	Field Level*	Follow Plan? Y/N	Head-Tail Diffs	
							A	T
DC Level								
1. Puranagama D1	Agency	Yes	Yes	Yes	No One	-	No	No
2. Puranagama D2	Agency	Yes	Yes	Yes	No One	-	No	No
3. Puranagama D3	Agency	Yes	Yes	Yes	No One	-	No	No
4. Pahathbima	-	-	-	-	FO	-	-	-

* State whether Agency, Agency+FO, FO, Farmers, No One

A = adequacy; T = timeliness

2.2. FO Maintenance Performance

2.2.1. FO involvement in Maintenance

Farmer Organization	MC/BC*		DC*		FCs		Other Canals*	
	SR	C/D	SR	C/D	SR	C/D	SR	C/D
DC Level	Agency	Agency						
1. LB D1			Ag/FO	FO	Ag/FO	FO		
2. L.B D2			Ag/FO	FO	Ag/FO	FO		
3. LB D3			Ag/FO	FO	Ag/FO	FO		
4. RB D1			Ag/FO	FO	Ag/FO	FO		
5. RB D2			Ag/FO	FO	Ag/FO	FO		
6. RB D3			Ag/FO	FO	Ag/FO	FO		
7. RB D4			Ag/FO	FO	Ag/FO	FO		
8. Puranagama D1			-	-	-	-	-	FO
9. Puranagama D2			-	-	-	-	-	FO
10.Puranagama D3			-	-	-	-	-	FO
11.Pahathbima FO			-	-	-	-	-	FO

*State whether Agency, Agency + FO, FO, Farmers, No One

SR = structure repair; C/D = channel cleaning and desilting

2.2.2. FO Maintenance Performance

Farmer Organization	MC/BC*		DC*		FCs or Others*		Rules to Protect Y/N	Rules Enforced Y/N
	SR	C/D	SR	C/D	SR	C/D		
DC Level								
1. LB D1			1	3	1	3	Y	Y
2. LB D2			1	3	1	3	Y	Y
3. LB D3			1	3	1	3	Y	Y
4. RB D1			1	3	1	3	N	N
5. RB D2			1	3	1	3	N	N
6. RB D3			1	3	1	3	N	N
7. RB D4			1	3	1	3	N	N
8. Puranagama D1			-	-	-	3	N	N
9. Puranagama D2			-	-	-	3	N	N
10.Puranagama D3			-	-	-	3	N	N
11.Pahathbima FO			-	-	-	3	N	N

* State whether : 1 = Done poorly; 2 = Done adequately; 3 = Done both adequately and on time

SR = structure repair; C/D = channel cleaning and desilting

2.3. Problem Solving (From January 94 to August 94)

Farmer Organization	Irrigation		Others	
	No. of Problems	No. Solved	No. of Problems	No. Solved
DC Level				
1. LB D1	2	0	10	3
2. LB D2	5	2	10	5
3. LB D3	1	0	3	3
4. RB D1	5*	5	3	3
5. RB D2	6*	6	4	4
6. RB D3		3	1	
7. RB D4	3	2	1	1
8. Puranagama D1				
9. Puranagama D2				
10. Puranagama D3				
11. Pahathbima FO	2	2		
Sub-system Level				
1. LB FO	4	2	5	1
2. RB FO	2	2	15	5
3. Puranagama FO	2	2		

* Not recorded

2.4. FO Non-O&M Activities

Farmer Organization	Credit Supply	Social/cultural Events	Rehab. Contract	Non-O&M Shrama-dana	Paddy Purchase	Seed Paddy Farm
DC Level						
1. LB D1		x	x	x		
2. LB D2		x	x	x		
3. LB D3		x		x		
4. RB D1		x	x	x		
5. RB D2		x	x			
6. RB D3		x				
7. RB D4						
8. Puranagama D1		x	x			
9. Puranagama D2						
10. Puranagama D3		x	x	x		
11. Pahathbima FO			x			
Sub-system Level						
1. LB FO		x	x	x		x
2. RB FO	x	x	x	x		x
3. Puranagama FO		x	x	x	x	x

3. Joint Management Committee Performance

3.1. Communication

Meeting Frequency	Official Membership	Farmer Membership	Ave No. Officials Present	Ave No. Farmers Present	Last Meeting	Officials Present	Farmers Present
Tri-Monthly	8	28	5	25	20/11/93	6	23

3.2. JMC Planning and Implementation

PMC did Seasonal Plan? Y/N	Plan changed at Kanna meeting? Y/N	Progress monitored by PMC? Y/N	Changes made during implementation? Y/N	Why were changes made?	Who made the changes?
No	-	Yes	No	-	-

3.3. Progress in Land Preparation

LP delayed? Y/N	If yes, No. of weeks	Reasons for delay
Yes	3 weeks	1. Farm Power problems 2. Farmer Negligence

3.4. Seasonal Progress

Area Planned	Area Irrigated	Reasons if difference	Area harvested	Reasons if difference
2250 acres	2250 acres	-	2250 acres	-

3.5. Problem solving at PMC level (From January 94 to August 94)

Irrigation		Others	
No. of Problems	No. Solved	No. of Problems	No. Solved
-	-	-	-

4. Agency Support for FOs

4.1. Satisfaction over Agency Support and Services

Agency	Provide support? Y/N	Is support satisfactory? Y/N	Service through FOs? Y/N	Service satisfactory? Y/N
1. ID	Y	Y	Y	Y
2. DAS	Y	N	Y	N
3. DOA	Y	Y	Y	Y
4. LCD	Y	Y	Y	N

4.2. Performance of Institutional Organizers

Are there IOs?		From what program?	Motivate farmers		Training		Assist FO meetings		Assist problem solving		Help farmer-officer comm.	
YN	No.		SP	SS	SP	SS	SP	SS	SP	SS	SP	SS
Y	2	NIRP	Y	Y	Y	N	Y	Y	Y	Y	Y	Y

SP: Is the service provided?

SS: If yes, is service satisfactory or not?

5. Formal Turn Over

Farmer Organization	Is there a formal agreement?	If yes, is it written?	If yes, it covers	
			Operations	Maintenance
DC Level				
1. LB D1	N			
2. LB D2	N			
3. LB D3	N			
4. RB D1	N			
5. RB D2	N			
6. RB D3	N			
7. RB D4	N			
8. Puranagama D1	N			
9. Puranagama D2	N			
10. Puranagama D3	N			
11. Pahathbima FO	N			

Annex B

DETAILED ANALYSIS OF KALTOTA FO SCORES

1. FO Strength

To follow this analysis, please refer to the FO Strength indicator given in Table 6 in the main text.

Points Received Under Conceptual Bases in the FO Strength Indicator

The FOs received a total of 130 points (71 percent) out of the full points of 182 under the conceptual bases. Break down of the conceptual basis score for each FO is given below.

Points Received under Conceptual Bases

Farmer Organizations	Scoring								
	Struc- ture	Memb- ership	Lead- ership	Fund- ing	Fin. Mgt.	Use of Funds	Com- munic.	Total	%
DC Farmer Organizations									
1. LB D1	1	1	1	2	2	0	2	9	69
2. LB D2	1	1	1	3	2	1	2	11	85
3. LB D3	1	1	1	2	2	0	2	9	69
4. RB D1	1	1	1	2	2	1	2	10	77
5. RB D2	1	1	1	2	2	1	2	10	77
6. RB D3	1	1	1	2	2	0	2	9	69
7. RB D4	1	1	1	2	2	0	2	9	69
8. Puranagama D1	1	1	1	2	2	1	1	9	69
9. Puranagama D2	1	1	1	0	2	0	1	6	46
10. Puranagama D3	1	1	1	0	2	0	1	6	46
11. Pahathbima FO	1	1	1	2	2	0	2	9	69
Sub-system Organizations									
1. LB FO	1	1	1	3	2	1	2	11	85
2. RB FO	1	1	1	3	2	1	2	11	85
3. Puranagama FO	1	1	1	3	2	1	2	11	85
Total	14	14	14	28	28	7	25	130	71

Potential Scores: Structure-2, Membership-1, Leadership-2, Funding-3, Financial Mgt.-2, Use of Funds-1, Communication-2; Total-13

No FO received full marks for Structure as none have a clear formal structure. The 11 DC level FOs have no FCs or other base level groups though the FRs are said to be FC level representatives. The FRs are selected at general farmer meetings. The FO committee is comprised of both the general farmers and FRs. Though the sub-system level FOs cover the total respective DC level FO areas there are few structural links between the two. The office bearers are selected from the general farmers.

Under Leadership, no FO received full marks because they have a procedure of annual selection but no criteria for selection. Leaders are selected from the general membership.

Four FOs raise their funds by doing contracts, hiring two wheel tractors, etc., without depending on membership fee and agency allocations, therefore they receive full points. Seven other FOs depend on agency allocations for raising funds apart from membership fee and receive less points. Two FOs even

do not collect membership fee as it is collected by their sub-system FO. Under Financial Management all the FOs have reporting and disbursement procedures and they received full points.

Seven FOs did not receive points under the Use of Funds as they have not yet made any plan for expenditures. Three FOs received less points under communication as regular communication channel is not built through meetings.

Points received under Performance in the Strength of FOs

The FOs scored the total of 76 points (68 percent) out of potential 112 points under the Performance. Points received by each FO are shown in the table below.

Under Structure, all the FOs received the potential points as their constitutions are approved by farmers. Under Leadership the procedure of annual selection of leaders has been followed in 13 FOs but not criteria and they received less points. One FO did not receive any point as the annual selection of office bearers has not taken place for the current year.

Points Received under Performance

Farmer Organizations	Scoring							Total	%
	Structure	Leadership	Funding	Fin. Mgt.	Use of Funds	Communication			
DC Farmer Organizations									
1. LB D1	1	1	0	1	0	2	5	63	
2. LB D2	1	1	1	1	1	2	7	88	
3. LB D3	1	1	0	1	0	2	5	63	
4. RB D1	1	1	0	1	1	2	7	88	
5. RB D2	1	1	0	1	1	2	6	75	
6. RB D3	1	1	0	1	0	2	5	63	
7. RB D4	1	1	0	1	0	2	5	63	
8. Puranagama D1	1	0	0	1	1	1	4	50	
9. Puranagama D2	1	1	0	1	0	1	4	50	
10. Puranagama D3	1	1	0	0	0	1	3	38	
11. Pahathbima FO	1	1	0	1	0	2	5	63	
Sub-system Farmer Organizations									
1. LB FO	1	1	1	1	1	2	7	88	
2. RB FO	1	1	1	1	1	2	7	88	
3. Puranagama FO	1	1	1	1	1	2	7	88	
Total	14	13	4	13	7	25	76	69	

Potential Scores: Structure-1, Leadership-2, Funding-1, Financial Mgt.-1, Use of Funds-1, Communication-2; Total-8

Only four FOs have a good financial positions. Having funds over Rs. 20,000 including their fixed and other assets is taken as a good financial position.

All FOs followed financial reporting and disbursement procedures, except for one that failed to present the annual cash balance of the last year. Only seven FOs have used their funds for FO activities. Others had not collected sufficient funds to be used for any activity. Three FOs received less points in the performance of communication as they hold the FO meetings irregularly.

Points Received under Outcome in the FO Strength Indicator

The total points scored under Outcome of the FO Strength indicator is 123 (59 per cent) out of expected full points of 210. The points received under outcome in each of the seven features are given below.

No FO receives full points under Structure as there are no formal structures. Only two FOs received full points under membership as the active membership is more than 75% of the potential only in these two. Active membership is taken according to participation in meetings. In 5 FOs the active membership is between 50% to 75% The active membership is less than 50% in 7 FOs and they received no points.

Points Received under Outcome

Farmer Organizations	Scoring								
	Struc- ture	Memb- ership	Lead- ership	Fund- ing	Fin. Mgt.	Use of Funds	Com- munic.	Total	%
DC Farmer Organizations									
1. LB D1	1	2	2	1	2	0	2	10	67
2. LB D2	1	1	2	3	2	2	2	13	87
3. LB D3	1	2	2	1	2	0	2	10	67
4. RB D1	1	1	2	3	2	1	2	12	80
5. RB D2	1	0	1	1	1	1	2	7	47
6. RB D3	1	1	2	1	2	0	2	9	60
7. RB D4	1	1	2	1	2	0	2	9	60
8. Puranagama D1	1	0	1	1	1	1	1	7	47
9. Puranagama D2	1	0	1	1	1	0	0	4	27
10.Puranagama D3	1	0	1	1	0	0	0	3	20
11.Pahathbima FO	1	0	1	2	1	0	2	6	40
Sub-system Organizations									
1. LB FO	1	1	2	3	2	2	2	13	87
2. RB FO	1	0	1	3	1	2	2	10	67
3. Puranagama FO	1	0	1	3	1	2	2	10	67
Total	14	9	21	25	20	11	23	123	59

Potential Scores: Structure-2, Membership-2, Leadership-2, Funding-3, Financial Mgt.-2, Use of Funds-2, Communication-2, Total-15

Though all the leaders are selected by farmers it was taken as selected by the majority of farmers only if the farmer participation in meetings is more than 50%. Under this criterion the leaders are selected by the majority of farmers only in seven FOs and they receive full points. In the remaining seven FOs it was taken as the leaders are not selected by the majority of farmers.

Five FOs have obtained funds by doing contracts and other business and they are given full points. One FO depends on its membership levies for obtaining funds while rest of the eight FOs mostly depend on agency allocations to raise funds.

If the participation in meetings is more than 50% of the potential farmers it was taken as the reporting and disbursement of funds was acceptable to the majority of farmers. Under this criterion seven FOs received full points. In the other FOs the reporting and disbursement is taken as acceptable only to some farmers because the farmer participation in the meetings is less than 50%. One FO received no points as financial reports are not periodically presented to its membership.

Seven FOs have used the funds for other FO activities and only 4 of them are able to have a good financial position through those activities. The remaining seven FOs have not collected sufficient funds to use for other activities.

Both committee meetings and general farmer meetings have been regularly held in eleven FOs and they received full points; the other three received less. Regular general meetings are being held in two of them but the participation is very low.

2. FO Water Distribution Performance

Points received by the FOs under Responsibility and Performance are given in following analyses. Please refer to the FO Water Distribution Performance indicator given in Table 7 in the main text.

Points received under Responsibility in the FO Water Distribution Performance Indicator

The FOs received the total of 50 points (50 per cent) out of the full 100 points under responsibility. The breakdown of the points received by the each FO in the activities of scheduling, operation and problem solving is as follows. The expected total points under each activity is 2.

Points Received under Responsibility in Water Management

Farmer Organization	Scheduling		Operation		Problem Solving	%
	DC	FC	DC	FC		
DC Farmer Organizations						
1. LB D1	1	2	2	0	1	60
2. LB D2	1	2	2	0	1	60
3. LB D3	1	2	2	0	1	60
4. RB D1	1	2	2	0	1	60
5. RB D2	1	2	2	0	1	60
5. RB D3	1	2	2	0	1	60
7. RB D4	1	2	2	0	1	60
8. Puranagama D1	-	0	0	0	1	12
9. Puranagama D2	-	0	0	0	1	12
10. Puranagama D3	-	0	0	0	1	12
11. Pahathbima FO	-	2	-	2	1	83

In the first seven FOs, the scheduling among the FCs is done jointly by the FOs and the agency. Therefore, they receive one point each. The canal system is highly dilapidated in the Puranagama FO areas and it is not possible to prepare schedules among them until they are rehabilitated. Pahathbima FO area is totally cultivated with drainage water and there is no proper canal system. This area is not even included in the main system distribution schedules. Therefore, both these FOs are excluded from evaluating under DC scheduling.

All FOs except the three of Puranagama prepare schedules within FCs by themselves. Therefore, they receive full points. No schedule is prepared by the Puranagama three FOs at the field level and they are not given any points.

The first seven FOs implement the schedules by themselves they receive full points. The Puranagama FOs were evaluated under operation since the FOs should have some responsibility in DC level

operation. They received no points as they are not involved. The Pahathbima FO is excluded in evaluating in the DC level operation since no there is no defined distributary canal.

No FO except that of Pahathbima is implementing the schedules they prepare for FC level. In those FOs, scheduling is limited only to discussions; farmers practice simultaneous irrigation. Therefore, none of those FOs receive any points under responsibility of FC level operation except that of Pahathbima.

In Problem Solving all the FOs resolve problems in an ad hoc manner as a clear problem solving mechanism is not yet developed through the FO.

Points Received under Performance in Water Distribution

The total points received by the FOs in the performance in water distribution is 38 (39 per cent) of the full points of 98. No point was received by the three Puranagama FOs. Points received by the each FO in scheduling, operation and problem solving are as given below. Total points possible for each item is two.

Schedules among the FCs in the first seven FOs are done by the Agency together with the FOs and are timely and appropriate. Therefore, those FOs receive full points. Evaluating the other four FOs for performance of scheduling among FCs is excluded for the reasons given above.

Scheduling within the FCs in the first seven FOs is done in time but not appropriately. Therefore they do not receive full points. No points are given to the three Puranagama FOs as they do not do any scheduling at the FC level. Though Pahathbima FO prepares schedules at FC level they do so only when problems arise; therefore they too do not receive any points. However, they cannot do scheduling in time or appropriately since water supplies to them are not reliable.

Under operation among FCs, there is no disparity in the head reach and tail reach in receiving water in the first seven FOs and therefore, they receive full points. The Puranagama FOs are not given any points as they are not involved in operation.

Though there is an adequate and timely water supply to FCs in all the FOs except Pahathbima there is disparity between the head reaches and tail reaches in water distribution within the FCs. Therefore, they are not given any points. The water supply to FCs in Pahathbima is neither adequate nor timely. They are excluded in evaluating at the FC level operation performance.

Performance in Problem Solving was measured on the percentage of finding solutions to the recorded problems. Only the Pahathbima FO had solved more than 75 percent of the recorded problems. One FO among others had solved problems between 50 percent and 75 percent. Problem solving is below 50 per cent of the total recorded in all others.

Points received under the Water Distribution Performance

Farmer Organization	Scheduling		Operation		Problem Solving	%
	DC	FC	DC	FC		
DC Farmer Organizations						
1. LB D1	2	1	2	0	0	50
2. LB D2	2	1	2	0	0	50
3. LB D3	2	1	2	0	0	50
4. RB D1	2	1	2	0	0	50
5. RB D2	2	1	2	0	0	50
5. RB D3	2	1	2	0	0	50
7. RB D4	2	1	2	0	1	50
8. Puranagama D1	-	0	0	0	0	0
9. Puranagama D2	-	0	0	0	0	0
10. Puranagama D3	-	0	0	0	0	0
11. Pahathbima FO	-	0	-	-	2	50

3. FO Maintenance

Please refer to the FO Maintenance indicator in Table 8 in the main text.

Points received under Responsibility in the FO Maintenance Performance Indicator

The total points received under responsibility is 52 (53 per cent) out of the full points of 98. Points received by the FOs for each activity of DC maintenance, FC maintenance and preventive measures under responsibility are given below. The total points given under each activity is 2.

Repairs to DC and FC structures are done only by the first seven FOs. But these FOs attend only to the very necessary urgent repairs temporarily with some material provided by the agency because the project is being rehabilitated. Points are given as work done together by the FO and Agency. No repair work is done by the Puranagama FOs as the system is highly dilapidated. They are evaluated only under the DC structure repairs as permanent FC structures do not exist. Permanent structures are not available in the area under Pahathbima FO therefore, they are excluded from evaluating under structure repairs.

DC jungle cleaning and desilting is done by all the FOs except for Pahathbima FO which does not have a clearly defined DC. Since the agency provides an O&M allocation for cleaning and desilting it was taken as a work done by the Agency and FO together in giving points though the FOs do the job. Pahathbima FO is excluded from evaluation under this activity.

Points Received under Responsibility in Maintenance

Farmer Organization	DC Maint		FC Maint		Prev. Measures	%
	SR	C/D	SR	C/D		
DC Farmer Organizations						
1. LB D1	1	1	1	2	2	70
2. LB D2	1	1	1	2	2	70
3. LB D3	1	1	1	2	2	70
4. RB D1	1	1	1	2	0	50
5. RB D2	1	1	1	2	0	50
5. RB D3	1	1	1	2	0	50
7. RB D4	1	1	1	2	0	50
8. Puranagama D1	0	1	-	2	0	37
9. Puranagama D2	0	1	-	2	0	37
10. Puranagama D3	0	1	-	2	0	37
11. Pahathbima FO	-	-	-	2	0	50

SR = structure repair; C/D = channel clearing and desilting

FC cleaning and desilting is done by all the FOs and they receive full points as they themselves do it. Under preventive measures, only the first three FOs have both rules and enforcement means to protect the system.

Points Received Under Performance in the FO Maintenance Performance Indicator

Total points received under the Performance are 45 (52 per cent) out of the full points of 87. The total points received for the three activities of DC maintenance, FC maintenance and preventive measures are shown below. Each activity is given 2 points except for preventive measures for which only one point is available.

Points Received under Performance in Maintenance

Farmer Organization	DC Maint		FC Maint		Prev. Measures	%
	SR	C/D	SR	C/D		
DC Farmer Organizations						
1. LB D1	0	2	0	2	1	56
2. LB D2	0	2	0	2	1	56
3. LB D3	0	2	0	2	1	56
4. RB D1	0	2	0	2	0	44
5. RB D2	0	2	0	2	0	44
5. RB D3	0	2	0	2	0	44
7. RB D4	0	2	0	2	0	44
8. Puranagama D1	0	2	-	2	0	57
9. Puranagama D2	0	2	-	2	0	57
10. Puranagama D3	0	2	-	2	0	57
11. Pahathbima FO	-	-	-	2	0	67

SR = structure repair; C/D = channel clearing and desilting

No point is given for the performance of structure repairs of either DCs or FCs for the first seven FOs as the work is done poorly. However, the work is done poorly because only temporary measures are taken

due to on-going rehabilitation. Since the Puranagama FOs since they do not do any repair work at DC level, they are not given any points while they are excluded from evaluating under FC structure repairs. Since there is no such responsibility for Pahathbima FO they are not evaluated under structure repairs.

Jungle cleaning and desilting of both the DCs and FCs is done adequately and timely according to the information provided both by the agency personnel and FRs; therefore all FOs receive full points. Again the performance of Pahathbima FO is evaluated only under FC cleaning and desilting since there is no clearly defined DC.

The first three FOs have taken preventive measures enforce the rules to protect the canal system and they receive full points while others receive no points since they have no such rules.

4. FO Non O&M Activities

Please refer to the FO Non O&M Activities indicator in Table 7 in the main text.

Points Received in Level of Activities Under Income Generating Activities

Total points received for level of activities under income generating activities is 16 (14 per cent) of the full points of 112. The total points received by each FO are given below. Expected total point under each activity is two.

Points Received for Level of Income Generating Activities

Farmer Organization	Input Coord.	Crop Trading	Provide Credit	Others	%
DC Farmer Organizations					
1. LB D1	0	0	0	1	12
2. LB D2	2	0	0	1	37
3. LB D3	0	0	0	0	0
4. RB D1	0	0	0	1	12
5. RB D2	0	0	0	1	12
6. RB D3	0	0	0	0	0
7. RB D4	0	0	0	0	0
8. Puranagama D1	0	0	0	1	12
9. Puranagama D2	0	0	0	0	0
10. Puranagama D3	0	0	0	0	0
11. Pahathbima	0	0	0	0	0
Sub-system Farmer Organizations					
1. LB FO	2	0	0	1	37
2. RB FO	0	0	2	1	37
3. Puranagama FO	2	0	0	1	37

Eight FOs have undertaken rehabilitation contracts; they are listed under other income generating activities and each is given 1 point accordingly. Three FOs have hire purchased two wheel tractors and they are credited under Input Coordination. They are given 2 points each as they hire their tractors to farmers at reduced charges. One farmer organization provides credit to farmers from its own funds and it is given 2 points. Six FOs do not engage in any income generating activities.

Points Received Under Benefit in FO Income Generating Activities Indicator

A total of 18 points (16 per cent) is received by the FOs out of 112 possible under benefits. The total points received by each FO are given below. The full points given under each activity is 2.

Points Received for Income Generating Activity Benefits

Farmer Organization	Input Coord.	Crop Trading	Provide Credit	Others	%
DC Farmer Organizations					
1. LB D1	0	0	0	0	0
2. LB D2	2	0	0	2	50
3. LB D3	0	0	0	0	0
4. RB D1	0	0	0	2	25
5. RB D2	0	0	0	0	0
6. RB D3	0	0	0	0	0
7. RB D4	0	0	0	0	0
8. Puranagama D1	0	0	0	0	0
9. Puranagama D2	0	0	0	0	0
10. Puranagama D3	0	0	0	0	0
11. Pahathbima	0	0	0	0	0
Sub-system Farmer Organizations					
1. LB FO	2	0	0	2	50
2. RB FO	0	0	2	2	50
3. Puranagama FO	2	0	0	2	50

Only five FOs received any benefits from income generating activities. Income received from hire purchasing two wheel tractors in three FOs is accrued to FO funds and those four FOs receive 2 points each. The income from providing credit facilities by one FO is accrued to the funds and that FO too receives full points. Income gained from rehabilitation contracts by 5 FOs is accrued to their funds and each of them also receives the full points.

Points Received Under the Non Income Generating Activities Indicator

Three FOs do not engage in any non income generating activity. The other 11 FOs sponsor community rituals and activities. Each of them received 2 points for level of activity as those are not limited to FO activities. Each received 33 percent of the total points under level of activity.

Under benefit, all the 11 FOs received 2 points each as those activities are intended for the wider community. Again each of them received 33 per cent from the total under benefit.

5. FO Performance Levels

The overall performance levels of 10 FOs in Kaltota Project are moderately satisfactory. Overall performance level of 2 of the remaining FOs is weak while in the other two it is very weak. Two FOs, one DC level and one sub-system, have a high overall performance level of 86 percent.

For FO Strength, under conceptual bases, 12 FOs are moderately satisfactory while two are weak. The performance level under conceptual bases of the three sub-system level FOs and one DC level FO is at

85 percent. Under performance, 11 FOs are moderately satisfactory, two others are weak and one is very weak. Again the performance in the three sub-system FO and the DC level FO is 88 percent. Ten FOs are moderately satisfactory in the outcome while two are weak and the remaining two are very weak. The three sub-system FOs and the DC level FO have the highest performance level of 87 percent under outcome.

The three Puranagama FOs are the weakest among all the FOs while the three sub-system FOs are among the best. It was learned that these three Puranagama FOs were formed and functioned under the Agrarian Services Department until recently. The three sub-system FOs had been formed earlier than the others by one enthusiastic TA. The DC level FOs had been formed later under NIRP. This may be the reason for their low level involvement in O&M and other activities.

Communication (holding meetings) and financial management are relatively high in most FOs in Kaltota project. Further strengthening is necessary under structure, membership, leadership, funding and use of funds. Under structure it is necessary to select the FRs by base level groups and all of them should be included in respective FO committees. The DC level FOs should be structurally linked to the sub-system FOs. Under the membership, attention should be paid to get more farmer participation in FO activities. Next, there should be a clear criteria for the selection of leaders. The present way of selecting them at general meeting is better but it is more appropriate if the leaders are selected from the FRs. The FOs should be guided to look for other avenues for raising their funds other than depending on membership fee and agency allocations. The present rehabilitation program has already provided that opportunity to several FOs.

The same attention should be paid to the development of the DC level FOs as for the sub-system FOs. Particular attention should be paid for the strengthening of the Puranagama FOs.

The overall performance level in water management of the Kaltota FOs is weak. Performance itself is at a very weak level. Seven FOs take part in DC level water management by preparing the schedules together with the agency and operating by themselves. Because they prepare appropriate plans with the agency personnel it is possible to provide adequate and timely supply to FC gates. There is no involvement in DC level water distribution by the Puranagama FOs. Here, even the agency is not involved in scheduling as in other seven FOs because of the dilapidated condition of the system. The agency has no responsibility for providing water to Pahathbima and no involvement is expected.

FO Strength Level of Each FO

Farmer Organization	Conc. Bases		Performance		Outcome		Total	
	Score	%	Score	%	Score	%	Score	%
DC Farmer Organizations								
1. LB D1	9	69	5	63	10	67	24	67
2. LB D2	11	85	7	88	13	87	31	86
3. LB D3	9	69	5	63	10	67	24	67
4. RB D1	10	77	6	75	12	80	28	78
5. RB D2	10	77	6	75	7	47	23	64
6. RB D3	9	69	5	63	9	60	23	64
7. RB D4	9	69	5	63	9	60	23	64
8. Puranagama D1	9	69	4	50	6	40	19	53
9. Puranagama D2	6	46	4	50	4	27	14	39
10. Puranagama D3	6	46	3	38	3	20	12	33
11. Pahathbima FO	9	77	5	63	7	47	21	58
Sub-System Farmer Organizations								
1. LB FO	11	85	7	88	13	87	31	86
2. RB FO	11	85	7	88	10	67	28	78
3. Puranagama FO	11	85	7	88	10	67	28	78
Total	130	71	76	68	123	59	329	65

At field level, FO involvement in water management is at a very low level. The seven FOs who have some involvement in the DC level scheduling and operation discuss preparing plans for FC level water distribution at their meetings but they do not apply plans. The other three FOs do not take part either in scheduling or water sharing. Only the Pahathbima FO involves itself in scheduling and operations.

According to the field level officers, there is an adequate supply of water in the project. It was learned that farmers practice simultaneous irrigation and in some places field to field irrigation. Only in the Pahathbima FO area which has a limited supply of drainage water are farmers compelled to have some control in water distribution.

Better scheduling and operation at the DC level would not ensure a better water distribution at the field level unless there is a proper field level water management. The FOs should be assisted in this with proper training and guidance. The dilapidated canal system may not permit such FO involvement and control at the field level at present but with progress of rehabilitation the FOs should be made prepared to take that responsibility.

Only the recorded problems were taken for the evaluation of the performance of Problems Solving because of difficulties in getting the total number of the problems solved. The performance of the FOs is very low in the problem solving in regard to those recorded problems. Other problems may have been solved through less formally. However, no proper problem solving mechanism exists in the FO meetings.

The overall performance level in maintenance of the Kaltota FOs is weak. The main activity that is being implemented under the maintenance at the moment by the FOs is jungle clearing and desilting. Structure repairs are done only by seven FOs. However, only the temporary measures are taken. Proper structure repairs are not required till the rehabilitation over. Proper evaluation of the performance is

possible only after rehabilitation. However, the performance of jungle cleaning and desilting of both DCs and FCs in all FOs is at a satisfactory level according to both the FRs and Agency officials. Water is not provided till the canals are properly cleaned as decided by all the FOs.

Performance in non-irrigation management activities is at a very low level. The overall performance level of income generating activities is very weak while that of non-income generating activities is weak. Some FOs have collected large amounts of funds but it seems that they are not guided on utilizing them for other FO activities. If such guidance is given and when the farmers are gradually benefited by diversified FO activities it would be a motivation to participate more in FO activities.