Managing Irrigation ointly with Farmers
History resent tatus and uture
Review of Participatory Irrigation Management in Sri Lanka

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Abstract

Agriculture development has been the main strategy for the socioeconomic development in the country since time immemorial even though its contribution to GDP has been declining . Successive governments of Sri Lanka since independence have invested heavily irrigated agriculture sector to food security concerns of the country. The continuous investment in irrigation was required to address problems such as spatial and temporal variations in monsoonal rain fall in the country which has serious negative impact on food production and livelihoods of people. eed for pursuing irrigation development and management has become more important in the country in the face of rapid population growth and increasing food prices in the world market.

In this context, managing irrigation schemes for productivity increase is becoming important and different irrigation management models have also emerged through attempts made in this direction by countries including Sri Lanka where irrigation play a leading role in food production and nation development. Farmers' active involvement in irrigation management, especially peration and aintenance and decisionas well, has been identified as key requirement to attain productivity goals and sustainability of irrigation systems.

This paper aims at reviewing participatory irrigation management approaches adopted in medium and major irrigation systems in Sri Lanka with view identifying past and present trends and future directions. The review will contribute toimproved understanding by policymakers, managers of irrigation schemes and farmers of of participatory irrigation management, its past and present including institutional structures, responsibilities and performance and the directions it should take to meet challenges as a dynamic institutional mechanism. As all the medium and major irrigation schemes in the country are jointly managed by farmers and government agencies, the inferences drawn from the review would be important for the agencies and farmers alike to introduce necessary changes in their programs to address future needs and requirements.

Introduction
Objectives and rganization of the aper

The objective of this paper is to analyze the Participatory Irrigation Management approach in the country and suggest some strategic directions for this institutional mechanism for further improvement of its effectiveness to face the ongoing and future challenges in irrigation management.

In achieving the main objective of the paper three aspects of PIM will be addressed. As a first step of the analyses the evolution of PIM is briefly reviewed. The current progress of the PIM approaches in managing irrigation schemes is in . tep involves the analysis likelihood challenges for the PIM approach to be further progressed and sustained in the long run.

In this context the paper is organized into sections section 2 followed by this introductory section descrievolution of PIM in Sri Lanka. ection 3 provides key information on the progress/outcomes of PIM approach in managing irrigation schemes. The challenges being faced and also to be faced in future are discussed in section 4. The final section, section 5 suggests some strategic directions PIM and progressive.

The ethodology

Sample rrigationchemes and ample

The analysis of this paper is mainly based on information obtained from IWMI/HARTI conducted research. International Water Management Institute (IWMI) and Hector Kobbakaduwe grarian Research and raining Institute (HARTI) carried out a year and evaluation study during 1992 to 1994 covering significant number of irrigation schemes that are managed with PIM approaches. The irrigation schemes managed by (edium and large irrigation schemes) and the Mahaweli Authority managed schemes were selected for the study. The PIM approach in large irrigation schemes is known as INMAS and the schemes are managed by a program called MANIS. This study adopted several methods for data collection from schemes these programs, six irrigation schemes from programs were selected for documenting the process of irrigation management during the entire study period Process documentation in each scheme was carried out by full time stationed esearch ssistant in the specific irrigation scheme. Research officers of IWMI and HARTI carried out recurrent surveys in 18 schemes covering 30 FOs. Finally a largescale questionnaire survey was carried out in 49 irrigation schemes from programs covering 172 FOs.

Evaluation riteria sed for the nalysis

The key components of PIM were assessed based on certain criteria and indicators. These indicators were used to assess the progress outcomes and impacts of irrigation schemes that are managed through PIM. Since there are no common or universally accepted criteria and indicators to measure the performance of PIM these indicators would provide objectively verifiable values for the readers interested to know the progress of PIM approach used for managing irrigation schemes. Three different indicator values were developed to measure the conceptual base, performance and outcome of different components of PIM. Different aspects are used to develop conceptual base, performance and outcome indicators under different criteria summarized in able 1. The detail scoring system used for measuring the values of each indicator is shown in Annex 1.

Table 1. Criteria and different aspects used for developing indicators.

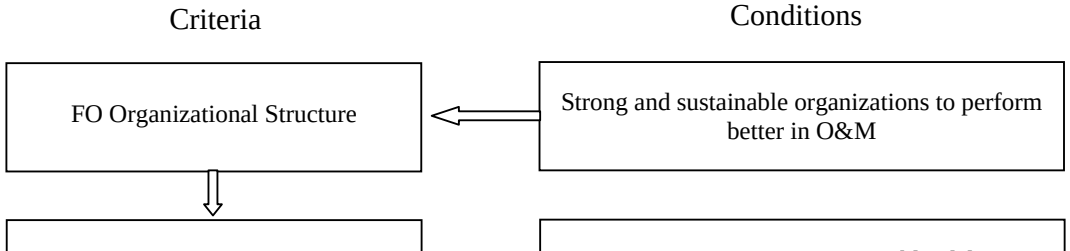
FO	FO water	FO	FO non-	Joint	Turnver

organizational strengths	distribution performance	maintenance performance	O&M activity performance	anagement performance	performance
Structure	Schedule preparation within and DCs	FC cleaning /desilting and structure repairs	Input coordination and supply	Seasonal planning	Turnover of operations (FCs, DCs, BCs and MCs)
Membership	Operations within FCs and DCs	DC cleaning /desilting and structure repairs	Crop storage and trading	Maintenance planning	Turnover of maintenance (FCs, DCs, BCs and MCs)
Leadership	Problem resolution	Preventive measures	Credit providing	Monitoring of system performance	-
Funding	-	-	Other income generation activities	Problem solving	-
Financial Management	-	-	Sponsoring community rituals and activities		-
Use of Funds	-	-	Provide community facilities		-
Internal ommunication	-	-	Sponsoring activities for special groups (women, youths etc)		-

Relevance of the riteria and ndicators eveloped for ssessing PIM

The main purpose of criteria and indicators developed was to apply them in assessing the degree of achievement in objectives of PIM. The government expectedtwo primary objectives from PIM policy when it was formally passed in 1988 in a cabinet paper. These primary objectives improv productivity of irrigation systems and redction of overnment cost routine O&M of irrigation system management. The government expected to achieve these two objectives by enhancing farmer involvement/contribution in irrigation system management and also implementing strategies for both farmers and irrigation managers to work together planning andimplementation of irrigation management functions in the systems.

The indicators under each criterion have logical sequence to measure the effectiveness of different components of PIM model in achieving enhanced performance of irrigation system management. The usefulness of criteria applied for the assessment is depicted in igure 1.



Historical evelopment articipatory rrigation anagement

Participatory irrigation management that was formally accepted as a policy in 1988 has a long history. The small irrigation systems (small tanks and anicut systems) originally constructed by communities reliable water for their agricultural land completely dependon rainfall. small irrigation systems can be regarded as farmer managed systems historically. Even the major irrigation systems constructed ancient kings had some farmer involved management systems. This is because water distribution in canals cannot be done without participation of farmers. The overnment of Sri Lanka after attempted to intervene in irrigated agriculture system to enhance its productivity. The series of government interventions later became participatory irrigation management policy accepted by the government by a cabinet paper in 1988. All the historical events had a basis fordue to political economical reasons. The major events changing irrigation management are summarized below:

The istorical vents from 1958 to

The Paddy Land Act No. 1 of 1958 established cultivation committees replacing the traditional Velvidane ystem. This committee consisted of elected farmer representative and was responsible for resolution of land disputes, coordination of rice cultivation activities and distribution of water. Irrigation committees were established in irrigation schemes. The Velvidane was elected in each village tank system by cultivators. The village headman arranged a meeting with cultivators to elect the Velvidane. He was mainly responsible for water distribution, maintenance and conflict resolution. The role of Velvidane existed from

ancient times and abolished in 1958. However, after 1958 up to recent times farmers unofficially accepted this position for water management in small irrigation systems.
The Agricultural Productivity Act of 1972 abolished cultivation committees and established agricultural productivity committees.
The Agrarian Services Act of 1979 established agrarian services committees with the Cultivation Officer to be responsible in cultivation matters at the village level. These committees comprised farmer representatives and government officials. Velvidanes at the local level assisted Cultivation Officers to perform water management tasks in small irrigation systems.
The Gal Oya Left ank Rehabilitation Project was implemented during 1979-1982 to rehabilitate the physical system but it recognized the need for farmer participation. The Cornell University and Agrarian Research and Training Institute developed a model federation of farmers' organizations at district hydrological areas. Institutional Organizers (IO) were employed to help farmers to form groups, organizations and project management committees.
Mr. N G R De Silva, the Deputy Director of Irrigation in charge of the region of Kandy rehabilitated the irrigation system and also set up water management committees to increase farmer participation in decisionmaking. Farmer representatives were selected for these committees. Also a nongovernmental organization, National Heritage Program (NHP) and influential persons were used to educate farmers about the importance of farmer participation.

A. M. S. S. Gunadasa, Technical Assistant of the Kimbulawana Oya cheme employed farmers to rehabilitation. prepared a rotation system to save water and implemented with farmer participation. A ater ssue oard was set up to prepare water allocation schedules and farmer representatives were active members in this committee.
During 1983 to 1986 several rehabilitation projects were implemented in the country farmer participation in rehabilitation work and then in post rehabilitation O&M work. Two significant rehabilitation projects included Major Irrigation Rehabilitation Project (1983) Irrigation ystem anagement roject (1986). MARD was also commenced in B of the Mahaweli Project and catalysts designated as Irrigation Community Organizers (ICOs) were employed to develop farmer organizations.
In April 1984 the Irrigation Management Division (IMD) was established for the implementation of the Integrated Management of ajor gricultural System (INMAS) in 25 major irrigation systems. A batch of Project Managers was trained and stationed in each system to form farmer organizations and project management committees. In 1987 Management of Irrigation System (MAINS) similar to in terms of objectives was implemented by to establish farmer organizations and project management committees in about 175 medium systems. Technical Assistants appointed as Project Managers.
The Government of Sri Lanka formally approved and accepted the policy for participatory irrigation management by a Cabinet Paper in 1988. The turnover of O&M responsibilities and transfer of ownership of irrigation canals and structures to farmer organization were accepted as major objectives.
In 1990 rrigation anagement Policy Support Activity (IMPSA) was initiated by the Ministry of Land and Land Development in association with the Ministry of Agriculture and International Irrigation Management Institute to prepare strategies and guidelines for implementation of the policy approved by the government.In 1991 he Agrarian Services Act was amended to grant legal recognition to farmer organizations. In 1992 under National Irrigation Rehabilitation Project management of irrigation systems to farmer organizations after physical rehabilitation. Farmers re also involved in planning and implementing O&M activities in addition to their labor contributions. The Irrigation Ordinance was amended in

1994 to grant more power and responsibilities to registered farmer organizations including the management of canal areas in major schemes and collection of O&M fees.

Performance of PIM in Sample rrigation chemes tudied

Pre and Post Irrigation Management nder articipatory pproach

has brought significant changes irrigation management and some changes institutionalized farmer participate irrigation management has become a must in irrigation management. Most of the irrigation management are managed differently in the participatory system. The changes occurred as a result of are in able 2.

Table 2. Comparison of re-articipatory anagement and articipatory anagement ystems

Management Function	Pre-articipatory 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. Head works, main canal, branch canal operation	Carried out by irrigation agencies	Carried out by irrigation agencies. Operation schedules are shared with ointmanagement ommittees
4. canal operation	Carried out by irrigation agencies	Carried out by FOs after turnover
5. Field canal operations	Carried out by irrigation agencies	Carried out by FOs
6. Head works, main canal, branch canal maintenance	Planned and carried out by irrigation agencies	Carried out by irrigation agencies in priority order determined by PMCs
7. canal maintenance	Planned and carried out by irrigation agencies	Planned and carried out by FOs after turnover
8. Field canal maintenance	Done by individual farmers under direction of the rrigation agencies	Done by FOs

Government nitiated rograms for chieving articipatory anagement

Three different management systems have been introduced to manage irrigation schemes under the participatory approach, these include

- The integrated management of major agricultural system (INMAS) introduc in 1984 to manage major irrigation systems (irrigation schemes that have command area greater than 400ha) under rrigation epartment. The rrigation anagement ivision created by the inistry of rrigation is responsible for INMAS system implementing about 35 irrigation schemes in the country.
- in 1986 by the rrigation epartment to manage medium (schemes that have less than 400ha of command) irrigation schemes of the country.
- The Mahaweli articipatory anagement rogram was established in different years in different schemes (for example, 1980 in system H, 1985 in Udawalawa, 1987 in

system B). There are large irrigation schemes under Mahaweli ystem (121000ha in total under systems).

The objectives of tested in all these systems are more or less similar. hort term and longterm objective of the PIM are summarized in able 3

Table 3. bjectives of articipatory rrigation anagement

Shortterm	Longterm
Increase agricultural production per unit of irrigation water	Integrated development of the farms to commercial holdings
Increase agricultural production per unit of land	Crop diversification and rotation
Distribute irrigation water to farmers adequately and equitably	Social and economic development of the faming community
Arrange for timely supply of agricultural inputs and sale of products	Improved marketing of agricultural produce and byproducts
Organize and develop farmer organizations to facilitate farmer participation in management	Local processing of agricultural produce to semi-finished or finished products
Recover O&M costs from farmers in major irrigation schemes	Handing over to farmer organizations some management and operational functions of the system
Maintain irrigation systems at optimum level of performance	
Identify major systems needing urgent rehabilitation	

Assessment of rrigation anagement under PIM

The performance of major components of PIM is used as basis for assessment. These components include farmer organizations, joint management committee systems and turnover of irrigation management to farmer organizations. It was assumed that grater performance of these components would need to contribute overall performance of irrigation schemes and achiev objective of the PIM system.

Performance of the armer rganizations

In almost all the sample irrigation schemes studied by IMI and ARTI it was found that the farmers have been mobilized into Farmer Organizations. The structure prescribed by PIM (FC groupsgroups, Systemlevel FOs) has not been followed in some of the MANIS. This mainly due to lack of inputs MANIS schemes to . The INMAS and Mahaweli irrigation schemes have separate organization units to deal with farmer rganization whereas MANIS schemes are managed by technical assistants of ID without other additional assistance. Even in Mahaweli systemlevel farmer organizations have not been established, system level needs of farmers are handled by the system level joint committees. This may be the reason INMAS irrigation schemes neglect organiz farmers into system level organizations (58% of schemes in INMAS and 20% of MANIS schemes).

Farmer Organization trength

FO as an organization established to support implementing irrigation management activitiesis assessed under farmer organization strength. Most of the FOs been established under constitutions provided by the irrigation management agencies. The strength of FOs is measured through

- Membership of farmers in FOs
- Leadership
- Income for FOs
- Financial management
- Internal communication

The participation of individual farmers as members and their active involvement of the farmer organization are essential factors for FOs to survive and function a effective organizations. able 4 the total number of farmers of the command area under each irrigation scheme of systems assessed in the study the percentage of members and active members in the organizations. These data show essential elements of these organizations as communitybased organizations.

Table 4. Overall membership percentages

Program	Farmers	embers	Percentage members	Active members	Active members as	
					% of farmers	% of members
INMAS	10483	7709	74%	4399	42%	57%
MANIS AB	3101	1648	53%	823	27%	50%
MANIS C	2784	1471	53%	764	27%	52%
Mahaweli	7230	5118	71%	3146	44%	61%
Overall	23598	15946	68%	9132	39%	57%

FO Leadership

Finding leaders committed and also acceptable to most of the farmer members is a difficult task according to the qualitative information collected in the study. Therefore, the farmer members tend to satisf with the available leaders who are prepared to work on voluntary basis. Although most of the farmers have certain personal opinions in the survey they have expressed that they are satisfied with the voluntary leaders of FOs. For example 82% farmers interviewed in INMAS schemes, 75% in MANIS, 80% in Mahaweli scheme stated that they are satisfied with their leaders.

FO inancial anagement

ost of the FOs except few organizations in Mahaweli ha small FO fund. considerable percentage of FOs no funds in their bank accounts. For example 80% FOs in INMAS, 90% in MANIS and 95% in Mahaweli re reported as organizations having some funds in their bank accounts. The average funds available in FOs of irrigation schemes in programs ranged from Rs 5000 to 40,000

Nearly 80% or more FOs collected membership fees. But only less than 50% of the FOs earn money from construction contracts undertaken. ajority of general farmers expressed in the survey that they are satisfied with the method applied for managing funds. This high-level of satisfaction is due two reasons the money each individual farmer contributes for FO fund is small, and. More than 80% of the individ

Internal ommunication

In INMAS and Mahaweli systems more than 75% farmer organizations hld monthly meetings with their committee members47% in MANIS system. Most of the farmer leaders reported that they have number of general farmer meetings. The general farmer meetings are held when there conflict between farmer. Only about 10% to 32% of farmer leaders mentioned that they hold general meetings. he MANIS system only about 15% or less hold their general meetings.

FO Performance in ater istribution

Farmer organizations play critical role in water distribution at level of all the irrigation schemes. The results of the study indicate that farmer involvement is much more relevant and essential in irrigation scheme where water is resource. The water distribution problems are due to different reasons according to the study. reasons and their magnitude in sample schemes studied are shown in able 5

Table 5. Major causes of water distribution problems

Program	Causes (See list below for Key)*					
	A	B	C	D	E	Other
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 sample schemes are: INMAS-12, MANIS AB-11, MANIS C-14, and 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

Farmer organizations as an institution established by irrigation managers with the willingness of the farmers have become essential element for water distribution. Nearly 74% of irrigation officers interviewed in sample irrigation schemes categorically mentioned that farmer organizations are essential to manage water in irrigation schemes. here are some problems with the water distribution performance of the farmer organizations. is due to level of performance of the FOs. The level of satisfaction of individual farmers the performance of FOs in water distribution was measured asking whether farmers are satisfied on the FO performance, able 6 includes the percentage of farmers replied es to several indicators of water delivery.

Table 6. Farmer rganization ater istribution erformance percentage of farmers es

Location within FO Area	Stage of Season	Indicator	INMAS	Mahaweli	MANIS AB	MANIS C
Head	Crop Growth	Adequacy	85	92	78	36
		Timeliness	84	92	78	36
		Reliability	84	90	78	36
	Land Preparation	Adequacy	77	89	74	36
		Timeliness	74	89	74	36
		Reliability	75	92	74	36
Tail	Crop Growth	Adequacy	70	54	65	24
		Timeliness	61	65	65	24
		Reliability	62	70	65	24
	Land Preparation	Adequacy	64	51	57	28
		Timeliness	56	60	57	28
		Reliability	56	68	57	28

FO aintenance erformance

The FO performance of maintenance in general is poor according to the information generated by the study. Maintenance is difficult to organize with the voluntary participation of the farmers. If the canal becomes really constrained to take water to the agriculture fields farmers tempt to attend to the maintenance, it needs repeated attempts to mobilize farmers at least to clean s. In INMAS schemes only 33% of the irrigation officials and in MANIS 20% of officials were satisfied with the FO performance in maintenance of the canals FOs re suppose to . Mahaweli officers indicate that they satisfied with farmer participation in DC maintenance may have been mainly due to Mahaweli involvement in maintenance. The officers' views on impact of participatory management on tertiary canal maintenance are in able 7

Table 7. Impact of participatory management on system maintenance (fficers' 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%

***Note*:** Irrigation department officers are of the opinion that 54 – 60% of INMAS and MANIS irrigation schemes need additional funds maintenance. other schemes 40 – 46% rehabilitation to improve the physical performance.

Lack of farmer participation is common phenomenon observed in maintenance. n any event organized by the farmer DC maintenance activities This is evident in the data collected from farmer leaders on the involvement of farmers in DC maintenance in able 8

Table 8. Percentage ctive articipation of armers in DC aintenance

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%

It was observed that jungle cleaning and desilting of canals are performed by FOs with the participation of the individual farmers, but minor repairs of the DCs are done by the FOs with the annual operation and maintenance funds provided by the government to each FO. There are some performance differences in desilting and jungle cleaning, but it is at satisfactory level according to the survey.

FO erformance in on-O&M Activities

It observed that FO performance in business activities to earn funds for FOs is at poor level. Most of the FOs are involved in agriculture input sales to their members and also undertak operation and maintenance contracts from the government. Table 9 includes the results of the survey on the performance of FOs in undertaking non-O&M fund earning activities. Table 10 includes the information on percentages of FOs undertaking different contracts from the irrigation management agencies on DC maintenance and rehabilitation.

Table 9. Farmer rganizations involvement in business activities

Program	Total FOs responded	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

Table 10. Farmer rganizations taking ontracts from rrigation gencies

Program	# of Sample FOs	FOs taking maintenance contracts (%)	FO 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%

Providing credit to farmers has been observed as insignificant assistance provided by the FOs to the individual farmer members. Some FOs provide direct credit to their members and others act as guarantors for the farmers to obtain credit from banks and other organizations. The data in able 11 indicate its insignificant nature the sample farmer organizations.

Table 11. Farmer rganizations providing credit assistance to farmers

Arrangement	INMAS (N=61)	Mahaweli (N=63)	MANIS AB (N=24)	MANIS C (N=24)
Through FO	7(11%)	7 (11%)	1(4%)	2(8%)
Guarantor of Bank loan	3(5%)	8(12%)	5(20%)	0
Guarantor of other	4(7%)	1(1%)	1(4%)	1(4%)

loan				

Performance of oint anagement ommittees

In all the irrigation schemes under programs, joint management committees or at least some arrangements for joint meetings have been established to provide forum for different stakeholders and also to farmer leaders to meet together to discuss significant activities of cultivation programs in the particular irrigation scheme. These committees especially project management committees play critically important role in planning of cultivation seasons (seasonal planning) and also monitoring and evaluation of the cultivation program and also some other functions of irrigation management. ach irrigation scheme has Project anagement ommittee compris key stakeholder agencies and representatives of farmer organizations. This committee is organized by the project manager in IMD he same structure can be observed in MANIS schemes IMD is not involved in management functions of MANIS system assistants of rrigation epartment act as the project managers system. Mahaweli has threetier oint anagement ommittee (JMC) system. The JMCs have been established based on the Mahaweli management structure. The lowest level of Mahaweli management structure is unit and therefore unit management committees have been organized at unit level. econd tier is block management committees established at administrative block of the Mahaweli management structure. A project management committee is the highest JMC that is based Resident Project Manger evel (Scheme Level).

The consultative seasonal planning procedure established by the joint management committees has led to benefits to the farmers and also agency officers. The farmers benefited by voicing their concerns about the seasonal plans. The agencies benefited by learning from farmer experience for improved seasonal planning. The monthly meetings of JMCs have helped to give effect to the basic principals of participatory management such as frequent dialogue between stakeholders, learning from each other and seeking solutions jointly and effectively.

The JMC is not a management unit responsible for the performance of the system. JMCs can design plans and discuss various problems existing in irrigation systems but the success in implementing these plans is heavily dependent on the performance of functional agencies and their officials. For example the PMCs in INMAS can design various plans but unless the epartment of Agriculture, the Irrigation epartment, the Land Commissioners Department and the Irrigation Management Division play their relevant roles, these plans cannot be . On the other hand, farmer organizations also play a key role in implementing the decisions of JMCs. Some FOs become ineffective due to the inability to implement decisions in the field through the farmers. It can therefore the success of the JMCs in implementing plans heavily dependent also on the strength of the FOs.

Turnover

Under the participatory management policy of the government, it is intended to turnover some of the system management responsibilities at and below the level to farmers. Before this became government policy some attempts had been made to implement this policy informally in certain schemes such as Kimbulwanaoya and Minipe through the efforts of few enthusiastic irrigation officials. Turnover was later initiated in other schemes under programs we studied, INMAS, MANIS and Mahaweli. The cabinet paper specially stated that those farmers who accept turnover O&M for will be exempted of irrigation fees. The amended

rrigation rdinance authorizes FOs to takeover O&M of their areasn return they are exempted paying irrigation fees.

Turnover has occurred in programs at various levels and in different forms. In the sample irrigation schemes studied several categories of turnover ha taken place under operation and maintenance. Operation of FC and DC gates and above have taken place under operations and DC jungle clearing, desilting , minor repairs, greasing and painting of structures and main canal level cleaning and desilting have taken place under maintenance category.

Slow progress reported on turnover in programs we studied. Table 12 includes the information on sample FOs reported as turnedover and responsibilities turned over in the FOs.

Table 12. Responsibilities turnedin LSS ample armer rganizations

Program	Sample FOs	Turnover Cases	Responsibilities Turnedver (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	20	4	-

Key A- Distributing water within the DC (FC gate operation)
B- Operating DC gates
C- DC jungle clearing and desilting

At present the operation of FC gated and jungle clearing and the desilting of DCs are the major activities taken over by FOs. Whether paid or not, farmers now clearly know that certain operating and maintenance responsibilities will be handed over to them hat is now necessary to decide how turnover can be continued so agencies and farmers will know what the goal of program is.

The study found that water distribution has improved due to turnoverDC and FC maintenance has not suffered from turnover. The study also found that farmers can turnover as long as the profitability of irrigated agriculture dose not fall. Full turnover would mean that FOs are given the full responsibility for O&M below the DC head or an equivalent point systems without DCs. Full responsibility would include paying all of the cost there would be no subsidies beyond provided in the O&M of the main system. The arguments in favor of full turnover include

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

The current situation is unsatisfactory because some farmers continue to expect government assistance that is only partially provided. It has been found that full turnover in operation responsibilities for DCs and below to FOs would be possible and even now it is taking place successfully in many irrigation schemes. The problem is maintenance. This alternatives mentioned below to full turnover of responsibilities to FOs.

- Alternative 1(Low technical financial burden on farmers)
    - FOs would take complete responsibil for jungle cleaning and desilting (except when the silt is exceptionally heavy) for both FC and DC. As pointed out, FOs already doing this and farmers have come to accept it.
- Alternative 2 (low technical moderate financial burden on farmers)
    - FOs would take complete responsibility for jungle clearing and desilting (except when the silt is exceptionally heavy) for both FOs and DCs
    - FOs would take responsibility for painting, greasing etc
    - FOs would take responsibility for small earth work repairs.

    - All other work, including heavy desilting and major earth work would be the responsibility of the .
- Alternative 3 (moderate technical 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 earth repairs
    - FOs would take responsibility for simple structur repairs
    - All other work, including heavy desilting, major earth work, and large or complicated structure repairs, would be the responsibility of the irrigation agency.

Participatory management policy clearly succeeded in getting farmers much more involved in system management than they were in the some MANIS systems studied that had been neglected by the irrigation agencies. However, turnover has not progressed as expected in 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 mandated turnover in its post rehabilitation phase. .

On the other hand, full turnover has not occurred in any of the three systems and progress has stopped at a joint management stage. In particular, there is reluctance o 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 ha taken over responsibilities, either informally or formally.

Evaluation of ey ndicators used for easuring PIM erformance

As explained in the methodology performance of aspects of PIM was measured using scoring system developed. The details of scoring system used for the assessment are shown in Annex 1. The intensive data collect using recurrent surveys and process documentation methods used to calculate the scores obtained by sample FOs in different irrigation schemes under programs. The potential scores for each indicator area and the average scores and also the range actually obtained by different programs studied are summarized in able 13. The scores obtained by each sample FO studied using recurrent survey and process documentations in programs are shown in Annex 2.

Table 13. Average ndicator cores by rogram for RS/PD ites

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	1-17	18.5	15-21

Conclusions and Recommendations

The major conclusion is that, despite its partial failure to achieve some of the main goals participatory management has clear benefits and should be continued and supported. Also, basic participatory management of formal multifunctional farmer organizations and joint management committees should be continued. At the end of the IMII/HARTI study a national workshop was held to discuss the study results and recommendations for strengthening PIM policy. It is found that most of these main recommendations are still realistically valid to improve the PIM in the present context.

Recommendation No.1The IMII/HARTI team recommended that steps be taken to make government agencies dealing with agriculture more responsive and more supportive of farmer organizations and joint management committees. These steps include:

- 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. 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. (orkshop) n Inter-agency committee may be set up redefine job descriptions.
- Intensive training 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 may be made an explicit part of their performance evaluations.
- The government may 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 rrigation and Agriculture may issue a joint declaration of the participatory management policy. The policy should be widely publicized through various media.

- A major effort may 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. An annual workshop may be held as a routine task to review the performance of the irrigation management policy activities.

Recommendation No. 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 (relevant to MANIS schemes).
- 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 solution 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; catalyst 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 Niladharies* and religious leaders in support of participatory management.

Recommendation NoWe recommended 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 (ostly relevant to MANIS schemes).

Recommendation No.4We recommend that the government clarif 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) o ensure an effective and united policy, both agriculture and irrigation should be place 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) unding forfarmer 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) or 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 turnedover scheme will be answerable to the Project Management Committee for that scheme.
- Operations of canals and below, or equivalent portions of systems without canals, should be turned over to farmer organizations as soon as the canals are repaired to make them operable.
- Operations of canal head gates, branch canals, main canals 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 canal head gates, it is suggested that they be jointly operated for a period of less than 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 and 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 aspect of canal and 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) nce 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 years following completion of needed repairs 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 responsibilities.

Suggestions for Monitoring the Policy in the Future

As part of the study, the IMI/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 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 INMAS schemes. In the managed MANIS schemes various formal and informal initiatives are underway, 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. MEAs Institutional Development Unit (IDU) collects data and report on various aspects of participatory management.
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 Nonrrigation Management Activities
- Jointanagement Committee Performance

These are given in Annex 1. roperly used the indicators provide a reasonabl 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 study 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.
The study team believed 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, they recommended:

1. The IMD could consider the idea that FOs will be interested in collecting data for themselves and for the IMD.

2. That the considers developing a recurrent survey-type monitoring program for MANIS schemes based in the IMACs.

A 1 - Detailed riteria and ndicators for easuring PIM

Table 1 Farmer rganization strength ndicator

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 approvalfor 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 leader 1=here is a procedure but no criteria 2=There are both procedures and criteria	0=Neither procedure nor criteria followed1=Only procedure is followed 2=Both procedure and criteria are followed	0=Leader 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=unds 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 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 anagement	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 rorted to membership 1=Funds management acceptable to some farmers 2=Funds management and disbursements acceptable to most farmers

Use of unds	0=No plans prepared to use funds 1=Plans are prepared to use funds	0=Funds are not used 1=Funds 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 ommunication	0=No defined canal of communication 1=Information passed through informal canals 2=Regular canal is established through meetings	0=No FO meetings held 1=Meetings held irregularly 2=egular meetings are held	0=No systematic information flow between farmers and FRs 1=Information is passed mainly between FRs and DCO officers 2=ystematic information flow between farmers and FRs

***Note*:** or purposes of judging membership, potential members is defined as all farmers (ncluding renters) served by the canal. The number of active members is defined by asking the DCO officers to identity the member of active members their organizations

Table 2 Farmer rganization ater istribution erformance ndicator

Activity	Responsibility	Performance
Preparation of chedules ithin 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 s appropriate 2=Scheduling done in time and s 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 \ s appropriate 2=Scheduling done in time and s appropriate
Operations ithin 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 implemented by agency of 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
Problem esolution	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

Table 3 Farmer rganization aintenance erformance ndicator

Activity	Responsibility	Adequacy
FC aintenance *leaning / esilting *Structure epairs / Preventive aintenance	0=Done by agency 1=Done jointly 2=Done by FO 0=one by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately on time 0=Done poorly 1=Done adequately 2=Done adequately on time
DC aintenance *leaning/esilting *Structure epairs/ Preventive aintenance	0=Done by agency 1=Done jointly 2=Done by FO 0=one by agency 1=Done jointly 2=Done by FO	0=Done poorly 1=Done adequately 2=Done adequately on time 0=Done poorly 1=Done adequately 2=Done adequately on time
Preventive easures	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

Table 4 Farmer rganization onO&M ctivities ndicator

Income Generating and Financial Activities		
Activity	Level of Activity	Benefit
Input oordination and upply	0=Not undertaken 1=oordination 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 torage and rading	0=No activity 1=Provide common storage facility 2=rade 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=acilitate 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-ncome Generating Activities		
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 5 Joint anagement ommittee erformance ndicator

Activity	Performance	Decisionmaking	Outcome
Seasonal lanning	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 lanning	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 ystem erformance	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 discussion 1=ctions taken in response to discussions
Problem olving	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 meeting 1=Both parties jointly attempt to solve problems	0=No actions are taken in response to discussion 1=ctions taken in response to discussions

Table 6 Degree of urnover ndicator

Activity	Planning (decision making)	Implementation
<u>Operations</u>		
*n FC	0=Operation decisions taken by agency 1=Operation decisions taken jointly 2=Operation decisions taken by FCGs (FO) Same scoring as above	0=Implemented by agency 1=Implemented jointly 2=Implemented by FO
*Among FCs	Same scoring as above	Same scoring as above
*On BC (DC gates)	Same scoring as above	Same scoring as above
*On MC/headwork		Same scoring as above
<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	Same scoring as above	Same scoring as above
▪ FC structure repairs	Same scoring as above	Same scoring as above
▪ FC earthwork	Same scoring as above	Same scoring as above
<u>DC aintenance</u> ▪ DC cleaning ▪ DC desilting ▪ DC structure repairs ▪ DC earthwork	Scoring ame as for FC maintenance	Scoring ame as for FC maintenance
<u>BC aintenance</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	Same scoring as above	Same scoring as above
▪ BC structure repairs	Same scoring as above	Same scoring as above
▪ BC earthwork	Same scoring as above	Same scoring as above
<u>MC aintenance</u> ▪ MC cleaning ▪ MC desilting ▪ MC structure repairs ▪ MC earthwork	Scoring ame as for BC maintenance	Scoring ame as for BC maintenance

Annex 2

Table 1 Indicator values of evaluated FOs

Programme	Scheme	FO	A	B	C	D	E	F
Maximum possible scores			36	20	19	28	15	48
INMAS	Devahuwe	Peramuna	32	16	12	11	11	15.5
	Devahuwe	Ekamuthu	32	16	12	11	0	15.5
	Kaudulla	CP Pura Perakum	33	18	12	11	11	17.0
	Kaudulla	Eksath	33	18	12	11	0	16.8
	Meeoya	Perakum	24	17	11	6	12	17.0
	Muthukandiya	Village 3	27	10	8	8	9	12.8
	Muthukandiya	Village 6	25	10	8	8	0	12.8
	Muruthawela	Pahala Perakum	23	9	7	6	8	13.2
	Muruthawela	Thisara	23	9	7	6	0	13.2
	Rajangana	Ranketha	35	18	13	11	12	17.2
	Rajangana	Navajeewana	35	18	13	11	0	17.2
	Thabbowa	Perakum	31	15	9	5	10	11.8
	Thabbowa	Thenuwara	31	15	9	5	0	11.8
MANIS	Ambewela	Thennakoonwela	22	10	11	2	6	13.2
	Buththala	Medagamaela	24	9	11	3	6	13.2
	Gampola Rajaela	Kurukude Ekamuthu	8	7	8	0	4	12.8
	Komarikaela	Kanugolla	35	13	14	11	3	17.2
	Maela	Ekamuthu	20	4	7	2	6	13.5
	Mahanneriya	Mahananneriya	16	8	9	0	3	12.5
	Mannankattiya	Siri Parakum	7	6	5	4	6	16.5
	Mediyawa	Mahasen	18	7	8	2	3	11.0
	Murapola	Girambe Kolabissa	19	8	8	2	6	13.8
	Radagalpotha	Radagalpotha	21	8	8	2	0	12.5
	Wennoruwa	Wilgoda	31	11	13	7	9	13.2
Mahaweli	System C	Hungamalagama	24	15	9	13	13	19.0
	System C	Diyaviddagama	21	15	9	13	0	19.0
	System C	Serupitiya	8	13	10	2	0	17.5
	System C	Pahalarathkinda	17	15	10	10	0	18.5
	System H	D3/D4/421	24	13	10	10	12	21.0
	System H	D4/ 204	5	5	5	0	0	15.0
	System H	D1/313	13	13	10	5	0	20.0
	System H	D2/101	15	12	10	1	0	19.0
	System H	D3/305	16	14	8	7	0	17.5

Key – A=FO trength, B=FO water distribution, C= FO maintenance, D=FO non-O&M activities, E= Joint management committee performance, F=Degree of turnover