

**FROM PARTICIPATORY IRRIGATION MANAGEMENT TO IRRIGATION  
MANAGEMENT TRANSFER: THE PROCESS AND PROGRESS IN SRI LANKA**

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## INTRODUCTION

Sri Lanka has experimented with variations of the Asian model of participatory irrigation management (PIM) since 1977.<sup>1</sup> The current program focussing on farmer companies is a shift in the direction of irrigation management turnover (IMT). The experience of Sri Lanka and lessons learned are relevant to similar programs in tropical Asia.

## MINOR IRRIGATION SYSTEMS

Historically, farmer managed irrigation systems in Sri Lanka were epitomized in the "tank village" (Yalman 1967), where economical use of land and water was defined according to ethical values of the traditional Sinhalese community. All irrigation activities, including the sharing of water, resolution of conflicts, managing under drought conditions, and system maintenance and repair, came under a council established for this purpose.<sup>2</sup>

Today, the legacy of this arrangement is transformed into the **minor irrigation systems**. The government is responsible for rehabilitation of these systems, and this is done through the Irrigation Department. The operation and management of the system is by farmers through an Agrarian Services Committee of fifteen farmer representatives and five public officers, with oversight by the Department of Agrarian Services.

Farmer organizations to undertake such activities were formed under the provisions of the Agrarian Services Act 1979 and were simply a vehicle for passing on information from the Department of Agrarian Services through its local representative, the Cultivation Officer.

With the amendment to the Agrarian Service Act in 1991 (GOSL 1991), farmer organizations were re-constituted to comprise at least 25 members or one-fourth of the cultivators within a command area and are "body corporate with perpetual succession and a common seal and may sue and be sued by the name which it is registered" (section 56:1991). Farmer organizations are authorized to undertake the formulation and implementation of the agricultural programs within their command. This includes the repair and maintenance of structures, marketing of produce and distribution of inputs, promotion of co-operation and co-ordination between the government agencies and farmers, and maintaining a financially viable organization. System rehabilitation is undertaken with a farmer contribution of 10% of costs given in cash or kind, as agreed under foreign funding requirements.<sup>3</sup>

It is estimated that there are 8000 working tanks, each covering an average of 80 ha. A total area of 200,000 ha are under minor irrigation. The characteristics of this type of system are: private land holdings (inherited traditionally); irrigation by a single canal from plot to plot; and design mainly for one season of rice cultivation, for subsistence.

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<sup>1</sup> Meinzen-Dick, et al. (1994) characterize this model with small landholdings, socially cohesive (semi-formal), multi-purpose organizations.

<sup>2</sup> In these systems land is associated with water in a *bethma* arrangement, when not all land can be cultivated during a drought, land owners will share the land in the water available areas and cultivate a lesser area of the command divided proportionate to the original amounts of land owned by each person.

<sup>3</sup> This organizing arrangement is today implemented in all irrigation systems.

## PIM IN OTHER IRRIGATION SYSTEMS

In the remaining irrigation systems, known variously as **medium, major, and river basin systems**<sup>4</sup>, PIM was introduced in 1979, on a pilot basis, under the Agrarian Research and Training Institute-Cornell study at Gal Oya Left Bank in 1979. Funded jointly by the Government of Sri Lanka (GOSL) and USAID, farmer organizations were formed, using the Institutional Officer (IO) as catalyst. A three-tiered farmer organization at the field channel, and distributary and branch canals, with management through the project committee comprising farmer representatives and district officials, was the organization design. Water management, operation and maintenance of system, and conflict resolution were intended functions of the farmer organization.

Nationally a policy of PIM emerged in 1981-82 with the implementation of the Water Management Program in 27 major irrigation systems, and in particular in 1984 with the introduction of a policy of cost recovery and a systematic attempt to collect Operation & Maintenance (O&M) fees. The Integrated Management of Major Irrigation Schemes (INMAS) program under the Irrigation Management Division (IMD) of the Ministry of Irrigation implemented a program based on the Gal Oya model<sup>5</sup> to organize farmers with cost recovery as the central goal in its irrigation systems. System rehabilitation as well as the formation and training of water user association/farmer organizations was undertaken through funding from the Government of Sri Lanka and foreign projects.

During this period, turnout farmer groups were formed by the Mahaweli Authority of Sri Lanka (MASL) in the river basin systems, while the Irrigation Department began forming farmer organizations in some major and medium irrigation systems. Water management and system operation and maintenance by farmers, in addition to cost recovery, had become mainstream policy in Sri Lanka.

The model of PIM from the perspective of organizing farmers was similar to such organizations formed by the National Irrigation Administration (NIA) in the Philippines. It was referred to in Sri Lanka also as "the learning process approach" and was implemented in various stages of completion, with the INMAS systems more complete than others.<sup>6</sup>

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<sup>4</sup> Two hundred and eighty-two medium irrigation systems (80-400 ha) cover 61,000 ha. Typically, these are distribution systems with field channels. Landholdings are a mix of private ownership with state issued permit holding. The system is designed for wet season cultivation and part of the dry season. There are 106 major irrigation systems (>400 ha) covering 208,000 ha. This type of system is complete with branch, distributary, and field channels. Landholding is predominantly through state permits. The system is designed for two complete cultivation seasons.

<sup>5</sup> The departure from this model and also from that of the Philippines is the fact that the project managers were the catalysts (some were former IOs).

<sup>6</sup> Thus, in the systems under the Irrigation Department, the Technical Assistant in charge of the project took over farmer organizing activities, while the Unit Manger in the Mahaweli systems undertook similar activities. These in contrast to the use of the IO, first in Gal Oya and then by the IMD, were considered too "top-down." Moreover, in the Mahaweli, given its mixed population of new settlers and old residents, it was felt that farmer organizations should gradually emerge from newly forged social groups.

As a joint management strategy, however, this exercise was unlike that of NIA. Implemented by three agencies, each with its unique organizational structure, the results and emphases of different aspects of PIM varied accordingly.

## **INMAS**

Funded under the World Bank Major Irrigation Rehabilitation Project and USAID Institutional Strengthening Project, PIM through formally organized Farmer Organizations<sup>7</sup> covers 37 major irrigation systems under the Ministry of Irrigation. An interdisciplinary team was created at the headquarters in Colombo as the IMD. A Project Manager was put in charge of the project.

The INMAS model also set in motion a mechanism for irrigation management turnover (IMT) in the Project Management Committee. This was essentially a three-tiered arrangement, farmers were organized into field channel groups, with a leader in each case selected by consensus and on rare occasions by election. The field channels were federated into Distributory Canal Committees comprising the field channel leaders, the Project Manager, and representatives from other relevant agencies. The weekly meetings of these committees became de facto meetings of the Project sub-committee. The leaders of the sub-committees representing the farmer organization in the meetings of the Project Committee were responsible for implementing the cultivation plan. The goal of this program was to form, train, and strengthen Farmer Organizations to eventually take over O&M functions of the system. Initially, this program functioned without independent legal fiat under the authority of the District Secretary, and its success depended on the initiative of the Project Manager and the Farmer Organization.

## **MANIS**

The Irrigation Department model known as MANIS (Management of Irrigation Schemes) is perhaps the closest to the Philippine NIA model of a single-line agency liaising with other agencies to coordinate services required by the farming community. Schemes under this model are a mix of medium and major schemes. A total of 120 systems covering 60,000 ha are under this arrangement. Under the leadership of the TA, in some cases farmer organizations have been formed. The success of coordinating the services and inputs required for the cultivation season from other Departments has varied depending on the initiative and capacity of the TA.

## **MAJOR RIVER BASIN SYSTEMS**

A total of nine multi-purpose systems covering 101,000 ha is under the MASL, which has an in-house integrated management system, at the unit, block, and project levels, to implement PIM.

This program originated with the gradual introduction of turnout farmer organizations (System H) and expanded to marketing associations under an enterprise development program (System B and Uda Walawe, for example). Since the 1990s, momentum was gained in establishing Distributory Canal organizations for water management and system O&M.

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<sup>7</sup> While the concept of Water User Association has been used in the literature, in practice, PIM in Sri Lanka has always been referred to in the vernacular as "farmer organizations," with a vision of undertaking multiple activities besides irrigation that would contribute to the well-being of the farming community. Such activities may include input supply, product marketing, and liaising with rural credit agencies.

With its in-house capacity for supplying technical services, such as agriculture extension and marketing, the MASL, it is believed, has a better record of this joint management, even at the risk of being overly centralized.

### **PIM IN THE 1990s: FARMER ENTERPRISE DEVELOPMENT**

The escalating costs of O&M and the lack of success in cost recovery pushed the GOSL into synergistic alliance with a donor agency, the USAID, to think of new and innovative ways to make the irrigation sector more profitable. This effort was based on the assumption that farmers with higher incomes were more likely to pay their O&M fees. This led to the emphasis on enterprise development and crop diversification to produce crops generating cash incomes (e.g., chilies and onions in the Mahaweli H). In the Mahaweli systems, farmer-private sector alliances had been forged earlier and gained momentum under the Mahaweli Agricultural Rural Development (MARD) project. By 1990, farmer organizations as production and marketing societies had emerged, particularly in Mahaweli System B and Uda Walawe, with contracts to provide non-traditional products like silk, bananas, gherkins, and jojoba (GOSL 1995).

Other farmer organizations, for example, under INMAS, have branched into input servicing, marketing of paddy, and even semi-processing. Based on figures available for INMAS systems, all registered farmer organizations have bank accounts and currently have a total cash reserve of Rs. 30.0 M.

The most recent effort in the direction of enterprise development is the USAID-GOSL funded Shared Control of Natural Resources (SCOR). Fundamentally a participatory watershed management project integrating conservation and production goals in two watersheds (IIMI 1997), it has resulted in the formation of farmer companies (production and marketing societies similar to those discussed above, formed under the activities of farmer associations, in accordance with the Agrarian Services Act) to produce and sell their products at accessible sales centers, as well as process local products such as sesame and tamarind.

### **O&M COSTS AND COST RECOVERY**

Commercial activity did not lead to increased cost recovery. Based on a Cabinet Memo of 1983, cost recovery through the O&M fee was begun nationally in 1984. Agreements with lending agencies obligated the government to recover at least 50% of the cost of O&M from the beneficiaries and to progressively increase the rate to cover full annual costs in five years. The amount was computed at Rs 200.00 per ha at 1982 costs. The following table is a sample of collection rates from the INMAS systems, which implemented this policy more vigorously than others.

**Table 1**  
**Trends in O&M Fee Collection**

Year	Percent Collected
1984	49.24
1985	17.54
1986	11.54
1987	4.98

Source: Raby (n.d.)

The reasons for this low level of collection are similar to those given elsewhere, e.g., the Philippines. First, political lobbies discouraged farmers from paying. Second, upon some farmers not paying, others followed suit because of the inability of the farmer organization or the state to impose corrective sanctions.<sup>8</sup>

O&M Cost per ha is predicted to be Rs 830.00 in 1998. It is assumed that of this amount 40% (including temporary staff salaries) is set apart for overheads, with the remaining 60% available for O&M.

**Table 2**  
**O&M Allocation**  
**(Gravity Systems: Rs. M)**

	Year				
	1994	1995	1996	1997	1998
O&M	59.5	71.5	88.0	95.0	100.0
Salaries	46.0	50.0	63.0	65.0	79.0

Source: Ratnayake (Photocopy)

This 60% is further divided as follows:

**Table 3**

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<sup>8</sup> Prior to the amendment of the Agrarian Services Act and the Irrigation Ordinance, the farmers themselves had no legal recourse to prevent the unauthorized use of water by those who would not pay the fees. Also, court proceedings were extremely cumbersome, drawing on many government services such as the Government Agent and the Land Commissioner's Office (the fee being attached to the land). When a case was brought to the legal system, it came under the Magistrate's Court. It was then found that the magistrate could not collect delinquent fees but could only impose a fine on the recalcitrant farmer. As of January 1988, it was decided that no fresh case would be brought before the judiciary until the amendments were made to the above mentioned Act and Ordinance.

### Allocations for O&M Works

Percentage	O&M Areas
20%	Headworks
40%	Main/Branch Canals
30%	Distributary and Field Canals
10%	Internal Roads

Source: Ratnayake (Photocopy)

### PIM TO IMT

The Cabinet White Paper, 1988 accepted the policy of participatory management involving beneficiaries **in all stages of management of irrigation systems**. Next, a series of policy papers under the Irrigation Management Policy Support Activity (IMPSA) funded by USAID and done in collaboration by the GOSL and IIMI, 1989/90 were all geared towards extending and strengthening farmer organizations in different spheres.

In terms of national policy two critical changes in this direction were the Amendment to the Agrarian Services Act in 1991 and the Amendment to the Irrigation Ordinance, 1994. While the Agrarian Services Act Amendment strengthened the corporate capacity of farmer organizations, the Irrigation Ordinance as amended in 1994 (GOSL 1994) made two significant changes:

(1) In inter-provincial systems,<sup>9</sup> when a farmer organization has taken over in whole or part of a distributary canal, it was exempt from paying the irrigation rate to the government Revenue Department. Instead, the organization could impose and recover a levy from the lands in its area to cover the operation and maintenance of the distributary canal and any other work. The levy could be collected from the users of the land, both tenant-cultivators and owner-cultivators, i.e., unlike previously when it was attached solely to ownership of the land.<sup>10</sup>

(2) The Project Management Committee and sub-committees, comprising officials and farmer representatives in inter-provincial irrigation systems, were authorized to hold pre-cultivation meetings to plan the cropping pattern, and undertake system maintenance programs that would then become officially accepted collectively as the cultivation program for the project in the regional cultivation committee meetings.

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<sup>9</sup> Consequent to the devolution of powers to the Provincial Councils, the minor systems fell under the jurisdiction of the provinces, while the river basin systems remained under the central government. This left the remaining medium and large irrigation systems, particularly those that were inter-provincial in a quandary with respect to collecting and sharing revenue. Handing collection to farmer organizations became the solution and was then implemented in all major and river basin systems.

<sup>10</sup> Collection of O&M fees was stopped in all irrigation systems because it was perceived as unfair to those farmers who were not yet organized while the process was not yet complete. This stepped up the process of organizing D Channel organizations in the Mahaweli and the MANIS systems.

The above changes gave momentum to the program for farmer organizations at the distributary canal under all three programs. The government's O&M budget allocated for the Distributary was released to the Distributary Canal Organization, and it is authorized to collect dues/fees from its member as it sees fit. The current status of Distributary Canal organization is given below in Table 4.

**Table 4**

**Formation of Distributary Canal Associations and Handover of Responsibilities**

Program	No. of Schemes	Extent (Ha.)	No. of "D" Canal Organizations Rgtd. Under Agr. Serv. Act.	No. of System Level Organizations/ Project Mgt. Committees	No. of "D" Canals Turned Over (1995)
INMAS (Integ. Mgt. of Major Irrig. Schemes)	37	155,000	625	28/36	491
MANIS (Mgt. of Irrig. Systems)	120	60,000	177	--	Assist in Operations Only
MAHAWELI (Part. Mgt. Prog.)	9	86,000	757	4/4	287

Source: Ratnayake (1995)

Some problems encountered by the Distributary Canal Organizations that have taken over the system are: (1) the inability of the agency to hand over the share of the government O&M budget that should go to them (estimated at 18%); (2) delayed payments, in some cases carried over to the following year; and (3) the continuation of the Irrigation Department to maintain staff and to provide services to the distributary canals not taken over by farmers, leaving the distributary canal organizations that have been taken over with the feeling that they have been penalized (Ratnayake Photocopy).

According to the National Development Council policy statement, "by the year 2000 all systems less than 400 ha will be turned over to Farmer Organizations and in systems greater than 400 ha, all distributary canals will be handed over to Farmer Organizations" (Ratnayake Photocopy).

**A PARADIGM SHIFT: THE FARMER COMPANY**

In an open-market economy, irrigation is now viewed as more than a sub-sector of agriculture, but in tandem with trade, commerce, and industry. Water is viewed not as a public good but as a commodity. Water viewed as tied to the land is now conceptualized as transferable. The Farmer Company is believed to be the institutional mechanism for the commercialization of farm operations, including off-farm activities, in a self-sustaining process, able to respond to market signals.

A public limited liability Company owned by farmers under the provisions of the Companies Act, 1982, is being currently pilot tested in two irrigation systems, Ridi Bendi Ela (2300 ha

irrigable area) in the Kurunegala District of the North Central Province and Chandrika Weva (2500 ha irrigable area) at Uda Walawe (a Mahaweli system) in the Southern Province (GOSL 1997).

Planning was begun in April, 1997, and it is expected that articles of incorporation will be ready by January of 1998.

The Distributary Canal Organizations will continue to function for water management and O&M. Farmers in the project will as individuals or members of farmer organizations be entitled to subscribe to the share capital of the company proportionate to the land they hold over a pre-determined period of time. The farmer organization and farmer company will supplement and complement each other; for example, the technical, managerial, and financial skills necessary to operate and maintain the irrigation system will be provided by the company according to wishes articulated by the farmers.

- ! The initial equity of the company will comprise all assets other than those owned by the farmers in the project (lands, buildings, machinery, etc.).
- ! The company will be permitted to acquire water and land rights of farmers with reasonable compensation.
- ! The resources normally allocated by the government for O&M, etc. of the irrigation system/project will be advanced to the company at the beginning of each year. The company will decide on how these funds are to be utilized for the maximum benefit of the farming community.
- ! The company may form joint ventures and subsidiaries as appropriate.
- ! Initially, the board of the company will include a minority of government officials, farmer representatives from the existing farmer organizations, and specialists in public company administration. As the shares bought up by farmers increase, the number of government and other outside nominees will be phased out.
- ! The company will hire a management team led by a Director who will be solely responsible to the company.
- ! Staffing of the company will be primarily by line agency staff initially seconded and subsequently able to retire or join the farmer organization's payroll or other private companies that may result from the initial activities due to commercialization and private sector participation.

The farmer company will have four divisions: irrigation, primary production, commercial, and finance and administration.

The objectives of the irrigation division<sup>11</sup> are to transfer the management of the irrigation system to the beneficiaries and to provide water rights based on land entitlement.

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<sup>11</sup> The strategies for the other three divisions are spelled out in the Pilot Project Proposal, National Development Council, Sri Lanka.

The strategy for these changes is to begin with the Distributary Canals and gradually release the government's O&M budget for the system to the farmer organizations, with technical and managerial support from the division.

In parallel decision making, the farmer organization will allocate water under the principle that deprived parties should be compensated. Consumers will pay for the water in order to fund compensation to the deprived. Simultaneously, farmers/groups who wish to transfer the rights of water saved by them may enter into contracts with those willing to pay for such rights.

To reduce O&M costs, farmers will be trained in better water management practices and in addition, if possible, to use lift irrigation. To encourage the productive use of water, non-government organizations and the private sector will be encouraged to invest in such equipment as sprinklers and drip systems.

## CONCLUSION

The major emphasis of the irrigation sector in Sri Lanka today is on consolidating and improving existing irrigation infrastructure with sustainable productivity as its goal. In *Projects and Programs 1997* (GOSL 1996), major irrigation initiatives are listed as follows:

- ! System Rehabilitation, including improved O&M
- ! Management and institutional changes, including participatory system management with beneficiary involvement
- ! Restructuring of irrigation subsector agencies to respond to new economic policies and on a basis of comparative advantage
- ! A river basin approach to water resources planning and utilization
- ! Watershed management programs linking upstream and downstream users
- ! Integrated farming approaches, including enterprise development
- ! Crop diversification
- ! Conjunctive use of surface and ground water
- ! Flood control, drainage, and salt water exclusion programs

As reported in Aluwihare and Kikuchi (1991), while irrigation development has played a pivotal role in rice production since independence (this together with land settlement may be said to be the *raison d'etre* for public managed irrigation systems), the land area planted to rice has continuously declined, while its contribution of yield increase to the growth in rice production exceeded 90% in the 1980s.

This indicates that the development pattern of peasant agriculture based on dry zone colonization has reached a turning point. The experience in the irrigation sector in Sri Lanka may be typical of many other countries in the Asian tropics where land (and tied to it, water) is the most scarce resource. As noted in this report, Sri Lanka's shift from construction to a rehabilitation and "management" phase may be inevitable in Asia, and the developments in the irrigation sector in Sri

Lanka is as if they were observations in a laboratory may be relevant to larger Asian countries with many regions in diverse stages of development (1991:47).

The farmer company as envisaged and currently pilot tested will shift the focus of PIM to agriculture as an enterprise resulting in a phased turnover of the irrigation system in totality. Given the magnitude of investment by GOSL and foreign assistance in the irrigation sub-sector<sup>12</sup> such a strategy is:

- ! A natural outgrowth of the currently existing programs for PIM. It is a responsible return to the issues raised by Hunt et al. (1996) on the nonplantation crop sector.
- ! To build on the past and on on-going institutional strengthening programs for PIM in Sri Lanka.
- ! To help to retain the agrarian character of Sri Lanka (which is said to enjoy the lowest rural urban migration in the region) without causing significant population shifts.
- ! To enable the coverage of a majority of the irrigation initiatives listed above.
- ! To highlight the related issues of transforming PIM to IMT under the Asian model.

It is often perceived by farmers that PIM/IMT is a way of getting them to do the work so that the state can shed its burdensome financial responsibilities. Thus, in fairness to the farming community, irrigation systems may need to be rehabilitated and O&M levels brought to adequate standards before turnover of either partial or complete systems. Aluwihare and Kikuchi estimate that rehabilitation for water management and system O&M in 1986 was less than 30% of the annual total irrigation budget for that period (1991:44), while investment in O&M remained as low as 5% in the 1980s (1991:17). Given that the construction phase of irrigation is ending, it is reasonable to expect more infusion of funding into rehabilitation and/or O&M to strengthen the new direction of PIM/IMT.

PIM in Sri Lanka may have failed to show clear-cut results (Aluwihare and Kikuchi 1991; IIMI/ARTI 1995) in its contribution to O&M, water management<sup>13</sup> or productivity because it has not viewed farmer participation as a total system, but as a set of isolated activities. To implement participation systematically, organizations need a critical mass of mutually reinforcing practices, a participative system with an eye on the product and market (Raby 1991). A successful participative strategy also requires seven capabilities, self management, broad business understanding, knowledge of business finance and economics, critical thinking skills, mutual learning skills, and flexible decision making (McLagan and Nel 1997).

In the farmer company approach, Sri Lanka has a chance to bundle an already existing critical mass of mutually reinforcing practices, e.g., water management training under INMAS and entrepreneurial capacity building under MASL, with new components to make it a broader

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<sup>12</sup> Figures given for 1988 (seemingly a peak) in Aluwihare and Kikuchi (62) are: GOSL 2,458 (Rs. Million) and foreign assistance in grants and loans totaling 18,925 (Rs. Million).

<sup>13</sup> Even in this case, I would be remiss not to mention the Devahuwa system where the formation and activities of the Farmer Organization at the water short tail end resulted in an increased cropping area, higher O&M fee collections, and greater income generation in 1987-88 (Raby n.d.).

management strategy. These new components themselves may require training and capacity building under a free standing institutional development program.

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