STRATEGIES FOR FARMER PARTICIPATION IN IRRIGATION MANAGEMENT
IN SRI LANKA:
PAST EXPERIENCES AND FUTURE REQUIREMENTS

by

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Dear Mr Fernando:

Seminar on Irrigated Water Management: Strategies of Farmer Participation

Thank you for your kind invitation to speak at the above seminar to be held at ICTAD Auditorium on Monday, 20th June. I have consulted with the Director General of IIMI, and in view of the important participants and support of the Ministry of Lands and Land Development, he has approved of my making a presentation.

Enclosed please find a copy of a paper for distribution, as requested, entitled "Strategies for Farmer Participation in Irrigation Management in Sri Lanka: Past Experiences and Future Requirements." This paper will form the basis of my presentation, but in my oral presentation, after briefly recapitulating points in the written paper, I plan to go beyond these and discuss some possible next steps if there is to be serious progress in this area, in terms of policy, legal changes, and strategies.

I am enclosing a brief IIMI publication, Management Brief No. 5, from which my oral presentation will also draw. Unfortunately, IIMI has run out of copies of this publication, but if you think it would be valuable, you may make photocopies and distribute them to the participants (some will have seen this article).

I am looking forward to participating in this seminar, on a very important topic. Since I am taking time away from other obligations to participate, I would be very grateful if you would contact me if there happen to be any changes in the program.

With best wishes,

Sincerely,

Douglas J Merrey
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cc: R Lenton, Director General, IIMI
INTRODUCTION

This paper is actually an extract from a forthcoming publication of TIMI, entitled "Irrigation Management Research in Sri Lanka: A Review of Selected Literature" (Merrey, Bu, and Martin 1988). It reviews recent research and other literature on irrigation organization and management in Sri Lanka, under four major headings: policy and law, management at the agency level, management at the farmers' level, and other social issues. In each case it endeavors to identify the major work that has been done, the key findings or lessons learned, and the most important research questions and gaps in knowledge. It provides a concise background discussion of some of the major experiences in farmer participation and related issues, and the bibliography provides references that can be consulted for further details.

I have prepared this extract for distribution to participants in the "Seminar on Irrigated Water Management -- Strategies of Farmer Participation." Unfortunately, since the organizers wanted something that could be copied and distributed to participants, there was not enough time to write a separate paper. However, my oral presentation will take off from this background paper, and suggest some ideas as to what is required for future development of viable, responsible, and sustainable farmers' organizations for irrigation management, which I believe could be an important component of a strategy for development of a prosperous and productive farming community in Sri Lanka.

POLICY AND LAW

Policy and legal issues are not a major focus of this review. This is not to say they are not important -- they are indeed extremely important. Basic research on broad agricultural as well as specifically irrigation-oriented policy options could make a very important contribution to future development of irrigated agriculture. However, the discussion here is limited to issues that directly affect progress on strengthening irrigation management institutions, both government and farmers'.

Abeywickrema (1986) provides an up-to-date overview of the evolution and rationale for government policy in regard to participatory management. After explaining the relatively strong governmental role in the development of major irrigation schemes, he notes that in some respects government agencies have "failed poorly" in achieving their objectives. Hence government interest in participatory management of irrigation schemes if this can be shown to be more effective. The result is a "let 100 flowers bloom" approach, that is, encouragement of a variety of institutional
experiments, but no commitment to any particular approach.

Alwis (1986) traces the history of legislation in regard to irrigation development and management since colonial times, and points out that legislation by itself cannot bring about farmer participation, supporting an argument presented several years earlier by Uphoff (1982). Nevertheless, laws can provide a broad framework to legitimize and strengthen such organizations; Alwis (1986) therefore recommends amending the current irrigation ordinance based on the lessons learned in recent years from efforts to organize farmers. More recently, Merrey and Bulankulame (1987) have suggested that Sri Lanka adopt as a long term goal the turnover of all small and medium sized systems, and the lower distribution portions of large systems, to farmers’ organizations. Implementation of such a policy would require enabling legislation to provide the necessary framework.

Sri Lankan policy in regard to the allocation of responsibility for irrigation system management between government and farmers has evolved considerably in the last decade. It would be useful to establish clearly the long and medium term objectives, and then carry out policy research on what the legal options are, what changes might be required in existing law and in the existing mandates of particular government agencies, and what would be the most effective strategy for achieving the objectives. Alternative models for irrigation management, such as irrigation agencies as public utilities, and turning system ownership and management over to farmers’ organizations or farmer-owned companies could also be examined. Financing policies are critical at this level as well.

Management at the Agency Level

Since all major irrigation schemes are owned, built, operated and maintained by government agencies in Sri Lanka, one would expect that research to identify the impediments and opportunities to improve their performance would begin with questions about the agencies’ operations themselves. However, as is true in other countries, the study of the management agencies and their managerial performance is still rare. It is much easier to study either purely technical questions, or to study “farmers”, with the implicit assumption that most problems are found at the level of the farmers. As a result, the behavior and performance of irrigation management agencies has remained a neglected subject, a veritable “black box” about which anyone may speculate but few understand.

Various studies have shown the potential for improvement in the performance of irrigated agriculture through management innovations above the farm level (see for example Bottrall 1981, Wade and Chambers 1980). In most cases, such potential is demonstrated through a concerted effort by officials during a crisis period, or by researchers able to invest sufficient resources. However, it is difficult for agencies to sustain such extraordinary efforts over a longer period without implementing changes in the agencies themselves and the resources at their command. The question, then, is how can agencies develop a better capacity for sustained high performance management?
In Sri Lanka, a number of articles have been written suggesting reasons for poor system performance that relate to agencies, or suggesting general approaches to improve agencies’ management capacities. For example, in a report evaluating the original Appraisal Report for the Town Irrigation Modernization Project (TIMP), Ranatunge et al (1981) suggest that the “risk-averse strategy” of the Irrigation Department is a key factor leading to late and unreliable water issues. They suggest the need for a strong comprehensive management strategy, involving cooperation between agriculture and irrigation and retraining of officials including engineers.

Harriss (1977) discusses the control and manipulation of the (irrigation) bureaucracy by local elites who thereby obtain a preponderance of the benefits. Chambers (1977) suggests that on large systems jointly managed by farmers and an agency, there is a need for an impartial and independent bureaucracy to execute allocation of water among “communities” and for some provision for acting as a court of appeal, including the authority to police and prosecute infringements of the rules. “The key lies in the reform of organization and operation -- in short, in improved management of men” (Chambers 1977:361). Karunarayake (1982) also emphasizes the need for a water-specific system of justice -- water courts. He also calls for a greater emphasis on system management, including regular policing at above-community levels, and a re-orientation of both training and incentives to emphasize O&M.

The major systematic study of a Sri Lankan irrigation agency actually published to date is the work of Moore (1980a, 1980b, 1982). His work is based on research on the Irrigation Department nearly 10 years ago. His analysis is from the theoretical perspective of “organizational theory.” Broadly, Moore’s papers attempt to identify the sociological factors underlying the low productivity of irrigation systems with special reference to the irrigation bureaucracy itself. The reason for this focus is not that all the causes are within the agency, but that the main effort to improve irrigation management must come from a reformed bureaucracy. Only the bureaucracy, he argues, has the capacity to intervene and change the other factors external to itself.

He identifies five major factors which discourage work performance (most are not unique to irrigation agencies). These are: patterns of recruitment and rewards that inhibit internal communication in the agency, use of inappropriate indicators of management capability, lack of incentives for good management, and devaluation of management (O&M) as opposed to design and construction. In view of these, he suggests a number of strategies for improving performance (see especially Moore 1980b).

Moore (1982) notes that much of the pressure on established agencies like the Irrigation Department is the result of changing conditions and expectations. In this circumstance, organizations always try to perpetuate themselves either by attempting to defend their original functions and ways of doing things (“natural conservatism”), or by reorganizing and reorienting themselves. The Irrigation Department had in fact been responding by making
changes, but slowly, since it seemed to Moore at that time to have a limited capability to change significantly.

Murray-Rust (1983) provides a detailed study of the management of the Gal Oya system at the main system level, from a combined engineering and institutional (sociotechnical) perspective. Building on Moore to some degree, his work provides further details on the factors affecting the Irrigation Department's ability to respond to changing demands in the short and long term. For example, he finds that decisions made before the irrigation season, policies and pressure from outside the scheme, and the structure of the bureaucracy itself seem to have more effect on operations than changing water conditions within the scheme during the season. If and when changes in main system operations are contemplated, the consequences of such changes and the managerial and technical limitations of the Department must be taken into consideration. This study remains a pioneering study of the operation of a major irrigation scheme.

More recent work primarily related to the Water Management Project in Gal Oya suggests that in fact the Irrigation Department has changed more than Moore (and possibly Murray-Rust) might have expected. Uphoff (1985a; 1985b; 1987) notes that a key objective of the farmers' organization program was in fact "bureaucratic reorientation", a change in the attitude, orientation, and performance of the Department. He lists the improvement in officials' attitudes and performance as one of the three major accomplishments of the work in Gal Oya (Uphoff 1987). Merrey and Murray-Rust (1987), based on interviews with key Department officials that had been involved in the Gal Oya rehabilitation project, plus the evaluations done by ARTI and independent consultants, confirm this perspective. They suggest that the Irrigation Department is presently in a transitional stage and that the present informal policies regarding a greater management- and farmers'-orientation should be made explicit and clear, and should include specific incentives and training programs to make them more effective.

Before the beginning of each cultivation season, the law requires that a cultivation (kanna) meeting be held. All cultivators are invited to attend this meeting, which is chaired by the Government Agent or his designee, and attended by representatives of all the irrigation and agriculture-related departments. Murray-Rust and Moore (1983) analyze the cultivation meetings they had independently observed at Gal Oya and elsewhere. They note the cultivation meeting format is inappropriate and ineffective on large irrigation schemes, especially as a decision-making mechanism. They suggest a number of alternatives, including replacing such mass meetings with committees of elected representatives (i.e. Project Committees) and concentrating attention on delivering water to heads of distributaries where farmers' organizations could take over, rather than facing the complexities of trying to deliver promised amounts of water reliably to field channels. One "positive function" mentioned is embarrassment of officials as a check on poor job performance, but this would not seem a very effective mechanism for performance monitoring.

At present, research on agency-level management issues is shifting to a new approach. Whereas the work of Moore, for example, derives from
sociological theory on organizations, tends to emphasize structural issues, and tends to be "external" to the agency in its perspective, recent research has attempted to examine the internal management processes based on methods and insights derived from modern management approaches. This work is done with the close collaboration of agency officials — indeed it cannot be done without this support. The role of the researcher in such work is closer to a management consultant than to a traditional researcher. In principle, this work can lead to identifying key impediments to an agency's ability to achieve its objectives, and to suggested means to improve the performance of agencies and their employees. Two examples of such recent work, not yet published, are Raby (1988) on the Irrigation Management Division (IMD), and Raby and Merrey (1988) on MEA's management system in System H.

An evaluation of the effectiveness of the INMAS program within IMD is presently underway; and the studies on financing O&M discussed in Merrey, Rao, and Martin (1988) are also relevant to defining issues and developing testable solutions in agency-level management. Evaluations, and "conceptual" studies from various theoretical perspectives (such as organizational theory, public choice theory) are valuable in defining larger policy and strategic issues, and suggesting broad solutions. "Internal" management studies are useful to identify and test ways to improve the effectiveness of organizations to achieve their objectives.

The major research questions emerging from this review are:

1. How can the effectiveness and performance of irrigation management agencies be improved? The objective would be to examine the present management systems, for example performance monitoring and control of personnel; recruitment, training, and incentives policies; communications (management information systems) both within the agency and between agency officials and clients; decision-making processes; and organizational goals, mission, and values (culture). The methods would include participant observation, interviewing, examination of files, etc. in the first stage, followed by a stage of collaborating with agency officials to develop, test, and evaluate alternative management procedures and methodologies, including those which have been used by other public and private organizations to change themselves.

More detailed questions would emerge from the specific context to be studied. For example, the IMD has the responsibility for both coordination of agencies providing inputs for irrigated agriculture at the project level, and development of farmers' organizations. This is to be achieved by a "Project Manager", sometimes but not always assisted by an institutional development officer and/or institutional organizers. Are the expectations regarding the project manager reasonable? Does the IMD system of performance monitoring, incentives and rewards, Colombo-field communications, etc. tend to encourage or discourage the performance expected? What kind of a management information system would be most appropriate for IMD? Similar detailed questions could be developed for other organizations.

2. A second area needing far more investigation is training. IIMI (1987) carried out a survey of present training capacities and likely future
needs, and made certain recommendations for more effective use of existing training facilities. But many questions remain unanswered. What is the impact of present training programs on actual behavior and performance of individuals, and agencies? What are the skills most needed by existing personnel? What should be the balance between training in specific techniques and technologies, e.g., water measurement, and training intended to support institutional strengthening and management improvement?

MANAGEMENT AT THE FARMERS’ LEVEL

This section deals with both farmers' organizations, and the interface between farmers and irrigation agencies. Sri Lanka is well-known for a number of interesting experiments with promoting farmers' organizations, and there is a lot of literature on the subject, though not all of it is useful. Several authors have noted that the absence of effective local level organizations and leadership is a major factor explaining disappointing irrigation system performance, and impeding improvements (for example Karunanyake 1980 and 1982, Moore 1980a, Alwis et al 1983a and 1983b, Chambers 1977, Gunasekere 1981). Some authors trace this lack of effective local organizations to the increasing intrusiveness of government in recent times which has undermined the traditional system and engendered a dependency on outside forces, and to the changing policies and legal arrangements since independence (e.g., Gunasekere 1981, Karunanyake 1980). Others suggest that the official control of settlement schemes has discouraged the development of local organizations (Chambers 1978, Lundquist 1986).

In his review of water management problems on large schemes, Moore (1980b) expresses strong reservations about the likely usefulness of promoting farmers' organizations as a means to improving irrigation system performance. He suggests that they will be unable to deal with local conflicts; have a dismal record on sustainability; are premised on a false image of the social composition of settlement schemes; and would detract from the more crucial need, reform of the bureaucracy. Put another way, the concern expressed is the trade-offs between elected leaders who face limitations in what they can accomplish versus an impartial external authority able to impose discipline. Nevertheless, particularly since the late 1970s, there have been a number of experiments with farmers' organizations that have generated considerable interest and been quite influential with Sri Lankan policy makers.

An interesting pioneering effort that does not appear to have led to any permanent impact is the one at Thannimurripu, Vavuniya District, documented by Elman and Ratnaweera (1973). An administrative board consisting of officials and elected farmer leaders was established to deal with system problems when the line agencies found it difficult themselves to solve them. Based on a rather short study 2.5 years after it was started, the study concludes the effort to date was a "qualified success."

There are several more recent and contemporaneous experiments that have had impacts beyond the system on which they were done. These are the
Mahaweli Turnout Groups, the committees formed at Minipe, the Kimbululama case, and the farmers' organization program as part of the rehabilitation project in Gal Oya. There have been other efforts, some discussed in papers in IIMI (1986), but these are the major influential cases.

Mahaweli Turnout Groups

The turnout group program was initiated in parts of System H in 1979. A concentrated effort was made to develop farmers' groups below the turnout to carry out irrigation tasks and to facilitate agricultural extension and training. These efforts are described by officials who had been involved in the program (see Karunatilake 1986; Jayawardene 1986). According to these authors the program is being implemented in the new Mahaweli systems (B, C, etc) as well. It is important to note that the original concept was limited to the turnout only; Karunatilake (1986) in fact expresses reservations about federating them at the distributary level. However, in System H today there are D channel representatives, though their functions are not clearly defined.

A number of authors have raised questions about the effectiveness of the turnout groups in System H (see Karunawayake 1980; Lundquist 1986; Bulankulame 1986). Lundquist claims that despite the high hopes of the officials, after several years experience with turnout group leaders, a survey of farmers showed "an overwhelmingly negative attitude toward them." Lundquist notes that even though the leaders are supposed to be elected by and from farmers, in fact they tend to be from more elite groups, and in many instances are nominated by the officials, and are often extensions of the bureaucracy, doing things officials should do (Karunatilake [1986] also mentions this problem). Bulankulame [1986:16] found that farmers are uncertain about the role of the farmer representative, and often bypass him; further, members often do not see themselves as a group, in part because of residential dispersion.

The Kimbululama Case

Kimbululama is a medium sized scheme in Kurunegala District which was rehabilitated in the late 1970s/early 1980s. The Irrigation Department's Technical Assistant (TA) in charge of the project spent some years developing a highly-disciplined approach to system management with the participation of the farmers. A video film has been made documenting the experience; an evaluation was written several years ago (Weeramunda 1985), and more recently with IIMI support the TA has documented his approach from his own perspective (Gundasa 1988). Gundasa's approach cannot be characterized as "participatory" in the usual sense; rather, he imposed a structure for consultation and decision-making and was able to impose the kind of discipline in water management that surveys often show farmers would prefer.

It has come to be seen as a success story since as a result of these efforts, irrigation efficiency apparently improved, productivity improved, farmers have been able to get an extra crop occasionally, and the system is said to be well-maintained. Weeramunda (1985) lists five major characteristics: it is disciplinarian in structure and character, it
combines discipline with elements of participation, it is an efficient water management system, farmers and officials both view it as a success, it is based on "bureaucratic leadership" in which a particularly dedicated official won the farmers' compliance, and its long term viability (sustainability) is doubtful.

The last point is important; Weeramunda's (1985) evaluation suggests that the farmers' attitude is one of compliance and complaisance, younger and more critical people have been excluded, and there is a failure to develop local leadership independent of the TA. Gunnadasa of course does not agree with this evaluation; it is difficult to evaluate the sustainability of the effort until Gunnadasa leaves. A study to examine what lessons there might be at Kimbulwara that are transferable is needed: it is clear that farmers often prefer an impartial external authority to impose discipline, but could this be done effectively and fairly on a wide scale by the present government institutions?

The Minipe Experience

The case of the effort to organize farmers for water management at Minipe Scheme illustrates the problem of sustainability after the source of inspiration departs. The water management project at Minipe, initiated by the then Deputy Director of Irrigation for Ransy, N.G.R. de Silva, attempted to set up a committee system to enable farmer participation in system management. This has been described by de Silva (1981, 1985) and evaluated by Peiris (1987) after de Silva had left. Peiris finds that while there had been some positive impact of the project, this was less than had been hoped.

He attributes the lack of sustainability of the organizations to several factors, including problems of getting cooperation among line departments, problems in implementing decisions of the Project Committee, and problems arising from both the agrarian social structure and the poor condition of the physical system. Peiris expresses skepticism about the extent to which farmers can "participate" in matters that are part of the administrative domain.

The Minipe experience is of particular interest for it was the pioneering effort to use "catalysts" in initiating the transformation process among farmers -- in this case young people fielded by the National Heritage Programme in a pilot area during the first year. Informal group representatives were elected from among the farmers to assist in water management, and coordinating committees were established. In a later stage of the project, a committee system with formal farmer representation was established throughout the system, but without the benefit of the catalysts. Farmers' representatives were elected by secret ballot under the Agrarian Services Act, and there were six Sub-Project Committees and one Project Committee on which both field officers and farmers sat.

The Gal Oya Project

During the period 1978-85, the Irrigation Department implemented the rehabilitation of the Left Bank of Gal Oya, with funding and other assistance
An integral component of the project was an effort to organize farmers’ groups which was implemented by ARRI with some assistance from Cornell University. This component of the project, in particular, has attracted wide national and international interest, and has had considerable impact on government policy and on donor policy as well. The team which did the final evaluation of the whole project termed this aspect of the program a success, but complained about the volume of reports on the project (ISTI 1985).

The most useful discussions of this effort in our view are contained in the following: Wijayaratne (1985); Uphoff (1985a, 1985b, 1986, 1987); Perera (1986); and Merrey and Murray-Rust (1987). The papers by Wijayaratne and Uphoff discuss the program from the point of view of the two key people who set up and guided it; Uphoff (1986) puts the effort into a broad comparative perspective; Perera’s (1986) paper provides a useful overview but from a more critical perspective; while Merrey and Murray-Rust (1987) look at the impact of the program on the Irrigation Department from the perspective of the key Department participants in the project.

An important feature of the program was the use of “catalysts” called Institutional Organizers (IOs) to work with farmers in organizing groups. The IOs were all graduates in social or agricultural sciences who were trained in various aspects of water management, group dynamics, and organizational methods. They resided in the communities and developed close personal relationships and an intimate knowledge of the communities. This enabled them to work effectively with farmers to assist them in forming field channel (FC) groups, and later larger organizations based on field channel representatives. The FC groups were expected to carry out FC maintenance, organize water sharing programs where needed, and work closely with the Irrigation Department engineers in the design and reconstruction of the FCs. One or more FC representatives was to be chosen by the farmers to be a spokesperson for them at distributory committees and Area Councils.

According to the official evaluation, by late 1985, 350 FC organizations had been formed over an area of 10,250 ha; above these were 27 D channel organizations, 6 Area Councils, and a Project Committee (ISTI: 1985). The evaluators felt the 420 farmers’ representatives on the whole were responsive to farmers’ needs and 60–80 percent of the farmers in the organized area were participating directly or indirectly in the FC organizations. According to a survey carried out by ARRI, both farmers and Irrigation Department engineers expressed a high degree of satisfaction with the organizations, and particularly with their representatives (see ARRI and Cornell 1986; Perera 1986).

Unfortunately the prevailing conditions in Sri Lanka have prevented any recent evaluations of the Gal Oya farmers’ organizations. But based on interviews with two key Irrigation Department officials in mid-1987, Merrey and Murray-Rust (1987) found that the organizations had apparently endured

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*See Merrey, Rao, and Martin (1988) and references therein for a review of other aspects of the Gal Oya rehabilitation project.*
even after the end of the project; and the improvement in both discipline among farmers and at the agency level and communication between farmers and agency, enabling more effective operation of the system, remained the key benefits in the eyes of these officials.

Comparison of Different Experiments: Lessons and Research Questions

It is interesting to compare and contrast the experience at Gal Oya with the experience reported in other systems in Sri Lanka. Like the Mahaweli Turnout Groups program, this was an officially sponsored effort on a particularly large irrigation scheme. However, the Mahaweli program was implemented by a bureaucracy that is relatively dense and has multiple (integrated) responsibilities at the field level. It had a more limited objective — organizing at the turnout only — and limited expectations — the groups were primarily conceived as a mechanism for the agency to train farmers (one way communication). The Unit Managers, part of the bureaucracy, organized the groups. There was little emphasis on the process of organization and learning lessons from the experience as the process unfolded.

At Gal Oya, there was relatively little coordination among line departments, and the Irrigation Department had a narrow range of responsibilities. Its staff was comparatively less dense per unit area or per farmer. The program was initially implemented by a research organization that could work in a flexible and decentralized manner. The objective was more ambitious than in Mahaweli System H — farmers were to be actively involved in the rehabilitation effort, including decision-making and contributing resources, and as the program evolved, in system management at various levels, not just the PCs. The IOs were on two year contracts with ARTI; they were not part of the bureaucracy. There was a great emphasis on “getting the process right” — the title and theme of Uphoff’s (1986) recent book — and learning from the process.

The effort at Minipe used catalysts, apparently successfully, in the beginning, but this did not continue. The farmers did respond to the opportunity to participate in improving and managing the system. However, the program was not sustained because the effort required to overcome the impediments in both the agrarian social and economic structure and the bureaucracy itself were not sustained. The Kimbulama experiment was “catalyzed” by one dedicated person. The notable contribution here is the acceptance by farmers of a high degree of discipline imposed from outside, plus a considerable degree of collective responsibility for system maintenance. The question of sustainability is a serious but unanswerable one at this stage.

These experiments suggest a number of key lessons, but raise further issues requiring applied research. The lessons include:

1. Farmers will respond to opportunities to take greater responsibility for system ORM in cooperation with government officials.

2. The use of specially trained catalysts, deployed in communities with a mandate to spend a couple of years working with farmers is an effective
method for organizing responsible and useful farmers' organizations.

3. The presence of such legitimate and effective farmer organizations leads to improved cooperation among farmers, and improved cooperation and communication between farmers and agency officials. This in turn makes the agencies' jobs easier, and increases the incentives of officials to be responsive. These improvements in turn can lead to improved system performance on a sustained basis.

4. The development of farmers' groups and changes in irrigation management agencies are mutually supportive; in the long run, both must occur, and changes in one have a strong impact on the other.

A number of research issues also arise from these experiences. These include the following:

1. What has been the level of sustainability of the farmers' organizations formed at Gal Oya, Kimbulawa, and Mahaweli System II, and what are the reasons?

2. What modifications could be made in the 10 program to improve the efficiency of implementation over a larger scale? This would suggest some experimentation with different types of IOs (e.g. non-graduates, persons from the community) and different recruitment methods (e.g. contracts, use of existing staff, use of NGOs).

3. What modifications from the Gal Oya model would be required for success in systems where conditions are different from Gal Oya (e.g. different ethnic groups, already existing organizations requiring strengthening, different management agency such as Mahaweli Economic Agency (MEA) or where the project objectives are different (e.g. not a rehabilitation project, shifting a system from rice to mixed cropping, improving efficiency on a water short system, improving maintenance).

4. Are there alternative methods of organizing farmers' groups that would be effective and perhaps less costly financially and in terms of management intensity in achieving program objectives? For example, can IMD Project Managers, or Unit Managers in Mahaweli systems, implement such a program effectively on their own? If so, under what conditions?

5. What is the most appropriate division of responsibilities and overall relationship between the existing agencies and farmers' groups in the short run (say five years)? What would be the most appropriate mixture of roles, and types of organizations to be developed in the long run? For example, can/should distributary groups take over both operational and maintenance responsibilities on their distributary? Would an organizational framework in which there is a contractual relationship between a farmers' group and an irrigation service agency be more appropriate in the long run? What role can farmers' representatives play in overall policy and decision making on large irrigation systems? What factors inhibit and what factors encourage such participation?
OTHER SOCIAL ISSUES

There are a number of other social issues that are not directly irrigation management issues, but that relate very closely, either in terms of their impact on efforts to improve irrigation system performance, or in terms of the potential broader impact of improved irrigation performance. These issues include (but are not limited to) the following:

1. concentration of other productive factors necessary for agricultural production, such as land, access to credit and inputs, and farm power;
2. land tenure issues and settlement policies (residence dispersion for example) and their relationship to irrigation management;
3. employment generation, especially as it relates to second generation settlers; and
4. the relationship between family size and structure, including particular, women's roles, and irrigated agriculture.

Concentration of land control has been reported on settlement schemes, (Abeysekera 1986) but not well-documented. Concentration of farm power has been documented (see Abeyratne and Farrington 1986). The farm power study carried out on three major schemes in 1979-80 documented the interactions between unequal access to water of head and tail farmers and unequal access to farm power. Since such interactions can lead to a situation of increasing inequality, which in turn could make efforts to use management and organizational interventions to equalize water deliveries problematical, further research is required. A high degree of social inequality will make development of effective farmers' organizations difficult.

There are a lot of issues related to trends in land tenure and the relationship between settlement policies and practices, and irrigation management. Studies of settlement schemes consistently find very high levels of leasing, mortgaging, tenancy, fragmentation, and outright but non-legal sales (see for example Bulankulame 1986, Ekanayake and Groenfeld 1987, Abeysekera 1986, and other references in Stanbury 1988). These have very important impacts on the effectiveness of farmers' organizations; for example, should non-allottees be excluded? If they are, and if more than half the cultivators on a channel are non-allottees, how can such an organization be effective? A recent literature review (Stanbury 1988) has highlighted land tenure and other settlement-related issues requiring further study in terms of their impact on irrigation management.

The problems of the second and subsequent generations of settlers in terms of their limited access to land and employment, and the impact of this limited access on the resource base in Gal Oya, is the subject of a study by Abeyratne (1982). She documents the adaptive strategies of such families, given their limited opportunities, and notes that under- and un-employment, poverty, and lack of access to resources, the very conditions settlers came to the dry zone to escape, are repeated in the next generation. This is the major study on this subject; it confirms the common perception. It relates more broadly to the question of the role and potential impact of irrigation
management in trying to reduce poverty, especially among those with limited access to irrigation resources. Research on these problems goes beyond irrigation management, but the issues are crucial to the long term viability of irrigation schemes.

Finally, another under-studied topic is the relationship between family structure and irrigated agriculture, and in particular, the impact on, and role of, women. The study by D.de Silva (1982) provides an overview of women's adaptation in a Mahaweli scheme, while KilKelly's (1986) survey in Polonnaruwa provides interesting data but little analysis. Although studies of women in development have very rightly and rather belatedly become more common, no one has yet identified specific research problems related to irrigation management in Sri Lanka.

ACKNOWLEDGEMENTS

I wish to acknowledge the assistance of the two co-authors of the larger work from which this is abstracted, P.S. Rao and Ed Martin. I am responsible for this particular section, but the larger work is a truly joint effort, and they have contributed significantly to clarifying and improving this section as well. The larger paper had been prepared under IIMI's Cooperative Agreement with USAID under the Irrigation Systems Management Project. The support of USAID and the Irrigation Management Division of the Ministry of Lands and Land development is gratefully acknowledged. Needless to say the views expressed here are, those of the author, and not necessarily those of IIMI, USAID, or any other organization.
REFERENCES


Further participation in irrigation system management in Sri Lanka has been assessed as a necessary step to resolve the problem of irrigation management, which is closely linked to improving irrigation system performance. This assessment means that an organized and functioning organization for farmers participation should be formed. The degree of responsibility farmers should be given in irrigation system management, the relationships to be developed between farmers and government, the specific tasks to be assigned to farmers, and the incentives required for both farmers and government agencies to change their respective roles in irrigation management.

There is agreement that a clear policy commitment is required to develop and implement effective irrigation policy measures for the Sri Lankan context. Moreover, some elements of contemporary irrigation legislation are necessary to ensure that the development of new irrigations systems is done in an effective manner.

This Management Brief suggests a three-component irrigations systems service for Sri Lanka, in which all irrigation systems are faced with decision-making problems and provide strategies for achieving the policy objectives.

**REFERENCES**


**ACKNOWLEDGEMENT**

The author is grateful to the farmers and extensionists from Tharam Village, Amedda Division, Maskeliya, and Vihiga Village, Badulla, for their assistance.

**SEPTEMBER 1987 No. 5**

**Responsibility in Irrigation System Management: Some Policy Suggests for Sri Lanka**

Douglas J. Merrey and Sunarathe Balamahandage

The International Irrigation Management Institute

The letter has command of less than 50,000 letters. Overages of minor systems—both villages sized and small areas—are managed by the Division of Agricultural Services (DAS) within the Ministry of Agriculture Development and Research. Major systems are managed by the Irrigation Department (ID) and the Mahaweli Economic Agency (MEA).

This classification does not provide a useful tool for policy making: our approach varies very much in scale, management, and some systems are managed by the agency’s discretion. In order to manage major irrigation systems, we use a variety of types, that is, in many cases the agency is allowed to manage the system itself. For example, we can manage the system for economic reasons, for environmental reasons, and for administrative reasons. The policy is not a formal document but a guideline for better management of irrigation systems. It needs to be updated and improved based on new information and experience.

The problem of the current irrigation management is that the farmers are often left on their own, with little support from the government. The farmers have to make decisions on how to manage their water resources, which can be a challenging task. This Management Brief provides a framework for decision-making in the irrigation sector, which can help farmers to better manage their resources and improve the efficiency of irrigation systems. The framework is designed to be flexible and adaptable, allowing farmers to make informed decisions that are tailored to their specific needs and circumstances.

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