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A COMPARATIVE LOOK AT FARMER PARTICIPATION IN AGENCY-MANAGED IRRIGATION SYSTEMS

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Though the concept of participatory development is not a new one, it is only recently that it has been applied to the management of irrigation systems. The concept of "community development" (CD) popular in South Asia during the 1950s shares many common features with the current interest in participatory development. The village-level workers of CD programs for example have some similarities to the institutional organizers used in Gal Oya. In both the major emphasis was on the development of human capacities to generate local development.

The fact that CD went out of fashion as a rural development strategy during the 1960s serves as a note of caution in resurrecting some of the same concepts and applying them to irrigation management. One of the reasons cited for disenchantment with the CD approach was impatience (Uphoff et al. 1979:19); the development of organizational capacity takes a long time. A second reason cited for the decline of CD was that the programs did not lead to marked increases in farmers' productive capacity. Developing farmers' participation in irrigation management certainly addresses the issue of productive capacity but the first problem remains: Involving farmers in the management of irrigation systems is a slow and time consuming process that requires a critical level of effort and commitment on the part of irrigation agencies, finance ministries, donors, and others.

The various experiments being carried out to promote greater farmer participation in irrigation management reflect an interest motivated by several different and possibly competing objectives. Irrigation agencies hope to reduce costs and improve maintenance; donor agencies and finance ministries want to recover costs and improve productivity; development planners wish to induce a spirit of self-reliance in the farming sector. The extent to which participatory management can contribute to any or all of these objectives and if so, the type of approach that might be best suited to a particular case, are questions that have yet to be adequately addressed. The first step must be to document the experiments that have already been made in order to better understand what was attempted and what the results have been.

The purpose of this paper is to draw together some of the experience in participatory management which may have relevance for Sri Lanka and to identify areas of research where priority should be given. An underlying assumption is that an informed selection of management alternatives is more likely to yield the desired results than an uninformed selection. There have been many claims made for what participatory management can do, but there has been very little documentation of precisely what participatory management has consisted of in specific cases. In the first section of this paper the management role of farmers is described in seven irrigation systems in seven countries. The second section analyzes these cases, and the third section

compares them with the situation in Sri Lanka. The concluding section discusses the kinds of information that are needed for a better understanding of participatory management.

Seven Cases

Examples of agency-managed irrigation schemes where deliberate attempts have been made to involve farmers in management are still relatively rare and vary considerably in both the approach taken and the level of responsibility given to farmers. The following seven cases have been selected to illustrate alternative approaches to farmer participation, but by no means exhaust the possibilities.[1] These cases are compared in the Analysis section which follows.

1. Philippines: The Buhi-Lalo Irrigation Project.

The National Irrigation Administration (NIA) has for nearly a decade promoted greater farmer management of the irrigation systems under its jurisdiction. The initial stimulus for this policy originated largely from economic constraints on the NIA budget when, in 1974, the government decreed that O&M costs should be financed by irrigation fee collections from farmers in national systems, and construction or rehabilitation costs should be recovered from farmers in communal systems (Bagadion 1985:8) In 1976 the NIA began to experiment with a new approach to organizing farmers in communal irrigation systems in order to reverse the trend of growing dependence on, and subsidy from, the agency. A cadre of community organizers (COs) was introduced to act as catalysts to help farmers form an association to manage design, construction, and operational tasks. The success of this experiment prompted the NIA to extend the approach to large-scale systems managed by the agency. The objective here was to promote farmer-management of certain portions of large schemes, with management of the main system remaining in the hands of the NIA.

The Buhi-Lalo Project in Southern Luzon, a 3,200 ha system under construction at the time, became, in 1980, the first attempt to transfer the experience of organizing farmers on communal systems to the level of large-scale national systems. The NIA posted 15 community organizers "to help farmers develop their irrigators' organizations and to assist farmers to work with NIA's technical staff in planning the layout of canals in the service area and in constructing those canals" (Illo and Chiong-Javier 1983:xix). The organizing process started with construction activities:

> NIA awarded contracts for the construction of terminal facilities to informal farmer groups in different...zones. This was done to give more time for task-oriented leaders to emerge and prove themselves, and to generate broader participation before formal elections were held. In connection with system operation and

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[1] A broad range of participatory experiences in farmer-managed and agency-managed systems is described in Uphoff (1986a).

maintenance, however, NIA expected farmers to operate as a formally organized group. In this case, the contractor for system management would be the association. Farmers were given about one year to develop their own leaders and to build commitment to their zonal group (Ibid, p. 226).

By the time the COs left in 1982, farmer associations had been formed and negotiations with NIA had clarified most of the new management arrangements. Each farmer association would be responsible for water distribution within its zone (defined by a lateral canal and generally about 250 ha), under the following four conditions:

> First, the implied condition was that NIA would take charge of delivering water to the different Upper Lalo zones. Second, maintenance of main and lateral canals and of terminal facilities found within a zone would be the responsibility of the irrigators' association. Third, the association would resolve conflicts among its members although NIA's assistance might be sought in special cases. And fourth, NIA would provide the different associations an office as well as technical assistance, including the conduct of seminars at NIA's expense (Ibid, p. 225).

The only unresolved issue (which has presumably been settled since) was the irrigation-fee discounts, by which the farmers would enjoy a reduced irrigation fee as payment for their management efforts. Buhi-Lalo was the first national system where the NIA actively promoted farmer participation through the use of community organizers. The process of management transfer from the agency to farmers is continuing. As of early 1986, about 25% of the irrigation systems, generally the smaller ones, are reported to have been turned over either to total farmer management or joint management between one or more farmer associations and the NIA.

2. Indonesia: High Performance Sederhana Irrigation Systems (HPSIS)

The Sederhana project in Indonesia was launched in 1974 by the Government of Indonesia and USAID to develop the "small-scale" (ca. 500 hectares) sector. The original intention to establish viable water users associations, cited in the original project documents as the most important element in implementing the project, proved elusive (USAID 1982a: D-10). A sub-project, "High Performance Sederhana Irrigation Systems" was initiated in 1982 to address the problem of farmer participation in 14 sites. According to Morfit (1983:3) the motivating idea underlying the project was:

> If there is increased direct and active participation of project beneficiaries (farmers) in all stages of project implementation, and increased responsibility for and management of completed projects, then this will result in:
>
> (1) better survey and design work, sensitive to local needs and conditions;
> (2) better construction;
> (3) better water management, including both more efficient use of

water and more equitable distribution within the system, and
(4) better maintenance of systems.

Under the original Sederhana project, water user associations (in the Indonesian abbreviation, "P3As") were formed only after construction was complete. Under HPSIS, design and construction activities were to provide an important context within which farmers could be organized. Some systems which had already been constructed were also included in the HPSIS experiment to test the potential for nominal P3As (which had been established but were non-functional) to be strengthened. Two or three community organizers were posted in each location, "to establish an institution capable of representing the farmers in dealing with government agencies and resolving problems and issues within the system" (Ibid, p. 4). The role of the COs was to be, "an arm of the P3A, and not spokesmen for or representatives of any of the government agencies involved in irrigation development. This is supposed to be the case even though the COs have been selected, trained, monitored and paid by government agencies" (Ibid, p. 6). Preliminary evidence suggests that "farmer participation in early phases of system development pays offs in better-run systems" (Robinson 1985:3), but the extent of farmer participation in water management decisions is uncertain.

3. Thailand: Nong Wai Pioneer Agricultural Project

The recently constructed (1970s) Nong Wai Project, located in NE Thailand, irrigates 11,000 ha. As part of the tertiary development, a water rotation plan was introduced, plans for which depended on the formation of Water User Groups (WUGs) to oversee the rotations and attend to tertiary maintenance. A total of 248 chaks of various sizes were formed into 169 groups covering 60-80 ha and 20-60 farmers. The formation of the WUGs was the responsibility of group organizers provided by the Cooperative Promotion Department. These organizers explained the duties and functions to the farmers and helped them elect a chak leader.

The responsibility of the WUG "is to distribute water among the farmer members within the chak and to maintain discipline according to the rules framed. They are also responsible for the maintenance and repairs of irrigation and drainage ditches, farm roads, and all the structures located on them within the chak" (Kathpalia 1984:19). Subgroups of 8-12 farmers were formed within units of about 10 ha within which all farmers could draw water simultaneously.

In 18 chaks comprising a "technical assistance" area, the Royal Irrigation Department took particular "interest and responsibility in activating the farmers within the WUG" (Ibid, p. 19). Farmers were consulted concerning the location of farm inlets and checks, and carried out maintenance work in the tertiary canals and small repairs to structures. The program has thus far enjoyed generous rates of water supply (Plusquellec and Wickham 1985:45) and has yet to be tested under conditions of water stress.

4. Malaysia: Kemubu Scheme

The Kemubu Agricultural Development Authority (KADA) encompasses five irrigation systems comprising a total of 32,000 ha command area fed by the Kelantan River in NE Malaysia. Kemubu provides a negative case of water user associations; there is no organizational structure at the farm level by which farmers can coordinate irrigation management activities. The only groupings that exist in theory are field "irrigation units" of 10-11 ha which receive water from a single offtake. Since field-to-field irrigation is common, however, "boundaries between units were vague and changed frequently" (Kalshoven et al 1984:92).

> The farmers were not aware of the existence of irrigation units. They did see that they were dependent on the same water source as field neighbors and others both up and downstream, but this did not make them see themselves as a group with a collective task and common problems and interests. They rather felt their interests as opposed, having become competitors for a scarce resource to which they had unequal access, depending on the location of their fields (Ibid, p. 108).

Construction of field ditches by groups of 3-5 farmers represent unusual instances of collective action. Farmers facing water problems have three options: (1) meet with upstream farmers and ask for their cooperation, (2) take unilateral action at night by blocking or opening a channel, or (3) appeal to irrigation personnel, who have little authority to enforce distribution patterns.

The term "Farmers' Organizations" (FOs) describes a division of KADA which distributes subsidized agricultural inputs to farmer members. The FO in Ketereh has a membership of 2,800 farmers over an area of 93 km². These are, "government-supported associations of farmer members represented by an assembly and a board of directors. The official objective is for FOs to develop gradually into self-supporting business organizations. In practice FOs, which are staffed by several government officers, project an image of being KADA's field units and are used to administer and channel agricultural services to farmers. The government pays the salaries of FO personnel" (Ibid, pp. 114-115). The link between individual farmers and the FO is through locally elected representatives, many of whom are non-farmers and were elected (by farmers) because of their familiarity with the outside world.

5. India: Pochampad Irrigation Project

The Pochampad Irrigation Project will boast one of India's largest command areas when its 644,000 ha are completed sometime in the next decade. Located in an area of Andhra Pradesh where rice irrigation was previously dependent on 2,200 tanks and 44,000 wells, the project will create a system of chaks, each sub-divided into several irrigation zones. At the instigation of a dynamic commissioner of the Command Area Development Authority, an experiment was initiated in the early phases of the project to develop an organizational structure to involve farmers in management decisions. "The

irrigation zone, a geographical entity, led to the notion of the irrigation group comprising farmers located in a zone. And from this emerged the idea of group leaders who could represent the interests of zones and also assist individual members. The idea of the pipe (or "chak") president followed logically from the fact that a pipe had several group leaders and a representative was required for the pipe as a whole" (Singh 1985:102).

The new organizational structure was introduced along with warabandi rotations, a new practice in the area but already part of the Pochampad plan. Pipe committees were seen as a means of implementing and operating warabandi schedules in a manner similar to that of the Nong Wai project discussed above. The experiment began in 1978/79 with two chaks. As an illustration, one of these chaks had an area of 39 ha with 138 farmers and 11 irrigation zones. The following year pipe committees were established in 8,100 ha, which was doubled the next year. Implementation teams led by the deputy Executive Engineer or his agricultural equivalent, and comprising 3-4 other officers, had the responsibility of meeting with farmers and inducing them to form zonal groups and select a pipe president. "No formal orientation training was given to the implementation teams. Each was assigned an area of about 800 ha and as soon as the work was completed the team moved on to another area" (Ibid, p. 106)

The functions of pipe committees were to (1) ensure adherence to the rotation schedule, (2) repair field channels, (3) refer problems to government officers and (4) share knowledge on agricultural matters and water use. Although the committees tended to be most active just after formation, and less active thereafter, they did have noticeable effects on the project, particularly in speeding up on-farm development work and in water distribution. Writing in 1984, Singh (Ibid, p. 113-114) reports that, "In the course of five years, some 3000 pipe committees have been formed" which have "met with varying degrees of success. They were not well enough organized to take up responsibilities that members as individuals were quite willing to perform. For example, a maintenance fund could not be collected. Group interest in repairs could not find expression." Much of the difficulty can be attributed to the hasty establishment of the committees without adequate grounding. "The implementation teams were always under pressure to move on to new areas, chasing targets which required them to put in long hours of work. They never had the time to work with pipe committees even for one full irrigation season. There was no organization or personnel to provide back-up support. Whatever success came by way of Chak management was due to the initial interest of the project authorities and the motivational context provided by the situation - availability of water and prospects of good yields."

C. Pakistan: On Farm Water Management Project, Punjab

Of the 54,000 watercourses in the province of Punjab, irrigating 9.2 million hectares, about 4,000 have been improved under the On Farm Water Management (OFWM) Project launched in 1976, and administered by the OFWM Directorate. Most of the remaining watercourses have been less intensively improved under locally administered projects. One of the primary objectives of the project has been to reduce the amount of irrigation water lost in

conveyance. According to the USAID (1982b:11) evaluation team, average watercourse losses were reduced from 40% to about 25% after improvement. Farmer involvement was "a basic principle underlying the OFWM Project" (Mirza and Merrey 1979:73) both as a means of reducing labor costs for construction, but more importantly to encourage proper maintenance over the long term.

Farmers are required to submit a written application guaranteeing their commitment of labor. Initially all material costs were covered by the Project; by 1985 farmers were required to pay 20% of the costs but applications were far in excess of the Project's capacity to respond to them. A typical chak (the area served by one watercourse) covers 100-200 ha and 20-80 farmers. Crops include wheat, sugarcane, rice, and maize. Under the supervision of an agricultural officer (AO) and two field assistants, farmers are asked to form a committee. "This committee is meant to coordinate the work of the farmers and the OFWM personnel; it is in charge of organizing the labor, raising the money for paying the masons, and negotiating with both OFWM and farmers in order to make decisions about location of out turns, buffalo baths, labor shares, tree removal, etc." (Mirza and Merrey 1979:73). Each AO is expected to oversee about 60 chaks.

While the formation of watercourse committees has been a pre-condition to watercourse improvement, the long-term viability of committees is problematic. Neither cleaning (which was not a major problem either before or after improvement) or illegal water use, has been markedly affected (Kausar et al 1982:64-65). In spite of the claim that the committees are "gaining popularity as the most successful cooperative bodies in the history of Pakistan" (Khan 1985:176), there is little hard evidence. In the field study by Mirza and Merrey (1979:98) they conclude that "the committee ceases to exist as an entity after improvement is completed. The same people may continue to operate informally but they are not operating as a committee; rather, they are continuing to operate in terms of their position in the local informal social network."

7. Madagascar: The "Petit Perimetre" of Ambohibary

Following many years of neglect, Madagascar's "small" irrigation systems, with an average size of 1,200 ha, are undergoing a rehabilitation of the physical, as well as the managerial infrastructure. The Ambohibary system, in the central highlands near Antsirabe, is a prototype for the style of participatory management that is being introduced to all 116 systems in this size range. As are most of the systems, Ambohibary is fed by a diversion weir leading into a short canal. Built in the 1930s, the system took its present form following Independence in 1960 and the division of what had been a large estate into a 3,000 ha system divided among 7,000 landowners.

The system today is divided into three Sectors each of which is subdivided into 10-15 maille. Each maille has a leader who collectively form a subcommittee at the sector level. Subcommittees administer water rotations as needed during the dry season, and mobilize labor for project activities. Every year, when the canal must be cleaned before water issues can begin, farmers are obligated to donate their labor, or hire a replacement.

Sanctions take the form of inability to market paddy to the government without proof of this labor contribution. Major authority for the system rests with the project manager, a government official, who is assisted by 7 government-paid laborers. The relatively smooth functioning of resource mobilization and water distribution is due both to the authority of the state, and an adequate supply of water. Current plans call for increasing authority to shift to the farmer subcommittees, with the project manager becoming an advisor to, and his salary paid by, the farmers.

Analysis

The seven cases described in the previous section cover a wide range of farmers' management participation. The Buhi-Lalo system in the Philippines is the clear winner in terms of farmer input; the Kemubu system of Malaysia is just as clearly in last place. This section considers the systems in terms of (1) How the organizations were established, (2) Farmers' water management functions, (3) The organizations' functions, and (4) financial management.

The Process of Organizing Farmers for Irrigation Management. Two of the systems discussed, Buhi-Lalo in the Philippines and the HPSIS project sites in Indonesia, made use of community organizers who were specially trained in both organizing techniques and irrigation practices. In the Philippines, COs qualified in agricultural and/or social sciences were recruited directly by NIA and given supplementary training before being posted in the field. Their assignment in Buhi-Lalo had a duration of about 16 months. The HPSIS sites in Indonesia also utilized COs but for a shorter duration. A private research institute was contracted to help recruit and train the COs and to monitor their work. In both cases the added short-term expense of employing specialists was judged to have long-term benefits in stronger and more sustainable farmer organizations.

The approach taken in Thailand (Nong Wai), India (Pochampad) and Pakistan (OFWM) utilized existing agency staff who were given new responsibilities of establishing farmer organizations. In Nong Wai, the organizers were from the Cooperative Promotion Department which is not normally involved with irrigation; presumably the staff have some training in organizing farmers. In Pakistan's OFWM Project the role of agricultural officers, who have jurisdiction over tertiary infrastructure, was to publicize and promote the watercourse improvement program, but the formation of the group was the responsibility of the farmers themselves. Irrigation officers in the Pochampad system created pipe committees by decree. Interaction with farmers took the form of public meetings with little time for personal consultation.

Farmers' Water Management Functions. The participation of farmers in irrigation management varies in terms of (1) which management functions they are involved in, (2) the intensity of that involvement, and (3) the geographic extent of their participation.

(1) Which management functions. In four of the five systems where construction was planned or ongoing, (Buhi Lalo, HPSIS, Nong Wai, and OFWM), farmers had input regarding placement of structures and (except in Nong Wai) also participated in construction. In Pochampad pipe committees were conceived as a logical follow-on to construction activities, but not a mechanism for carrying out that construction. Maintenance of the infrastructure and distribution of water are usually the key tasks which agencies would like farmers to carry out; their participation in design and construction is seen as a means to that end. With the sole exception of Kemubu (Malaysia), where the agency maintained even quaternary channels, farmers were responsible for maintaining tertiary channels and for distributing the water carried by those channels.

(2) Intensity of farmer involvement. Construction activities played a key role in the initial formation of farmers' groups in Buhi Lalo, OFWM, and to a lesser extent, in HPSIS. Not only did farmers gain experience in working together as a group and managing finances, but the group gained experience in negotiating contracts with government agencies. The intensity of maintenance varied among projects as well as within projects. In Pochampad, some pipe committees faced difficulties in mobilizing group resources, either financial or human, to carry out maintenance tasks.

The capacity to impose sanctions on its members is a test which only a few organizations can meet. The farmer association in Buhi Lalo routinely collects irrigation fees from and provides payments to its members. In Ambohibary, the mobilization of group labor, though implemented by farmer leaders, is enforced by the government. The legal status of the association has some bearing on its capacity to impose sanctions; farmer groups in Buhi Lalo, HPSIS, OFWM, and Ambohibary have legal standing; the others do not. Water distribution did not appear to be a critical problem in any of the systems, except Kemubu. In Pochampad and OFWM, the agency drew up the warabandi schedule; the role of farmers was to merely to implement it. In Nong Wai abundant water supplies precluded any intra-group water conflicts. Similarly in Ambohibary, though rotations are scheduled during the dry season, water supplies are often ample enough that rotations are not needed.

(3) Geographic extent of farmer participation. Although plans in two of the projects (Buhi-Lalo and Ambohibary) call for eventual farmer management of the entire system, at the time of the reports cited here (Illo and Chiong-Javier 1983 for Buhi-Lalo; IIMI 1986 for Ambohibary), farmer management was limited to subsectors of 300 ha and 1000 ha respecively. In Nong Wai and OFWM, farmer participation is not envisaged to extend beyond the chak boundaries. In fact, associations of watercourses under the OFWM Project would not be possible, since they have been improved on a piecemeal basis; it is unlikely that adjacent watercourses would both have committees. In Pochampad farmer representation across chak boundaries could have been useful, but apparently was never attempted: "...there is need for a high level committee of members representing farmers on a minor or distributary. Such a committee can work jointly with the administration to tackle unauthorized use of water in the upper reaches and refer field-level problems to the appropriate level of government" (Singh 1985:115).

The Management of Other Agricultural Inputs. With the exception of the Kemubu Project in Malaysia, in each of the projects discussed above, an organization of farmers has been established explicitly for irrigation management. Whether called Water User Groups, Pipe Committees, or Irrigator Associations, the sense is basically the same. Once a group has formed, however, there is a tendency to add more functions to it. In the Philippines, for example, some of the irrigator associations purchase agricultural inputs in bulk for members. In the Nong Wai project, there was always an expectation that "the WUG should be utilized as the basis by all departments for their activities such as sharing of farm equipment, supply of farm input and pest control" (Kathpalia 1984:22). One of the functions of the Pochampad pipe committees was to share information about agricultural practices, but not to obtain inputs as a group.

When added functions are imposed from without rather than generated in response to membership demand, the irrigation functions can suffer. In the HPSIS Project, "government agencies often look upon the P3A as a part of their extension service network. The communication seems to be from the government agencies down to the P3A, using the CO as a mediary, with the assumption that the job of the P3A is to help mobilize farmers to fit in with the government plans" (Morfit 1983:22-23).

Financial Management and Cost Recovery. The strength of the Buhi-Lalo irrigator association is at least partly linked to the NIA's desire to recover substantial portions of its irrigation investments and to minimize maintenance subsidies. Faced with severe budget constraints, the NIA had a strong incentive to reduce costs. On the other side of the equation, farmers who faced high irrigation fees were willing to take on added management responsibilities in return for reduced fees. The NIA's investment of nearly 20 person years in COs' time alone[2] to develop organizational capacity in a 3,000 ha system stands as eloquent testimony to an institutional commitment.

In several of the projects discussed above (Nong Wai, HPSIS, and Ambohibary), irrigation fee collection is mentioned as one function of the irrigator association, although there are no reports of actual fee recovery. The management of internal finances was cited in three cases (Buhi-Lalo, HPSIS, and OFWM). Where farmer groups contract with the irrigation agency to perform construction services, experience is gained in handling finances. Whether maintenance budgets can be sustained, however, is problematic; no positive evidence was cited in the reports consulted.

Comparisons with Sri Lanka

Many of the features seen in the seven cases discussed above can be found in the various approaches to participatory management that have been implemented in Sri Lanka. The farmer organizations that have been formed in Gal Oya (the IO program), Dewahuwa (the INMAS approach) and Mahaweli H are

[2] Based on Illo and Chiong-Javier 1983:243, Table A4.

discussed briefly with respect to the approaches developed in other countries.

The Process of Organizing Farmers for Irrigation Management. In Gal Oya, as in Buhi-Lalo and HPSIS, a special cadre of Institutional Organizers (IOs) was recruited and trained to work as a catalyst in helping farmers organize themselves along irrigation zones, and to serve as an intermediary between farmers and irrigation officers. Under the INMAS approach used in Dewahuwa, a specially recruited government officer (the Project Manager) has as his primary task the responsibility for creating farmer groups and interacting with those groups.

There is a parallel with the duties of the Project Manager in the Ambohibary system in Madagascar who is responsible for both organizational links with farmer groups and water distribution tasks, which in Dewahuwa are handled by a separate Technical Assistant. The Mahaweli model, which depends on an agency official (the Unit Manager) to organize farmers, is similar to the approach taken in the Nong Wai, Pochampad, and OFWM examples. A major difference is that the Mahaweli Unit Manager has a much smaller zone of responsibility and can give relatively greater attention to farmer groups. In none of these three Sri Lankan systems have irrigator associations been established as legal entities.

Farmers' Water Management Functions. Farmer groups in Gal Oya gave suggestions regarding the design of F-channels and placement of structures, but unlike the cases of Buhi Lalo, HPSIS, and OFWM, farmers were not involved in new construction. Shramadana activities were important in the early phases both as a mechanism for strengthening the group and as a practical solution to long overdue maintenance tasks such as cleaning F-channels and distributaries. In both Dewahuwa and Mahaweli H, the participation of farmers has involved water distribution, channel maintenance, and the coordination of planting schedules. In all three irrigation systems, farmers have responsibility to distribute water only within the 10-25 ha served by one F-channel, and not between F-channel turnouts along the Distributary, which are managed by agency staff.

The units actively managed by farmers in Gal Oya, Dewahuwa, and Mahaweli H are smaller than corresponding areas of farmer jurisdiction in Thailand (60-80 ha), Pochampad (ca. 40 ha), and Buhi-Lalo (200 ha). In terms of farmer representation and input of information which can influence management decisions, however, there is also farmer participation at the project level through area councils (Gal Oya) and tract committees (Dewahuwa). Similar levels of project-level representation are found in Buhi-Lalo and Ambohibary. In Mahaweli H, the highest level of effective farmer representation is at the D-channel.

The Management of Other Agricultural Inputs. In Mahaweli H, turnout groups and D-channel units comprise the basic groups for channeling agricultural services and inputs to farmers. In Dewahuwa, the F-channel units and tract committees are primarily oriented to irrigation management, but may provide a forum for other agricultural services, as in the Pochampad case.

Financial Management and Cost Recovery. Irrigation fee collection is the responsibility of the agency in Mahaweli, Dewahuwa, and Gal Oya. Though farmer representatives may help in the collection (as in Dewahuwa), the fee is levied by the agency on the individual farmer, not the group, since the group is not a legal entity. In Gal Oya at least one D-channel organization has managed common finances in order to bid on a maintenance contract with the Irrigation Department (Uphoff 1986b:1).

Conclusions

Experiments with participatory management in Sri Lanka are part of a larger laboratory in which irrigation agencies around the world are attempting new approaches to improve system performance. Some of the features in the Sri Lankan approach to these issues may have broad relevance -- for example, the INMAS and Gal Oya structure whereby farmer representation is built into the project level. There are also many lessons to be learned from experiences elsewhere. The utility of community organizers can be studied not only in Gal Oya, but in Indonesia and the Philippines. The role of project managers in Madagascar may offer insights into the role of INMAS managers.

One fundamental issue which needs to be addressed is the meaning of the term "participation" as applied to farmer involvement in managing irrigation. Farmers are involved in every irrigation system but at different levels and in varying degrees; even the farmers in Kemubu participate in management, albeit in a rather individualistic manner and with little assistance from irrigation agency staff. There appears to be a qualitative difference, however, between the management participation of farmers in Buhi Lalo and the kind of participation found in INMAS schemes like Dewahuwa, or in Mahaweli H. In Buhi Lalo, farmers manage water distribution within a 200 - 250 ha zone; they are responsible for maintenance and repairs not only to field channels but to secondary canals that pass through their zone. Finances must be managed both within the group and in order to pay irrigation fees to the agency. Under the INMAS and Mahaweli approaches, on the other hand, farmer organizations exist not so much to manage water as to provide a flow of information to agency officials who then make management decisions. Even in Gal Oya, where an intensive effort has been made to involve farmers, their management is mostly limited to the level of F-channels.

The differences between farmers' management roles in different systems are important and complex. It is not enough to know that one system employs COs and the other does not, or that one system has a project manager and the other does not. To understand the management options, and to consider the options which call for significant input from farmers we need to have much better documentation than is currently available. Many of the reports, including many cited in this paper, provide only hints of how farmers are organized and what their management role is in a particular irrigation system. Do farmers have management responsibility for turnout gates? Do they make repairs to the field channel? Major repairs or only minor ones? Does the association have a budget? Who pays for repairs to the field channel? Reports tend to describe in detail the planned responsibilities of

irrigator associations with little concern for providing a clear indication of actual practice. Optimistic reporting of organizational plans rather than realities leads to false expectations of farmers' management roles.

The kinds of data needed to evaluate participatory management include details of the management tasks performed by farmers and the tasks performed by agency staff. In addition, information is needed on how the water user association was formed, the informal organizations that preceded it, the functions of the association, and linkages with other associations and with agency officials. A suggested outline of relevant information is given in Annex 1 under the title, "Rapid Appraisal of Farmer Participation in Irrigation Management."

In addition to better information on the present situation, we need follow-up studies conducted after the initial flush of enthusiasm has subsided, when the project has settled into routine operation. Too often studies are conducted before the project has been completed, before any real evaluation of participatory management strategies is possible. Then, by the time the project is over, interest in the management experiment has waned, and the valuable lessons of the experiment are lost. Writing retrospectively of the Pochampad case, Singh (1986:18-19) points out that:

> Though Pochampad strongly suggests that people's participation contributed significantly to the better utilization of water the observations are confounded by the co-occurrence of OFD, warabandi and irrigation committees. It is not known whether the additional area actually brought under irrigation after the completion of OFD works continues to receive water in future. If this is so, a strong case for irrigation organisations can be made. One would like to know whether people's participation significantly helps in the preservation of the Chak system and the equitable distribution over a long period of time. Required are well conducted field studies to assess the contribution of different degrees of people's participation to the better management of the Chak irrigation system.

Valuable and hard-won experience is being gained in participatory experiments in many countries, but the lessons of that experience are not adequately documented. There is an urgent need to record sufficient information from each case, both during and more importantly after the project, so that past experiences can guide current and future efforts. In Sri Lanka there is opportunity to sample a wide range of participatory management and to evaluate different approaches in both a national and international context.

A better understanding of the costs and benefits of participatory management is needed. If participatory management is to avoid the fate of Community Development, we need to develop a clear sense of its objectives, its possibilities, and its limitations. The claims made of participatory management must be supported by evidence, and the evidence can come only from evaluating past experience.

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