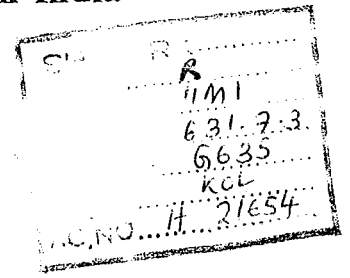
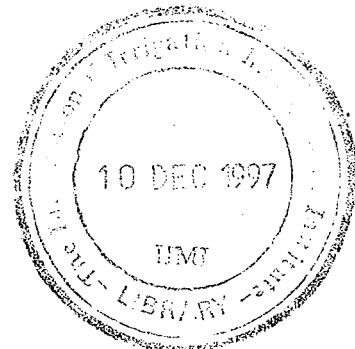


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Workshop on Irrigation Management Transfer in India



ASSESSING WATER USER ASSOCIATIONS



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Assessing Water User Associations

An examination of how WUAs are working and why some perform better than others is an important component of the study of management transfer. It is difficult to compare the working of organizations we have chosen to study as there is wide variation among them in the range of activities they are engaged in, the objective with which they were set up, and most critically, the duration for which they have been in existence. Organizations take years to evolve but some of them have been in existence for only a few years. Nevertheless, there is a common framework which can be used to analyze the building up of and the working of these organizations. Such an analysis will be particularly useful if the primary interest is to learn from these experiences about the critical factors which influence performance of collective organizations.

This paper has four sections. The framework used is presented in the first section. Measures used to assess performance which are based on outcomes are discussed in the second section. The third section has a discussion of some of the process related indicators of performance of collective organizations. The factors which may explain the differences brought out by the indicators are presented in section four.

The discussion in this paper pertains to 20 water user associations. They include 10 WUAs in canal irrigation systems (Anklav, Mohini, Datta, Shevre, ozar, LBP, PAP, Saliperi, PVP and Vaigaikulam), 3 lift irrigation schemes (Bhima, Kadoli and Phulewadi), 5 tanks (Kedar, Dusi-Mamandur, Parunde, PP and PK tanks), and 2 medium irrigation systems (Pingot and Baldeva). Mohini and Anklav are together referred to as GJ canal societies. Datta, Shevre and Ozar are referred to as MH canal societies. LBP, PAP, PVP, Saliperi and Vaigaikulam are referred to as TN canal societies.

Framework

WUAs seek to provide collective benefits to their members. That is, they provide for themselves goods and services the nature of which are such that it is difficult to exclude some of the members from benefitting from them. When individual members cannot be excluded from the benefits offered by the groups, they have incentives not to contribute to provision of these services. Therefore, the crux of the problem for the groups is to devise ways and means to influence the behavior of members to make them contribute to collective tasks. Groups which can organize themselves to do this successfully generally succeed in collective endeavors

WUAs comprise of individuals who wish to work together. The WUAs can be effective only so long as members believe that it will be beneficial for them to work together. An analysis of why some WUAs are better than others then should focus on incentives of

individuals to initiate and maintain their associations. The framework chosen to explain differences in performance of various organizations has three propositions: i) individuals will participate in collective activities only if they can derive benefit from doing so, ii) there are monetary and transaction costs associated with building and maintaining organizations, iii) individuals also take into consideration the share of these organizational costs that they have to bear in making their decisions regarding participation.

Working together entails developing consensus about the purpose of working together, acceptable rules which govern how members of groups work together and constant efforts to ensure that the rules are observed by all the members in addition to the usual tasks of running an organization. One of the features of working together is constant need for interaction at least in the early stages. Members need to consult/convince each other, develop acceptable means of working together, determine how to punish/discourage those who break rules, work with the external agencies such as the Irrigation department (agency), the Registrar of Cooperative Societies or banks. All these may not cost money but require effort or somebody's time. Some groups can hire people to do all this, but all groups tasks cannot be passed on to hired staff. We may call the effort involved as interaction or transaction costs; they are costs in the sense that people like to avoid them as much as cash costs.

The interaction costs involved in groups working together can be categorized as being costs of i) consensus building, ii) organizing and iii) maintaining. Consensus building involves developing an agreement on the purpose of working together. It may begin with a new idea being planted in the minds of a few by someone in or out of the community and gradually spread widely through interactions. Acceptance of a new proposition by individuals may require them to have considerable faith in the messenger that the proposition will be desirable or personal knowledge that the proposition has been beneficial on the basis of experiences elsewhere, probably in a neighboring village or a system. Organizing involves developing rules of working together and all that is required to gain recognition from external bodies such as irrigation agencies and the cooperative departments to work together. Some of this requires not just effort but skills. Finally maintaining includes the effort which goes into sustaining consensus about the purpose of the group, bringing about rule compliance within the group and negotiating and maintaining relations with the external world.

The proposition is that organizations which are better able to meet these costs are more successful. This is where the role of leaders and NGOs becomes relevant. Leaders who by definition are people in whom the followers have faith, can influence the aspirations, expectations and the behavior of individuals. They can mobilize people to come together for a purpose. As individuals have faith in them, they can build consensus far more easily than someone without such influence over other people. They are effective in reducing costs in other stages as well. Two key components of maintaining a group are rule enforcement and

conflict resolution. By the "authority" they possess, the leaders are able to reduce the effort required to perform these tasks. Therefore groups with strong leaders are able to develop faster and also sustain the interest of members.

NGOs perform similar functions. They work with people to identify their problems, propose solutions which the communities by themselves may not have thought about and also attempt to build consensus by bringing together opposing factions. They are able to influence the aspirations of the people by demonstrating through prolonged work in communities that they care about them. They organize communities and encourage potential leaders to assume leadership positions and negotiate with external agencies on behalf of the communities. Many NGOs which continue to work with groups even after they are formed perform critical tasks required for group sustenance.

In sum, individuals cooperate with each other when they benefit from doing so. In making their decision, they also take into consideration how much effort they need to put forth into working with others. They are more likely to participate when there are leaders or NGOs who absorb much of the organizational costs. Their continued participation is contingent upon sustained incentives for them to work together.

Outcome based indicators

One of the bases for assessing the organizations could be the extent to which they have met the objectives for which they were established. The two major objectives of the states in transferring management functions to the users appear to be i) to reduce operation and maintenance costs and ii) to improve water distribution. The states are keen on reducing O&M burden on them even if there is no reduction in overall O&M costs. But they believe that some of the traditional functions of the agency can be performed by the users at lower costs and therefore there will be cost reduction in the long run. They also believe that water distribution will improve when users enforce rules among themselves. Determining the extent to which turnover has realized these two objectives, viz. cost reduction and improved water distribution, may be an appropriate way to assess the outcome of management transfer or the performance of users organizations.

Assessing performance in relation to the objectives poses a problem. The objectives of user organizations need not be consistent with those of the states. They often conflict. The WUAs would be interested in increasing water supplies to themselves while reducing their share of the costs to the extent possible. We will focus on objectives of the state in this section.

Impact on costs

The impact of turnover on costs can be examined from the point of view of the users and the agency. Various components of costs borne by the users are water fees, their contribution to maintenance and any transaction costs they incur to obtain water and organize themselves. The agency's costs include establishment and maintenance costs incurred to supply water. Transfer should, particularly if users can perform some tasks at lower costs than the agencies, lead to reduction in total costs, that is the sum of agency and user costs. But the short run objective of both the users and the agencies is to reduce their own share regardless of what happens to total costs. To understand the impact of turnover on costs the following three aspects may be examined:

1. whether there is any reduction in the total operation and maintenance costs incurred by both the agency and the users as some of the functions are transferred to the users (benefit coming from tasks being performed at lower costs by the users);
2. whether the burden on the state, with or without decline in the total costs, has decreased in the short term (benefit to the state coming from the users willingness to bear a greater share of the costs as they gain control and water distribution improves);
3. whether there is any change how well the systems are maintained and water is distributed (benefit from improved commitment to the resource).

The most desirable outcome from transfer is the one in which the answers to all the above questions are in the affirmative. In order to get an overall perspective of the impact on costs, one needs to examine what has happened to costs and the shares borne by agencies and user associations. The impact on maintenance and water distribution is also critical; it would not be desirable to achieve total cost reduction through neglect of maintenance and poorer water distribution.

Impact on water control

Water control is used here as an indicator of the extent to which water deliveries meet the water requirements of users. Impact on water control can also be examined from the point of view of the user associations and the irrigation systems they are part of or the perspective of the agencies. Improvements in water control can result from better distribution of a given quantity of water or an increase in the quantity of water made available to a user association. An increase in quantity when it is at the expense of the other users in the system, it is beneficial to users in a society but not to the system as a whole. Only when increased water availability to members in a society is due to reduction in water losses arising

out of efforts made by the society, it can be presumed to be beneficial to the system also. Therefore, in examining changes in water control attention should be paid to factors which contribute to the change. As in the case of costs, the objectives of the associations and the agency are at variance. An improvement for an association need not be desirable for the system as a whole.

The two medium irrigation societies, two tanks (PK tank and Parunde] and three lift irrigation societies (Kadoli, Phulewadi and Bhima) in which there was little or no irrigation before, improvements in water control are most significant resulting largely from changes in quantity. Among these, only Pingot, Baldeva and Parunde involve management transfer. Bhima is somewhat of a transfer as the assets are owned by the state were handed over to the users to be managed.

Water control has improved in Anklav, Mohini, Shevre, Ozar and Datta societies. Control seems to have improved for these societies because they receive more water than before and as a result of marginally better distribution within their commands. As many are experiments they enjoy preferential treatment from the agencies. In the case of Anklav, even the delivery capacity of the distributary which served the society was increased to meet the peak water requirements. In Mohini, the society was very successful in reducing water losses and increasing duty or the area irrigated per unit of water in the initial stages. Such benefits seem to have eroded over time. All the MH canal societies seem to receive more water than before as they are able to support irrigation of larger acreage under sugarcane in their commands.

Water supplies to TN canal societies, LBP, PAP, Saliperi, Vaigaikulam and PVP, have not changed much. Water distribution may have improved marginally due to reduced waste in LBP, PAP and Saliperi where distribution systems have been lined or upgraded. Water distribution may also have improved marginally in PK tank which was rehabilitated.

Changes in water deliveries to WUAs after they are formed is a matter of equity between those who belong to WUAs and those who do not. The users who are not organized into societies become losers particularly when the agencies make special allocations to societies to make them successful. In some cases, the societies have used the clout they have acquired or the sympathy the agencies have for them to get more than their legitimate shares. In Mohini, two farmers with fields at the tail end did not get water in the first rotation. The society wrote to the minister requesting an extension of one rotation after the local agency staff refused to comply with their request. Datta and Shevre are two other cases where similar efforts were made. In some of the societies, particularly those in Tamilnadu canal systems, the basic objective WUAs is to lobby for more water for themselves. Generally it is to protect one's rights. To the extent that the societies engage in a zero sum game, that

Table 1 Changes in water control and effect on others

WUA	water control	Effect on others
Anklav Mohini	Has improved primarily because of increased delivery.	Downstreamers are affected by Mohini society. The benefit extended to Anklav cannot be offered through out the system
Shevre Ozar Datta	Has improved because of larger deliveries and better distribution.	Cultivation of sugarcane is far in excess of what is observed in the rest of the systems.
LBP PAP Saliperi PK tank Kedar Dusi- Mamandur	Marginal improvement resulting from canal repair or lining in the three canals systems and rehabilitation of tanks.	Marginal effect on others.
Vaigaikulam PVP	No significant change.	Lobbying beyond protection of their share, may result in losses to others.
Kadoli Phulewadi Bhima	Significant change in water control.	They take more water than they are entitled to. The limits are not effectively enforced.
Pingot Baldeva Parunde	Significant increase in benefits.	There is no effect on others.

is an improvement in water control is achieved at the expense of others, the benefits to societies from improved control are not consistent with system wide objectives. In Bhima, the management has refused to accept more members despite instruction from the registrar of cooperative societies. When farmers from the neighboring area went to the agency wanting a similar facility for themselves, they were told that their area was included in an existing system.

Equity

While cost reduction and improvement in water distribution are explicitly stated to be objectives of transfer, the states also have two other concerns. They are equity in water distribution and sustainable use of water or use of water in a way that does not lead to

environmental problems. One of the major rationale for the government to retain control over the management of natural resources is to ensure that the benefits can be distributed as widely and as equitably as possible. Management transfers would not be acceptable if water distribution were to become less equitable.

We can only make qualitative judgements about how equitable water distribution was in various societies. Our judgements are based on the views expressed by WUA members and our observations. Only to a limited extent, our judgements are based on the extent to which rules were enforced uniformly among members as the lack of rule enforcement need not necessarily lead to inequity.

Table 2 Changes in equity

Society	Equity in water distribution
Mohini Anklav	Some farmers did not receive water during one or two rotations. Although nearly all of them receive water, there is considerable variation in duty.
Pingot, Baldeva and Datta	Larger farmers seem to be able to have their way. There may be systematic bias towards those who have higher ability to pay in Datta.
Shevre, Ozar, TN canal systems, MH lifts, Dusi- Mamandur, Kedar, PP tank	Water distribution is fairly equitable.
PK tank	Tailenders receive less water; they may now be worse off as water leaked from the tank which they used to get has been reduced by tank rehabilitation.

Inequities persist in many of the societies. Inequity is mostly between headenders and tailenders and to a limited extent between socio-economically more powerful and others. In PK tank headenders get more water due to seepage into their fields. But their soils also tend to be more sandy compared to heavier soils with lower water requirements at the tail end. Members believe that the executive committee members get priority in water distribution in Mohini. One farmer withdrew his application in Baldeva because he did not expect to receive water. The powerful seem to be able to get more water regardless of where their fields are

located; influential farmers in Ankav who have fields in the tail region manage to take water to their fields. Some farmers in Pingot irrigated twice in a rotation. Patkaris themselves may be less than fair in water distribution. A Patkari in Parunde irrigated his fields without cleaning the field channels; members are not permitted to irrigate their fields without cleaning their field channels. The secretary of the same society directed water to his well at night during a rotation.

On the whole, water distribution seems to have become more equitable after the transfer or is more equitable in user managed commands compared to agency managed systems. Transfers have resulted in more reliable supplies and marginally better maintenance which have benefitted tailenders. Repair and lining of canals in Kedar for example has ensured smoother flow to tail areas. WUAs also devise rules which lead to equitable sharing of water. In Kedar for example, only those without wells get water from the tank for raising the second crop.

The weaker sections, generally comprising of small landholders and those belonging to lower castes, are often at the mercy of the rest. They have not gained power or voice to be able to demand their share of water. Societies seem to seek equitable water distribution for two reasons. They face the threat of losing control over the systems if water distribution is inequitable. The agencies insist that water be distributed equitably although they may not supply water equitably when they control water distribution. Transfer agreements often stipulate that user controls will be withdrawn if services are denied to weaker sections. They often watch vigilantly to see if there is inequity. Societies also seem to be aware that the agencies will take action if some of the members complain about inequity.

The other reason appears to be the commitment of one or two leaders to equity. The reason for commitment may be benevolence or prudence, as equitable distribution is necessary for the continued existence of user organizations. We did not find the commitment to equity widely shared even among the members of the managing committees. This is largely true for newer societies. Kedar may be one case where the weaker sections have voice. The executive committee is made up of representatives of various castes in proportion to their strength in the community.

Sustainability

Sustainability here refers to using land and water in ways that will not reduce its availability both in terms of quality and quantity for the future generations. It entails, in one form or another, giving up some benefits that can be received now and in the near future for benefits to be received in the distant future. Transfer of management can result in significant shifts in how water is used as groups gain the right to use resources as they see fit. It is

interesting to see whether they will take a long-term perspective to manage the resources sustainably.

As associations succeed in procuring more water for themselves, they tend to overuse water leading to poor drainage and land salinization. In addition, cropping pattern changes facilitated by availability of more water may result in heavy mining of soils reducing crop yields over time. In Mohini, Shevre, Ozar and Datta societies sugarcane cultivation has steadily increased. Sugarcane is cultivated in more than 50 per cent of the land while the stipulated limit for the systems is 4 per cent. In Mohini and Datta, cane yields have declined considerably as cane is cultivated year after year on the same fields with marginal addition of nutrients. We observed fields in Datta which belonged to absentee landlords who did nothing to their cane crops but flood them frequently. In Mohini, the yields have come down from nearly 60 tons per hectare to 25 - 40 tons per hectare. Earlier they used to take two ratoon crops which is not possible now.

One of the positive benefits from the introduction of canal irrigation, and to some extent transfer of rights to users under suitable incentives, is that conjunctive use of water has increased slightly. Many associations now have the freedom to allocate their water quota across seasons. Many associations are thinking of ways to store kharif water for future use. Storing it wells has become a common feature in several systems. Ozar societies divert water at night to bandaras to recharge groundwater. Datta farmers want to build a pond to store surplus water.

Agencies do not trust the associations to use water wisely. In Maharashtra and Gujarat, Memorandum of Understandings entered into between the agencies and the WUAs stipulate that if the water table rises to within three metres from the ground, the agencies have the right to reduce or terminate water supply to the societies. Even the lift irrigation societies are given rights to lift water under the condition that they will adhere to some cropping patterns which often limit the cultivation of heavily irrigated crops.

Processes related indicators

While outcomes of the working of user associations offer one set of indicators of their performance, how the associations work or the processes themselves may offer useful insights into the potential impact of user organizations. It may be more appropriate to use process related indicators to compare effectiveness of user organizations than outcomes as outcomes are more likely to be influenced by external factors. Processes in user organizations are critical to their functioning because of the nature of activities they are engaged in.

Water user associations generally undertake one or more of the following tasks: i) resource generation and construction of whole or parts of systems ii) maintenance of field and feeder channels, iii) water distribution and iv) fee collection. The tasks that the societies assume are collective. They are collective in the sense that it is difficult to exclude one or more members from benefitting from group efforts. Individual members will have incentives to freeride or not participate. Their attitude may be represented by "let others do it, I can benefit from it." Individuals may not want to join everyone else to clean the field channels or pay their water fees to the society. Some of them may even feel that they can gain more if they do not participate while others do. "If others clean the field channels, they cannot prevent me from using the field channels." Even those who are genuinely interested in participating may hesitate if they suspect that others may not contribute. Their attitude may be: "why should I pay my fees in time if others are not going to?" The essence of organizations involved in collective tasks is to have mechanisms which will make their members contribute to or participate in collective efforts and also have confidence that others will do so.

Successful collective organizations such as water user associations develop and enforce rules which modify individual incentives to freeride. The rules generally relate to i) how they can use the resource and what is expected from them in terms of contribution and ii) what happens to those who do not obey the rules. The second set of rules generally have rewards or punishments associated with different behavior. Groups in which there are rules or norms or institutions, individuals comply with rules because they come to realize that not doing so has costs. The cost may be a fine or denial of irrigation or social isolation. The extent to which "institutions" which modify behavior have been established to make collective management feasible can be a meaningful measure of effectiveness of water user associations.

Creating and enforcing rules entails three functions: making rules, enforcing them and resolving conflicts. We can examine how effective the groups are in relation to these three dimensions in order to assess their potential as water user associations. A primary function that they perform is to ration water among their members as they often have less water than demanded by their members. How effectively they can ration among themselves is in some sense a good indicator of their effectiveness.

Capability to devise rules

The capacity to devise rules, at the broadest level, reflects the ability of a group to manage itself. Rules determine the terms of interactions. They also determine the domain or the boundary of interaction as a group. One could even think of an appropriate set of rules for each organization which explicitly takes into consideration needs, opportunities and particular circumstances faced by the organization.

Two aspects of society management are considered to reflect capability. One relates to their ability to devise rules. The other relates to their ability to redefine their collective domain in response to needs, problems and opportunities. To some extent, rule making and domain definition are related. Some of the factors on the basis of which capability is judged are: i) extent of member participation in decision making, ii) evidence of changes in rules and strategies in response to changing situations and iii) changes in activity profile of organizations.

Most societies have not functioned long enough for us to make reasonable judgements about their capability. Although some changes in strategies may be observed, it may not be possible to identify the process through which the changes were brought about. The changes may have been initiated by external agents. Rule making refers to rules of the game that they develop to share water, pay charges for water, contribute to maintenance and resolve conflict among themselves. Changes in rules or the range of rules may be used as indicators of capability. But, the requirements for rules vary from one situation to another. Even in a particular situation, rules need not be followed under all conditions.

One of the difficulties in judging whether groups have been dynamic in devising rules which meet the changing conditions is that rule changes may not appear on books. Many of the groups are often told what the rules ought to be; they generally may not have the courage to tell the NGO or the agency that they will work differently. Datta society is an example. They have stopped preparing detailed schedules for each rotation, but a casual visitor gets the impression that they do.

In TN canal systems, the rules have evolved over time; changed cannot be observed now. Among the newer associations, Datta, PP tank, Parunde, Bhima appear to be dynamic. Some of them have developed rules which meet their particular needs. In Shevre, they have changed their rules to permit extra irrigation for planting cane. In Ozar, they divert water at night to bandaras in response to reluctance of their members to irrigate at night. They also provide more water to fields with light soils which require water more frequently. In Datta, they have changed water distribution rules several times to develop a set of rules which suits their conditions. All these societies have changed the rules in response to difficulties/opportunities they have faced.

Rule making often results in changes in the domain of collective activity. Barring actions of organizations which are driven by the motive of taking advantages of subsidies and so on, a group's decisions to add or delete activities in response to some their experiences while continuing to retain their core activity is an indication of capability. Many societies have ambitious plans which are often included in their charter, but some have thought them through and have made specific plans to raise the required resources.

Table 3 Capability of WUAs

Shevre, Ozar, Datta, Saliperi, Vagaikulam, PP tank, Kadoli, Pingot, Phulewadi,	Dynamic
LBP, PAP, PVP, Baldeva, PK tank, Parunde, Kadoli, Bhima and Anklav	Less dynamic
Mohini	Was dynamic in initial stages

In Shevre, they are planning to build wells to increase their water supply. Vagaikulam farmers want to get a phone for swifter communication with the agency. Farmers bought a pump set in Pingot. In Saliperi, they are planning to collect rice as contribution from their members to take on other activities such as fertilizer supply. Ozar societies have introduced a bandara charge. TN societies take on several functions to raise revenues. Saliperi WUA undertakes canal repairs. The Datta society wants to increase its water supply to cane growers in summer to raise revenues. They seem to be very aware of the fixed costs they need to recover from water sales. Kedar society would like to desilt the tank to increase fish harvests. The societies' interests are wider than self management of irrigation. Most societies are interested in taking up supply of agricultural inputs as they feel it is as important to them as water supplies are.

A companion paper will discuss in detail what capability is, how it is developed and the conditions which encourage capability development.

Rule enforcement

As there are always strong incentives for individuals not to respect rules, successful organizations have effective mechanisms to identify and punish those who do not follow the rules. Four aspects of rule enforcement will be discussed here: i) the nature and the extent of rules governing various activities of societies; ii) monitoring mechanisms used; iii) effectiveness of rule enforcement and iv) the means by which rules were enforced. The three critical functions of water user associations regarding which rule enforcement are discussed are water distribution, maintenance and user fee or contribution collection.

Rule enforcement and conflict management are closely related. Non-compliance of rules by some often leads to conflict between two or more members or between members and the management committee. The two will be discussed separately.

WATER DISTRIBUTION

A wide range of rules governing water distribution were observed. The most rigid rules are in LBP where strict warabandi is observed. In PAP warabandi is breaking down because of unreliable water deliveries. Warabandi restricts individual rights to water to specific times during specific days. A rotation where individual allocations are strictly in relation to area and crop irrigated is followed in Shevre. They are allocated water at the rate of 5 hours per acre for cane and 4 hours per acre for other crops. A schedule is prepared before each rotation and farmers are advised through a note as to when their turns are. Schedules are also prepared in such a way that night irrigation is shared equally by all the members.

Rotation is the most common rule adopted. It is practiced in Ozar, Mohini, Anklay, Pingot, Baldeva, Parunde, Vagaikulam, Saliperi, PAP and in Dusi-Mamandur and Kedar tanks. Rotation involves turns taken generally on the basis of location along the water course usually from head to tail. Unlike warabandi, there is no time limit on each turn; each user takes water until the field is irrigated his or her satisfaction. However, in older systems norms dictate what people consider to be adequate irrigation.

Datta society has the most flexible set of rules; turns are decided by the patkaris on the basis of demand. Outlets with most demand for water are opened first. Patkaris have absolute control over irrigation. The gates are locked and the keys are kept with the patkaris. The critical requirement for such a system is to have patkaris who are considered to be knowledgeable and fair. The lift irrigation schemes have on-demand and on-payment systems in which turns are either based on rotation or first-come-first-served basis depending on the extent of demand.

Paid staff are used for irrigating and monitoring to various degrees depending on the rules. In LBP and PAP where warabandi is the rule, individuals monitor their rights; as rights are clear, impartial monitoring is not required. Staff are used to various degrees in other projects. In some they are supposed to operate the gates but fields are irrigated by farmers. In others, they are hired only when the demand exceeds supply and there is potential for conflict. Only patkaris are permitted to irrigate the fields in PK tank in which water is always in short supply. Ozar societies hire experienced farmers as patkaris.

The rules adopted differ because they have been cleverly devised to suit their conditions. In some cases such as PAP and LBP water supply schedule is rigid but predictable making them suitable for warabandi. Where deliveries are less predictable, rotations are superior. Where crop water requirements vary because of soil conditions, area based sharing is not suitable. Tank societies have more or less total control over the water source but they

Table 4 Water distribution rules

Allocation rules adopted			Systems
Warabandi - each piece of land is attached with rights to water during specific periods during certain days.			LBP, PAP
RWS - farmers take turns according to location of their fields.	a schedule is prepared which specifies the time for each member before each rotation.		Shevre
	Patkaris or watchmen distribute water	Patkaris are always used	Mohini, Ankav, Pingot, Baldeva, Parunde, Dusi-Mamandur and Kedar tanks
		Patkaris take charge after planting	PK tank, PP tank
		Patkaris are hired only when water is scarce	PAP, Vagaikulam, Saliperi
very flexible - on the basis of demand on hand and the crop water requirements, the patkari decides the sequence in which water will be supplied (only to those who have no dues)			Datta, Ozar
On demand with rotation - first come, first served - patkaris are used			Bhima, Kadoli and Phulewadi

cannot have on-demand systems as lift irrigation societies do because of difficulties in delivering water over surface to individual fields. Therefore rotations are adopted.

Most societies have modified the procedures that members have to follow to get water. In Ozar, they used to insist on indents from farmers for each rotation. Now they have given up. Datta society began with rigid schedules which gave farmers 10 hours per hectare. In Ozar societies, they do not prepare schedules because of lengthy subminors. Ankav too has eliminated applications for water; the patkaris collect fees from the users at the end of the season. Several societies (Datta, Mohini) began with duration of turns being related to size of holdings. The rules were not accepted by the farmers because of diversity in soil conditions within commands and large variations in flows.

The societies in general do take care of special needs. In Vaigaikulam, Saturdays and Wednesdays are kept for irrigating fields which are at higher levels. They also give priority

to irrigating nurseries. In Baldeva, groundnut growers can take water first. Cane is irrigated at night in Datta. Nurseries get water first in Saliperi. These rules designed to meet special needs, often conflict with rigid rules associated with rotation.

Judgements on the extent to which the rules are enforced are difficult to make because rule enforcement may not be warranted under some conditions. One clear example of such a situation is excess supply; when there is no conflicting demand for water, there is little reason to adhere to rules. We have used the extent of conflicts between individuals resulting from rule breaking or complaints to the executive committees as indicators of rule enforcement. But some of those who are denied their share may simply withdraw and not complain. Water was also abundant at most locations in Rabi 1994. The general impression one gets is that many societies which succeeded in distributing water without too much conflict in 1994 rabi would face problems when there is surplus demand.

Table 5 Rule enforcement

Rules not followed	Conflicts - marginal	Mohini, Ankav, Pingot, Baldeva
	Conflicts - minimal	Datta, LBP, PAP, PVP, Saliperi, Vagaikulam, Phulewadi and Parunde, Ozar and Dusi-mamandur,
Rules are followed		Shevre, PK tank, PP tank, Bhima, Kadoli

Most societies have not been successful in making their members irrigate during night. It is only in Shevre where rotations are organized in such a way that the burden of irrigation at night is distributed evenly that irrigation takes place at night. In Kedar, they have decided to take water only during the day. In lift irrigation societies, they need not take water at night unless there is demand. In all others except perhaps LBP and PAP there is considerable wastage of water during nights.

Some events observed during 1994 rabi give an indication of the extent to which rules were enforced. In Ankav and Baldeva, the minors were broken. Nobody paid any attention for days. Some of the farmers in the head reaches were observed to be taking water twice in a rotation in Mohini. In Ankav, they feel that there is no need to follow any system as they feel that there is plenty of water.

Irrigation from tail to head has been difficult to implement in most societies. Ozar is one of them. Mohini has rules on books which have been revised over time. They increased the fine for not following rotation from rupees 5 to 50. They also decided that those who have not paid irrigation charges for 4 seasons will be charged 50 per cent more. But rule enforcement has become weaker.

FEE COLLECTION

Recently initiated canal societies buy water in bulk from the agencies; therefore they need to collect fees from members. TN canal associations do not have to collect fees from their members. Nevertheless, they incur expenses to distribute water and carry on other functions. Wherever patkaris are employed in TN, patkaris themselves collect their fee directly from the farmers. Even TN societies are weak in collecting fees to support their activities. They depend on income from the village properties or taxes on export of produce from as in Vaigaikulam, Saliperi and PVP.

Table 6 Fee Collection

The association does not have to collect fees for water supply		LBP, PAP, PVP, Saliperi, Vagaikulam, Parunde, PK tank, PP tank, Kedar and Dusi-Mamandur
Fee is collected	without much default	Shevre, Ozar, Anklav, Bhima, Kadoli and Phulewadi
	increasing defaults	Mohini, Datta, Pingot,
	cheating on fees	Anklav, Baldeva

In some of the systems, they have had to collect contributions from members for making capital expenditures or to establish maintenance funds. In LBP, PAP and in Saliperi, the farmers were required to make a one time payment of Rs 100 per acre. Saliperi association has been successful in collecting the contributions, LBP moderately so, and in PAP, the users have not paid up. PP tank society was successful in collecting contributions from its members for the construction of a well. One of the members who had not paid was denied irrigation until he promised to pay. Many of the TN societies rely on revenue from common properties. The fields are let out for duck grazing in Dusi-Mamandur villages. Each village transfers these funds to the association.

Some societies are very effective in fee collection. They make special efforts; the staff personally collect from members. The sugar factory deducts irrigation charges from the payments to be made to farmers in the Kadoli society. In Shevre, there were only four defaulters in rabi 1994. In Datta, on the other hand, the amount outstanding from members was nearly 1.5 lakhs. In Mohini, there are some who have not paid since 1985. Some societies face problem of poor collection because farmers are unable to pay. Crops failed during one year in Pingot. In one year, defaults were so high in Baldeva that there were only a few who were eligible to take water. They revised the rules to permit water supply to those who paid at least 50 per cent of the charges.

Members may be cheating the societies by misreporting the area they irrigate in some of the societies. In Ankav, the patkaris of the agency have been put in charge of reporting the area irrigated by members and collecting fees from them. Some of them take bribes from farmers to reduce their irrigation charges. In Baldeva, some farmers who have wells show some of the area irrigated by canals to be area irrigated by wells.

MAINTENANCE

In most of the societies, maintenance of structures higher than outlets which are more public in nature, and therefore amenable to shirking, are maintained by the associations. Canal societies receive grants from agencies to maintain them. Field channel maintenance generally remains the responsibility of members. Datta society charges an area based service fee for maintenance. In PP tank, members collectively maintain fields before the season. In Saliperi, families volunteer to work at less than market wages to maintain their field channels. The wages are paid out of interest earned on the maintenance grant. In Parunde, although individuals are responsible, the society ensures that maintenance takes place by denying water to those who do not maintain field channels. On the whole, field channel maintenance is neglected in most societies.

Making members clean field channels has been a difficult proposition for societies. Some societies have changed their rules. In Ozar, maintenance used to be undertaken by the societies. They have given up as they could not recover the costs from the users. On the other hand, the Datta society has taken up the responsibility because the members failed to maintain the field channels.

MEANS OF ENFORCEMENT

Rule enforcement requires some sort of punishment. Punishment essentially involves denial of something that the individual values. Authority is required if the punishment is a fine or withholding of water. Authority could be legal which is recognized by the state or

Table 7 Organization of maintenance

Maintenance is individual responsibility	the society does not enforce the rule	Anklav, Mohini, Ozar, PVP, Vagaikulam, Pingot, Baldeva, PK tank, Dusi-Mamandur and Kedar tanks
	Water is denied to those who do not maintain	Parunde, Shevre
The society maintains and charges members		Datta
The society organizes collective maintenance		PP tank and Saliperi

could emanate from the legitimacy of the collective organization. Cases of either management committees or individuals in management positions having acquired authority with the support of members are rare.

The most common source of authority used for rule enforcement is traditional leadership. Individuals, generally those who have been instrumental in establishing and managing the society, play an important role in enforcing rules. Their source of authority could be either moral or power to cause harm in their communities.

In Baldeva, the chairman levied fine on those in head reaches who had taken water when it was the turn of those at the tailend. None paid. Members there obey rules to some extent out of respect for the community organizer from AKRSP. In Parunde, when one of the farmers refused to obey the rules, the chairman threatened to write to the revenue authorities. The threat of state authority being brought in was necessary to make the member obey the society rules.

Paid functionaries have considerable influence over members in some of the societies. Some of the patkaris in Datta and pingot have influence on the basis of their standing in their communities. Ozar societies try to hire influential farmers to be patkaris during the season. The management of many societies try to use paid staff to enforce rules to avoid conflicts with members.

Conflict resolution

Conflicts may arise between individuals or members and between members and the management committee. They may arise over interpretation and observation of rules. Those

Table 8 Sources of authority for rule enforcement

Leadership of the society is vested in one or two individuals but they lack the moral authority to enforce rules	Anklav, Mohini
Founder members were/are the source of authority	Mohini, Datta, Bhima
Leadership is vested in the executive committee which exercises its authority	Shevre
Traditional leadership	Vagaikulam, PVP, Saliperi
younger members of the community	Saliperi, Vagaikulam
Individuals monitor their rights which are supported by the community at large	LBP, PAP
Agencies and NGO assist	Parunde, Pingot, Baldeva, Mohini

which arise between members and the management committee in rule enforcement are included in the section above. In this section we will examine the sources of conflict, how they were resolved and who were instrumental in resolving them.

Conflict implies physical clash or contradictory views and could conceivably include a range of interactions which cannot be documented easily. The source of conflict often is conflict of interest. Between individuals, conflicts are likely to result directly from simultaneous demand for water and indirectly through actions or lack of actions of one or more individuals which may cause damage to others. Someone taking water while it is someone else's turn may lead to conflict. Breaking a field channel which may flood a neighbor's field or not participating in field channel cleaning may lead to conflict between the actor and others. Generally, the potential for conflicts are minimal when most people comply with rules. The rules are in fact designed to reduce conflict between individuals.

The incidence of conflicts is directly related to rule enforcement. In all the TN societies where rule enforcement is fairly strong, conflicts are infrequent. In more recently established canal societies in which rule enforcement is weak, conflicts are far greater. Mohini is an example; many members set fire to each other's cane crop. In Anklav conflicts are less although rule breaking is rampant because most farmers have access to well water.

Table 9 Conflict resolution in WUAs

Conflicts are generally resolved by individuals themselves often using a third party. The chairman lack moral authority	Anklav
Paid staff particularly managers who have worked for a long time and committee members assist	Mohini, Datta, Ozar, Baldeva, Phulewadi
Chairmen of the societies personally take considerable interest, discuss unresolved conflicts in meeting and use mechanisms such as complaint books to prevent conflicts	Shevre, Vagaikulam, Pingot, Parunde
There are no special arrangements. Irrigation related conflicts are resolved as just as other conflicts are resolved in the community	LBP, PAP
Influential individuals who may not have any formal role in the society assist	Dusi-Mamandur tank

Most societies have not made any specific efforts to resolve conflicts. Farmers resolve them among themselves often involving third parties. Influential village leaders, who may not hold any formal position in the society may also assist in resolving conflicts. In ozar, they set up committees of respected elderly individuals to resolve conflicts.

Contributing factors

Factors which are expected to contribute to success of user organizations or explain the differences in their performances are related to incentives of individuals to participate and costs of developing and maintaining an organization. In the final analysis, individual incentives are also influenced by the magnitude and the share of these costs the individuals expect to bear. Two factors influence incentives: i) flexibility or the range of rights over water and ii) incremental benefits from belonging to a WUA. The other two factors which are used to explain performance differences are the roles played by external agents and leaders within the groups.

Range of rights

Management transfers involve the transfer of some rights over the use of water from the agency to the users. The bundle of rights transferred may vary from one situation to another. The range of rights that groups have over natural resources influences their sense

of ownership of the resource and the way in which they manage them. The more complete the range of rights possessed by the group over a resource, the greater the likelihood that the group will manage the resource appropriately. The argument is that groups which have greater control over their resources are likely to take better care, in terms of short-term management and long-term investments, than those whose rights are restricted.

Kedar society which has been given the rights to income from fishing in the village pond is planning to deepen the pond. Saliperi farmers used the income from fish raising in their village pond to clean drains in their village. These are some of the examples of how a mere transfer of rights can result in better management of resources. In LBP on the other hand, farmers feel that they have no rights over anything and that their association has no meaningful role to play.

The users' sense of ownership may be influenced by:

- ◆ the extent of control they can exercise over water flows - or the ability to procure water to meet their needs;
- ◆ contractual terms between the supplier (agency) where applicable and the association;
- ◆ freedom to allocate water across seasons, determine appropriate distribution criteria and use water for crops of their choice;
- ◆ freedom to set charges;
- ◆ right to deny access to those who fail to meet the group norms; and
- ◆ rights to complementary resources.

The control users can exercise over water is influenced by the nature of the source. A society receiving water from a large surface system may have a weaker sense of control over water than a society which receives water from a smaller system in which the users are closer to the source. In the first case, greater competition for what is available may limit a society's ability to capture its share. Another factor which can influence the expectations of the users with regard to control is the nature of their agreement with the agency. Both the terms of contract and their assessment of whether the contract will be honored influence their expectation of control.

A wide range of other factors influence sense of ownership partly because they limit the opportunity to put the resource to uses which bring them highest returns. Whether they

can save water in kharif to use in rabi or summer, whether they are free to use water to grow crops which give them the highest returns influence not only how they use water but also the extent of investments they are likely to make in order to maintain or augment the source. Finally, groups which have the right charge fees appropriate for local demand conditions, or deny water to those who break rules would be in a better position to manage the resource.

These dimensions of rights will be examined under the following four heads: i) right definition, ii) expectation of right enforcement, iii) freedom to put the water to its best use and iv) flexibility for local management. Some transfers may involve no change in rights as such but only a change in the expectation that their rights can be better protected or exercised. The benefits from such changes will be discussed under incremental benefits.

Table 10 Definition of water rights

Anklav Mohini Datta Ozar Shevre	The rights are to specific quantity of water. The schedule of delivery can be influenced by the WUAs.
PVP LBP PAP Vagaikulam Saliperi PK tank	The rights are defined in terms of number of rotations. However there is an expectation of certain quantities based on historical usage. The number of rotations and so on may be far more certain in LBP, PAP and Saliperi compared to PVP, Vagaikulam and PK tank.
Kedar Dusi-Mamandur Parunde PP tank Pingot Baldeva	They have rights to all the water which becomes naturally available. The quantity may be somewhat more certain than in systems above in which they share water with others.
Bhima Phulewadi	Within the bounds set by canals flows, they can determine how much they use particularly as they draw water from canals with continuous flows. Bhima is permitted to lift up to 5 cusecs.
Kadoli	A perennial river is the source. can lift subject to power availability

Definition

The quantity of water that WUAs can expect to receive is constrained by the quantity which becomes naturally available. Within the bounds of natural availability, the share that an association can expect for itself is influenced by clarity in the definition of its rights. Some of the societies have rights to specific quantities while for others the rights are ambiguous.

WUAs in major canals in Maharashtra and Gujarat have rights to specific quantities during the three seasons. TN canal societies are also assured of water supplies although quantities are not specified. Lift irrigation societies are in the best position with regard to rights.

Right enforcement

The associations' ability to protect or enforce their rights depends on two factors: i) the size and location of their command within the larger system and ii) their ability to influence agency behavior. Those that are within large systems have to contend with competing interests and have to make consistent efforts to protect their rights.

Agencies are keen on honoring the agreements with canal societies as all of them are treated as experiments. Within agencies, higher level staff often take more interest than lower level staff. Associations particularly those which are well known use their clout to obtain water sometimes in excess of their rights. Farmers in Shevre appealed for more water at the end of rabi. Mohini society wrote to the minister seeking extra supply.

TN societies cannot take their rights for granted. Associations need to constantly put pressure on the agency staff to receive their legitimate share.

Choice over use

There is variation in farmers' rights to use water as they desire. These rights may relate to choice of crops and allocation across seasons. There is not much variation across societies in rights over crop choice. There are no restrictions on cropping patterns in MH or GJ canal societies. There are crop restriction in LBP and PAP But they are not effectively enforced. Maharashtra imposes limits on cultivation of cane in lift societies. MH and GJ canal societies can reallocate water between seasons. They lose the rights to unused kharif quota, but they can use a portion of the unused rabi quota in summer. Pingot and Baldeva farmers also use water for irrigation in summer although the agency prefers that they irrigate in rabi.

Table 11 Right enforcement

Anklav Mohini Datta Ozar Shevre	They face conflicting interests as they receive water from large systems. But as they are experiments, the agencies have an interest in meeting their needs in the absence of which the societies use their clout to enforce their rights.
PVP LBP PAP Vagaikulam Saliperi	As above, cover small portions of large commands. Water distribution procedures are well established. Although rotations are well established, there is room to influence quantity delivered. In PVP and Vagaikulam, the number rotations are also uncertain.
Pingot Baldeva Parunde Kedar Dusi-Mamandur	WUAs cover entire systems. The agencies are also interested in meeting their demand.
Bhima Kadoli Phulewadi	Largely subject to availability of power to lift water.

Local management options

Rights can also be examined from the perspective of the extent to which they provide opportunities for the group to manage their resources. These rights may relate to irrigation pricing and the ability to deny services to individuals who do not comply with rules. GJ canal societies which buy water in bulk from the agencies do not have the right to charge fees higher than the agency charges. They are permitted to charge 30 per cent higher for non-members. MH canal societies can charge more and some of them do. In GH canal societies, the only source of revenue apart from subsidies is the discount they receive from the agency on volumetric purchases. Lift societies are free to charge whatever they want. Their charges also vary from year to year depending on the costs.

One of the important factors which enables groups to work together is to be able to deny group benefits to those who do not conform to the rules of the group. Canal societies have the right to charge 30 per cent more to non-members thereby encouraging them to become members. In canals and tanks in Tamilnadu, the charges are not collected by the associations. They do not have the right to deny water supplies to individuals.

Maintenance responsibilities also give the societies as additional stake in the system. Canal irrigation societies in Maharashtra and Gujarat, pingot and Baldeva societies receive a grant to maintain minors and distributaries which supply water to their societies.

Scarcity/potential returns

Potential returns that the members expect from water user associations is one of the most important factors which influences their decisions on participation. They may benefit from WUAs by averting scarcity or by taking advantage of opportunities to enhance production and incomes. The members could benefit from availability of more water or more timely supply of water both of which enable them to increase their income or reduce irrigation costs including hassles. The magnitude of incremental benefits from increased water supply or improved reliability depends on the opportunities to commercialize production. Comparable improvements in water supplies at two locations may not yield comparable incremental benefits.

Improvements in water control cannot be measured accurately. The improvements are large obviously where WUA has resulted in irrigation where there was none before. The examples are Pingot, Baldeva and some of the lift irrigations schemes. The incremental benefits from changes in water control are related to the extent to which the users can turn it into increased value of production. In pingot and Baldeva for example, where coarse cereals are cultivated even with irrigation, the incremental returns are fairly low. Farmers also seem to be more interested in working for wages during rabi than in cultivating their fields. In Parunde, on the other hand, where water control has improved moderately, the benefits are large because farmers are cultivating crops such as flowers and vegetables which give them high returns in the markets nearby.

The potential incremental benefit to members depends on the extent of improvement in water control, their dependence on irrigation provided by the society and the ability to convert improved water control into higher production or incomes. The rainfall is not a good indicator of the level of scarcity as there was irrigation in most societies even prior to their establishment. There are considerable differences between WUAs with regard to the availability of alternative sources of irrigation particularly groundwater. In Ankav, Ozar, LBP, PAP and PVP the density of wells are fairly high. One of the Ozar society gets waste water from an air force station nearby. Farmers prefer to use sewage water. Farmers in Datta, Saliperi and Kedar also have a few wells. The farmers in the remaining associations depend on irrigation provided by their societies.

Water supply was not equitable at many locations before the society. Shevre is a typical example. Richer farmers had greater access to groundwater in Pingot. In LBP

farmers used to collect Rs. 10 to 15 per acre to bribe the agency staff. In Bhima, there was a single pond in the village the benefits of which went only to one family in the village.

The incentives to remain in WUAs has become weak in some societies in which alternative sources have improved. In PVP, 40 of the 60 farmers have wells. The number of wells has gone up from 150 to 190 in the last 5 years in Datta. In PAP water supply is so sparse, farmers are losing interest although they need water badly. In Dusi-Mamandur farmers came together to get more water to their tank. Having succeeded, they decided to organize themselves to share water among themselves. Now interest is dwindling because nearly 50 per cent of the farmers do not get water.

Incremental income changes were high in all societies except Anklay, Mohini, LBP and PAP. In Anklay, there are a number of wells in the command and farmers were already growing high value crops such as banana. Mohini society is in Ukai-Kakhrapar system where water availability is high; sugarcane is being grown extensively throughout the system. Many members feel that they are not benefitting from having a society. In both LBP and PAP, the number of wells has increased significantly so much so that many farmers do not even bother to use canal water.

The benefits are substantial in all the three MH societies as they are able to cultivate sugarcane subsequent to establishment of societies.

In addition to increased value of production, there are two benefits: i) reduction in costs and ii) benefits from rights to other resources obtained through the establishment of societies. The costs may have come down particularly in lift irrigation societies where farmers were initially buying water from others.

Some of the societies have received other benefits to induce them to organize themselves. In Saliperi, IMTI organized tractors for plowing at less than regular charges. Wherever NGOs are actively involved, farmers have organized themselves because NGOs have brought in resources to meet some of their other needs. AKRSP organized crop loans for Pingot and Baldeva farmers. Farmers also have obtained rights to village resources. In Anklay, the agency has given the rights to grass grown on canal bunds to the society. The rights to fish raised in the village tank has been given to Saliperi society. The societies use the income from these resources to support irrigation related activities thereby reducing their costs.

The societies have wide ranging interests. In PVP, they built 2 threshing floors, evicted encroachers, built a link road and deepened a tank. They would like to settle disputes in the village between landlords and tenants and between growers and laborers. Eviction of those who have encroached on village properties seems to be a concern in most TN societies.

Table 12 Incremental benefits

System	Other water sources	Incremental change in		Comments
		water control	income	
Anklav	high	medium	low	Abundance of groundwater
Mohini	low	med	low	Surplus water in the command
Shevre	low	high	high	
Ozar	medium	high	high	Surplus water in one WUA
Datta	medium	high	high	
LBP	high	low	low	
PAP	high	low	low	
PVP	high	high	high	
Saliperi	medium	medium	high	
V'kulam	medium	high	high	
Pingot	low	high	medium	
Baldeva	low	high	medium	
Bhima	low	high	high	
Parunde	low	high	high	
PK tank	low	high	high	
PP tank	low	high	high	
Kedar	med	medium	high	
Dusi	low	low	medium	water is not sufficient
Kadoli	low	high	high	
Phulewadi	low	high	med	little emphasis on agriculture.

TN societies are also heavily engaged in lobbying for more water. The PVP society management met the agency officials several times during rabi 1994; they were able to get 3 special releases of water.

Table 13 External support to WUAs

WUA	Source	Nature of support given			Extent	Comments
		tech.	adm.	pol.		
Anklav	WALMI	•	•	•	high	
Mohini	Agency				low	local leader was critical
Shevre	Agency				high	local leader was critical
Ozar	SPK/ SOPEC OM	•	•	•	high	
Datta	SOPEC OM	•	•	•	high	
LBP	AED				low	
PAP	AED				low	
Saliperi	IMTI	•	•		high	
PVP	AED				high	
V'kulam	WTC				high	
Pingot	AKRSP	•	•	•	high	
Baldeva	AKRSP	•	•	•	high	
Bhima	MI Sadguru	•			low	
Kadoli	Sugar Co.	•	•	•	high	
Phulewadi						Local MLA was critical
Parunde	agency				high	
PK tank	Pradan	•	•	•	high	
PP tank	Pradan	•	•	•	high	
Kedar	WTC	•	•	•	high	
Dusi- Mamandur						

Political entrepreneurship

Collective organization as we discussed entails organizational costs. These costs are transactional in the sense that they are essentially interaction costs. These are incurred while a group of people come to agreement about the purpose which has brought them together, organize themselves and manage their organization. These activities involve many tasks which are often taken for granted. Before coming to an agreement about the formation of a WUA, at least a critical number must agree that it would be a useful idea. Where people have no information about the feasibility of such a proposition, the idea has to come from outside. The process may involve extra effort to convince some people. Some may oppose the proposition for reasons unrelated to what the task entails. A leader, someone in whom people have faith can make this process easier to accomplish. External agents who can work just as leaders or impartial third parties can hasten the process.

The support given by to societies can be put into three categories; organizational, technical and political. Organizational support is designed to enable groups to work together smoothly. Help in rule enforcement, conflict resolution and administration come under this category. The community organizer of AKRSP helps in organizing meetings, writing minutes, book keeping, rule enforcement in Pingot. Examples of technical support are: i) SOPECOM's guidance to Ozar societies regarding linkage between ground and surface water; ii) Sadguru's construction of Bhima lift irrigation system.

NGOs provide political support to societies. Some of this support is continued even after the organization is established. Some of the examples of such support are: i) someone from SPK always accompanies Ozar association staff when they visit the agency; ii) COs of AKRSP accompany Pingot society staff.

The effort that the entrepreneurs put into organizing the associations are considerable. The CWC put 3 field assistants in Kedar to work with farmers. Pradan put a team of 3 to work in PP tank; they visited the village daily. It took them 8 months to initiate the society. In Pingot and Baldeva, AKRSP placed community workers in the villages. The AED placed community organizers in PVP, LBP and PAP for long periods. IMTI worked with Saliperi villagers for years. SOPECOM's representative worked with farmers in Datta for more than 2 years. SPK continues to work with Ozar societies. A team of scientists, headed by a retired professor of extension worked in Anklav for more than 3 years. Nearly 20 meetings were held at Parunde before the society came into existence. Nearly 35 meetings were held in Ozar societies.

In Kadoli, the sugar factory offers an interesting model for providing support to farmer organizations. It helped the society in getting permissions from the agency and the electricity

board. It provides technical and administrative support and keeps the society on a tight leash; the secretary has to report to the factory every two weeks. It also charges them a fee for the service provided.

Leadership

Leaders play a critical role in 'maintaining' organizations. To recapitulate, critical functions they perform are conflict resolution, rule enforcement, administration and liaison with agencies.

Some of the key office holders do not pay much attention to the affairs of their societies. The members are, therefore, interested in replacing them with individuals who are likely to devote more time. In Mohini, farmers are interesting in making one of the committee members who is responsive to their problems as the next president. In Datta too, the president does not pay much attention. But the society functioning is not affected much because, the founder who does not hold any position in the society devotes considerable time to taking care of society's needs.

In some societies the paid staff such as secretaries assume leadership. The secretary in Mohini wants to resign because he is tired of all the responsibilities being placed on him without much support. A part-time clerk in Vaigaikulam has worked for the society for nearly 15 years. One of the patkaris in Datta is a resident of the community and had worked for a long time as an assistant to the agency patkari. As he is already familiar to farmers in a role similar to the one he is performing now, he has considerable influence over farmers. Leadership is also provided by those who have no formal role in the functioning of the society as in Datta where the founder plays a substantial role in society's functioning. The secretary in Shevre is a school teacher.

Where leadership responsibilities are widely shared, organizations, even those which are new, can function very effectively. In Shevre, there are two sub-committees in charge of water distribution and fee collection. The chairman and vice chairman both spend considerable time on society related matters. In Ozar, where they set up committee of respected individuals to resolve particular conflicts, the 'authority' is spread widely.

In most societies the leadership is traditional. That is, it is in the hands of socio-economically powerful, those with large holdings or from families which traditionally have had significant influence in their communities. In some cases, the leaders have links with local power centres. The president of PAP is brother of an MLA and the secretary owns a finance company. The president, secretary and the vice president of PVP are also well connected. The vice president is a lawyer. The president of Kedar is so influential that

Table 14 Leadership in WUAs

WUA	Source of leadership	Extent of leadership supplied by				Overall support by leaders
		chairman	EC members	Others	Staff	
Anklav	traditional	low	low	low	low	low
Mohini	traditional	low	medium	low	high	medium
Shevre	traditional	high	high	low	high	high
Ozar	traditional	high	high	high	medium	high
Datta	traditional	low	medium	high	medium	high
LBP	traditional	low	low	low		low
PAP	traditional	low	low	low		low
Saliperi	traditional	high	high	medium		high
V'kulam		high	high	high	high	high
PVP	traditional	high				high
Pingot		high	high	low		high
Baldeva	traditional	high				high
Bhima	traditional	high				high
Parunde	traditional	high	low	low	low	high
PP tank	traditional	medium	medium	high	low	high
Kedar	traditional	high				high
Dusi-Mamandur	traditional	high				high
PK tank	traditional	high				high

farmers leave their savings with him. The leader in Datta is a builder. In PK tank, the secretary is the village president's brother. The chairman of Anklav used to be a sarpanch. The Saliperi president comes from an influential family. The treasurer in Dusi-Mamandur is influential.

Youth have taken on considerable interest in making their organizations work in Saliperi and Vaigaikulam. Their expectations are also somewhat different from the older generations. Their objective is empowerment. They would like use their collective influence to perform tasks which the earlier leaders did with bribes.