

# UPSCALING FARMER INSTITUTIONS FOR THE MANAGEMENT OF LARGE SCALE RIVER BASINS: RESULTS FROM DISTRIBUTARY LEVEL PILOT PROJECTS IN THE INDUS BASIN OF PAKISTAN

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## ABSTRACT

Pakistan owns the large contiguous canal network for irrigating the Indus plains encompassing an area of 16 million ha. The government has now embarked upon reforms to restructure the institutional set-up of irrigation and drainage. The major thrust of these reforms is to transfer the management of secondary and tertiary irrigation and drainage systems to the Farmers' Organizations (FOs), and also involve farmers in the decision making process at the primary level of the system. Important is that the farmers themselves have to appreciate the value of the change, take the initiative to interact with the government, and begin to play a significant role in the participatory management mode. Unless the grass-root level farmers participate in the proposed FOs, there is less likelihood for the social and financial viability of the reforms.

The experience to date with the farmers' institutions in Pakistan shows that there has been limited success in establishing functional farmers organizations even at the tertiary level of the irrigation system. A number of professionals are skeptical about the successful establishment and functioning of the proposed FOs as a large proportion of water users are socially vulnerable, politically unorganized and economically weak. Substantially skewed distribution of productive assets necessitates concerted efforts in social organization to ensure that the majority of water users are free to participate. Thus, best practices of organizational methodologies need to be followed to ensure that the reforms are implemented successfully.

The International Irrigation Management Institute (IIMI) has been involved in pilot projects for organizing farmers for Distributary management, which proved successful in organizing farmers. These organizations are now anxiously waiting for the government's response to transfer the management responsibilities to FOs. This paper synthesizes the results of the pilot efforts and suggests guidelines for

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organizing farmers at secondary levels of the canal system and upscaling these organizations to entire river basins in Pakistan.

## INTRODUCTION

Pakistan's heavy investment in irrigation infrastructure has given the country the world's largest contiguous canal irrigation system. The country's gigantic surface irrigation network comprises three huge dams, 16 barrages, 12 inter-link canals, two siphons, 43 main canals, about 4,000 distributaries/ minors and more than 107,000 watercourses. The water delivery system consists of about 64,000-km length of canals to irrigate over 16 million hectares of land. Irrigation contributes towards the agricultural production, which accounts for more than 24 per cent of the country's GDP. Irrigation and drainage including the forests are equally supportive to the development of agriculture. The massive resource base of the Indus Basin Irrigation System is the cumulative effect of more than a hundred years of consistent investment in irrigation development. The high water mark of this investment was the Indus Basin Project (IBP) of the 1960s, which saw an increase in the total water supply for irrigation from about 79 billion cubic meters at the time of independence to almost 135 billion cubic meters by the end of the IBP effort (Bandaragoda, 1993:10).

The irrigation and drainage system suffers from a number of fundamental problems of which lack of beneficiary participation is one (SAR NDP, 1997). The system faces problems, such as:

- (i) Insufficient cost recovery;
- (ii) Inconsistent irrigation water supply;
- (iii) Inequitable water distribution;
- (iv) Irrational planning and spending of public expenditure on irrigation and drainage system;
- (v) Unsatisfactory planning, funding and execution of operations and maintenance (O&M);
- (vi) Deteriorating capabilities of key institutions;
- (vii) Lack of users participation;
- (viii) Poor monitoring of drainage projects and infrastructure, and
- (ix) Inadequate investment in drainage research, and failure to apply the same results to effective policy making and planning.

The Left Bank Outfall Drain (LBOD) project is one of the largest irrigation and drainage development projects in Asia (with the total cost of over 24 billion rupees) and needs public participation for operation and maintenance. The lack of participation of the community at the initial stages of this expensive project has

made the take over of the project facilities by the communities much more difficult at the final stage and seems almost impossible, since they were not involved in earlier stages of centralized planning. Now a more clear and understandable strategy is needed to involve the communities for taking over the operation and maintenance of this system (Memon and Hassan, 1999).

Donors and external evaluators started to draw attention on the need to identify correct solutions to improve this state of unsatisfactory performance. Considerable performance improvement could be achieved by introducing and sustaining appropriate institutional and management innovations. Government policy levels started to participate in discussions with the donors on possible institutional reforms. Several seminars were held among local opinion leaders to discuss the implications of suggested reforms, and these ideas were later expressed in published form (Asrar-ul-Haq, et al, 1996).

Meanwhile, the World Bank (1994) proposed a reorganization of the whole irrigation sector, including the establishment of autonomous public utilities for the management (including operation and maintenance) of the irrigation water.

Currently, there is a growing awareness regarding the necessity for farmers' involvement in operation and maintenance, mostly prompted by donor concerns, and also based on the realization that declining budgetary capacities would soon have adverse effects. Yet, there is considerable pessimism among many government officials about being able to form effective farmers' organizations and their impact on the productivity and sustainability of irrigated agriculture.

#### Institutional Reforms in Irrigation System

Recognizing the importance of the need for change, the donors identified some important steps to be taken by the Government, including the introduction of legal reforms, as priority requirements for the launching of the new National Drainage Program (NDP). Consequently, the government initiated the enactment of Provincial Irrigation and Drainage Authority (PIDA) acts in 1997, which among other things, also provided for "encouraging the formation of farmer organizations (FOs) at the distributary level".

The four main objectives for the PIDA acts are related to: the government's new strategy for decentralizing the management of the irrigation and drainage system; the need to establish more responsive, efficient and transparent management; the need to ensure equity of water distribution and effective drainage management; and the need to introduce participatory and financially self-supporting management.

The package of institutional reforms proposed by the Government included three components: transformation of provincial irrigation departments (PIDs) to autonomous PIDAs; creation of area water boards (AWBs); at the canal level and encouraging FOs at the distributary or minor level through a pilot approach. Following this new trend, the Government of Sindh (GoS) decided to try some interventions through a few pilot projects on farmers organizations at the distributary level in areas where infrastructure development was already underway through the World Bank-sponsored Left Bank Outfall Drain (LBOD) Project in the Sindh.

#### Formation of Farmers Organizations

HIMI's proposal for this action research had the primary objective to test the viability of farmers' organizations managing parts of the irrigation and drainage systems so that more efficient and equitable allocation of water can be achieved. In order to achieve the objective, the pilot project aimed to conduct the following four main activities to:

- (1) help establish watercourse associations (WCAs) at the watercourse level and farmers organizations (FOs) at the distributary/ minor level in the selected distributary canal command areas;
- (2) educate the members of the FOs in the pilot sites for taking collective choice decisions and actions related to water resources management;
- (3) assist these organizations to undertake distributary canal level water resources management on the basis of the irrigation management transfer agreement between FOs and SIDA; and
- (4) identify the necessary legal and institutional support services for effectively implementing a farmer organization program on a wider scale.

Table 1 describes the basic information of the distributaries/ minors on which the farmer organizations have been formed. At the first level, watercourse associations were established at each watercourse of the distributary/minor command area involving all the land holders at the watercourse command. The members of the WCAs constituted management committee include two members of the tail and one member of less than 10 acres of land.

Table 1. Basic Information of the Distributaries/ Minors

S#	Name of Distributary/ Minor	No. of Outlets	CCA Hectares	No. of WCAs Members
1	Dhoro Naro Minor (Nawabshah)	25	5,353	463
2	Heran Distributary (Sanghar)	31	6,164	539
3	Mohammad Ali Minor (Sanghar)	10	2,020	79
4	Rawtiani Minor (Sanghar)	19	3,688	350
5	Bareji Distributary (Mirpurkhas)	24	5,728	354
6	Sanhro Distributary (Mirpurkhas)	24	6,222	295
7	Mirpur Distributary (Mirpurkhas)	53	6566	430
8	Potho Minor (Dighri)	19	3264	326

Source: Field Data Collected by IIMI Field Teams.

#### Main Features of the Program

Strategically, six main special features can characterize the action research program conducted to date:

- (1) action research was conducted essentially in a participatory mode;
- (2) replicability was the foremost consideration in pilot project implementation;
- (3) equality of opportunity was provided to all water users to participate;
- (4) selection of organizational leaders was effected in a truly democratic way;
- (5) selection was through consensus, and not open competition; and
- (6) emphasis was to form an economic organization, and not a welfare group.

The special emphasis on these features was prompted by the country's past experience in forming water users associations (WUAs) through the on-farm water management (OFWM) and command water management (CWM) programs. The largely non-democratic methods of selecting organizational leaders and the lack of long-term objective-orientation resulted in those WUAs becoming defunct shortly after the immediate objective of watercourse improvement was accomplished. The choice of watercourses for improvement through the programs had also been a subject of criticism as the decisions tended to be dominated by larger landowners.

### Roles Assigned to FOs in the Reforms

- The main purpose of FOs is to benefit farmers by improving water delivery and system maintenance. Accordingly, timely access to water in dependable quantity holds the key to good performance. The FO has to prepare an action plan to conduct various activities.
- Interact with the government agencies, involve and participate in all the management activities from the planning stage itself.
- With an overall change in attitudes, the water users may be able to take a greater initiative and play a more significant role than they do now if the governments can gainfully play a more accommodating and supportive role.
- Monitor the water deliveries at the heads of distributary/ minor, outlets with the command area under the jurisdiction and control of the farmer organizations and water distribution among the members maintaining equity.
- Resolving the conflicts arising among the users in respect of water distribution ensuring equity and participation in maintenance activities.
- Coordinating and assisting the members of the management committees of different levels of farmer organizations for effectively discharging their operation and maintenance of responsibilities of the distribution system after turn over.
- Maintaining the office of the association according to the provisions in the bylaws.

### Organizational Development Activities

In the organizational development process, many actors contributed. A design team coordinated the planning effort, and collaborated with the social organization field team located in the pilot sites. The selected social organizer volunteers (SOVs) and the members of field implementation coordination committee (FICC) were the other partners in the field. The SOVs were identified one/two at each watercourse level to support the field team in organizing various meetings with the water users. The FICC consisted of representatives from various agencies providing irrigated agriculture services to the farmers, including the civil administration, and selected farmer representatives.

Social organization activities were supported by some collaborative activities together with various agencies. The idea of conducting collaborative activities was to maintain the water users' interest on the action research program. IIMI played a catalyst role in bringing various line agencies and other service delivery groups to the water users on their request. These agencies included irrigation, agricultural extension, livestock and forest departments, as well as LBOD and the Water Management Component of the OFWM Directorate of the Government of Sindh. Private sector groups included Fauji Fertilizer Corporation, National Rural Support Program (NRSP) and some agricultural educational and research institutes and non-government organizations (NGOs). The overall process described above is depicted in the diagram given below.

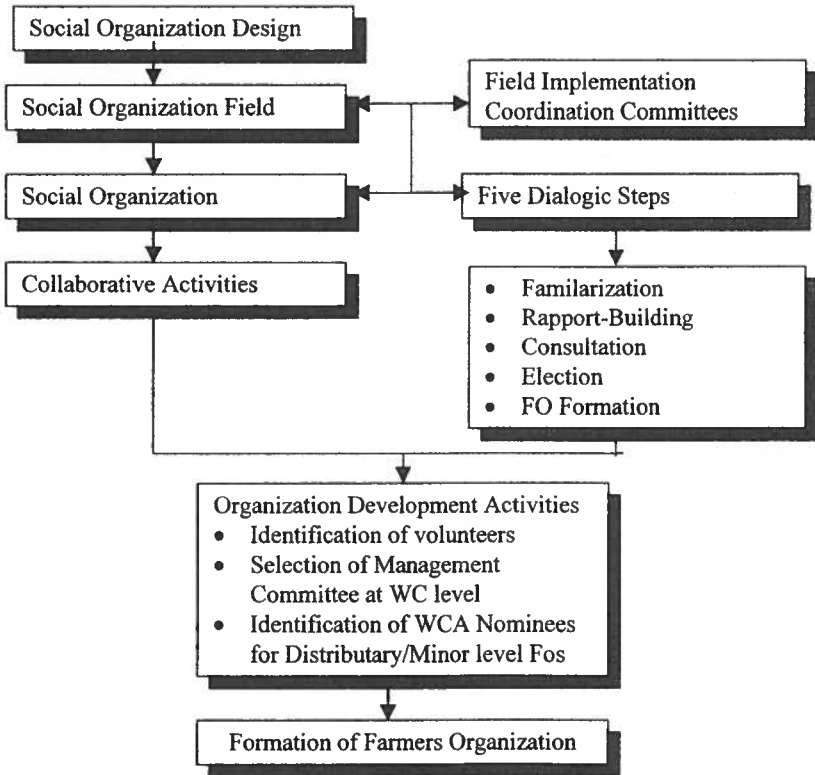


Fig. 4. Social Organization Process

### Social Viability of FOs

The social viability of organizing water users in the Sindh Province is adequately proved by the pilot projects. Evidence to this effect can be seen in processes that have been completed so far.

- (1) The members of the community in all of the pilot project areas were initially very reluctant to participate in any form of interactions with the field teams. This initial diffidence was transformed to a gradual appreciation of self-management and the need for getting organized and are keen to take over the distributaries from the government as fully farmer-managed systems.
- (2) Socially differentiated groups, such as headend and tailend water users, large and small landowners, landowners and tenants, and influentials and vulnerable groups, have cooperated to form FOs. A democratic process for selecting the FO leaders was successfully completed.
- (3) Political leaders have provided a non-partisan sponsorship without interfering in this social organization process. The acceptance of the new FOs by the community is almost 100 percent.

### Demonstrated Ability for Collective Action

The collective action is more effective than individual action in sorting out social issues related to equitable resource allocation and sustainable resource management. This is particularly true for water distribution in irrigated agriculture, as irrigation systems are inherently socio-technical systems. During the canal closure periods (January-February 1997, 1998 and 1999), the FOs mobilized the financial and human resources in desilting (Khati) of their respective distributaries at the pilot sites after conducting the walk-thru surveys. This activity was undertaken by the water users on their own cost during the desilting operation. FOs reflected a great deal of enthusiasm and cooperation among themselves, despite the fact that maintenance of the infrastructure was not yet their responsibility. The office bearers of FOs monitored and coordinated the entire process. A significant feature of this activity during the canal closure period was that it was an unprecedented organized behavior in mobilizing resources and attending to a well-prepared maintenance plan.

### Establishing Offices and Bank Accounts

Most of the FOs initiated action to establish their offices. The FOs meetings are now being convened in these offices. The FOs have also opened their own bank

accounts. The signatories of the bank accounts are the Chairman, Secretary and Treasurer of each FO. The FOs have been making consistent efforts to mobilize funds from the water user members. They formed sub-committees to collect contributions from water users by visiting them at their houses. These funds have been deposited in the bank, and the FOs are meeting their incidental expenses from these funds.

### Holding of Regular Meetings

The FOs have been holding their management committee meetings regularly and engaging in broad consultation processes. This strategy has so far paid dividends as the FO members have shown some motivation to discuss various field issues and follow up on decisions taken at different meetings. The FOs are keeping their minutes of meetings and a record of their correspondence.

### Membership Drive

The watercourse associations (WCAs) at the watercourse level made efforts to register the water user members of their association and obligated them to fill the membership forms. The forms are designed to provide some background information of their landholdings, tenancy status and educational level. The members include landowners, owner-operators, and lessees (in case of absentee landowners, with their approval, and their managers are included as WCA members). The management committee of the watercourse associations has decided that no person shall be excluded from the membership on the grounds of caste, creed, social group or gender. The members pay their membership fee of Rs.100/- to the association.

### Network Established

Farmers make efforts to disseminate acquired knowledge and information to their members through various methods, such as delivering lecturers, discussing in the formal and informal gatherings. In addition, a quarterly newsletter has been established by the FOs in Sindhi (local) language for distribution among the members and interest individuals and organizations. The newsletter contains the decisions taken at different levels of the organization, to exchange new ideas among the members from time to time. So far two newsletters have been published and distributed.

### Field Implementation Coordination Committee (FICC)

The field implementation coordination committee was formed at the field level of the project areas involving the members of FOs, officials of related line agencies,

and staff of private agencies and non-government organizations as mentioned earlier. Soon after its introduction, the FICC became a convenient platform to discuss farmers' common problems related to irrigation services and agricultural production. The most important aspect of the FICC's success was that the discussions on problems were soon followed by some actions to bring the relevant services to the field. The project benefited mainly in the following ways:

- ⇒ Concept clearance of farmer-agency linkages;
- ⇒ Information transmitted to the water users by the line agencies;
- ⇒ Several collaborative activities were planned and implemented;
- ⇒ Drainage issues were openly discussed, which helped the O&M officials; and
- ⇒ Drainage and irrigation issues were seen as components of integrated water resources management.

#### Linkages with the Private Sector

A recent literature survey on changing public and private roles identified a growing philosophy for this "institutional pluralism" in agricultural service provision (Carney, 1998). The FOs have already started to engage in effective negotiations with private sector groups, such as input suppliers, marketing groups, and manufacturers of implements, etc. The natural development of this process, if allowed to gain root, would be to consolidate a firm commercial relationship between the private sector groups and the FOs. The latter would be willing to pay for the services that the private sector can offer in many functions, which are now inefficiently handled by the government agencies.

The traditional agricultural extension service, which was primarily a top down mode of providing instructions to the farmers, is fast becoming obsolete. Although the extension model greatly helped in the green revolution, the "after-glow" of its great success lingered on long after the necessary conditions for it have passed away (Vermillion, 1997). The threat of famine, dominant role of the government in agricultural research and extension, and large government budgets for this work, has all been diminished in size and importance. The economies of scale, facility of making quicker decisions and the articulation of internal demand, all of which are associated with well-organized farmers groups would facilitate a greater role for a demand-driven private sector irrigated agriculture advisory service. The FOs serve as the appropriate forum for many private sector goods and service delivery organizations to interact, popularize, negotiate, and market

their products and services. Many pesticides and fertilizer companies have been competing for providing financial assistance to various FO activities as a strategy to attract an organized market.

### Potential for Upscaling on River Basins

After completing the formation of the farmer organizations at the secondary canal level (i.e. distributaries/ minor level) there is potential to federate these organizations on the sub and main canals of the Indus river basin. In this system, not only the farmers, but other users of the water could be involved such as industries, etc. This is possible after the successful experiment of the organizations at the distributaries/ minor level.

### Policy Issues

Though the government's intentions to implement reforms for up-scaling the farmer's institutions are clear, yet there are a number of policy issues yet to be addressed. These include:

- The irrigation service needs to be defined and delivered at the head of the distributary channel and the FOs need legal empowerment to distribute this water equitably among their members and assess and collect abiyana (water service fees). This embodies accountability mechanisms between the irrigation delivery agency and the FO. Unless both of them are clearly made accountable to each other, irrigation service delivery may not improve despite improving maintenance of the secondary channel
- Within the existing legal framework, the representation of the farmer organizations in the area water boards and the authority is negligible, and may lead to oversight of field concerns from policy decisions at the higher levels;
- The members of the management committee need financial and technical knowledge to manage the system. When the reforms will proceed from pilots to program scale, arrangements for the capacity-building would need to be institutionalized;
- There are several hundred distributaries/ minors in Sindh, the task of formation of FOs has to be taken over by the local institutions including non-government organizations. However, so far the capacity to organize farmers at a larger scale is limited; and
- Legal framework is under preparation since 1997. The pilot FOs have been

waiting for the management transfer agreements since their formation in 1997. The long delays are impacting on FOs interest, strength, and credibility among the grassroots. The government should sign the irrigation management transfer agreement, to enable the FOs to takeover the responsibility of the distributaries/minor management. The knowledge thus created can feed into refinement of the future reform processes.

### Suggestions

- The SIDA staff being laid-off under the scheme of right sizing suggested by consultants can be utilized for the formation of FOs on all other distributaries in the system. The staff can be trained to organize farmers and provide advisory services. Latter, this staff can be converted into core groups providing various services required by the FOs on payment basis. Thus, this unit will become self financing and pose no extra financial burden on the government.
- Registering the FOs and signing of the irrigation management transfer agreement within the shortest possible time on an experimental basis would boost the audacity of FOs, as well as provide useful lessons for refining the reform processes.
- Socio-technical empowerment through training the FOs would enhance the capacity of the members of the FOs to become self managing, self supporting and self financing.
- External support would also be required for a limited period to empower the FO in socio-technical aspects to achieve the financial viability and eventually sustainability, as the social viability has been proven in the pilot projects.

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