

**CONSULTANCY INPUTS FOR THE PREPARATION OF
PROJECT INCEPTION REPORT**

ON

SOCIAL ORGANIZATION IN IRRIGATION MANAGEMENT

**Report by
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EXECUTIVE SUMMARY

The Punjab irrigation system is an intricate and enormous network of dams, barrages, link canals, main canal systems, distributaries and minor canals stretching nearly 25,000 kilometers in length. The responsibility for the management of the system, including its operation and maintenance, devolves on the Provincial Irrigation Department (PID) while operation and maintenance of about 100,000 watercourses at the tertiary level is the responsibility of the farmers with assistance from the On-Farm Water Management (OFWM) program of the Provincial Agriculture Department (PAD).

Research studies undertaken by the Water and Power Development Authority (WAPDA) from 1973/1974 indicated that watercourse conveyance losses ranged between 31 % to 57 %. It was also revealed that efficiencies could be attained through watercourse improvements. These, and other findings, led to the creation of the On-Farm Water Management Pilot Project (1976-80). An important strategy of the OFWM pilot project was to involve farmers in the improvement and lining of the watercourses by providing labor. Although construction activities at the tertiary level were considered a legitimate responsibility of the Provincial Irrigation Department (PID), yet the authorities at the time were reluctant to assume responsibility for this task. Consequently, the On-Farm Water Management program became the responsibility of the PADs.

A turning point in the history of the farmer organization in Pakistan was the promulgation by the Punjab Provincial Assembly of the Water Users Association Ordinance of 1981. Its aim was to clearly define the role, duties, rights and responsibilities of the association. The authority to assist in the formation of Water Users Associations (WUAs) legally rested with the OFWM Directorates of PADs. By the end of 1994, there were 20,000 WUAs in the Punjab. Once the watercourse improvement was completed, most WUAs disintegrated.

The proposed IIMI pilot project, as envisaged in its plan, should necessarily endeavor to develop a new strategy for the promotion of WUAs to make them more viable and sustainable rural organizations. The rationale suggested for the WUAs in this new strategy is strongly based on their ability to undertake equitable distribution of water and proper maintenance of the watercourses and the distributary canals; resolving of conflicts; promoting better support and cooperation between farmers and officials, and among farmers; and bringing about greater agricultural productivity.

In the review of concepts and strategy for the new WUAs, the consultants advocate the development of democratic, bottom-up, grass-root organizations based on hydrological boundaries with efficient water management initially as the major activity.

The consultants recommend that two alternative models of organization be tried in the pilot project sites. In the first model, it is suggested that the new WUAs be federated at the distributary canal level once the WUAs at the watercourse level are strong and viable

and have demonstrated their ability to take over responsibility. The representatives of the developed organizations at the watercourse level will form the distributary/minor canal farmer organization. This is basically a learning process approach without a rigid organization structure, but with the flexibility to modify and amend the strategies as necessary. The main goal of this strategy is to establish strong participatory management of the distribution system including both the watercourses and the distributaries, with irrigation engineers and farmers working as partners.

The other model is to start at the distributary canal and watercourse levels simultaneously. After a comprehensive farmer awareness program covering clusters of watercourse commands, the distributary organization is established with farmer representatives through an election or a selection process. This strategy is suggested taking into consideration the socio-cultural milieu of the Punjab. The rationale is that a strong distributary canal organization can promote the establishment of strong social organization to take control of water distribution and maintenance work in the canal system in a short span of time.

The consultants recommend the establishment of an Institutional Development Unit in an appropriate agency, preferably in the PID, and sub-units at district/sub-district and project levels with responsibility for the administration, planning, monitoring and evaluation of the new WUAs in the pilot project.

An important component of the strategy is the training and deployment of catalysts, designated as Social Organizers, to promote and facilitate the process of farmer organizations. The pilot project will experiment with different approaches: (a) the deployment of farmer volunteers as catalysts; and (b) the deployment of educated youth as catalysts.

Emphasis is given in the Report to well-planned programs for the training of farmers, representatives of the new WUAs, community leaders, field officers, and middle & senior level officials. If the participatory management approach is to be a meaningful reality, both farmers and officials need to be properly trained.

Monitoring and evaluation are other important components of the consultants' recommendations. Process documentation, analysis and feedback are recommended for introduction in the pilot project area. Project Review Committees need to be organized at the Department, sub-district and project levels, to review progress, resolve problems, and to effect better liaison and coordination among the participating agencies.

CHAPTER 1

INTRODUCTION

1.1 IIMI Pakistan Study Project on Irrigation Management

The IIMI Pakistan Project for "Managing Irrigation for Environmentally Sustainable Agriculture" is aimed at promoting management and institutional improvements in the Indus Basin Irrigation system to sustain irrigated agriculture. The activities are grouped under three components: 1) Operational Management; 2) Institutional Development; and 3) Salinity Management. The consultants' task was related to component 2), and specifically, the "preparation of a draft Inception Report for IIMI's program of activities in social organization..."

The principle objectives of the activities in the Institutional Development Component are:

- (a) To develop feasible irrigation management strategies regarding water users organizations that will alleviate trends in soil salinity and ground water quality that threaten the sustainability of irrigated agriculture in Pakistan;
- (b) Create institutional support for water user organizations at both the watercourse and distributary along with strengthening the interactions between farmers and government agencies; and
- (c) Explore institutional arrangements for coordinated irrigation services by the provincial agriculture and irrigation departments.

1.2 On-Farm Water Management Program.

Since the first USAID funded On-Farm Water Management (OFWM) pilot program in 1977, attempts have been made to obtain people's participation in lining and other improvement work in watercourses and post improvement maintenance of the watercourses, as well as in other on-farm water management activities. The promulgation of the Water Users Association Ordinance of 1980 helped the OFWM program to form Water Users Associations. OFWM records indicate that, up to the end of 1994, about 20,000 WUAs were formed. The WUAs participated in the specific task of lining and improving of the watercourses, but the farmers soon lost interest. It is an open secret that most of the WUAs exist only on paper.

In view of this discontent, there has been a growing concern for strong, viable farmer organizations, which are able to take collective responsibility for the equitable distribution of water, as well as efficient maintenance of not only the watercourses, but also the distributaries. The World Bank is an ardent advocate of the 'social organization' of farmers both at the watercourse and the distributary canal levels. These interests form the background to IIMI Pakistan's program of activities related to social organization for

irrigation management in Pakistan. In this connection, the consultants' main task was to develop an institutional framework and a package of management practices that would enable farmers to manage their water in a sustainable manner. Appendix 1 gives the Terms of Reference for this consultancy.

1.3 Orientation of the Consultants.

IIMI Pakistan organized a well-planned program of 'orientation' for the consultants. The program included:

- a) Individual and group discussions with professional staff members of IIMI Pakistan, senior officials of the Provincial Irrigation Department, the OFWM Directorate, WAPDA's Watercourse Monitoring and Evaluation Directorate, and the OFWM Training Institute;
- b) A Workshop/Brain Storming session with participants from several agencies involved in WUA-related work, (i) University of Punjab, (ii) Lahore, University of Agriculture, Faisalabad, (iii) several internationally funded WUA and OFWM projects, and (iv) IIMI Pakistan;
- c) The Visit to IIMI Pakistan's field station at Haroonabad was the highlight of the consultancy, which enabled the consultants to 'get a feel' of the Punjab irrigation system and to have close and cordial interactions with not only the IIMI project staff but also with several farmers at the field sites. The consultants were happy at the opportunity to meet the Superintending Engineer and two Executive Engineers of Bahawalnagar.
- d) Access to secondary information and data from published and unpublished reports.

Persons contacted during the consultancy are listed in Appendix 3.

The consultants take this opportunity to express their deep appreciation to IIMI Pakistan's Senior Management Specialist Mr. Tissa Bandaragoda and Director Prof. Gaylord V. Skogerboe, for their guidance and support.

CHAPTER 2

THE BACKGROUND OF WATER USERS ASSOCIATIONS IN PAKISTAN¹

2.1 The Punjab Irrigation System.

Pakistan has an enormous network of irrigation canals, which link with the Indus River System to irrigate some 34.5 million acres of land. The system consists 2 major dams, 6 new barrages, 7 link canals, 21 main canal systems, 14 headworks. It is the world's largest contiguous irrigation system. In Punjab alone, there are 23,000 km of canals irrigating 21 million acres of farm land of which 13 million acres get water round the year, whereas 8 million acres get water only in one season. In addition more than 10 million acres are irrigated by public tubewells. There are nearly 100,000 outlets (moghas) providing water to the watercourses, which are designed to carry 1-3 cusecs of water. On the average, a watercourse irrigates about 300-400 acres of farmland with about 40 farmers.

2.2 Annual Water Distribution Plan.

The Punjab Irrigation System has two major regulatory commands - the Mangla Command and the Tarbela Command. The annual plan for water distribution per command area is undertaken at the PID headquarters in Lahore. The planning process, which is prepared for both the Karif (summer) and Rabi (winter) seasons takes into consideration the forecast of water availability and water requirements. Forecasting of water supply and monitoring of water status is done by the Indus River System Authority.

PID officials explained that the forecast of water supply was done on the basis of a) crop-water requirement and b) matching availability with that of requirement. When a shortage occurs, this is distributed proportionately to all distributary canals and minor canals on a rotational basis with two groups of canals getting full capacity and one group of canals getting 10 % less water. This 10 % reduction is passed on to each of the other two groups in rotation. Although the watercourse outlets are normally designed for 7 day irrigation rotation, the water schedule is for 10 day allocations to offset conveyance delays. The water schedule ensures that all outlets get their full discharge.

2.3 Operational Plan.

The Superintending Engineer, when informed of the amount of water available, prepares an operation plan for his area and informs farmers through the field level staff like Patwaris and Numberdars. Canal Committees are formed at different levels in order to enlist the participation of the people's representatives at the local level.

¹ Most of this material is based on discussions the consultants had with PID officials.

The Canal Committee, consisting of the Executive Engineer and local representative, is supposed to meet on a monthly basis to discuss the water distribution program. Such committees are formed to represent all levels, Union Council, Tehsil Council, District Council, Divisional Council and Provincial Council.

Instead of farmers' representatives, usually, the local politicians are represented in these advisory councils. It is not clear to what extent these advisory committees have been effective in assisting the management and the improvement of irrigation systems in the Punjab. However, the reference to these institutional arrangements by the senior PID officials reflect an already established policy framework for people's participation.

2.4 The Warabandi Rotation System

The PID has its own establishment extending up to the command area of the watercourses. The field level staff who establish direct contact with farmers are the Patwari and the Numberdar. They help resolve disputes arising from the "Warabandi"- the water rotation system and the collection of water dues on the basis of the assessment of the irrigated or cultivated area.

The Pucca (official) warabandi is fixed by the Irrigation Department. The farmers however follow the traditional Kachcha Warabandi, or agree to have flexible rotation schedules on the basis of mutual consultation. It appears that farmers prefer to have the Warabandi framed by the Irrigation Department in order to ensure the water right of each member of the watercourse and to avoid disputes. The farmers are also dependent on the irrigation agency in order to shift the Mogha from one place to another. The Canal and Drainage Act, 1873 empowers the PID to enforce sanctions on farmers who do not perform their maintenance responsibilities. These sanctions however are rarely enforced. The alignment of the watercourse channels (Sarkari Khal) and fixing of the Chak boundary are undertaken by the PID.

2.5 Agreed Warabandi

Due to changes in the chak (watercourse command) area, the introduction of new crops, improved seed and increased cropping intensity, it becomes necessary for farmers to bring about variations in the 'pucca warabandi'. These variations in water distribution are agreed upon mutually by the farmers and the officials do not seem to oppose such warabandi changes. This flexible system of water distribution within the watercourse, which can be referred to as "agreed warabandi", is becoming a popular practice among the water users (Bandaragoda and Saeed ur Rehman, 1995). The response to such variations will be more effective when farmers have an organization, as it would be more effective if variations in fixed 'warabandi' are requested by the farmers as an organized group. The farmer's participation will be more predictable and productive and sustainable if it is channelled through organizations appropriate to the task of irrigation management (Uphoff, 1986).

2.6 Background of Water Users Associations.

In 1973, the Water and Power Development Authority (WAPDA) undertook a USAID/ Pakistan Water Management Rresearch Project at the Mona Reclamation Experiment Project (MREP).

Repeated inflow-outflow measurements indicated that watercourse conveyance losses ranged between 31 % to 57 %. In 1977, WAPDA research studies in 61 selected watercourses in the four Provinces during the two seasons showed that about 40 % of the water entering watercourses was lost before reaching the farmers' fields. Based on these deficiencies and 1973/74 irrigation deliveries, these studies found that about 40 million acre-feet of additional water at the watercourse inlet (mogha) would be needed to meet crop water requirements. It was also revealed that 65% efficiencies could be attained via watercourse improvements such as limited lining, and better on-farm water management (OFWM) practices (Byrnes 1992).

Based on research findings, USAID/Islamabad and the Government of Pakistan undertook a five year On-Farm Water Management (OFWM) Pilot Project (1976-81). This Pilot Project was implemented by the Federal Water Management Cell (FWMC). An important strategy of the OFWM Pilot Project was that the farmers had to contribute unskilled labor for the civil works while the government would supply materials and technical assistance.

During this period, construction activities of the watercourses were entrusted to the newly established Directorate of On-Farm Water Management of the Provincial Agriculture Department. Since about 1976, the construction work in addition to other activities in the watercourses have become the responsibility of the On-Farm Water Management Directorate. Although irrigation construction work, even at the tertiary level, was considered by many senior officials as the legitimate responsibility of the Irrigation Department, the authorities at that time were reluctant to assume this responsibility. Had the Irrigation Department decided to take over the task of construction work on watercourses such as channel lining, perhaps, the history of WUAs would have been different. With the earlier involvement of the PID, the transition to a more meaningful participatory approach would have been easier.

The success of the pilot project led to the extension of the On-Farm Water Management Project in July 1981 to the entire irrigated tracts of the Punjab and the other provinces with financial assistance of World Bank and other donor agencies. This was followed by Phase II of the Program from July 1986, which eventually paved the way for the launching of Phase III of the OFWM program from July 1990. During the same period, the Thal On-Farm Water Management Project was initiated in Leiah and Kot Addu Tehsils of District Muzzafargarh with funding from the Asian Development Bank, which was completed in 1988. The successful implementation of this Project served as a beacon light for the initiation of its second On Farm Water Management Project in 1988 for a period of five years (Review of Progress 1991-92, Directorate General, Water Management, Punjab 1992).

The Water Users Association Ordinance was promulgated in 1981 by the Punjab Provincial Assembly with an aim to clearly define roles, duties, rights, and responsibilities of these institutions. Since then Water Users Associations are organized and formally registered prior to commencement of the improvement process on a watercourse (Mushtaq Ahmad Gill, 1994). The On-Farm Water Management Directorate of Punjab indicated that about 20,000 WUAs have been formed in the Punjab alone. Details are listed in Appendix 2.

Though Water Users Associations (WUAs) have performed a commendable job by undertaking improvements on a cost sharing basis, yet it is generally felt that these institutions lost their viability after renovation of the watercourses. The main reason identified for this problem is that

no definite post-improvement activities were assigned to the WUAs. (Mushtaq Ahmad Gill, 1994).

Although the creation of the formal WUAs was not a prerequisite for improvement under the USAID assisted pilot program, a WUA was formed on each of the sample watercourses; yet their formation was hampered because WUAs has no legal protection. Subsequently, after the advent of the WUA Ordinances in all of the provinces in 1981-82, the IDA/IFAD assisted OFWM-I, OFWM-II and OFWM-III, and all other watercourse improvement programs funded by other donors, required the formation of WUAs as a pre-condition for watercourse improvement. The task of monitoring and evaluation of OFWM programs was entrusted to WAPDA's Watercourse Monitoring and Evaluation Directorate (WMED).

The following are the general findings of the WMED evaluation of the program (Bashir and Iqbal, 1994):

- a) The role of the newly established WUA is generally confined to watercourse improvement and rehabilitation. No attention was paid to have them work in other water-related activities. They lose their formal roles immediately after the construction work is done. The conclusion is that the formalized WUA has never been operative after its formation. An appropriate process and the right type of catalysts were not employed that would encourage the farmers to form effective WUAs.
- b) The repayment rate for the material cost was not more than 40%. (It has been difficult for the staff of OFWM to collect the contributions from the farmers.)
- c) Most of the farmers were ignorant about the rights and duties of the WUAs.

2.7 Evaluation of WUAs in World Bank Assisted Projects.

Another evaluation on the status of the functioning of WUAs in World Bank assisted projects was done in 1992. The evaluation highlighted the problem of sustainability of the Water Users Associations after the watercourse improvement (Byrnes, 1992).

The time taken for the formation of a WUA at the watercourse level varies from 3 days to 3 months. Some of the farmers even reported that the WUA, if it existed at all, was nothing more than a formality, a means by which the "contractor" mobilized labor needed for watercourse improvement. It was even found that some of the WUAs were registered recently by the authorities, registration being effected after the watercourses were improved (Byrnes, 1992).

2.8 Limitations and Shortcomings of the WUAs.

Some of the limitations and shortcomings of the WUAs are:

- (a) The organization process of WUAs did not take into consideration the socio-cultural milieu of the Punjab, particularly the relationship between landlords and small farmers, and between farmers and officials.

- (b) There was little awareness among farmers and even officials of the aims, objectives and scope of the WUAs. The main activities of the WUA were confined to construction work in lining the watercourses. The association became inactive after completion of this lining work.
- (c) The Water Users Association Ordinance was not known to many farmers. The Ordinance was not issued in the local languages.
- (d) The Field Teams had neither the trained personnel nor the resources to provide guidance and support in strengthening WUAs to play a more dynamic role in the efficient operation and maintenance of the watercourses.

2.9 Punjab Ordinance No.V of 1981 for the Formation of WUAs

The main features of the Punjab Ordinance No.V of 1981 are:

- a) The Ordinance is to "provide for on-farm water management, conservation and optimum utilization of irrigation water sources and formation of water users association in the province."
- b) Section 6 of the Ordinance indicates the steps in the formation of a WUA as follows:

" Where the majority of irrigators of a watercourse agree to associate in the work of reconstruction, maintenance or improvement of the watercourse, they may form an Association to be known as 'Water Users Association' (Anjuman Abpashan)."
- c) In terms of Section 6 of the Ordinance, the association to be registered has to fulfill the following requirements:
 - (i) Fifty one percent of the total number of irrigators of the watercourse are members of the Association;
 - (ii) The by-laws framed by the Association are not inconsistent with the Ordinance and the rules;
 - (iii) The office bearers and members of the Managing Committee of the Association have been duly elected in accordance with the by-laws of the Association; and
 - (iv) The Association is maintaining a Bank Account in a scheduled bank.
- d) Section 7 of the Ordinance refers to "body corporate" status of the WUA:

" The registration of an Association under the Ordinance shall render it a body corporate in the name under which it is registered with perpetual succession and

a common seal with power to hold property, enter into contracts , institute and defend suits and other legal proceedings and to do all acts necessary for the purpose of carrying out its functions."

2.10 Water Users Association to be a Body Corporate

Section 7 of the Ordinance providing "body corporate" status to the WUA is perhaps the most important clause in the Ordinance. The authorities concerned do not appear to realize that "body corporate" status gives the WUA considerable power to impose sanctions against those who flout the by-laws of the Association.

From the field experience, it became clear that the farmers were not aware of the role and potential of their Association and the powers vested in the Association with 'body corporate' status. Pakistan is perhaps the only country in the region that has promulgated legislation to register the WUA as a body corporate. However, it appears that the great, hidden potential of the Pakistani farmers to manage their affairs in irrigated agriculture and in the development of the country has not been realized as a lack of awareness has stifled their enthusiasm.

2.11 Field Experiences in Haroonabad and Hasilpur.

The field visits to the two IIMI research sites at Haroonabad and Hasilpur provided useful insights into the activities undertaken by farmers in solving their operation and maintenance problems. A few examples are given below:

- Watercourse No. 129600-R of the 6-R Distributary in the Hakra Branch Canal Command has a 1.5 km long channel with 350 acres of command area. The land is owned by 15 farmers. They have a lined channel. Water in the command is supplemented by a pump. After lining of the watercourse, the WUA became defunct. Farmers are undertaking desilting and channel cleaning work on their own. The farmers desilt the watercourse once in 2 months in winter and once in each month during summer. They do desilting on an individual basis, but under a common agreement.
- The farmers have recognized the benefit of desilting and lining. They have reported that they can get more water after desilting. They can irrigate their land in a shorter time period.
- In Hasilpur, the field researchers reported that in most of the watercourses, the farmers have entered into an "Agreed Warabandi". This agreed warabandi is not a pucca one, nor is it like the kachcha warabandi. Adjustments to match the local conditions and farmers' needs were made on the official warabandi. This shows that the farmers through their group efforts are attempting to respond to their water needs on the basis of micro-variations.
- Farmers were interviewed in one watercourse of Fordwah Branch Canal where lining of the watercourse has not taken place. No water users association was formed in accordance with the Water Users Association Ordinance. The farmers

acknowledged the need for desilting, weeding and cleaning the channels on a regular basis in order to get water in the watercourse regularly.

- The farmers have established some mechanism to desilt the channel. In the farm ditches, the individual farmers clean the channel twice a month. The main watercourse (called Sarkari Khal) is cleaned once a month. The date and time of desilting are announced by either the Maulvi or the Numberdar of the village. Such announcements would be made in the Mosque on Friday.
- The labor contribution for desilting would be made on the basis of a "Square". One square consists of 25 acres of land. Farmers within this area decide who should contribute labor for watercourse maintenance. The collective effort takes place only in the "Sarkari Khal". If a farmer fails to fulfill the obligation of labor contribution, he is admonished in public. Hence, the farmers reported, there is no non-participation by the farmers of the command area for the cleaning and desilting of the watercourse. This type of organized effort does not exist for other activities related to agricultural production.

IIMI has already identified the research sites for WUA activities. Teams of staff are already in place in the field. Data collection methods are being tested. Rural Rapid Appraisal method are being tested to collect information on the community profile for a watercourse command area. In order to record the perceptions of the farmers on water availability and other activities, Participatory Rapid Appraisal (PRA) is being tested. Skills to apply such methods are being practiced in the field.

CHAPTER 3

THE RATIONALE FOR FARMER ORGANIZATIONS²

In the following presentation of the rationale for Farmer Organizations, an attempt has been made to cite examples from the Punjab along with some theoretical concepts.

3.1 Water is a scarce resource in the Punjab. There is a need to prevent water losses and waste. Farmer Organizations (FOs) can be effective in saving water.

Research undertaken in 1973 by WAPDA at the Mona Reclamation Experimental Project (MREP) indicates that repeated inflow-outflow measurements showed watercourse conveyance losses ranging between 31%-57%.

In 1976, MREP officials conducted a survey of a selected sample of chaks (watercourse commands) in Punjab and Sind Provinces. The survey indicated that conveyance losses in sample watercourses ranged between 35%-67%, with a weighted mean conveyance loss of 53%. The average irrigation efficiency was 42 %.

Group effort by farmers at the watercourse level, through watercourse improvement and timely maintenance of channels, can prevent heavy water losses (Byrnes,1992).

3.2 "Equitable water distribution has been replaced by a blatant behavior of water misappropriation." Farmer Organizations can reverse the process.

(a) The original design of Pakistan's irrigation systems, as well as the institutional arrangements for their operation and maintenance, was characterized by features aimed at equitable water distribution. With the gradual decline of the quality of physical and management conditions, this design stage objective of equity steadily eroded, thereby leading to the present situation of near anarchy in the irrigation canal environment. Today the equitable distribution has been replaced by a blatant behavior of water misappropriation." (IIMI, April 1994)

The group behavior can provide control over individuals' behavior. Hence, if FOs are formed properly, they can control deviant behavior of the farmers.

² The consultants prefer the term "Farmer Organization", which can be used as a generic term, instead of the term "Water Users Association", which seems to restrict the potential of social organization for irrigated agriculture. In this report however, the two terms are used interchangeably.

3.3 Revenue from water collections is fast declining. Farmer Organizations can improve the situation by sharing the responsibility between farmers and agencies.

It was indicated that the collection percentage of yearly charges and the overall collection percentage during the year declined sharply during the last 12 years. The following example is from the Fordwah Eastern Sadiqia Canal Circle.

<u>Year</u>	<u>Collection %</u>	<u>Overall Collection %</u>
1982/83	88.0	76.0
1983/84	86.0	71.0
1984/85	88.0	72.0
1985/86	88.0	69.0
1986/87	87.0	67.0
1987/88	83.0	62.0
1988/89	82.0	59.0
1989/90	68.0	49.0
1990/91	78.0	57.0
1991/92	77.0	52.0
1992/93	85.0	53.0
1993/94	54.0	43.0

Source: WAPDA, Watercourse Monitoring and Evaluation Directorate, Jan.1995.

3.4 Many conflicts arise in water distribution. Farmer Organizations can help to resolve such conflicts.

One farmer from the tail end of a watercourse paid money in advance to buy pond water. After his payment, one year passed and he was still not given his purchased turn. The upstream farmers continue to break the norms and abuse the rights of others. The issue has still not been resolved (IIMI Pakistan, Farmer Interview Records of IIMI field site at Haroonabad, 1994).

When disputes arise (e.g., cattle grazing on another farmers land, or buffalos blocking the water-flow during another farmer's warabandi turn), the involved farmers can turn to the WUA for assistance (Byrnes, 1992).

Conflict occurs within large-scale irrigation systems when farmers do not obtain their share of sanctioned water, or when some farmers obtain more than their share by water theft or by installing unauthorized outlets. Key informants report that the biggest problem encountered in water distribution is controlling the behavior of influential landlords, who are rarely prosecuted for their breaches of conduct (Freeman et al, 1989).

Conditions of scarcity and poor reliability of water supply normally encourage the individual water user to engage in various malpractices for maximizing personal gain. A long period of this behavior results in a 'syndrome of anarchy' (Hart 1978, Wade 1987).

Elsewhere, Farmers Organizations have attempted to minimize such occurrences, and to resolve conflicts within the community. The FOs have demonstrated their capacity to effect equitable distribution of water within the system. The development of group norms help reduced such inappropriate behavior of individual farmers. This in itself is a good justification for attempting to establish FOs.

3.5 The understanding, support and cooperation between farmers themselves and between farmers and officials seem poor. Farmer Organizations can improve rapport between farmers and officials.

Officials may view organized farmer groups in a more positive light, perceiving that farmer-group involvement in decision-making will lead to greater equity and efficiency in irrigated agriculture (Byrnes, 1992).

"The OFWM-I program was required to establish a permanent institutional frame-work, initially to serve as a communication channel between the farmers and OFWM staff for ensuring continued participation in every stage of project implementation (from planning to execution)..." (Ahmed et al, undated mimeo)

3.6 "Productivity in agriculture in Pakistan is declining. The Farmer Organizations can contribute to increasing productivity".

The National Conservation Strategy, a recently published government document, points out that Pakistan's average yields of all main crops are considerably less than the average yields achieved by other countries. The 1990 Water Sector Investment Study Plan for Pakistan predicts a shortfall of about 10% by the year 2000 and 25 % by 2013 in the country's future food and fibre production needs. Thus, the low productivity of irrigated agriculture in Pakistan represents a major threat to the country's food security (Bandaragoda, 1994).

On the watercourse No. 27025 R (Punjab), as designated by Byrnes (1992), the cropping intensity was reported to have increased from 60% before its improvement to 100%-125% after improvement. While increased availability of water made it possible for farmers to cultivate more land, the farmers indicated that they had not changed their cropping pattern. Improvement of the watercourse No. 24879 L (Punjab), as found by Byrnes (1992:35), resulted in the cropping intensity increasing from 80 % to 120 %, as well as changes in the cropping pattern.

3.7 Water Users Associations in the Punjab do not participate actively in the operation and maintenance (O & M) of the irrigation system. The potential exists for them to participate more actively in maintenance activities.

An important facet in the evolutionary cycle of continually improving the agricultural productivity of an irrigation project is the absolute requirement for sustaining an effective maintenance and operation (M & O) program if there is to be any hope of significantly increasing agricultural production (Skogerboe et al,1993). Representatives of a watercourse in Punjab reported that WUA members generally cooperated in supplying the labor needed to improve and maintain their watercourse. There have been instances when the farmers have contributed even more than their share for maintenance costs (Byrnes, 1992). The farmers have reported that the regular maintenance and desilting of the channel helps to increase the supply of water, thereby making it easier to irrigate a field during a shorter time period. Hence, regular maintenance, desilting and weeding are to be done. The WUAs can institutionalize such activities, making the life of the farmers easier.

CHAPTER 4

CONCEPTUAL FRAMEWORK OF FARMER ORGANIZATIONS

4.1 Concepts

The conceptual framework suggested in this report is one that is grounded in social science theory and has evolved during the last two decades based on experiences of many countries regarding farmer participation in irrigation water management. The experiences gained by the Rural Development Committee of Cornell University, USA, and Agriculture Research and Training Institute (ARTI), Sri Lanka, in the Gal Oya Water Management Project in Sri Lanka; the National Irrigation Administration of the Philippines in communal systems; the Small Farmer Development Program in Nepal, the Subaks of Indonesia and experiences in many other countries contributed to the development of this conceptual framework. The main features³ of the suggested framework are:

- (a) **Farmer Organizations / Water Users Associations have to be developed based on the socio-cultural milieu of the community.**

The strategies, organizational structures and activities of Water Users Associations in Pakistan should be in accordance with the socio-economic and cultural basis of the country. Strategies which have succeeded in a different social-cultural context of another country would not necessarily succeed in Pakistan. The success of the social organization effort largely depends on the adoption of such strategies, which are in harmony with attitudes and norms of the local community.

For example, in the Punjab, the concept of the level and patterns of conflict are generated by particular socio-economic structures with cultural values such as the concept of izzat (honor) operating as intermediate variables (Merrey, 1979). There are several institutionalized irrigation practices such as the warabandi irrigation rotation system and the biradari relationship -- behavioral patterns based on a feeling of brotherhood -- which are socially evolved institutions which form part of the institutional framework of Pakistan's irrigation management (Bandaragoda and Firdousi, 1992).

- (b) **The major concept in the Farmer Organization Program is that it should be in a learning process mode.**

An attempt should be made to ensure that the farmer organizations program would stimulate a process for promotion of association and cooperation, using methods and

³ These items are closely inter-linked, and some repetition and overlapping are inevitable.

rules of their own choosing, so that the farmers will come to regard the organizations thus developed as their own.

Very little is known of the people's perception of the objectives, scope and potential of the organization. Would farmers organize themselves if they do not perceive any gain or incentive for them? Would the strategies be acceptable to them, or would farmers accept them with changes and modifications?

The only way to proceed with these uncertainties is through the learning process approach. Farmers, and for that matter even the officials, should learn from their mistakes. Therefore, the farmer organization program should be considered a process, which should be documented, analyzed and changes made where necessary.

(c) **The Bottom-Up Approach Starting at Watercourse Level.**

The bottom-up approach is building the FOMWUA from below according to hydrological boundaries. The first level of the organizations are the small informal groups of farmers located along a farm ditch or branch of a watercourse. The second level of the organization will be the WUA at the watercourse level. The organization at the watercourse level is the most important level and is the foundation for the farmer organization structure. The third level of the structure is the federation of WUAs at the distributary canal level, called Water Users Federation (WUF).

The concepts of a bottom-up approach and the federation of farmer organizations are closely linked together. It should be noted that the farmer organization program is based on voluntary participation of the majority, and therefore, very serious efforts must be made to promote group cohesion and cooperation (Ahmed & Iqbal, 1994).

(d) **Organize the farmers based on hydrological boundaries such as watercourses and distributary canals. Farmer organizations therefore have to be federated at different levels of the irrigation system.**

In most irrigation systems in the Asian region, water is the limiting factor and the felt need of the farmers. This need can be better fulfilled by farmers taking the responsibility for operation and maintenance, initially of the watercourse, then the distributary/minor canal, and later the main canals. Many countries in Asia have already proven that the farmer organizations can manage the different levels of the irrigation system in phases. This does not mean that engineers have no responsibility. It will develop into a real joint responsibility - between farmers and officials. In popularly used terms, it is participatory management or joint-management of the irrigation system. This approach encourages the farmers to take responsibility for management up to a certain level of the irrigation system. Hence, the communication between the organized group of farmers and the agency will be improved.

Farmers' participation plays an important role in improving performance of the irrigation systems and increasing production. One of the ways to institutionalize participatory irrigation management in public sector irrigation systems is to establish a formal mechanism for interaction between the farmers and the agency. This should be done in an organized manner that allows the formation of a farmer organization to discuss, negotiate and participate in decision-making with the agency on different issues of irrigation management.

Watercourse improvement has been noted to have directly benefited many farmers in the initial phase of OFWM-I and II, as well as other projects involving OFWM. Yet farmers may not be convinced that maintaining a watercourse according to prescribed OFWM standards will be of any real benefit, especially if there are problems in the delivery system above the watercourse. The WUAs having their authority limited to the watercourse will not be perceived by farmers as having much impact on irrigation performance (Byrnes, 1992). In this context, organization needs to extend beyond the watercourse in order to achieve real benefits.

In a world wide review, one obvious conclusion is that the best operated irrigation systems are managed by farmers, and not by government agencies. This is not only true for small irrigation systems, but for large systems as well (Skogerboe et al, 1993). Institutionalized mechanisms for interaction between the WUA and agency is an important step toward promoting the important role of the farmers in irrigation management.

- (e) **Farmer Organizations should concentrate on efficient operation and maintenance of the irrigation system before embarking on other activities to enhance agricultural productivity.**

The question posed by many is whether the FOWUA should be a single purpose organization or a multi-purpose organization. The answer is that the organization should function as a single purpose organization initially. If farmers do not have sufficient and reliable water, all activities will suffer. Once water management is improved with reliable and adequate water, and if farmers feel a need for activities to improve agricultural productivity, then the FOWUA could undertake activities such as group procurement of agricultural inputs (to effect economies of scale), marketing of their produce, obtaining credit for members, and other similar activities. This will provide an incentive for members to remain in the organization and continue to focus on operation and maintenance of the irrigation system.

- (f) **The learning process of organizing farmers can be greatly facilitated, promoted and accelerated by the use of catalysts (such as Social Organizers).**

In a learning process, there is nothing final or definite about the strategy. The strategy changes with the field situation and with the experience gained. A catalyst can promote,

facilitate and speed-up this process.

The catalyst's essential role is to create institutional capabilities among the farmers for improving irrigation management performance. In situations where farmers and officials have poor links, and where the farmers have numerous conflicts, the catalyst needs to be more of an "active ingredient" to promote new behavior of a more cooperative, egalitarian, and participatory nature. While taking the initiative, the catalyst must be looking for leadership within the group which is to be encouraged and strengthened. As rapidly as possible, the initiative should pass to the group's own leadership to create an independent capacity for group action (Uphoff, 1983).

- (g) **The distinguishing features of a successful FO/WUA are that they should be self-supporting, self-regulating and self-governing.**

The criteria for the success of a FO/WUA are:

Self-supporting: Generating sufficient income internally to finance its own maintenance and operation responsibilities;

Self-regulating: Formulating its own rules and regulations to reflect the local characteristics and requirements (within the provision of general rules and regulations); and

Self-governing: Organize and execute the decisions of the Executive Committee of the Farmer Organization without need of input or approval from the agency.

CHAPTER 5

PROGRAM STRATEGY AND PLAN OF ACTION.

5.1 Policy on Participatory Management of Irrigation Systems

Based on a series of discussions with senior officers involved with irrigation and agricultural development in the Punjab, the Consultants are of the view that although there is agreement among many senior officers about the advantages and the need for active farmer participation in operation and maintenance of irrigation systems, yet they are struggling for any clear-cut policy on participatory irrigation management in Pakistan.

The Consultants are of the view that IIMI Pakistan should work towards promoting a clear Government policy on participatory management of irrigation systems. Once this policy is accepted by the Government in principle, it could be tested in a few pilot projects, including the IIMI Pilot Project.

As already indicated in this report, most of the ingredients of participatory management have existed, or are already available in Pakistan. Example are listed below.

- Informal organization of shareholders of watercourses referred to as "Khal Committees", which are composed of notables having deep roots in the farming community, were entrusted with the job of organizing farmers to undertake maintenance and improvements.
- Although there were limitations and short-comings in the WUAs, yet the farmers were able to mobilize themselves for canal lining and other improvements to the watercourses. This period of mobilization created among farmers a sense of participation which could have been further nurtured.
- The 'warabandi' system of water rotation has already developed as an important 'irrigation institution'. The 'warabandi system' is perhaps the only instance where farmers and officials work together for water distribution.
- The PID officials report that there are distributary canal committees consisting of nominated farmer leaders and officials particularly to review water distribution to the watercourses. This is a first step in the direction of participatory management of irrigation systems.

In view of the increasing inequity in water distribution, as well as the deteriorating canal system due to maintenance deficiencies, the country needs to develop a policy of participatory management. The PIDs will have to soon shift from the role of irrigation controller to irrigation facilitator, and for this, they will need to promote strong self-reliant farmer organizations, which could take over completely the operation and maintenance of the distributary canals. This will result in considerable savings that could be diverted to the maintenance and repair of main canals and structures.

5.2 The Organizational Form of Participatory Management

The consultants feel that one of the main policy decisions to be taken soon is on the organizational form of participatory management. The government should clearly define the overall responsibility of the farmers and government officers. It may also be necessary for classification of irrigation systems, perhaps according to the extent irrigated. The classification would indicate how the government involvement should be related to the size of the scheme.

5.3 Setting Up an Institutional Development Unit for Social Organization

As a precursor to the implementation of Participatory Management, the formation of an Institutional Development Unit (IDU) is suggested for the Pilot Projects. This Unit should be located within the PID, or in the OFWM Directorate, or in both organizations, depending on the alternative strategy that is adopted. In the near future, the need for the farmers and irrigation officials to join hands in partnership and help each other in the operation and maintenance of the irrigation system will be unavoidable. This organizational unit, specifically dedicated for promoting such future collaborative relationships on an extensive basis can be started now, with the launching of the pilot projects.

5.3.1 The Rationale for establishing an IDU at the PID

- (i) The PID is the technical department responsible for operation, maintenance and management of irrigation systems in the Province. The Pilot Project will undertake O & M not only of the watercourse, but also in the distributary and minor canals.
- (ii) The PID is the repository of technical knowledge, the expertise, and data on the irrigation systems.
- (iii) The PID, by administrative order, can accommodate the implementation requirements of the Pilot Projects.
- (iv) Evidently, a future strategy to overcome emerging problems of irrigation systems would be a participatory management approach. It is therefore prudent to establish the IDU and the social organization program in the operating agency.

5.3.2 Alternative Locations for the IDU

If for any reason there is reluctance, or inordinate delay, by the PID in establishing an Institutional Development Unit (IDU), the other alternatives that could be considered are as follows:

Alternative 1: The IDU may be set up under the administration of the OFWM Directorate. IIMI should promote the signing of an MOU, or any other form of agreement, between the PID and the OFWM Directorate regarding the Distributary level farmer organization.

Alternative 2: The IDU may be established jointly by the PID and the OFWM Directorate. The budgetary provisions and the location of the office should to be decided by mutual agreement.

5.3.3 The IDU, a Multi-Disciplinary Team

The IDU should consist of a Sociologist, Training Specialist, Irrigation Engineer, Farmer Organization Specialist, Agronomist, M & E Officer and other necessary support staff. IIMI-Pakistan should play a significant role in designing and establishing the IDU.

5.3.4 Responsibilities of IDU

- (i) *Take responsibility for all aspects of administration such as recruitment of Social Organizers, travelling & logistics support, all financial aspects, supervision and maintenance of records.*
- (ii) Take responsibility for the planing, implementation, monitoring and evaluation of the WUA Program.
- (iii) Take the responsibility for planning, implementing and publishing a comprehensive Base Line Survey, including status of irrigation, problems faced by farmers in irrigation & agriculture, socio-economic status, demography, patterns of leadership, attitudes & perceptions
- (iv) Plan and conduct pre-service training of Social Organizers, and in-service training of farmers, farmer leaders/community leaders, and field officers in collaboration with appropriate national training institutes and agencies.
- (v) Assist IIMI to organize and man Field Office(s) in Pilot Project sites.
- (vi) In consultation with IIMI Pakistan, conduct surveys, feasibility studies and research on areas relevant to the FOWUA Program. Undertake process documentation, analysis and publication of the process of FOWUA formation.
- (vii) The IDU should also be responsible for the liaison and coordination with other government departments/agencies, the NGO sector, Universities and Institutes on matters relating to the development of WUAs in the Punjab.

5.4 The Name of the Farmer Organization

It is suggested that the name "Water Users Association" be changed as it gives a wrong connotation as being a construction association. People do not perceive of the WUA as a democratic organization. As most of the WUAs are defunct, farmers will think that the authorities are trying to resuscitate a dead organization. The name from a local language indicating 'farmer's united organization' or 'farmers development association' or 'farmers strength in unity' may be used.

5.5 The Organization Structure

5.5.1 Two Organizational Models

The consultants recommend that different models of organization be tried out in different distributary canals of IIMI's Pilot Project area. Particular mention is made of two possible variants:

Model 1

Establish Farmer Organizations (or WUAs) in all of the watercourse commands within the distributary. After some period of maturity, federate the different WUAs into a Distributary Canal level farmer organization through a representative mechanism.

Model 2

Start at the Distributary level establishing the Distributary Canal Organization (DCO) after an extensive farmer awareness program, allowing for appropriate representation in selecting the leadership of the organization. In order to have a representative body, groups or organizations will be formed simultaneously at the watercourse commands.

5.5.2 Discussion of the Two Models.

Two types of DCOs are proposed here. The first type of DCO will have elected representatives (such as Presidents) of watercourse level FOs/WUAs, which will form the Executive Committee of the DCO. Farmers of all watercourses feeding from the distributary canal will form the general assembly with meetings held at least once a season.

The other type of DCO will be formed out of the representatives of the entire farmer community of all watercourse commands, not necessarily the Executive Committee members of watercourse level farmer organizations. However, there will be no functional organizational link between this type of DCO and FOs/WUAs at the watercourse level. Such organization can be formed without waiting for the completion of the formation of FOs/ WUAs at the watercourse level⁴.

5.5.3 The Rationale for Starting the DCO first.

The rationale for starting the DCO first is that its Executive Committee will have a fairly quick control over the distributary management and be able to show the usefulness of Farmer Organizations without having to wait for the maturity of watercourse level organizations. Such a DCO also will have the strength, the status, and the recognition to influence the general membership of farmers. It is possible that the pressure from a peer group may even be stronger than that of a catalyst.

⁴ One of the Consultants has reservations on the functioning of second type of DCO.

5.5.4 More details of Model 1

The structure of the new Farmer Organization will have three tiers:

- a) At the farm ditch, or branch watercourse level
- b) At the watercourse level
- c) At the distributary canal level

a) Structure at the Farm Ditch/Branch Watercourse Level

It is possible that a watercourse may have several farm ditches/branches. In such instances, it is possible for an informal group to be formed at the farm ditch level. The group will get together and elect from among them a Farmer Representative. The Farmer Representatives of each informal group form the Executive Committee of the organization at the watercourse level. All farmers of the watercourse form the general membership.

b) Structure at the watercourse Level

There are several alternative structures possible at the watercourse level:

- i) As indicated in (a) above, if there are farm ditches or branches of the watercourse, the Farmer Representative selected from each farm ditch/branch form the Executive Committee of the WUA.
- ii) If the watercourse is of medium or small size with 60 to 100 members, it may be possible for all farmers to meet together to form the farmer organization. They should elect an Executive Committee with equal representation for the head, middle and tail of the watercourse.
- iii) In case of a very long watercourse, it is recommended that the watercourse be divided into three sections - head, middle and the tail. Farmers of each section will elect say 6 Executive Committee members from each section. The 18 members so selected form the Executive Committee of the watercourse.

c) Structure at the Distributary Canal Organization (DCO)

The Presidents of Farmer Organizations at the watercourse level will form the Executive Committee of the Distributary Canal Organization. All farmers of all of the watercourse commands will form the General Membership of the DCO⁵.

⁵ Federations of Farmer Organizations beyond the Distributary Canal is not considered feasible, nor necessary, at the present time.

5.6 Main features of the New FOWUA

5.6.1 Functions of the FOWUA at the Watercourse Level.

- (i) Maintain the formal FOWUA at the watercourse level, with its membership consisting of all the farmers (including tenants, sharecroppers, landlords) on a democratic basis evolving their own rules, regulations, by-laws, as well as develop their own methods, norms and procedures.
- (ii) Promote good personal relations between themselves and between farmers and officials.
- (iii) Ensure water rights of all farmers at the watercourse below the 'mogha' and the rights of the association at the distributary and the main canals.
- (iv) Increase efficiency of irrigation by farmers taking responsibility for the efficient operation and maintenance of the watercourse and the distributary canal by repairing simple structures and lining the canal (where feasible) in partnership with the Irrigation Department.
- (v) After the FOs/WUAs are strong and found to be viable, and have demonstrated their capacity and discipline to efficiently manage the watercourse, they may federate at the level of the distributary/minor canal in consultation with the PID.
- (vi) Take full responsibility for equitable water distribution through "warabandi" which will be planned and implemented by the FOWUA.
- (vii) Before the Rabi and Kharif seasons, decide on a cropping pattern, based on information provided by the Irrigation and Agriculture Department. This will form the nucleus for agricultural planning for the future.
- (viii) Organize training programs for farmers and village level officials on operation & maintenance of the watercourse, on-farm water management, cropping patterns, and methods of obtaining greater productivity.
- (ix) Take action to resolve conflicts of members and arrive at amicable settlements through discussion and negotiation.

5.6.2. The Board of Management/Executive Committee of the FOWUA

- (i) The members of the Board of Management/Executive Committee may elect from among themselves a President, Vice President, Secretary, Assistant Secretary, Treasurer.

- (ii) The members of the Board of Management/Executive Committee may form sub-committees for:
 - Irrigation and Water Management
 - Agriculture
 - Legal
 - Finance
- (iii) The Board of Management/Executive Committee should be guided by an agreed set of rules and by-laws.
- (iv) The Board of Management/Executive Committee should meet at least once a month, and more often as necessary.
- (v) The Board of management should maintain proper records of meetings, membership register, accounts, etc.

5.6.3 Functions of the FO/WUA at the Distributary Level (DCO)

- (a) In consultation with the PID Engineers, decide on equitable water distribution among the watercourses.
- (b) The DCO is to ensure that the distributary receives its entitled flows.
- (c) Formalize the warabandi framed by the watercourse level FO/WUA.
- (d) Resolve water-related problems and conflicts between watercourse level FOs/WUAs.
- (e) Participate actively in the operation and maintenance of the distributary. For example, the DCO may decide to undertake 25% of the maintenance on the distributary. This contribution may be increased by mutual agreement, depending on the annual cost estimate for maintenance, and the possible share of it allocated by the government. The PID will provide the necessary technical guidance and equipment.
- (f) Strengthen the weak or ineffective watercourse level FOs/WUAs through guidance and support.
- (g) Initiate action to organize economic activities such as credit, procurement inputs and marketing with the active involvement of watercourse level FOs/WUAs.

5.7 Use of Catalysts in Social organization

- (a) The catalysts may be designated as "Social Organizers".

- (b) The Pilot Project may recruit two types of catalysts and try each category in each selected distributary canal. The suggested two types are:

Type 1 : Educated, middle-aged farmers, respected by the community can be recruited from among the farmers. After a brief training, they can be used on the basis of about one per each watercourse. An honorarium may be paid.

Type 2 : Educated youths, preferably matriculates or graduates in the social sciences, can be recruited, trained and fielded on the basis of about one per 4-5 watercourses. They need to be paid reasonable remuneration.

These Social Organizers should not be a permanent cadre, but on contract initially for one year, with the possibility of extension for 2-3 years.

5.8 Training of Social Organizers

5.8.1 Pre-service Training of Social Organizers.

A well-planned, residential training program should be undertaken with the assistance of IIMI Pakistan. The training should be designed to inculcate in the new recruits a sense of discipline, commitment, dedication, and humility. They should be molded in such a way that they would learn from the farmers, be courteous, along with respecting the norms and traditions of the community.

The training should also provide them a clear understanding of their roles and functions. The following subject areas should be included in the training:

- (i) Social Sciences, such as Rural Sociology, Group Dynamics, Communication, community organization, leadership patterns;
- (ii) Farmer Organization principles, methods and techniques, comparative studies of various forms of farmer organizations, including the differences between old and FOWUA;
- (iii) Irrigation, such as understanding the Punjab Irrigation System, irrigation structures, principles, methods and techniques of water management, and water measurements;
- (iv) Agriculture, such as soil-plant-water relationship, cropping patterns in the Rabi and Kharif seasons, pests & diseases, marketing and credit, and agronomy;
- (v) Other development programs in the Punjab; and

- (vi) Roles and Functions of Social Organizers--the Social Organizers are to basically catalyze and facilitate the process of organization by motivating the farmers , along with promoting self confidence and self reliance of the farming community.

A different pre-service training program should be designed for the farmer - social organizer group.

5.8.1 In-service Training of Social Organizers

Residential in-service training should be provided to all Social Organizers at least once in six months. The duration should be 5-7 days. The training program can be used to evaluate the work of the social organizers, and also to obtain their feedback for improvement of the whole program in the Pilot Project areas. This effort can also be used to obtain valuable information for research purposes.

5.9 Training of Farmers and Officials.

(a) Training of Farmers and Community Leaders

A series of one-day training programs should be organized in convenient locations for all the farmers. The primary objective is to create an awareness about the Pilot Project and to explain the objectives, scope and potential of farmer organizations. Considering the "learning process" emphasis referred to earlier in this report, this farmer awareness program will be one of the initial items for the total program, which can throw light on the possible changes in the process, strategy, and scope of the social organization effort.

This training program for farmers should be repeated every year, with the Social Organizers taking the initiative, and can include such aspects as operation and maintenance, cropping patters, use of fertilizer and agro-chemicals, etc.

(b) Training of Field Officers.

Short 1/2 day seminars/workshops should be organized to give the field staff an orientation and an awareness of the Farmer Organization Program, its objectives and potential. They should share a common realization that, in the long run, working in close cooperation with the farmers is to their advantage. The field staff of government agencies can benefit from this training by gaining skills in communication with the farmers.

(c) Training of Middle Level Officers

Seminars/Workshops should be organized to provide an orientation to middle level officers, such as Water Management Officers of OFWM, PID's Executive Engineers, Sub-Divisional Officers and Sub-Engineers, District Administration's Assistant Commissioners, Deputy Collectors and other similar officers. the focus of this training

should be on the objectives and potential of farmer organizations. A major objective is to effect greater coordination and cooperation among officers of different government agencies, and greater support to their respective field staff.

(d) Orientation to Senior Officers

A few Seminars should be organized to appraise senior officers and Heads of Departments/Ministries, who are expected to develop appropriate policy for participatory irrigation management, on the objectives, scope and potential of FOs/WUAs. The opportunity should also be used to present the potential of strong, viable farmer organizations in contributing to the operation and maintenance of the irrigation system and to agricultural productivity in general.

5.10 Monitoring and Evaluation of Pilot Project

The monitoring of the Project should be undertaken at three levels:

- (a) At the Field level, in addition to other monitoring devices, there should be monitoring through 'process documentation'.
- (b) Monitoring at the District level by the IDU and appropriate officials of the district, with IIMI assisting in the monitoring design. In addition, there should be a District Committee for Social Organization consisting of District representatives, Social Organizers, and IIMI representatives.
- (c) For the Project as a whole, there should be a 'Project Progress Review Committee', consisting of senior representatives from all the concerned Departments and Ministries, Institutes, IIMI and the Donors. This review committee meeting (monthly or quarterly) will review progress, assess results, discuss problems and constraints, and effect coordination. These meetings will also foster good relationships between the various agencies.

CHAPTER 6

RECOMMENDATIONS

Following the detailed discussions with several senior officials of Irrigation, Agriculture, On Farm Water Management, Federal Cell for Water Management, and with the staff of IIMI Pakistan, and a well planned field visit, the Consultants feel that they have been able to reach a fair understanding of the major issues in the operation and maintenance of the Punjab Irrigation System. In the light of this understanding, the Consultants have tried to use their experience in social organization work to develop some concepts and strategies that could be tested in IIMI's Pilot Project. Based on the preceding chapters, this Chapter gives a summary of their major recommendations:

6.1 Workshop on Participatory Management

IIMI Pakistan has already done much to prepare the ground for testing participatory management in the Punjab irrigation system. This effort should be continued with vigor. IIMI Pakistan, in collaboration with the Federal Ministries of Agriculture, Water and Power and the Federal Water Management Cell, Provincial Departments of Agriculture and Irrigation, and Training and Research Institutes and Universities, should conduct a Workshop on the subject of participatory management of the Punjab irrigation system. The objective is to generate a policy on participatory irrigation management.

The Consultants recall a similar role played by IIMI in Sri Lanka in 1986. IIMI, in collaboration with the Irrigation Management Division of the Sri Lanka Ministry of Lands and Land Development, organized a workshop on Participatory Management of Irrigation Systems. The workshop compared the experience of Sri Lanka as well as several other countries in the Asian region. The proceedings of the workshop were published and were also taken up for detailed deliberations of the IIMI Sri Lanka Consultative Committee. The Consultative Committee recommended that the findings of the workshop should be discussed by the secretaries of the three Ministries concerned and the related Heads of Departments. This process resulted in a decision by the Cabinet of Ministers to promote the participatory approach in the management of irrigation systems.

6.2 Participatory Management in IIMI Pilot Projects

As part of the policy deliberations, IIMI Pakistan should negotiate a memorandum of understanding with the Departments of Irrigation and Agriculture in the Punjab, with provisions for participatory management policy to be implemented in the PID-PAD-IIMI Pilot Projects.

6.3 Formation of the Institutional Development Unit (IDU)

As indicated in Chapter 5, an Institutional Development Unit (IDU) should be established, preferably in the PID. The IDU will be manned by a multi-disciplinary team of

professionals from the disciplines of irrigation, social sciences, agronomy, training and institutional development.

Regarding a home for the IDU, please see other alternatives suggested in Chapter 5. The IDU should also have decentralized units at the District and project levels.

6.4 Changing the Name "Water Users Association"

The Consultants recommend that the name 'Water Users Association' be changed, so that a new name can be selected that connotes unity, dynamism and self-reliance. The new name should be decided jointly by PID, OFWM and IIMI Pakistan.

6.5 Three-Tier Farmer Organization Structure.

The farmer organization structure of the PID-PAD-IIMI Pilot projects would be in three tiers:

- a) At the farm ditch/ branch watercourse level;
- b) At the watercourse level; and
- c) At the Distributary Canal level.

6.6 Recruitment, Training and Deployment of Catalysts.

It is recommended that catalysts designated as Social Organizers be recruited, trained and deployed to facilitate, promote and speed up the process of farmer organizations.

6.7 Pre- service and In-service Training.

High priority should be given to the periodical training of farmers, farmer leaders, community leaders, field officers, middle level officers and senior officials.

6.8 Process Documentation of Farmer Organizations in Pilot Project.

Process documentation is recommended as part of the monitoring mechanism for the farmer organization program.

6.9 Project Review Committees.

Review Committees should be established at the field and District levels, and for the entire Project at the Ministry level. Review Committees should periodically review progress, resolve problems, and effect liaison and coordination.

The membership of these Review committees should consist of appropriate representatives of all government agencies at the different levels involved in farmer organization, IIMI, Donors, Social Organizers, and representatives of farmer organizations.

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The terms of reference of this consultancy are as follows:

1. Review with the Director IIMI Pakistan and its concerned research staff, IIMI Pakistan's planned program of activities on social organization and progress made thus far on the planning of this program.
2. Conduct discussions with officials of the On-Farm Water Management Directorate and Irrigation Department of the Punjab regarding the past efforts and potential for future programs on social organization for irrigation management.
3. Consult selected local persons with experience on Social Organization.
4. Prepare a draft inception report for IIMI's program of activities on social organization, giving the conceptual framework and work plan for the identified activities.
5. Interact closely with each other (Mr. Sena Ganewatte and Dr. Prachanda Pradhan) to make appropriate arrangements for sharing the work with each other in consultation with Mr. Tissa Bandaragoda, Senior Management Specialist, IIMI.

Formation of Water User Associations

The data from the Federal Water Management Cell indicate that in Punjab the WUAs started as informal organizations in 1976-77. It was only in 1980/81 that formal WUAs were organized. The distribution of WUAs by Project is given in Table 1.

Table 1 - Growth of Water User Associations 1981 -87 by Project

Year	Project	No of WUAs
1981 -82	World Bank-assisted OFWM-I Project	920
1981 -82	ADB assisted OFWM Project	121
1982 -83	World Bank-assisted OFWM-I Project	1942
1982 -83	ADB assisted OFWM Project	280
1983 -84	World Bank-assisted OFWM-I Project	2036
1983 -84	ADB assisted OFWM Project	357
1984 -85	World bank assisted OFWM-I Project	1285
1984 -85	ADB assisted OFWM Project	266
1985 -86	World bank assisted OFWM-I Project (thru Dec.85)	405
1985 -86	World Bank assisted OFWM-II Project (Jan-June 86)	436
1985 -86	ADB assisted OFWM Project	268
1986 -87	World bank assisted OFWM-II Project (thro May 87)	1014
1986 -87	ADB assisted OFWM Project (thro May 87)	95

Total		9425 =====

Source: Federal Water Management Cell, Government of Pakistan.

Data from the Federal Water Management Cell indicate that between 1976 -80 there were 1600 informal Water User Associations in the USAID assisted OFWM Pilot Project. These figures were not included in the above Table.

The Present Status of WUAs.

The number of Water User Associations formed by the On-Farm Water Management (OFWM) Department under the major projects of the Department is given in Table 2.

Table 2. Water User Associations in Punjab Province
Up to September 1994.

Project	No of WUAs
1. OFWM Project (USAID)	1130
2. OFWM Project Bahawalpur & RY Khan (locally funded)	343
3. W/C improvement in Sheikhpura (UK Grant)	87
4. OFWM Project-I, (World Bank assisted)	2514
5. OFWM Project-II, (World Bank assisted)	4018
6. Thal OFWM Project (ADB assisted)	1812
7. OFWM -4th Drainage (World Bank assisted)	1192
8. Command Water Management Project (USAID)	925
9. SCARP Transition Project (IDA assisted)	192
10. Command Water Management Project (USAID/IDA)	925
11. OFWM Gujranwala Project (ADB assisted)	950
12. OFWM SCARP - Khushab Project (ADB assisted)	222
13. OFWM Project - Tube Well Development (W/Bank)	2765
14. OFWM - III, Project, Punjab (W/ Bank)	3476
15. OFWM Project - 2nd SCARP- (World Bank)	293
16. OFWM Project (Japan assisted)	961
17. Fordwah Eastern Sadiqia Project	154
18. Third Punjab OFWM Project	34

	Total: 20993
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Source: Project Wise Targets and Achievements Up to September 1994.
On Farm Water Management Project, Punjab, Sept. 1994.

Although the data from the OFWM Directorate indicate that there are 20,000 Water Users Associations, it is not clear whether all these WUAs are registered. In the discussions with the OFWM officials it was stated that the primary objective of forming WUAs was to get the support and involvement of farmers in undertaking watercourse improvement work. Once the watercourse improvement work is completed, the WUAs become dormant.

Appendix 3: Persons Contacted

Dr. Muhammad Anwar	Chairman, Sociology Dept. Punjab University
Mr. Muhammad Farooq Iqbal	Deputy Director(Sociology), WMED, WAPDA
Mr. Erik Zigterman	Coordinator, Land and Water Use, PATA Project
Mr. Mushtaq Ahmad Gill	DG Agriculture (Water Management), Punjab
Mr. Zafar I. Mirza	OFWM Directorate
Mr. M. H. Saddiqi	Advisor, PID
Mr. Mian Hafizullah	Chief Engineer, Bahawalpur
Mr. Usman Akram	SE/Link Circle, Lahore, PID
Mr. Mohammed Waqar Khan	D/D, IWT&R, PID
Dr. Tariq Afzal	Director Regulation, PID
Ch. Muhammad Shafi	SE/Bahawalnagar, PID
Mr. Rana Murid Hussain	Director, OFWM Training Institute
Prof. Gaylord Skogerboe	Director, IIMI-Pakistan
Dr. J. W. Kijne	Director for Research, IIMI Headquarters
Mr. Tissa Bandaragoda	IIMI-Pakistan
Mr. Marcel Kuper	IIMI "
Mr. Waheed-uz-Zaman	IIMI "
Ms. Zaigham Habib	IIMI "
Mr. Pierre Strosser	IIMI "
Dr. Muhammad Aslam	IIMI "
Ms. Anouk Hoerberichts	IIMI "
Dr. Waqar Jehangir	IIMI "
Dr. Khalid Riaz	IIMI "
