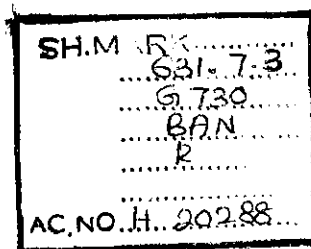
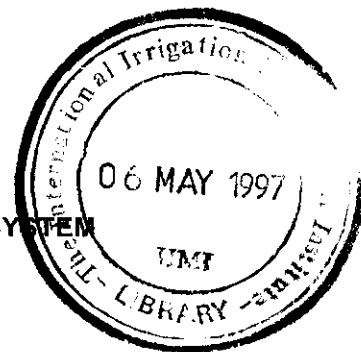


ORGANIZING WATER USERS FOR DISTRIBUTARY MANAGEMENT

PRELIMINARY RESULTS FROM A PILOT STUDY IN THE
HAKRA 4-R DISTRIBUTARY OF THE EASTERN SADIQIA CANAL SYSTEM
OF PAKISTAN'S PUNJAB PROVINCE



ACTION RESEARCH PROJECT ON
MANAGING IRRIGATION FOR ENVIRONMENTALLY SUSTAINABLE
AGRICULTURE IN PAKISTAN
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INTERIM REPORT

OF THE WATER USERS ORGANIZATIONS SUB-COMPONENT

APRIL 1997
PAKISTAN NATIONAL PROGRAM
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Contents

Contents	i
Figures, Photographs, Tables and Annexes	ii
Foreword	iii
Acknowledgements	v
Overall Project Activity Schedule	vi
 1. INTRODUCTION	 1
2. CONTEXT OF PILOT EFFORTS	5
2.1 Pakistan's Irrigation	5
2.2 Relevance of the Context in Designing Institutional Solutions	6
2.3 Pakistan's Experience in Water Users Associations	7
2.4 Recent Initiatives	9
 3. PILOT SITE: HAKRA 4-R DISTRIBUTARY	 12
3.1 Criteria for Site Selection	12
3.2 Physical Characteristics of the Hakra 4-R Distributary	13
3.3 The People	16
 4. MAIN METHODOLOGICAL FEATURES OF THE PILOT PROJECT	 18
4.1 Step-Wise Process	18
4.1.1 Four Phases	19
4.1.2 Five Dialogic Steps	21
4.2 Three-Tier Structure as a Strategy	22
4.3 Small Field Team	26
4.4 Social Organization Volunteers	27
4.5 Training and Information Sharing	32
 5. PILOT PROJECT EXPERIENCES IN SOCIAL ORGANIZATION	 35
5.1 First Dialogue: Familiarization Meetings	36
5.2 Second Dialogue: Rapport-Building Meetings	41
5.3 Third Dialogue: Consultation Meetings	48
5.4 Fourth Dialogue: Selection Meetings	51
5.5 Fifth Dialogue: Federation Meetings	56
5.6 Main Characteristics of Organizational Leaders	62
 6. EFFORTS IN FOSTERING INSTITUTIONAL SUPPORT	 66
6.1 Field Coordination	66
6.2 Common Concern	67
 7. COMMUNITY PERCEPTIONS	 68
7.1 Initial Doubts	68
7.2 Irrigation-Related Problems	69
7.3 Benefits of WUOs	71
 8. CONCLUSIONS	 75
REFERENCES	78

Figures, Photographs, Tables and Annexes

Figure 1	IIMI Project Sites In Pakistan	3
Figure 2	Location Map of Hakra 4-R Distributary	4
Figure 3	Three-Tier Structure for WUOs	25
Photograph 1	Walk-Thru Surveys	34
Photograph 2	IIMI Team in Discharge Calibration Exercise	37
Photograph 3	Rapport-Building Meetings	42
Photograph 4	Training of SOVs	47
Photograph 5	Selection Meetings	54
Photograph 6	Federation Meeting at Haroonabad	59
Photograph 7	Negotiating for Consensus	61
Photograph 8	The Hakra 4-R Distributary Water Users Federation	72
Photograph 9	IIMI's Social Organization Team	74
Table 1	Four World Bank-Funded Projects	8
Table 2	Some Details of the Hakra 4-R Distributary	15
Table 3	Important Physical and Social Aspects of Identified Sub-Systems	24
Table 4	Details of Social Organization Volunteers	30
Table 5	Socio-Economic Characteristics of SOVs	31
Table 6	Some Initial Perceptions of the SOVs in Hakra 4-R Distributary	40
Table 7	Level of Participation in Rapport-Building Meetings for SOVs	44
Table 8	Results of First Follow-up Survey on SOVs	45
Table 9	Details of Consultations Meetings	49
Table 10	Details of Selection Meetings	55
Table 11	Main Social Characteristics of Organizational Leaders at Different Levels	62
Table 12	Pattern of Land Ownership among the Selected Organizational Leaders	63
Table 13	Size Distribution of Land Ownership of the Organizational Leaders	64
Annex 1	List of Project-Related Reports and Publications	80
Annex 2	List of Villages and Watercourses	83
Annex 3	Flow Charts of the Process	88
Annex 4	Checklist for Assessing SOVs	93
Annex 5	Important Characteristics of the Organizational Leaders	96

FOREWORD

For the past three years, the top research priority in the Pakistan National Program of IIMI has been "learning how to organize farmers at the secondary canal level". This effort has been particularly difficult because there are no distributary command areas in Pakistan where a Water Users Federation has been established and made functional so that farmers could visit and learn from the experience of organized farmers.

During December 1996, IIMI staff working in the Province of Sindh completed the establishment of a Water Users Federation on each of three pilot distributaries within the Left Bank Outfall Drain Stage-I Project area. Then, on 5 March 1997, the 25 members of the Water Users Federation for Hakra 4-R Distributary in Southeastern Punjab Province selected their leaders. This was a momentous occasion!

A field station was established at each of the pilot distributaries; the sincere efforts and long hours displayed by the IIMI field staff is greatly appreciated. The IIMI program leaders in both the Punjab and Sindh provinces are highly commended for their continued redirection as new obstacles occurred.

There has been extreme skepticism about being able to organize farmers at the distributary level because of the lack of success in organizing Water Users Associations at the tertiary watercourse level over the past twenty years. But, we have learned during these exercises that farmers want to be organized. Unfortunately, they are "at risk". At this time, they lack appropriate legal authority in terms of managing their portion of the system, a joint management agreement with the Provincial Irrigation Department, and the sharing of the irrigated crop land taxes (abiyana). Without these legal authorities, farmers are fearful of reprisals by Irrigation Department field staff.

All of us have the greatest respect for the thousands of farmers making their livelihoods from the irrigated croplands commanded by these four pilot distributaries. They have placed themselves at risk, but at the same time, they are the innovators who are leading a more farmer-oriented approach to irrigation management.

We have been asked many times -- why has the Pakistan National Program of IIMI attached so much importance to this particular research effort? The answer is quite simple. Agricultural productivity in the Indus Basin Irrigation System has become stagnant. There are a multitude of causes for this situation, but we cannot perceive being

able to progress further unless farmers play a much greater role. Thus, failure in being able to organize farmers at the distributary level would imply that the agricultural system would remain "stuck". Then, the long-term prognosis would be that many more millions of people would live in poverty, even during the near future.

We recognize that organizing farmers is only a beginning. There is a long journey ahead in making these organizations sustainable. Together with our national partners in the provincial agriculture and irrigation departments, we need to forge stronger supportive mechanisms that will allow these farmer organizations to flourish.

One thing is certain -- we cannot afford to fail!

Gaylord V. Skogerboe

Director, Pakistan National Program

International Irrigation Management Institute

ACKNOWLEDGEMENTS

These action research field activities were part of IIMI's study, "Managing Irrigation for Environmentally Sustainable Agriculture in Pakistan", funded by the Royal Netherlands Government. The authors gratefully acknowledge the support given by the donors.

The authors are also indebted to Mr. Mushtaq Ahmad Gill, Director General Agriculture (Water Management) and Ch. Muhammad Ashraf, Director (Headquarters) of the Punjab OFWM Directorate, Lahore, and their staff located in Bahawalnagar, all of whom provided valuable assistance to the authors during all stages of this action research.

Mr. Mohammad Shafi, Chief Engineer Irrigation, Bahawalpur Zone, and his staff in the project area were all helpful in providing project-related information to our field team. They also persistently drew our attention to the prevailing social and institutional constraints on organizing water users, and made us pursue a determined effort in helping the water users of the Hakra 4-R Distributary command area to form a water users federation. The authors appreciate their assistance.

This research report is based on over two years' of initial field work undertaken in the Hakra 4-R Distributary command area by IIMI's Social Organization Field Team (aptly referred to as **SOFTware**), located at Haroonabad. The SOFTware, which contributed to this report, included Mehmood Ul Hassan and Waheed-uz-Zaman as team leaders during two different periods, and Muhammad Ishaq (late), Abdul Hameed, Mohammad Amjad, Nasir Sultan, Bilal Asghar and Khalid Rasheed as members. The authors appreciate the hard work accomplished by all of the SOFTware members, and particularly wish to honor the services rendered by Muhammad Ishaq, Field Assistant, who unfortunately met with his tragic death in a road accident on 20 December 1995, while on his way to perform the routine field activities.

The authors wish to gratefully acknowledge the encouragement they received from Professor Gaylord V. Skogerboe, the Director of IIMI's Pakistan National Program and the Project Leader for this action research activity, for preparing this report. Many discussions were held with him on the four-phase process developed for this activity, which helped greatly in clarifying the issues involved in the linkage between social organization and technical information aspects. His persistent inquiries about the initial stages of this action research led to the idea of presenting this interim report focusing on the first two phases of the process.

The authors also acknowledge the valuable secretarial services provided by Mr. Manzoor Hussain and Mr. Mohammad Akram Khan of IIMI, Lahore.

**ACTION RESEARCH PROJECT ON
MANAGING IRRIGATION FOR ENVIRONMENTALLY SUSTAINABLE
AGRICULTURE IN PAKISTAN**

OVERALL PROJECT ACTIVITY SCHEDULE

Obj	Activity	1994	1995	1996	1997	1998
Ia	Decision Support System - Punjab					
Ia	Decision Support System - Sindh					
Ib	Watercourse Management					
IIa	Water Users Organizations (WUOs)					
IIb	Institutional Support for WUOs					
IIc	Coordinated Irrigation Agriculture Services					
IIIa	Soil Chemistry and Groundwater Management					
IIIb	Rechna Doab Salinity Management					
IIIc	Sindh Waterlogging and Salinity Management					
	Workshops					
	National Conference					
	Final Report					

1. INTRODUCTION

"Without community involvement and participation, development initiatives in either the economic or the social sector have little chance of success at the grass root level. To operationalize this objective a realistic framework is necessary for collaboration between government and community organizations. The community organization does not mean a small group of influential local representatives. Participation means broad-based, decentralized, homogeneous local organizations at the village or at the neighbourhood level with decision making done by all those members of the community. Common economic interest is best served by working together".

Pakistan's Eighth Five Year Plan (1993-98).

This is an **Interim Report**, which is meant to present an analysis of the project's social organization action research activities conducted so far. The report signifies an important land mark of an arduous and eventful social organization effort covering a period of over two years, which was reached on 5 March 1997, when the Hakra 4-R Distributary Water Users Federation was successfully formed.

These action research activities are part of a research project, **"Managing Irrigation for Environmentally Sustainable Agriculture in Pakistan"**, the second phase of a research program funded by the Royal Netherlands Government. In April 1993, a Review Mission reporting on the first phase project activities commented that, "whether or not a productive agriculture can be sustained without any further damage to the environment is a subject that requires further monitoring and continued evaluation of the impact of changes". The second phase project activities address this question to identify management interventions, which would not only try to mitigate the environmental problems, but also would yield increased water use efficiency.

The Phase II **Project Document (August 1994: pp. 5-7)** lists a number of short-term and long-term objectives as derived from an overall appreciation of Phase I findings and Phase II intentions. Basically, they aim to bring about institutional and management improvements in the irrigation systems of Pakistan to sustain irrigated agriculture. The broad purpose of the Phase II project remained the same as for Phase I, to develop and implement, through action research, a set of improved management strategies and techniques which can reduce the aggravating effects of irrigation on waterlogging and salinity; to expand the institutional capacity to effectively manage the solutions; and to

maximize the role of farmers and rural communities in irrigation management for increasing agricultural production.

With these broad objectives in view, the project content was broadly classified into three main components: (1) operational management; (2) institutional development; and (3) salinity management. The focus of this Interim Report is on the "water users organizations," which is a sub-component of the "institutional development" component.

The core material for this Interim Report is derived from a process documentation effort by a small field team located at Haroonabad in the pilot project area, which is the Hakra 4-R Distributary command of the Fordwah-Eastern Sadiqia (FES) Canal System in south-eastern Punjab (**Figure 1 and Figure 2**). The study team not only participated in the action research but also carefully observed and documented in detail on a regular basis a learning process of **"how to organize water users"**. Obviously, this approach implied a focused research perspective of assessing whether the effort in organizing water users would be **"done in the right way"**, leaving aside an evaluation of whether organizing water users is **"the right thing to do"** under the given circumstances as a secondary effort. This initial emphasis on the process is inherent in pilot projects. However, the design of this pilot project includes an opportunity towards the end of the project period to evaluate its short-term effects, which will be covered in the project's Final Report.

In summary, what the pilot project has achieved so far is some empirical evidence to prove that the organizing of water users for distributary level operation and maintenance management is socially viable¹. The path leading to this stage proceeded through difficult terrain. Many obstacles of misinformation, mischievous rumors and slanders, and misconceptions confronted the project. Had there been a more supportive institutional environment, the task would have been much easier. The project's ability to reach this far without much support from government agencies shows that, given the necessary government support, this work is most likely to be replicable on a wider scale.

¹ A list of reports and publications generated so far from the social organization action research activities of the project is given in Annex-1.

IMI PROJECT SITES IN PAKISTAN

Figure 1

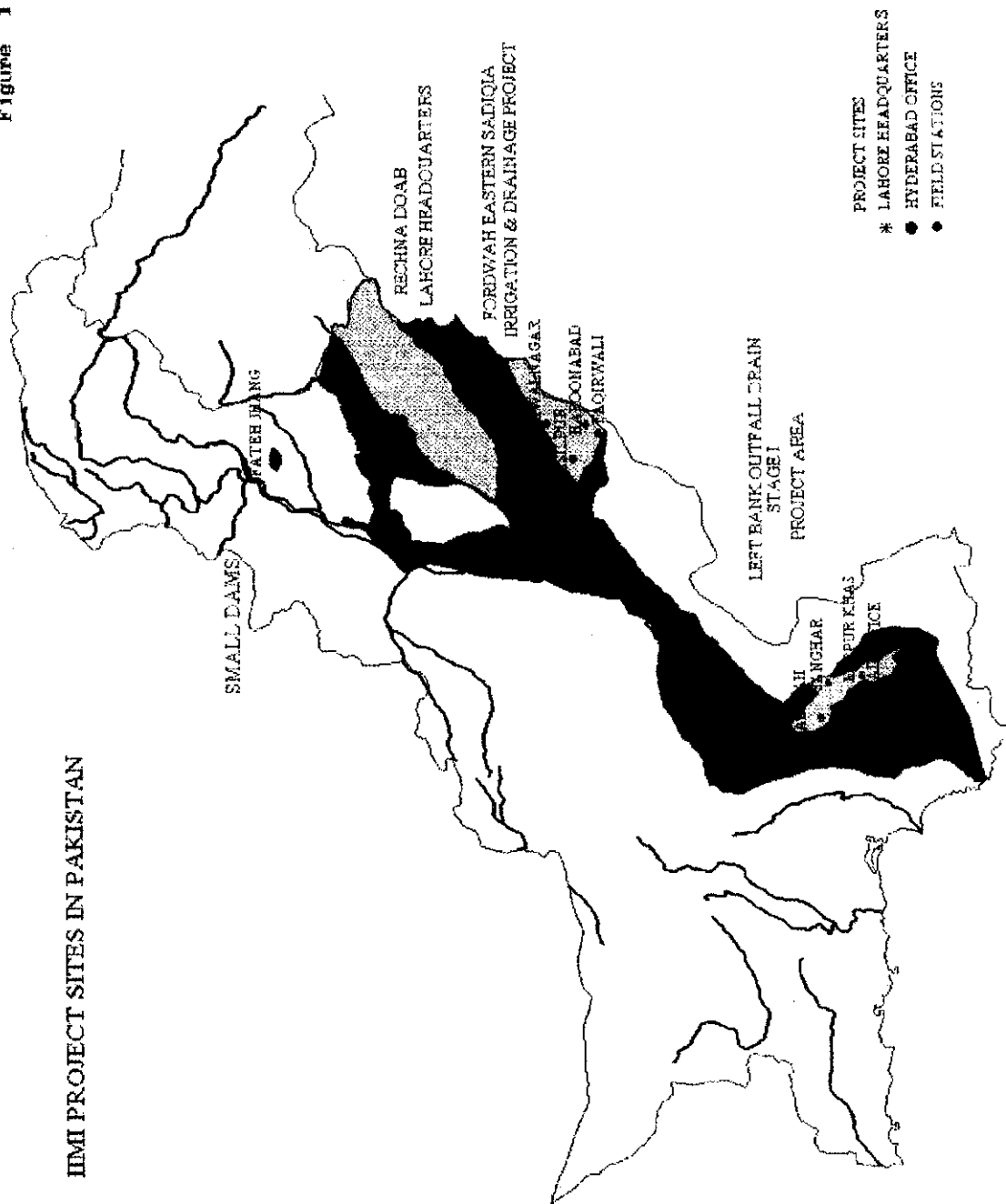
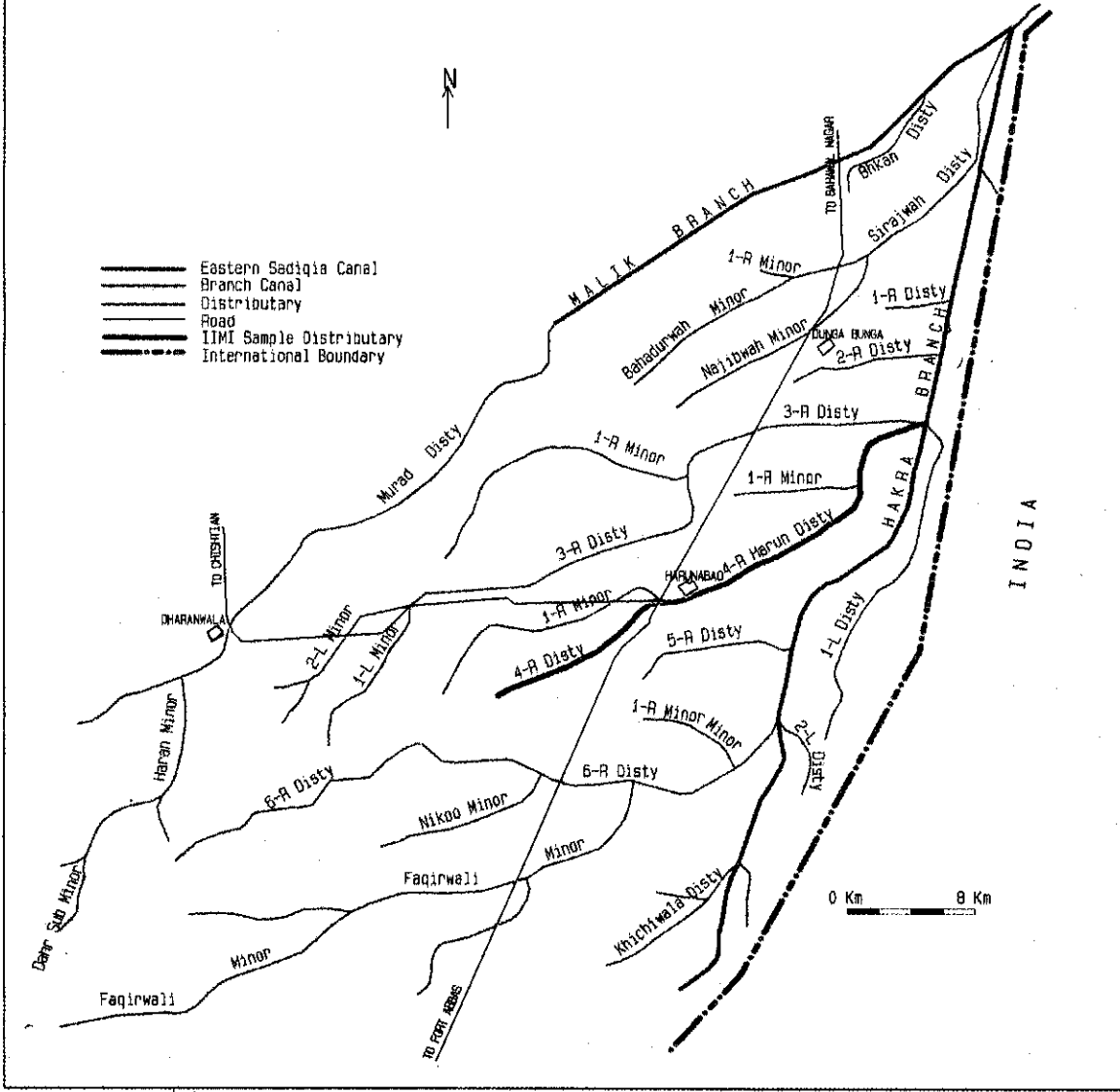


Figure 2

LOCATION MAP OF THE HAKRA 4-R DISTRIBUTARY



2. CONTEXT OF PILOT EFFORTS

2.1 Pakistan's Irrigation

More than a century old, Pakistan's canal irrigation, originally based on the objective of irrigating the maximum area possible with a view to settling the most number of people, is characterized by the following main design features:

- * run-of-river water supplies;
- * protective irrigation;
- * low water allocations of 0.21-0.28 l/s/ha (3-4 cusecs per 1000 acres);
- * low cropping intensity (annual average 75%);
- * infrastructure design for equity and reliability of supply;
- * few gated structures and minimal operational adjustments required; and
- * all distributary and minor outlets to draw there design discharge.

As time passed by, many changes occurred in the irrigation scene. Most of the traditional design features became outdated in the context of changed physical and social conditions. The ideas of "protective" irrigation and equitable water distribution embodied in the early design criteria became no longer readily applicable as many environmental conditions changed. Some of the key changes are:

- * increase in cropping intensities (over 100% in many systems);
- * diversification in cropping patterns;
- * increased indiscipline in the operation of the system;
- * cumulative effect of poor maintenance;
- * advent of groundwater development;
- * fragmentation of irrigable land;
- * increased seasonal water shortages and fluctuations in water supply; and
- * stagnant crop yields.

The physical changes accompanied a corresponding set of social changes. For instance, general deterioration of the physical infrastructure is linked with operational irregularities; the resultant lack of reliability of irrigation water supplies is related to the inequity of water distribution within the system. While the causality between these two sets of changes in physical and social conditions is not clearly discernible, the constant interactions between them seem to have led to the present situation of unsatisfactory

performance. Under-investment, poor maintenance, supply deficiencies, political influence, improper operations and management inefficiencies are some of the features that can be seen as both the causes, as well as the effects, of a process of change.

Viewed from a different perspective, poor performance of an irrigation system can be seen as primarily a problem of social behavior. The physical sub-system is what the social sub-system makes it to be. In this sense, it is important to consider the present social setting of Pakistan's irrigation, which can be outlined by the following main features:

- * skewed land ownership pattern;
- * increasing number of small landholders;
- * majority of water users being illiterate and poor;
- * lack of information sharing;
- * centralized irrigation administration;
- * lack of accountability;
- * rent-seeking behavior;
- * neglect in operation and maintenance;
- * political interference;
- * disregard towards operational rules; and
- * inequity in water distribution.

2.2 Relevance of the Context In Designing Institutional Solutions

The list of physical and social characteristics, like the Indus River itself, is fairly long. What is mentioned above may be a few of the more important features. Yet, it gives a combination of variables that can be considered, following **Ostrom (1992)**, in the "crafting" of new irrigation institutions to cope with the present performance situation.

Most of the above variables seem to favor an increased involvement of water users in managing the present situation. Decentralizing part of the responsibility for managing this large Indus Basin Irrigation System to its water users seems to be having the best chance of meeting the present challenge. The main reason is that by bringing the management closer to the users, the accountability is most likely to be improved. Additionally, by fostering the maximum participation, the alliances made based on vested interests between some of the water users and the officials are most likely to be minimized. Also, collective action seems to be the best way of reducing irrigation misconduct among the water users themselves.

In the past, many developing countries, such as Pakistan, did not seriously consider the involvement of water users in any stage of irrigation development as an important need. Persistent poor performance has caused the policy makers to think otherwise. Increasingly, many developing countries are looking for strategies in fostering users' participation of managing the irrigation systems. Irrigation management turnover (IMT), which is the popular term for "the shift in responsibility and authority for the management of irrigated agriculture from the government to non-government entities" (Vermillion, 1996), has become a prominent national policy in more than 20 countries, including those with major irrigated farming systems (Turrall, 1995:7). Pakistan has only recently embarked on such a policy, despite its two decades of experiences with water users associations at the tertiary level.

2.3 Pakistan's Experience in Water Users Associations

As part of a strategy to improve the country's irrigated agriculture performance, Pakistan initiated its **On-Farm Water Management (OFWM) Program** about two decades ago with financial support from the World Bank and USAID. Following up on its initial progress, and pressure from the donors, Provincial Governments legislated in the early 1980s allowing for the formation of Water Users Associations (WUA) on individual watercourses. Since that time, over twenty thousand WUAs have been organized in the Punjab Province alone with government subsidy and support given under the On-Farm Water Management Program. In two Provinces, Sindh and NWFP, there was provision in their Ordinances for federating these WUAs into distributary level organizations, but there was no attempt to form any WUA federations, as the objective was limited to resource mobilization for watercourse improvement and maintenance.

In some selected canal command areas, a certain degree of institutional coordination was attempted under the **Command Water Management Program (CWMP)**². The CWMP in the Punjab Province was initiated during 1984-85. The Project was an effort to integrate the irrigation and agriculture agencies in an area development mode, as its civil works and other activities were jointly executed by the Irrigation and Power Department and the On Farm Water Management and Agriculture Extension wings of the Agriculture Department. Three national consulting firms, NESPAK, NDC and ACE, provided the supervisory services for irrigation, drainage and on farm water management

² One sub-project of this program in the Punjab was located at 6R Distributary in the Hakra Branch off the Eastern Sadiqia Canal, where IIMI started in February 1994 its preliminary research work on social organization as a prelude to this current action research activity. Results are presented in a separate report (Waheed uz Zaman and Bandaragoda, 1996).

components, and the non-water inputs were supplied by the Cooperative Department, the Punjab Agriculture Department, the Supplies Corporation, the Agriculture Development Bank and other commercial banks. With the broad purpose of increasing agricultural production, the CWMP had, as one of its main specific objectives, the need to "strengthen farmers' participation in formal WUAs to improve their overall water and non-water input management" (Haque, 1988).

Project documents claim that the CWMP interventions have resulted in a water saving of about 300 million cubic meters (0.247 million acre feet) annually; consequently, the cropping intensity was increased by another 7.2 to 27.4%. Institutionally, there has been an increased awareness among the farmers to build their institutions to fight for their rights and to achieve their common goals (Directorate CWMP Punjab, Insight & Text, undated).

Four World Bank-funded projects were launched to address the major issues raised in the 1979 Revised Action Program (RAP) of the Government of Pakistan. All of these four projects (On-Farm Water Management I and II, Irrigation System Rehabilitation Project and Command Water Management Project) were to concentrate on reducing drainage and saving water using existing infrastructure, rather than building new dams, and had a specifically designed institutional component. Details are outlined in Table 1.

Table 1. Four World Bank-Funded Projects.

Project	Total Commitment	Objectives
OFWM I and II (1981-92)	\$ 88 million	* Save water through watercourse improvement; * Better water management; * Strengthen OFWM Directorates; * Improve coordination between OFWM and Agriculture Extension Services; * Set up WUAs to provide for maintenance.
Irrigation System Rehabilitation (19882-87)	\$ 40 million	* Provide more reliable and more equitable water supply; * Reduce losses from canal breaches; * Strengthen PIDs' O&M capacity.
CWMP (1984-92)	\$47 million	* Develop a better organizational model; * Integration of OFWM, Agriculture Extension and PID functions at canal command level; * Set up WUAs for maintenance.

Source: OED Precis, World Bank (1996).

The World Bank's post-project evaluations concluded that the projects achieved their physical components (watercourse water losses reduced from about 40% to 25-30%; and

annual water saving from the four projects amounting to about 2.3 billion cubic meters)³, but failed in most of their institutional objectives. The evaluations further commented that the OFWM and CWM Projects ignored the traditional watercourse committees and tried to form new WUAs to meet project conditions, but many of these new WUAs were merely token associations or the old committees renamed, making the whole exercise an empty ritual (World Bank, 1996).

Various other evaluations of OFWM projects confirm this common impression that, despite the successful completion of physical work in watercourse improvement, the accompanying program component of institutional development was a disappointment (Burnes, 1992; Asrar-ul-Haq et al, 1996). Attempts to organize farmers for the management of irrigation systems have not led to sustained farmers' participation, or to lasting benefits.

2.4 Recent Initiatives

In recent years, there has been a growing awareness among Pakistan policy makers and academics regarding the necessity for organizing farmers at the level of minors and distributaries, so that farmers will have better control over the distribution of water to each watercourse and farm plot. Farmer control over water is expected to improve tertiary level water management by way of increasing the compatibility between water deliveries and crop water requirements throughout the cropping season, both in terms of quantity, as well as timeliness.

Meanwhile, the World Bank in their report on **"Pakistan, Irrigation and Drainage Issues and Options"** (March 1994) proposed a reorganization of the whole irrigated agriculture sector, including the establishment of autonomous public utilities for the management (including operation and maintenance) of the irrigation water. Many government officials found this approach too radical, but recognized the need for some institutional change in view of many developments that have occurred in the socio-economic background and in the physical infrastructure of the irrigated agriculture sector itself.

³ The report alludes that canal rehabilitation and lining work included significant capacity expansion, contrary to the agreed program design, which contributed to increased waterlogging and salinity. Capacity expansion is foremost in the minds of the irrigation policy makers, and eclipses the more urgent, inter-related needs of better water management and institutional strengthening.

An initial government agreement on the need to change was arrived at a seminar on "Participatory Irrigation Management", co-sponsored by Pakistan's Ministry of Water and Power and the World Bank's Economic Development Institute, which was held in Islamabad during 2-6 October 1994. Thus, in the midst of considerable pessimism about participatory irrigation management and its validity in Pakistan's large canal systems, a consensus was being developed, supported by persistent donor interest, on the need to undertake some pilot projects on participatory irrigation management in selected locations. The proposed package of reforms included farmers' organizations and public utilities to undertake the decentralized responsibility for financing and managing irrigation maintenance.

IIMI's preliminary work in policy and institutional analysis in Pakistan coincided with, and would have helped to catalyze, these newly emerging concerns and interests. An increasing obsolescence of formal institutions in the country's irrigated agriculture sector was identified, particularly in view of new demands and the changed scope of irrigation management (Bandaragoda and Firdousi, 1992). While there has been a considerable amount of research already conducted on Pakistan's irrigated agriculture, not much of its results was seen as being adequately captured by policy, and consequently, they had not led to any meaningful institutional reforms (Bandaragoda, 1993). While 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, when design assumptions were no longer valid, water distribution was found to be substantially inequitable (Bhutta and Vander Velde, 1992). Both under normal supply and shortage conditions, there was chronic inequity with the upstream water users receiving more water than their due share, while those in the tail reaches of the canal command received less (Vander Velde and Murray-Rust 1992).

Some research findings from other locations were found to be relevant in Pakistan's context. Conditions of scarcity and poor reliability of 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), which is a product of mutual mistrust between the water users and the operating staff. The users lack the confidence that if they refrain from stealing water, or breaking the structures, they will get their entitled water on time, while the officials lack the confidence that if they apply themselves properly to somehow get water on time, the users will refrain from breaking the rules (Wade, 1987).

The problem has been, where and how to break this vicious circle. As long as the offenders were the majority in either group, enforcement was not possible as any law could be effective only when a small minority rather than a majority of the population tended to break it.

The proposition after these initial studies was to answer the question: before enforcing legal sanctions, could social pressure be mobilized to bring down the proportion of anti-social offenders? A strategy most likely to help in this situation was to approach the problem from the demand side of the irrigation management equation by involving the water users first, and then through their organized actions, effecting appropriate institutional changes in the delivery organizations as well. This strategy has not been fully explored so far in Pakistan, where a supply-sided bureaucracy has consistently been playing a dominant role. There was some understanding at this stage that pilot trials should be undertaken to test this proposition.

Independently of the interactions between the World Bank and the Government of Pakistan, IIMI had planned to experiment with a pilot project in the Fordwah Eastern Sadiqia command area, as part of its study project, "Managing Irrigation for Environmentally Sustainable Agriculture in Pakistan", funded by the Royal Netherlands Government. The proposal for this project was a combined effort of both IIMI, as well as the Dutch authorities, and was finalized in May 1994, when a Dutch Formulation Mission visited IIMI at its Lahore office and its headquarters in Colombo and had discussions with relevant IIMI professionals for fine-tuning the project design. However, the donor's interest in an emphasis on institutional solutions to stagnant performance reflected a fairly common feeling among many at that time.

3. PILOT SITE: HAKRA 4-R DISTRIBUTARY

3.1 Criteria for Site Selection

Selecting an appropriate pilot site was one of the most critical steps in the project implementation process. For this purpose, the following selection criteria were developed in consultation with the OFWM Directorate:

- (1) Working in a distributary within the World Bank-funded Fordwah Eastern Sadiqia (South) FES(S) Irrigation and Drainage Project area could help IIMI to associate this work closely with the pilot projects undertaken by the OFWM Directorate for similar work under the FES(S) Project;
- (2) Preferably, the selected distributary should not be too small or not very large so that the pilot effort will be with average physical and socio-economic conditions;
- (3) Selecting a distributary where IIMI or any other agency or research institute had not intervened recently would provide a more receptive farmer group;
- (4) The distributary should preferably have farmers of a mixed background - - a mixture of local people as well as old and recent settlers;
- (5) A distributary having a number of hydraulic structures would help the water user groups to monitor the discharges in terms of space and time;
- (6) A distributary in which watercourses had not been completely improved under the OFWM program would allow the water users to see the need for physical improvement as an incentive for organization as WUAs at the watercourse level; and
- (7) A distributary having a sizable minor would allow two secondary systems to be used for pilot experimentation within the same distributary command area.

The pros and cons associated with three distributaries were considered:

- (i) Initially, some preliminary investigations had been made at the Hakra 6-R Distributary, which was the site for a Command Water Management Project. Most of the watercourses and a major part of the distributary were already lined, and the water users had experienced an organizational effort in the formation of

watercourse level WUAs. However, the Hakra 6-R was a very large distributary system, and was already being operated on a rotation basis.

- (ii) Another option was the Sirajwah Distributary, one of the two distributaries selected by the Punjab's On-Farm Water Management Directorate (OFWM) for their pilot sites as part of the World Bank - funded FES(S) project. For these pilot efforts, IIMI had agreed to give technical advisory assistance to OFWM. As the feeling among some of the OFWM staff was that IIMI should try a different distributary as a pilot, this option was also dropped.
- (iii) The third option was the Hakra 4-R Distributary. Located within the FES(S) project area, being in the medium to large category of distributaries in terms of length and command area, this met the most important selection criteria. The people were assessed as a mixture of recent and old settlers; this would give a reasonably balanced situation in the given social context. The distributary and many of its watercourses were yet to be improved, leaving room for meaningful collaborative work with the PID and OFWM. The presence of two minors and a number of hydraulic structures along the main distributary channel made it possible to have monitorable water flow regimes for different sections of the command area.

Finally, the Hakra 4-R Distributary was selected as IIMI's first site for a pilot study on participation of water users organizations in operation and maintenance of the irrigation system. With the background knowledge already gained through an earlier study, the Hakra 6-R Distributary was to be considered as a second pilot project site later⁴.

3.2 Physical Characteristics of the Hakra 4-R Distributary

The Distributary No. 4-R in the Hakra Branch Canal of the Fordwah Eastern Sadiqia irrigation system is one of the largest distributaries in the Punjab Province. It has a total discharge of 5.46 cubic meters per second (cumecs), or 193 cusecs, and a total of 123 irrigation outlets (watercourses) serving a command area of nearly 18,000 hectares.

⁴ The effort, however, will be with an emphasis on encouraging the operating agencies to take the initiative in organizing water users, and will be launched after reaching some degree of maturity in the interventions at Hakra 4-R Distributary.

Within this distributary system, there are two minors, 1RA Labsingh with a discharge of 0.6 cubic meters/sec (22 cusecs) and 1R Badruwala with a discharge of 1.22 cubic meters/sec (43 cusecs) with 33 watercourses.

The overall canal system related to the study area begins with the diversion from the left bank of the river Sutlej at Sulemanki Headworks, to the Eastern Sadiqia canal (**Figure-1**), which runs for a distance of some 74 kms and then trifurcates into the Hakra and Malik Branch canals and the Sirajwah Distributary. The Hakra Branch Canal runs from Head Works Jalwala for about 29 kms up to Head Works Gulab Ali, where it again forks into three distributaries i.e. 1-L, 3-R and 4-R then Hakra Branch proceeds further to serve other distributaries in the downstream region.

The study area, which is located in the south-eastern part of the Punjab Province, covers parts of the tehsils Haroonabad and Bahawalnagar of District Bahawalnagar, and is bordered on the northeast by the command area of Hakra 3-R Distributary, on the south by lands served by Hakra 5-R and Hakra 6-R distributaries, and on the east by the Hakra Branch itself. The climate in the study area is arid. The average annual rainfall ranges from 125 mm to 250 mm. Hot and dry climate, low rainfall and unfit underground water necessitates the ensured and regular surface irrigation water supplies.

The main channel of the Hakra 4-R Distributary system has 75 irrigation outlets, serving a total command area of about 10,975 hectares (27,100 acres) with an authorized withdrawal (sum of authorized discharges of the 75 outlets) of 3.0 cumecs (106 cusecs). The length of the main distributary channel is about 36 kms. The watercourse command areas fed by this main channel of the distributary have a total of 2,775 warabandi shareholders. The main distributary channel has five drop structures at places identified by RDs⁵: RD 24, 46, 72, 82 and 107. About 16 culverts/bridges have been constructed on the main distributary at different places to facilitate easy crossing. Two minors 1-RA Labsingh and 1-R Badruwala off-take from the main channel at RDs 23.200/R and 72.100/R respectively.

The 1-RA Labsingh Minor consists of 15 irrigation outlets, and has a design discharge of 0.6 cumecs (22 cusecs), covering a canal command area of 2,460 hectares (6,100 acres). The total length of the minor is about 7 kms and is supplying irrigation water to about 565 shareholders.

⁵ Reduced distance is the distance in measures of 1000 feet of any point on the center line of a canal from the head of the canal (RD 24 = 24,000 ft from the head of the canal).

The 1-R Badruwala Minor is the largest section of the Hakra 4-R Distributary system. The minor is unlined, is about 15 kms (50,620 ft) long, and has 33 irrigation outlets and a design discharge of 1.2 cumecs (43 cusecs), to serve a canal command area of 8,815 hectares (10,200 acres) for about 1,350 shareholders.

Some details of the pilot distributary are given in Table 2.

Table 2. Some Details of the Hakra 4-R Distributary.

Channel	Length (kms)	Design Discharge cumecs (Cusecs)	Authorized Withdrawal cumecs (Cusecs) *	No. of Outlets	CCA (acres)	No. of Shareholders
Main distributary channel	36	5.6 (193)	3.0 (106)	75	27,100	2,775
1-RA Minor Labsingh	7	0.62 (22)	0.6 (21.8)	15	6,100	565
1-R Minor Badruwala	15	1.22 (43)	1.13 (40)	33	10,200	1,350
Total	58		4.73 (168)	123	43,400	4,690

* Authorized withdrawal is the sum of authorized discharges into the watercourses within each secondary channel.

Physical Conditions: The banks of the distributary are heavily planted mainly with *shesham* and *keekar* trees. Most of these trees are as old as the distributary itself. One of the banks is relatively wider to serve as a canal road for transportation of personnel and equipment of the Irrigation Department staff, who are entrusted with the task of looking after and maintaining the canal. This is also used by the inhabitants of the nearby villages and farms as a regular road. The banks are now fast deteriorating in some places due to their frequent use as livestock routes. Erosion due to wind and water can also be witnessed. The freeboard of the distributary has almost disappeared in the head reach of the distributary. This has been the result of continuous deposition of sediment (usually called as silt) especially in the head reach. In the tail reach, however, the freeboard is available because the irrigators desilt the channel more frequently in an attempt to get their due share of water.

Cropping Pattern: The yearly variation in the cropping pattern is generally non-existent. For the *Kharif* or summer season, cotton, sugarcane and rice are the most popular cash crops. Sorghum, Bajra, Maize and Jantar are sown as fodder.

Occasionally, vegetables are also sown. During winter or *Rabi* season, wheat, although less profitable, is the most popular crop, while berseem is the main fodder crop generally sown for feeding the domestic livestock. Some of the farmers also cultivate vegetables and oilseeds, and on a few farms, orchards, especially of the citrus family, can also be seen.

Groundwater: Groundwater in this area is generally considered unfit for irrigation. However, due to a shortage of canal water, and inequity and unreliability of canal water supplies, farmers have been compelled to look for groundwater. About 237 shallow tubewells are located along the distributary.

Canal Water Supplies: In a water measurement test conducted on 26 October 1995, the Hakra 4-R Distributary received a discharge of 6.6 cumecs (232.7 cusecs) as against a sanctioned discharge of 5.48 cumecs (193 cusecs), roughly a 21% increase. All of the outlets were calibrated and discharge measurements were taken. As against the authorized discharges of 3.01 cumecs for the main distributary outlets, 0.62 cumecs in Minor 1RA, 1.14 in Minor 1R, the actual withdrawals were 3.58 cumecs (an increase by 19%), 0.69 cumecs (15% increase), and 1.71 cumecs (50% increase), respectively.

3.3 The People

The rural life in this part of the Punjab Province is very hard indeed, mostly due to scarce canal irrigation resources, unfit underground water, and the so-called twin menace of waterlogging and salinity. The 4-R Distributary command area consists of about 40 villages including small *deras* (hamlets), having a population of about 66,945 according to the census of 1981 (the projected population for 1995 for this area is about 101, 880). The majority of these people are settlers and migrants. The major castes are Rajput, Arian, Jat, Joya and Watto. A list of the villages and related watercourses is shown in Annex-2.

The baseline socio-economic survey conducted during July-August 1995, on a sample of 367 respondents selected from 13 out of the 123 watercourse commands, provided some information about the socio-economic features of the pilot site. The following are some of the main features that could be identified:

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- * The average family size was 9, out of which school going children were 2;
- * Land is a major determinant of farm income and control over land has a strong association with adoption of new farm techniques. A majority of the farmers (55.9%) owned up to 5 acres of land on the Hakra 4-R Distributary, whereas 6% owned land of 25 acres or above.
- * A majority of the respondents (61.6%) were found to be illiterate.
- * The organizational behavior of the sample farmers was clearly evident on two issues i.e., the maintenance/construction of mosques and the maintenance of watercourses. The respondents showed considerable organized behavior; 94% had participated in collective action in maintaining or constructing the village mosque, 90% in maintaining the watercourse, and 20% in desilting the distributary;
- * About 69% of the respondents were dependent on the state assistance; they felt that the unsatisfactory water distribution situation could be solved by the agency staff, if they wished to do so;
- * About 45% of the respondents reported inequity between distributaries, and of this 23% attributed the problem to the "influentials";
- * About 80% referred to inequity within the distributary, and this number ranged from 67% in the head reaches to 84% in the tail reaches; most of the respondents attributed the problem to big landlords and irrigation officials;
- * None reported inequity within the watercourse;
- * The cropping intensity was 122%, higher at the head reaches (147%) compared with the tail reaches (97%);
- * The average farm income was Rs. 78,963 for an average operated area of 13.25 acres as reported by the respondents.
- * Reliability in water supply means a regular or uninterrupted water supply to the farmers. Data collected indicate that over 98 percent of the sampled farmers at Hakra 4-R Distributary were of the view that they missed their water turns during the last kharif season (1994).

4. MAIN METHODOLOGICAL FEATURES OF THE PILOT PROJECT

Many people, both within and outside the country, asserted that organizing water users for distributary level management in Pakistan was a very difficult task; some believed that it was impossible. Most of the contextual factors described in the earlier sections of this report contributed to this perception. Preliminary field investigations also indicated that organizing water users for a federation at the distributary level was going to be an enormously difficult task. Only some of the watercourses in the pilot area had experienced the formation of WUAs sponsored by the OFWM, and these WUAs were already defunct. The water users in these watercourses were particularly hostile to the idea of yet another attempt to "organize" them. People in the area appeared to be overwhelmed by problems of salinity and unproductive farming, and showed little patience to listen to possible long-term solutions.

A pilot project of this size with a large command area, a large number of people and a large quantity of water to deal with by the water users, offered a great challenge for action research. Yet, it also provided an excellent opportunity to develop appropriate methodologies and field processes aimed at establishing sustainable water users organizers in Pakistan. The large size of the pilot project demanded a strategy to mobilize the widely dispersed water users in the most effective way. At the same time, this enormous task had to be accomplished with the need for future replicability of this work constantly in view. The main features of the methodology outlined below explain how the project endeavored to satisfy these requirements.

4.1 Step-Wise Process

In this scenario, taking some preliminary steps to assess the existing potential for change before embarking on introducing new institutions was considered a prudent strategy. There was a need to first "sense the environment" and assess the pulse of the people regarding institutional change, and then identify the scope and content of possible change, determine the style of interactions with the community, before even deciding on a time-frame for project activities. Most of these steps were to be taken collectively with the water users themselves.

Experiences in other countries also suggested that **"getting the process right"** (Uphoff, 1986) was a valuable initial investment in social organization work. The project, therefore, spent some time in developing an appropriate process before embarking on the actual field work in the pilot project.

Another idea drawn from international experience was the value in **"putting people first"** (Cernea, 1985). During the reconnaissance surveys in the pilot project area, many water users inquired about the package of physical incentives planned for the project. They were accustomed to the government subsidies on watercourse lining and tubewells, etc. With some difficulty, they were convinced of the need to get organized first so that a form of collective action could benefit more from whatever the government could deliver, or from their own resource mobilization efforts.

4.1.1 Four Phases

In the gradual step-wise approach chosen by the project, the process of organization of water users was designed to be in four phases:

1. Support mobilization;
2. Initial organization;
3. Organization consolidation; and
4. Organizational action.

A flow chart of this four-phase process⁶, which was developed during project inception, was a guide to implementing project activities. This flow chart is reproduced in Annex-3 of this report.

By the end of December 1996, the project had just completed the first two phases of this iterative process. The project's experiences prompted some changes to be incorporated into this process, and based on these changes, a revised version of the flow chart will be prepared by the end of the project, as part of the recommendations for possible replication of the methodologies adopted in the pilot project to other distributaries in Pakistan.

The support mobilization phase was a "get set" stage during which the field team was mobilized and trained, initial collaborative arrangements were discussed with PID and OFWM staff, selection of the pilot site was finalized, members for a Field Implementation Coordination Committee (FICC) were identified, and initial baseline information was collected. Some of the items will be discussed further in this report.

⁶ This four-phase process for water users organization activities in Pakistan was adapted from the M & O guidelines given in Skogerboe et al (1993).

The training for the field staff was mostly derived from the experiences of preliminary social organization field research conducted in the Hakra 6-R Distributary. This training included farmer interviews, use of key informants, process documentation, and some exposure to other social organization projects in the country.

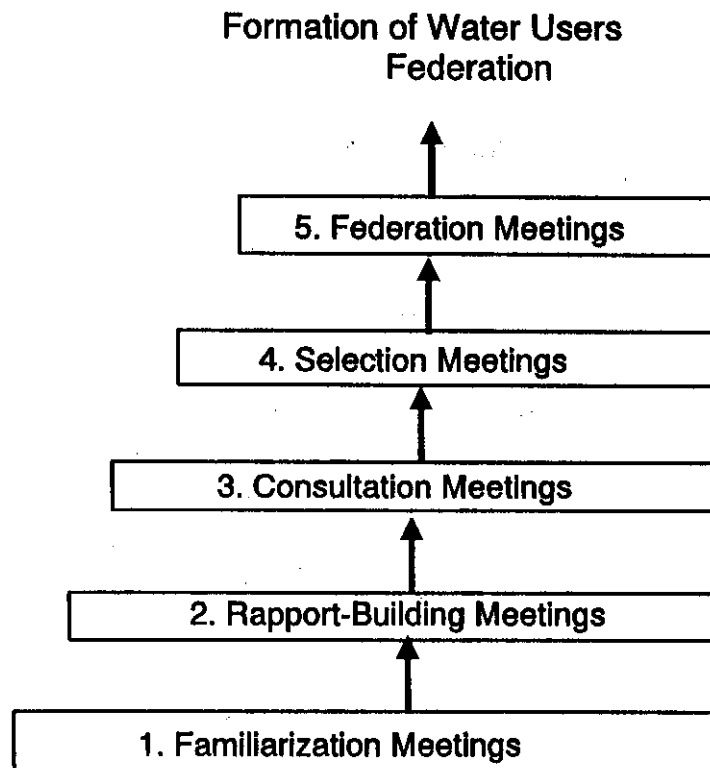
In the next **initial organization phase**, some progressively advancing steps in interacting with the community were taken. Unlike many top-down government projects, in this pilot project, a consciously developed participatory approach was adopted. This approach itself made the field team's task so much more difficult than the "handed down" instructions, and the challenge was that each step taken collectively with the people had to be based on the popular agreement on the previous step's results. Gradually, the majority of the water users were convinced that the pilot project was for their own benefit, but something they had to work hard to be built by themselves.

As will be explained later in this report, this effort was not so easy and not without misunderstandings and objections. The challenge itself provided a motivation to the field staff and the participating water users. It was a valuable experience for the field team members to see how some of the water users played the role of promoters of WUOs to argue with and convince their own fellow water users who were showing dissent.

Sometimes, the valiant efforts of the field team in trying to build up some confidence among the people were followed by extremely frustrating negative results. New strategies had to be developed while the work was in progress so that the project staff could meet a new field situation. To that extent, the developed process was not a blueprint that could be followed without many field modifications.

4.1.2 Five Dialogic Steps

Another important aspect of this iterative process was the progressively enhanced interactions in a series of meetings with the water users, which culminated in forming water users federations in the pilot areas. Adopting a step-wise approach, and building on the steps already taken, the process advances towards the group behaving on mutual trust, sharing information, consulting for consensus, developing options and implementing an appropriate organization design. Since the interactions were initially between the catalysts and the water users, the stages of this iterative process of social organization was named "Five Dialogic Steps" as indicated below.



Each dialogic step contained a number of interactions and related activities, but within each step, they were inter-linked. For instance, within the first dialogue on familiarization meetings, a number of activities were accomplished (see Section 5.1).

4.2 Three-Tier Structure as a Strategy

One of the project objectives has been to ensure maximum participation of the water users in irrigation management decision making. Past experience shows that water users' participation at the tertiary level can accomplish satisfactory results in mobilizing resources and making decisions related to short-term objectives, such as watercourse lining or improvement. However, after the completion of this task, the water users associations were no longer sustainable. The main reason was the lack of a long-term purpose for organized collective action. If the organizational effort is moved upstream to a higher level (distributary or minor level), the assumption is that more meaningful and longer-term purposes for organization could be found. For instance, a water users organization at this higher level could achieve the maximum possible participation in "joint management" of the irrigation system. Logically, users' participation would contribute to improving the efficiency, equity, reliability, productivity and sustainability associated with the use of irrigation water resources. In considering the large size of the Hakra 4-R Distributary, two planning objectives emerged:

- (1) In the context of a large number of water users, how best can they be offered an equal opportunity for participation in the process of selecting their leaders and eventually forming water users associations (WUAs) and the water users federation (WUF)?
- (2) How best could the size of the command area be used in identifying longer-term functions for the water users organizations⁷ (WUOs)?

The traditional way of organizing water users associations (WUA's), one for each watercourse, and then federating them to form a water users organization at the distributary level was considered too time-consuming, and likely to delay the process of accomplishing project objectives. To optimally use the time available, and limited resources, it was necessary to think of an appropriate alternative method for reaching the distributary level fairly quickly. A different approach also would help to avoid the perceived "WUA images" associated with the government sponsored water users associations.

⁷ WUOs is the generic term to mean WUAs and WUFs. In this instance, the organization at the intermediary level of Sub-System or Zone is referred to as Sub-System WUO, or Zone WUO.

Considering these project constraints, the chosen alternative approach was to define a set of intermediary sub-systems within the Hakra 4-R Distributary, between the watercourses and the distributary, for organizational purposes.

Five logical sub-units or sub-systems were identified. This division was based on the existence of two minors in the distributary, and the possibility of dividing the main distributary channel into three reaches i.e. head, middle and tail, preferably in terms of hydraulic structures along the main distributary. The five sub-systems seemed to be appropriate units for social organization action research, for the following reasons:

1. The division of the distributary on the basis of hydraulic structures would help in monitoring the discharges in terms of time and space;
2. Medium sized groups would be more suitable for effective social organization at the initial stages;
3. Initial representation at this intermediary sub-system level would enable an equality of opportunity to be achieved by the water users in gaining membership in executive committees for participation and decision making;
4. Water users groups can be identified in terms of clusters of watercourses (in each sub-system), which would help in arranging meetings, discussing problems and resolving disputes more effectively; and
5. The initial identification of these sub-systems would help in generating common interests on possibly common problems.

Specifically, the following division was adopted in consultation with the water users:

- | | |
|-----------------|---|
| Sub-System 1 -- | RD 00 To RD 46.30 on the main distributary channel; |
| Sub-System 2 -- | RD 46.30 To RD 72.10 on the main distributary channel; |
| Sub-System 3 -- | RD 72.10 To RD 112.05 on the main distributary channel; |
| Sub-System 4 -- | Minor 1RA - offtakes at RD 23.2 on the main distributary channel (Length: RD 00 to RD 22 on Minor 1RA); and |
| Sub-System 5 -- | Minor 1R - offtakes at RD 72.10 on the main distributary channel (Length: RD 00 to RD 50.623 on Minor 1R). |

Important characteristics of these sub-systems are given in Table 3.

Table 3. Important Physical and Social Aspects of Identified Sub-Systems of the Hakra 4-R Distributary.

Subsystem	No. of Irrigation outlets	Lined Watercourses	Gross Command Area (acres)	Culturable Command Area (acres)	Authorized Withdrawals (cusecs)	Number of Tubewells	No. of Share-holders [@]
1 Head	25	6	10,350	9,435	34.97	43	735
2 Middle	23	17	8,190	7,030	29.13	45	1,010
3 Tail	27	16	12,220	10,635	41.95	82	1,030
4 Minor 1RA	15	6	6,930	6,100	21.85	16	565
5 Minor 1R	33	21	11,650	10,200	40.24	51	1,350
Total	123		48,250	43,400	168.14 ^{\$}	247	4,690
Avg/outlet			392	353	1.34	2	38

@ The number of shareholders have been extracted from the outlet register of the Irrigation Sub-Divisional Office at Haroonabad. As these figures are not frequently amended, recent subdivision of land due to transfer of ownership may not be accounted for in many of the outlets.

\$ Total authorized discharge of the distributary is 193 cusecs. Here, only authorized withdrawals for different outlets have been summed up and do not reflect the seepage allowance and withdrawals by municipal water supplies.

In terms of WUO functions, the sub-system organizations would be able to monitor more closely the water distribution among the watercourses within their respective sub-system areas. Maintenance of the distributary or minor also would have a more intimate supervision and an organizational attention. The office bearers of each sub-system will have responsibilities for resource mobilization for this purpose, a function they have to accomplish in very close collaboration with individual member WUAs. The only difficulty is that these sub-system organizations need to be legally recognized.

Dividing the distributary command area into five sub-systems facilitated the process of organization. The water users of each watercourse were to meet separately and identify one nominee to be their representative at the sub-system organization, and the members of each sub-system organization were to identify five representatives from each sub-system group. Finally, the twenty five members of the distributary level organization would select their office bearers. The three-tier structure can be seen in Figure 3.

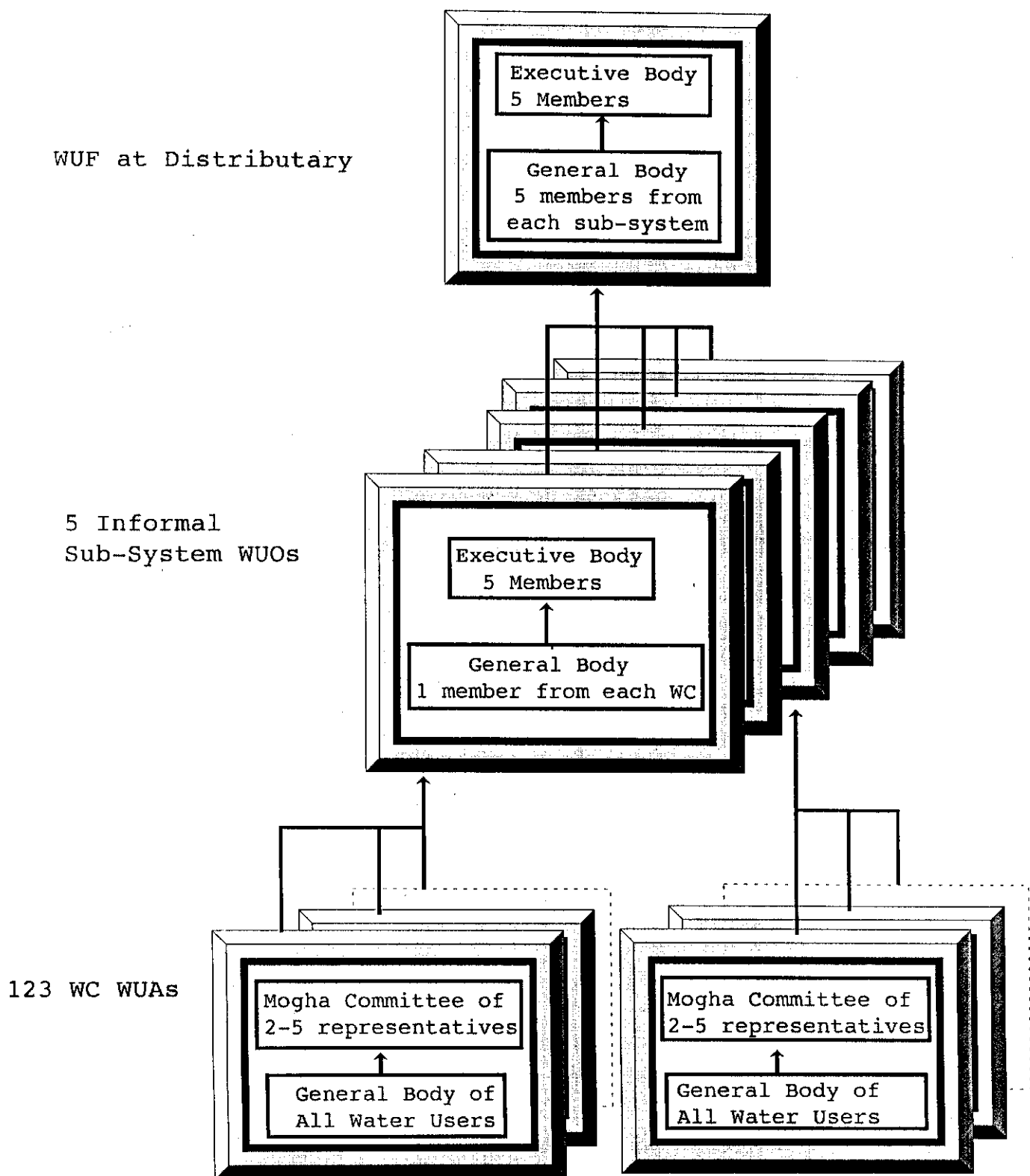


Figure 3. Three-Tier Structure for WUOs.

4.3 Small Field Team

Experience elsewhere has shown that one of the essential elements of organizing people is that the social organizers should be based in the community itself (Pradhan and Sharples, 1990). Ideally, this should have been the arrangement for this action research effort. However, this would mean that at least 123 social organizers had to be used for organizing water users of the Hakra 4-R Distributary in order to organize water users at the watercourse level. Even if one social organizer were to be placed in each village level, it would still require at least 40 persons. In any event, for such intensive coverage, IIMI would have to plan for a substantial base of financial and human resources.

Considering the size of the task, the field team located at Haroonabad was relatively a small group. Initially, it consisted of two social organizers, one field assistant, a senior field assistant, and a field team leader. Later, in order to assign field work on a more equitable basis, the team was increased to five members and the team leader so that one person would be able to concentrate on one sub-system. With some on-the-job-training, all of them functioned as social organizers.

To reflect the special character of the responsibilities assigned to this field team, as compared with the more technical issues handled by IIMI's other field teams in the Punjab, it was given a special name, the "Social Organization Field Team (SOFTware)".

The idea was well accepted by the group and the term Software was used in all the documentation. Besides, the intent of using this terminology was also well understood by the field team members at Haroonabad, who swiftly adopted a focus on the social aspects of field work they were expected to perform.

Although, in the final analysis, this methodology of deploying a small field team paid dividends, some difficulties were experienced in conducting project activities to meet the various time targets. The high intensity of field activity was caused by the progressive **step-wise processes**, which required a cumulative effort as each new step was taken while consolidating the earlier steps, and a mutually reinforcing dichotomy of both social and technical components had to be maintained throughout. The package of activities included field interviews, organizing and conducting small group meetings among the water users, interactions with agency staff, field measurements, keeping field notes and records, process documentation, data analysis and writing reports to Headquarters at Lahore. All of these activities had to be done in the context of strict water delivery and cultivation schedules of the two seasons.

Another problem of having a small field team and a tight work program was that when a member of the team went on leave, or fell sick, or left the organization, it was difficult to return to the normal work pattern quickly enough to ensure that the program of work was not disrupted.

In the overall, notwithstanding these difficulties, the small teams have demonstrated that:

- * once the critical activities are identified through these pilot trials, the replicability of this effort is assured with the deployment of similar, or yet smaller, field teams;
- * the required intensity of interest is more easily obtained through a small group working together in one place, thus avoiding the usual inter-personal and social constraints experienced when large groups of agency staff are mobilized;
- * The administrative cost of mobilizing a small group, such as a five-member team, can be kept at a level that can be sustained easily; and
- * Even a small group can reach a large community, provided they are able to mobilize community support for their work.

All of the above mentioned advantages of deploying a small field team for social organization augur well for the replicability of this effort on a wider scale in the future. A small Institutional Development Unit located in an appropriate Provincial organization involved in providing advisory services for irrigated agriculture should be able to monitor a broad-based program of promoting water users organizations. The use of local volunteers is considered as an essential accompanying element of this strategy.

4.4 Social Organization Volunteers

To supplement the small field team, a strategy was developed to use community-based volunteers in social organization work. Initially, the project decided to call these volunteers the "contact farmers" because they had to play a pivotal role as a **contact** between the **SOFTWARE** group and the community. Identifying some suitable persons from the water users' community to be deployed as "contact farmers" was an important preliminary step in the social organization process in the Hakra 4-R Distributary. As this work was in progress, the term "contact farmers" was found to be associated popularly with the "influentials", big land owners and farmer leaders of the T & V system adopted by the Agricultural Extension Department. Since the use of these contact farmers had

not resulted in the proper functioning of the T&V system, the term had an unfavorable connotation. The project decided that, in order to avoid farmers' mistrust from the start, the term "contact farmers" should be replaced by the term "**Social Organization Volunteers**" (SOVs).

Organizing people is a socially sensitive and politically vulnerable activity. This is not a task to be solely undertaken by an international institute like IIMI; rather, it should be the responsibility of local people (i.e. local agencies and the water users) themselves. An internally generated demand for social organization has a greater chance of making these organizations productive and sustainable. IIMI, as an agent of change, or a catalyst, could only provide a facilitating role in this process, based on its international experience, by helping the organizers to proceed in both a professional and a systematic way.

IIMI's decision to look for assistance from the community itself for reaching the community at large was compatible with this thinking. IIMI did not exclusively rely on the water users alone, but identified members of the community in general, who were adequately informed about the community and its needs, and prepared to assist IIMI's field team. The members of this extended field team were based in the community, knew the people fairly intimately, and shared their language, beliefs, traditions, rituals, needs and problems.

The methodology had the following advantages:

- * Interventions could be routed through local people, causing little room for mistrust;
- * The SOVs could reach the community in the large pilot distributary command area fairly quickly, partially meeting the projects time constraint; and
- * As SOVs were deployed on a voluntary basis, the method was cost-effective and could easily be applied on a wider scale.

Selection Criteria: As the activity of organizing water users involved a complex social organization process, it was important to select the correct type of persons as SOVs. For this reason, a number of factors had to be considered. The main criteria for selecting SOVs were that an SOV should:

- * be imbued with an initiative for working with the community, and should see the value in collective behavior for a common good;
- * be honest so that water users would believe him;
- * possess communication skills, a willingness to engage in a two-way communication so that the SOV could disseminate the SOFTWARE messages to the community, and also be able to communicate effectively with the outsiders who came to collaborate with the local people;
- * be well informed about the area, local languages, castes, traditions, rituals, and other community characteristics, and details on water and land resources in the area, and generally about irrigated agriculture;
- * be a non-controversial person and not anti-social in any way;
- * be educated, having potential and ability to be trained to become a community based social organizer;
- * have experience in speaking at a public gathering (an added advantage);
- * not necessarily be a farmer, a big land owner, or an influential; and
- * not be an aspirant to any office of the WUO, nor expect any reward from SOFTWARE for services rendered.

The process of identifying the SOVs will be discussed in Section 5.1.1 of this report. Some results of this activity are outlined below.

After the new methodology for identifying SOVs to help the field team was introduced in December 1995, the process started to take off smoothly during the first twenty days of the month. This was interrupted by an unfortunate event, when the field team was involved in a road accident on 20 December 1995, and one of the staff members died while two others were seriously injured. The field work was suspended for almost one month and resumed by the end of January 1996 with only half the team (two persons) functioning. However, by mid-May 1996, the SOVs were identified in all of the 41 villages. The number of identified SOVs varied between 2 and 6 per village; two in cases where the village was small and homogenous, and more as the heterogeneity within the village increased. In most of the villages, the number of selected SOVs was between 4

and 5. In two villages, however, only one SOV was considered sufficient because the land was owned by only one or two persons. However, no strict criteria were followed for deciding on the number of SOVs per village.

The distribution of SOVs by subsystem is given in Table 4.

Table 4. Details of Social Organization Volunteers.

Sub-system	Number of Villages	Number of W/Courses	Number of Water Users Contacted	Number of Persons Referred as SOVs	Number of Persons Selected as SOVs
1	9	25	146	159	29
2	9	23	132	120	30
3	8	27	63	108	32
4	4	15	83	28	13
5	9	33	61	140	54
Total	39 ⁸	123	486	555	158 ⁹

Table 5 reveals that almost all of the SOVs owned some land. Some of them had their own land and also cultivated land on rent or share-cropping. Only two SOVs belonging to the middle reach did not own any land. Understandably, in general, the people had preferred to select those who own some land as they believed that the persons who did not own land could not understand the problems related to irrigated agriculture, or their interests might be different.

⁸ Apart from these big villages, there are many small additional settlements called azafi basti or tibba (farm houses and hamlets).

⁹ After the initial selection, adjustments were made including some additions and deletions to this number during the awareness building meetings.

**Table 5. Important Socio-Economic Characteristics of the Social Organization
Volunteers Identified by Sub System.**

Characteristics	SUBSYS1 Head Reach	SUBSYS2 Middle Reach	SUBSYS3 Tail Reach	SYBSYS4 1RA Minor	SUBSYS5 1R Minor	Hakra 4-R Disty
SOVs (Number)	29	30	32	13	54	158
Average Size of Operational Holding (Acres)	47.22	39.23	20.42	23.46	35.70	34.38
Owner-Cultivators (Percent)	100	93	100	100	100	99
Educated (Percent)	66	80	75	77	80	76
Matric & Above (Percent)	31	53	41	38	52	45
Resident within Village or at Farm (Percent)	100	97	100	100	98	99
Politically Neutral (Percent)	27	33	81	69	11	37
Community/ Collective Workers (Percent)	86	47	75	69	74	71
Local Leaders (UC/DC/Zakat etc.) (Percent)	10	20	19	8	7	13
Caste Jat (Percent)	3	17	34	0	13	15
Caste Arain (Percent)	3	30	38	0	53	32
Caste Rajput (Percent)	66	23	6	0	4	19
Others Castes (Percent)	28	30	22	100	30	34

The caste structure indicates that the water users from each of the subsystems preferred SOVs predominantly from one or two castes. At the head reach, Rajputs were referred and selected mostly as SOVs; at the middle and Minor 1R, Arains; at the tail reach a mixture of Arains and Jats, and at Minor 1RA Wattoos were in the majority. It appears that each village had to some extent one caste as the major caste and most of the farmers tended to prefer people from that major caste as SOVs.

A majority of the selected SOVs were educated. Almost half of the selected SOVs have reached the educational standard of matric and above; in no subsystem did this

proportion drop below one-third. Perhaps the farmers believed that the educated persons had a better understanding of the common problems and could communicate these better. The *SOFTWARE* also preferred educated persons as they were found to be broad minded, open and critical, easy to communicate with, and had an ability to absorb training.

Almost all of the identified SOVs resided either within the village, hamlets around the village, or at the farmhouse called 'dera'. This helped in organizing water users as they were available and easily accessible compared with those who resided in the town or elsewhere. Some of the persons referred as SOVs by the community were those owning land in the village, but resident in the town. After some discussion, there was agreement not to select them as SOVs.

Except for Subsystems 3 and 4, a majority of the SOVs were known to have some political affiliation. Irrespective of their political leanings, the selected SOVs showed willingness to work with *SOFTWARE* on this program, and appeared to be unconcerned by the general belief that the government was going to "sell" or privatize the system.

The majority of the selected SOVs were not opposed by other water users, indicating their neutral status and their potential of being apolitical and commonly acceptable. This is further supported by the fact that most of the referred and selected SOVs have already played some role in community/collective work previously. The proportion of local level leaders, such as members of Union/ District Councils, Ushar and Zakat Committees, as well as members of the old Basic Democracy system, is very low, ranging from 7 percent in Subsystem 5 (Minor 1R) to 20 per cent in Subsystem 2. This indicates a preference by the water users to avoid such representatives. When questioned, some people have openly described such persons as those who usually tend to use their powers and status to maximize their own personal gain rather than work for a common benefit.

4.5 Training and Information Sharing

In many donor-assisted projects in which social organization was a component, an incentive for organization was provided in terms of improvements in the physical system, such as, canal rehabilitation and watercourse lining. However, their effect was generally found to be temporary, and the WUAs formed with such incentives lasted only until the short-term objectives were achieved. Considering this short-term effects of incentives for physical improvements, the pilot project adopted a different strategy in motivating the volunteer SOVs and water users in general. In an attempt to convince the water users

of the need to foster longer term objectives of achieving more equitable water distribution, increased reliability and timeliness of water delivery, and improved maintenance, the strategy was to involve the water users in a series of training aimed at a final goal of increased productivity of irrigated agriculture.

The motivational effort, through training and information sharing, was also to engage the water users in building awareness, confidence and mutual trust. There was no monetary incentives and no promises of physical assets. The training inputs were incorporated into other social organization activities, the interventions being in a slow process, monitoring the effect of each step and building on it. The strategy was also to share project-related information with the water users in frequent meetings with small and large groups, in places which were considered as "neutral", such as schools, mosques, playgrounds and other community meeting places.

The water users showed a greater interest in learning about the physical aspects of the irrigation and drainage systems than about proposed organizations. This was quite natural as the physical sub-system of an irrigation system would be foremost in the minds of the people. They would like to hear about quantity and quality of water they receive, sedimentation in their canal system, and the conditions of the structures etc. The project's inception documents referred to the essential linkage between the social and technical sub-systems in an irrigation system. The social sub-system always works in association with the physical or technical sub-system (obviously, the converse is also true). In an irrigation system, the fields, canals, watercourses, structures, outlets, gates, etc., are essentially interlinked with the operators, water users and their organized groups. Yet, the primacy of the physical sub-system dominates the perceptions of various actors, including the farmers.

This was easily evident during the initial **"walk-thru surveys"** conducted as part of the training and information sharing. As a strategy, the field team also tried to be well equipped with information on the technical aspects of the pilot areas, which the water users were readily willing to discuss initially. Walk-thru maintenance surveys, calibration of structures, water measurement exercises were all used to train the field staff, as well as the water users who participated in these events. As a preparatory step, a training on field measurement aspects was given to the field teams, which was also used as an opportunity to obtain some preliminary data. This methodology provided a meaningful incentive to keep the water users motivated in the project, and filled a vacuum that otherwise existed due to the non-availability of substantial development funds in the project budget. These training activities will be continued in the third phase of the organizational process.

Photograph - 1



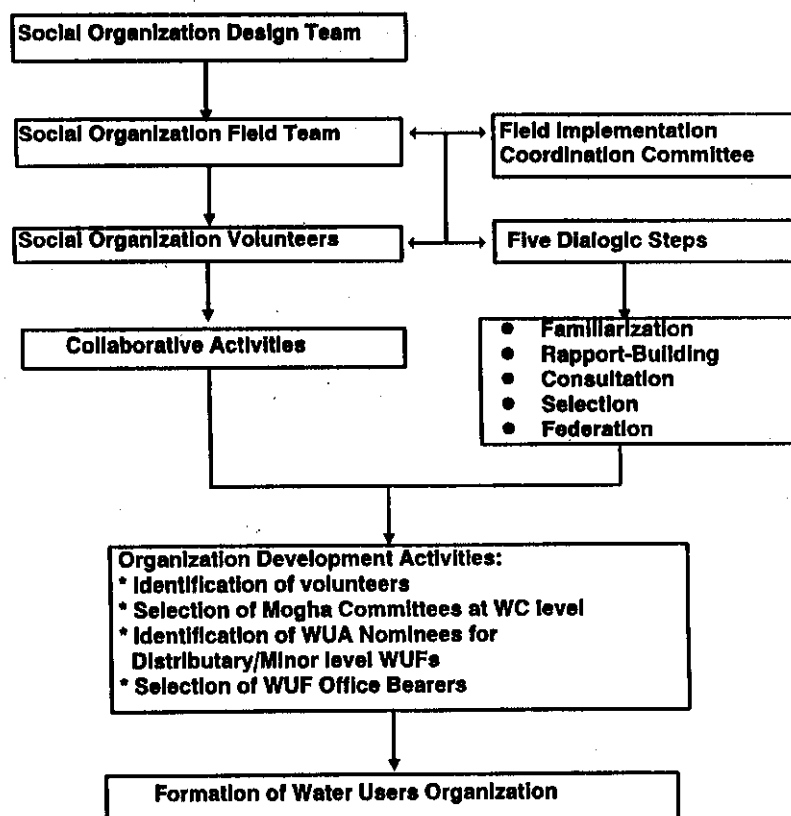
Walk-Thru Surveys

5. PILOT PROJECT EXPERIENCES IN SOCIAL ORGANIZATION

Following the step-wise process highlighted by four phases of organizational development, the second phase on initial organization was itself structured into five dialogic steps of social interactions (see Sections 4.1.1 and 4.1.2). A design team located in Lahore coordinated the planning effort, and collaborated with the SOFTWARE group located in Haroonabad in the project area, who played the most significant role in doing the field work. The selected SOVs and the Field Implementation Coordination Committee were the other partners in the field, and their social organization activities were supported by some collaborative activities by various agencies.

The social organization process described above is depicted in the diagram given below:

SOCIAL ORGANIZATION PROCESS



5.1 First Dialogue : Familiarization Meetings

The initial interactions with the people in the project area at random helped the field team to accomplish the following combination of activities:

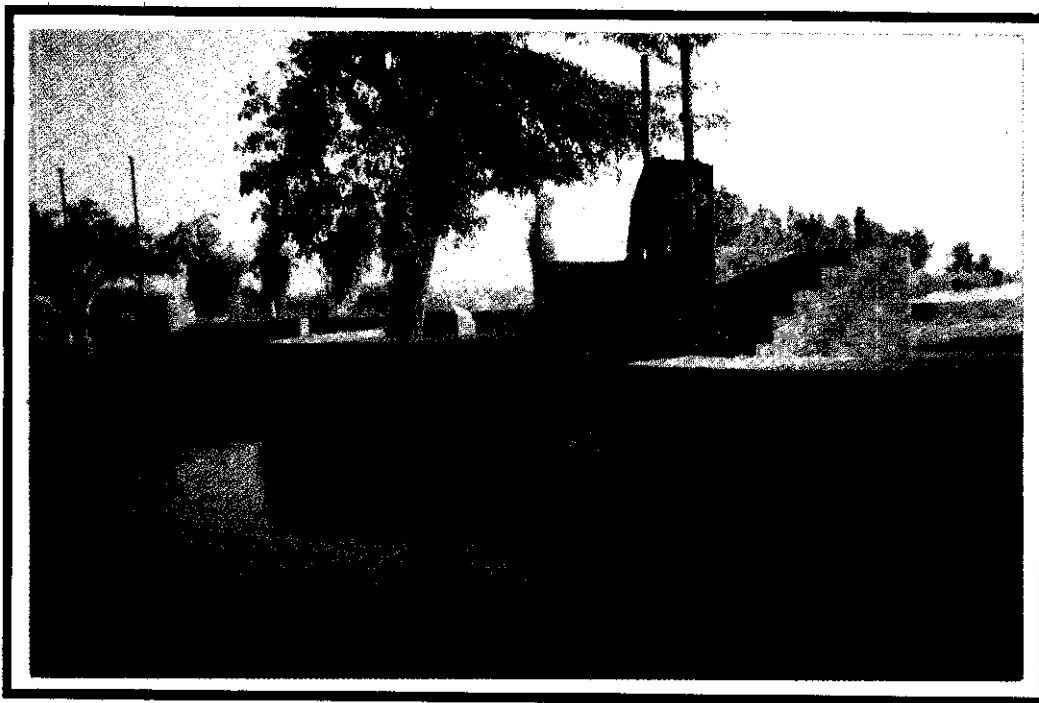
- * Introduce IIMI and its programs to the people;
- * Explain the project objectives;
- * Collect baseline information;
- * Preliminary calibration exercises;
- * Collect or construct warabandi schedules; and
- * Identification of SOVs.

Identification of SOVs: The field work on identifying SOVs was started during the fourth week of September 1995. The first task was to train IIMI's field staff in conducting field interviews for this purpose. The staff was trained by conducting a series of ad-hoc "walk-thru" interviews¹⁰ along different watercourses. The members of the design team explained to them the purpose of this activity, and the content and process of what was to be communicated to the water users, including preliminary information about the purpose of IIMI's pilot project. After each interview, the content, methodology, and the style of interviewing were evaluated by all the members of the field team. This training exercise was continued for two days.

Based on the initial field information, the field team members collectively decided that the number of SOVs to be identified could vary on each watercourse, but in general, there should be two to four selected SOVs depending on the characteristics of the water users' community, and based on farmer's opinions and a set of criteria as mentioned above. Field teams consisting of two persons would have informal individual meetings with the farmers. Along with the identification of SOVs, information on actual warabandi schedules were to be collected as a by-product of this field exercise.

¹⁰ The term "walk-through" is usually associated with surveys jointly conducted by an intervening group along with participating agency staff or user groups, walking along an irrigation channel or road for the purpose of assessing its physical characteristics. In this instance, the use of this term has been extended to mean a similar collective assessment of the social characteristics related to a physical system (watercourse).

Photograph - 2



IIMI Team in Discharge Calibration Exercise

The *SOFTWARE* group was sub-divided into two working teams and each team had to allocate two days for identifying SOVs on each watercourse. While one person was to conduct the interview, the other was to take notes. Each team was made responsible for one sub-system at a time. The team members would start their 'walk-thrus' from the head of the watercourse and introduce themselves and the *SOFTWARE* program to the farmers. The team members would seek the opinion of the people about potential SOVs meeting the laid down criteria. The team would then arrange to meet with the identified potential SOVs. As the work proceeded, the total time by following the watercourse approach for this activity was estimated at more than four working months per team. As this length of time was considered unaffordable, the method needed to be modified.

Meanwhile, this activity was temporarily suspended for one month due to a field training course on "Calibration of Irrigation Outlets" during October 1995. After the training course, the activities were again resumed with an analysis of the situation. After gaining some field experience, which disclosed that in certain cases even two days were not sufficient as the potential SOVs had gone out of the village, and in many cases, more than one visit became inevitable to actually meet them.

Eventually, a decision was reached to consider shifting from the watercourse to the village level, as there were a number of watercourses corresponding to the lands belonging to the same village, and it was easier to identify a few SOVs in each village. Besides saving time, an additional advantage of this approach was that the content of the message communicated to various sub-groups in the community could remain uniform and stable. A brief overview of the general method adopted by a field team member is given below:

- (1) Visit the village and obtain information from a number of people about the watercourses associated with that village;
- (2) Meet several people from different watercourses of the village, different castes and other social-groups, introduce yourself and the *SOFTWARE* program, and obtain information on major problems related to irrigated agriculture and the socio-political situation;
- (3) Obtain information on potential SOVs, their characteristics and links, as well as try to assess other groups' opinions about the suggested SOVs, keeping in mind IIMI's criteria for SOVs, and obtain further information about alternate SOVs in case of disagreement;

- (4) Select the most appropriate SOVs that are referred by the community who fit into our criteria and pay a visit to each of them to confirm the farmers' opinion. Fill in the checklist keeping in view your discussion with the prospective SOV;
- (5) If found suitable, discuss in detail about the SOFTWARE program and seek the help of the prospective SOV in disseminating the message, but get assurance of his continuous help during the process;
- (6) Repeat Steps 4 and 5 until two or more suitable SOVs for that village have been identified; and
- (7) Consult the Field Team Leader and other team members to discuss those people identified for final selection.

Initially, the process of selecting SOVs became susceptible to many mistakes as the selection greatly depended on the vision and the perception of the SOFTWARE team members. Some of the mistakes were pointed out by the people as the news of particular selections spread around. On gaining experience, the quality of field work improved considerably. In total, 158 volunteers were identified as SOVs through this rigorous process of interaction with the community. The field team and some of the SOVs coined a local term "**Samaji Razakaars**" to mean Social Organization Volunteers.

Multiplier Effect: Each of the identified SOVs was requested to discuss with other water users in their informal village meetings, social gatherings and discussions, about the possibilities and options for getting organized in order to play a greater role in irrigation management. A villager likened this suggested process to the phenomenon of spreading gradually expanding ripples when a pebble is thrown into still waters of a village pond.

After identifying them through this process of community participation, the SOs interacted with them to find out whether they were the right persons to form an essential link between the water users and the SOFTWARE. At this stage, the team developed a checklist for assessing the potential SOVs, which is presented in Annex-4.

A series of interviews were conducted to evaluate them. These interactions showed that they had a wide range of perceptions about many aspects of irrigated agriculture and their social environment. Some of them are presented in Table 6.

Table 6. Some Initial Perceptions of the SOVs in Hakra 4-R Distributary.

Statements	Total (n=103)		
	Yes	No	No Com
Less irrigation water at peak demand and abundant during slack periods	68 (66)	7	28
General shortage of irrigation water at tail	55 (53)	10	38
Distributary does not run at designed discharge	17 (17)	2	84
Rotation of the distributaries is not proper	29 (28)	0	74
Annual closure is not at proper time	10 (10)	1	92
Irrigation water is a problem due to corruption	72 (70)	0	31
Poor maintenance causes irrigation problems	21 (20)	0	82
Water users can pay more if they get adequate and reliable water supply	4 (4)	0	99
Agricultural inputs are black-marketed	40 (39)	0	63
Agricultural inputs are substandard	30 (29)	0	73
Pilot testing of the Joint Irrigation management is not harmful for farmers	74 (72)	2	27
Union is strength	79 (77)	3	21
Water users' participation will improve water distribution and other water problems	79 (77)	8	16
WUOs only successful if have powers to implement decisions	33 (32)	0	70
WUOs should also solve other agricultural problems as well	10 (10)	0	93
Big landlords and influentials will hijack WUOs	11 (11)	0	92
For organizing farmers and successful implementation of the pilot, catalyst is continuously needed	13 (13)	0	90
water users were suspicious because of foreigners in the team and area	40 (39)	0	63
Influentials will act as barriers in the way of WUOs	26 (25)	0	77
Success depends on the education and honesty of the office bearers	33 (32)	0	70
I am ready to help IIMI in organizing people	80 (78)	0	23
ID's/ Governments' participation is inevitable for success	18 (17)	0	85
Illiteracy, poverty and unawareness are main hindrances in organizing water users	8 (8)	0	95
People in WUOs will maximize their personal gains	11 (11)	0	92
Legislative amendments are needed to get recognition for the organization and joint management	9 (9)	0	94

Figures in parentheses give the percentage value.

5.2 Second Dialogue : Rapport-Building Meetings

After identifying the SOVs, a series of small group meetings were conducted with them and some water users in their own villages for the purpose of building a greater rapport and increasing the awareness among them about the main objectives of the project. The idea of selecting and mobilizing these volunteers was basically to train them as Social Organizers so that they could act as an extended part of the field team. For this, the SOVs needed to be confident about the project.

This was perceived as an important step in the process for organizing water users in the given context. The methodology of launching a cautious, slow but steady approach towards building a rapport with the community was welcome at that stage, as many misconceptions had already been caused before the team penetrated in the field. For many, even in cities of Pakistan, IIMI was a new entity; many people were unsure about its motives, its activities and its alliances. With the pilot project on social organization, IIMI was already entering into a socially sensitive arena.

Therefore, a progressive approach to meeting individuals and groups, with the effect of each step being carefully evaluated, while gradually building on the confidence with each step, was more likely to be eventually successful.

Organization of Meetings: Since the SOVs were to act as an essential link between the Social Organization Field Team (SOFTware) and the community, initial interactions first took place between SOVs and the team. They together decided the time and place for the meetings and provided publicity. Being a new activity, Lahore based staff assisted the team in these meetings. Considering the greater enthusiasm among the tail end water users, it was decided that the meetings would be started from the tail of the distributary.

In many villages, the meetings were arranged at the residence of one of the Social Organization Volunteer and other Social Organization Volunteers participated happily. In some of the villages, meetings were arranged in schools or in the center of the village in an open space where the Social Organization Volunteers had a clash. In a few villages, certain Social Organization Volunteers did not participate in the meetings because the opponent had to attend the meeting too, being an SOV.

Photograph - 3



Rapport-Building Meetings

The first meeting was held on 23 January 1996, and the last meeting took place on 6 July 1996. In some parts of the command area, identification of the Social Organization Volunteers was also in progress during that period.

The Process of Meetings: In a typical meeting, the start was made informally by posing questions about the conditions of crops, situation of water supply and general irrigated agriculture related problems. The farmers showed a great interest in explaining their problems especially related to irrigation water, inputs and marketing of their produce. Afterwards, these problems were linked to prevailing individualism among the farmers and absence of an organized behavior. A majority of them agreed with the team. Invariably, an exhaustive and hectic discussion took place on the role of the Irrigation Department, influentials and the government in general about discrimination in distribution of water and other inputs among common farmers.

In general, the water users aired their suspicions about IIMI as many activities were being undertaken at the distributary by several agencies at that time. Many of them attributed this to an earlier socio-economic survey where a lot of questions were asked about crops, production, abiana, income, etc. The baseline survey team had been understood as part of a "privatization team". Besides, the flow of news about privatization was quite frequent in the media. Frequent expatriate missions, foreigners calibrating the outlets and structures on the distributary further aggravated the situation, and many of the water users explicitly said that IIMI was a foreign company who had taken the Hakra 4-R Distributary on a management contract, and that IIMI was going to install meters on the moghas to distribute and measure water and assess abiana (that would be as high as Rs. 1000/- per hour!).

An effort was always made to clear these misconceptions and introduce IIMI in its true construct as an international institute working in several developing countries for research on irrigation management. Attempts were made to clarify that IIMI was not striving for privatization, but trying to see whether a decentralized decision making system among the farmers and the operating agencies would work satisfactorily in Pakistan¹¹. Yet, the field team confronted a lot of criticism at the start of the meetings. Another explanation given to the farmers was about IIMI's inability to organize the water users unless the water users themselves took an initiative and participated actively.

¹¹ The team perceived joint management as a turnover of part of operations and maintenance responsibilities and assessment and collection of revenue to the water users' representative bodies such as a water user's federation at the distributary level.

The output of these meetings was that project objectives became clear to most of the SOVs. They promised to help disseminate the message across the community and also expressed a need to organize themselves at the distributary level.

Many were, however, of the opinion that even being a "virtuous" job, it would be very difficult to achieve, and gave a list of reasons why it would not work. The farming community was divided into several conflicting groups; bad experience with political parties, governments, cooperative societies, Zakat and Ushar Committees, Fertilizer Committees etc., made people lose trust in any new move; and there was a possibility that these organizations might be hijacked by the free-riding influentials.

Details of participation by SOVs and others in these meetings for various sub-systems are given in Table 7.

Table 7. Level of Participation in Rapport-Building Meetings for SOVs in Hakra 4-R Distributary.

Sub-system	No. of SOVs Invited	No. of SOVs Participated	No. of water users Participated	No. of Villages	No. of Meetings
1	27	18	25	8	4 ¹
2	29	20	62	8	6 ²
3	28	26	59	8	8
4 ³	17	11	17	5	2 ³
5	57	36	57	12	11
Total	158	111	220	41	31

Notes:

- 1 In 3 meetings, 6 villages were covered. In one village, which is dominated by an Influential, no one was ready to become a Social Organization Volunteer. Therefore no meeting could be held.
- 2 Two of the villages are very small and the land belongs to two persons only. Instead of holding a meeting, they were individually briefed.
- 3 In this sub-system, the entire population either lives in the main village khatan or on deras. All of the identified SOVs showed an interest to come to the same meeting; so only two meetings were held.

During these meetings, the level of participation was quite satisfactory with a few exceptions. In many villages the response was good as many water users participated actively due to curiosity. In one village someone announced the meeting on a loudspeaker in the mosque and consequently 40 water users participated, although only a small group was needed for

this initial meeting. At the end of each meeting, the SOVs were requested to discuss the idea with other water users, clarify their misconceptions about IIMI, and convey the message to other water users so that awareness would rapidly be created.

Immediate Impact of Rapport-Building Meetings: Though the intention behind these meetings was to obtain a kind of concept clearance from the community regarding the program, while engaging in trust-building exercises, the real impact was only marginal at the beginning. Several SOVs expressed their unwillingness to reach the common water users and the disadvantaged classes such as tenants. The desired impact of this set of meetings was that the SOVs would start discussing about IIMI and its project with other shareholders of watercourses and, eventually, the community would start considering the option of getting organized for WUOs at the sub-system level and a WUF at the distributary level without much persuasive efforts.

First Follow-Up on SOVs: In March 1996, while the identification of SOVs was still in progress at the head reach and the round of awareness building meetings was continuing in other areas, a follow-up survey was conducted in 7 villages, where awareness building meetings had been conducted around a month or longer ago. The methodology followed was similar to that of the identification of the SOVs i.e. meeting some farmers in the fields, on the roads, in hamlets and villages, etc. The results showed that the SOVs had not started discussions with the water users by then. The results of the follow up in a few selected villages are presented in Table 8.

Table 8. Results of First Follow-Up Survey on SOVs.

Name of the Village	Number of WUs Met	Aware, Heard from		Unaware (Percent)
		SOVs (Percent)	Others (Percent)	
53/4-R	6	16	0	84
55/4-R	10	50	40	10
58/4-R	4	0	0	100
62/4-R	10	0	0	100
63/4-R	5	80	0	20
64/4-R	5	20	0	80
65/4-R	9	0	11	89

This informal follow-up survey indicated that the SOVs had not yet started their role of informing people about the possibilities of WUOs. Besides these investigations, several informal discussions proved that the SOVs were not as effective as they were expected to be. In one of such villages at the tail reach, an SOV was extolling the virtues of privatization and fixing of water meters, and congratulating IIMI about bringing such an efficient system to Hakra 4-R Distributary!

This confusing situation disturbed the field team as the SOVs had expressed clearly in the meetings that they understood the program and showed eagerness to cooperate and disseminate the program to ensure full participation as it was in their own benefit.

Reorganizing the Field Team: The situation was analyzed in several field staff meetings and the problem was traced. Effectively, there were only two persons who were functional in visiting the villages for identifying SOVs and also arranging rapport-building meetings on the entire distributary (two field team members were temporarily disabled after motor cycle accidents). The time lag between the contacts was considerable and the water users tended to forget even the faces of the field workers. A decision was reached to expand the field team and intensify the frequency of visits. By April 1996, the field team was expanded to 5 and another person was added to the team in June 1996. Except for the field team leader, the other five members of the team were assigned on the basis of one sub-system for each. They still maintained close collaboration among themselves, visited each other while working in their own area, and learned from each other's experiences.

Soon, the pace of work started to build up. In the months of May and June 1996, the staff visited SOVs more than twice and held rapport-building meetings with the water users in 13 villages. The participation in these villages was encouraging. In one of the villages, the SOVs and the field worker of IIMI decided to build awareness by visiting all of the shareholders of the two watercourse command areas at the tail of the distributary. They met 52 shareholders individually in the two watercourse command areas in two days and briefed them about the program. This approach was found to give very good results, but was enormously expansive in terms of resources.

Information on attendance at these meetings indicated that the participation declined from the tail to the head reach. Except for one village where direct visits were paid, all of the other meetings were announced at least one day before and on the meeting day in the village mosque so all of the residents were informed about these.

Photograph - 4



Training of SOVs

The participants were not passive listeners; rather, there were hectic discussions about the program and some good proposals were also given by the water users. In several meetings, WUs voluntarily offered their services for compilation of the "warabandi" lists, which indicated their motivation. These meetings also helped in identifying some other motivated persons who would serve better as SOVs.

Training of SOVs: As the objective of involving community-based volunteers was to deploy them as social organizers, training workshops were held for them in July 1996, on the basis of one workshop for each sub-system. In these five workshops, all of the identified volunteers were invited, while more than eighty percent of them participated.

5.3 Third Dialogue : Consultation Meetings

The main purpose of these meetings was to consult the water users on tentative plans for establishing water users organizations. The meetings were to be in groups larger than those used for "rapport-building" meetings.

Among the series of dialogues with the water users, the consultation meetings formed a crucial step in the social organization process. In following an iterative "building-block" process, with one step leading to the other generally, the consultation meetings were limited to the purpose mentioned above, but as consultation with the water users required that they knew the project objectives clearly, these meetings were also used as a follow up of earlier rapport building meetings to clarify any doubts or misunderstandings among the people regarding the program. Consultation proved to be an essential element of a participatory action research approach. The meetings were conducted in such a way that the water users had enough opportunity to give their views and suggestions. **In this methodology, the participant was treated as an active subject, not a passive object of research.**

The agenda for the consultation meetings was usually divided into three broad phases:

Introduction of objectives of the meeting by IIMI staff;

Discussion where the water users were encouraged to play a dominant role, and IIMI staff played a facilitating role; and

Conclusion where IIMI staff clarified the emerging issues in terms of the pilot project's objectives.

The main topics that were discussed and negotiated at these meetings were:

- * Membership of WUAs and WUFs;
- * Organizational structure; and
- * Procedure for identifying organizational leaders (office bearers).

At these consultation meetings, IIMI's field teams contributed by highlighting, as desirable features of a procedure for election or selection of office bearers, the importance of ensuring equal opportunity for participation, and that there could be a negotiation process, which should necessarily be done in a democratic style.

The field team arranged these consultation meetings with the assistance of SOVs at the village level. The meetings were usually fixed in the evening or on Fridays, because the water users were relatively free from their fields and other occupations during this time. Many of these meetings were arranged in mosques, and some in the schools. After arranging dates, time and place, water users were often invited personally by the SO or the SOV, by a special messenger of the village called chowkidar, making several announcements in the village mosque, and sometimes through written letters. In total, 53 meetings were held in the villages and 1,380 interested water users participated. A detailed break-down by the sub-systems is given below in Table 9.

Table 9. Details of Consultation Meetings.

Sub-System	No. of Villages	No. of Meetings	Total S/holders	No. of Participants	Participation (%)
1 Head Reach	8	12	762	316	41
2 Middle Reach	8	5	315	115	37
3 Tail Reach	8	7	860	222	26
4 Minor 1RA	5	6	628	149	24
5 Minor 1R	12	23	929	578	62
Total for 4-R Disty	41	53	3494	1380	39

All of the field team members participated in the first few meetings together in order to gain experience and later, the team was divided into three sub-teams, two members per sub-team, so that one of the members could lead the discussions while the other recorded minutes. Careful note taking by the team helped in documenting the process.

During these meetings, the attention of the participants was also drawn to the provisions of the existing law and possible and desirable changes. One of the ideas put forward by the field team to the participants at these meetings was the need to consider the desirable features of a procedure for election or selection of office bearers, that the procedure should necessarily allow for equal opportunity for participation, that there should be a negotiation process, and that it should be done in a democratic style.

Another major item discussed during consultation meetings was the involvement of water users organizations in solving water related problems. These meetings yielded the following decisions:

- * There should be a meeting for each watercourse for identifying organizational leaders and all the shareholders should be requested to attend.
- * This meeting should start with some short description of the objectives of the pilot project so that the water users who are unaware of IIMI, or the pilot project, may come to know the necessary details. Afterwards, the water users should choose by consensus a "mogha committee" of about 2 to 7 representatives, based on criteria, such as the socio-political groups, land distribution, and location in the watercourse command area. This watercourse level meeting should either, themselves, decide on one person as their nominee for a higher organizational level membership, or arrange for the mogha committee to take that decision.
- * The participants of the planning meetings and IIMI's field team would be jointly responsible for ensuring that every shareholder was informed about these meetings.
- * The tenants and lessees would also be invited and consulted, and would not be debarred from being considered for membership since they also would share the benefits or disadvantages of WUOs.

- * Some people (mostly the SOVs) volunteered to prepare an effective warabandi list as a reference for the selection process. Some of them, nevertheless, requested IIMI to supply them with an official warabandi list for background information.
- * At a few places, where participation was very high, the participants were enthusiastic to choose their leaders immediately. After discussion, an agreement was reached to accept this, provided that the participants were taking the responsibility for informing the absentees and convincing them to acknowledge and accept the decisions already taken by the majority.
- * Some of the water users influenced by negative propaganda opposed the organizational efforts, not because it was not the right thing to do, but for the fears that the WUOs were going to be used for hidden agendas such as privatization, charging high abiana and the like. The field team, with assistance from the SOVs, tried to clear such misconceptions.

5.4 Fourth Dialogue : Selection Meetings

The series of "**selection meetings**" were conducted for the purpose of discussing the process, and finally taking the decisions for selecting or electing the organizational leaders at the watercourse level. The idea was to give maximum publicity and provide equal opportunity for all eligible water users to come forward for leadership. This part of the methodology was in response to the criticism of previous OFWM sponsored WUA processes that only a selected few were given a chance to become office bearers. The elements of a democratic method for this purpose was clarified during this series of meetings. The water users at each watercourse met separately to elect or select the organizational leaders for the WUAs, as agreed upon during the consultation meetings.

While the consultation meetings were being held in some of the areas, in other areas where they had been already held, selection meetings were started. A start, as usual, was made from the tail areas and again sub-teams comprising of at least two persons were deployed to each sub-system. There was a tendency to hold these selection meetings also either in the evening or on Fridays.

The general procedure adopted for this purpose included assigning areas to SOVs after the team members and SOVs agreed on a date, time and place for the meetings.

Announcements were made in the village mosques two to three days ahead of the meetings. Some of the water users, who were usually reported to be reluctant to come, were informed through written letters.

The process of selection of leaders started in July 1996 and was completed by mid-December 1996 for all of the sub-systems except the Head Reach. In some watercourse commands, the meetings had to be postponed due to various unavoidable circumstances, such as sudden death in the village, some village function, or rain. A few meetings were postponed due to low participation. In general, a participation of above sixty percent was deemed appropriate. Only in a few places, even at the third meeting, the participation had not risen above fifty percent. As those who attended would also lose their interest if the leaders were not selected, at their request, the leaders were chosen. People who had come assured that they were effective proxies for most of the absentees. It was, nevertheless, made clear that whenever a majority opposes an already identified leader, he can be replaced on a motion of no confidence.

The following were the most difficult cases:

- * In a watercourse on Minor 1R, the water users were clearly divided into two groups. The smaller group requested for the postponement of a meeting so that they could bring all of their shareholders for the next meeting. The meeting was rescheduled. Only a few of them came in the next meeting too, and when the majority of the participants decided to select the organizational leaders, the smaller group walked out. Some days later, they came to IIMI field team's office to show their lack of confidence on the chosen leaders. On their request, the field team agreed to proceed for a further meeting, but then they withdrew. On enquiry, it was found out that their claims were untrue.
- * A unique case was that of Chak 68/4-R. The land owned by the people in this village was irrigated by three watercourses and there were three numberdars¹², who also were to take care of collective affairs of the village (although collective action was almost non-existent in the village due to lack of interest by the people). In the consultation meeting, only 10 persons participated and they indicated that the

¹² A numberdar is a person designated by the government in every mouza or village to collect government revenues including abiana.

villagers were not interested in agriculture as a majority of families received remittances from abroad. The date for a second meeting was fixed and announced through the mosque. The chowkidar of the village, SOVs and the social organizer informed almost everyone. Besides the three SOVs, only six water users came to this meeting!

The meeting was postponed again, and a new strategy was adopted. The Social Organizer visited every shareholder personally and informed him. The selection meeting was fixed on a Friday after the evening prayers as almost everybody from the village would come back from the field and many of them would come to say prayers in the village mosque. The announcements regarding the meeting was made two days in advance. The chowkidar stood at the door step of the mosque and requested the water users to attend the meeting in the annexed premises. People said that whatever the numberdars decided would be acceptable to them. Only 20, including the three numberdars, participated. The participants insisted that they should select the nominees as others had given this responsibility to numberdars.

After some discussion, they decided to nominate their leaders tentatively and the case was to be finalized at the first sub-system meeting. If nominees from other watercourses of the sub-system did not object, the nominees would be allowed into the organization.

* In the Head reach, people in three watercourses had been reportedly influenced by the negative propaganda of the Irrigation Department's field level employees. It was the usual story that the pilot project was aimed at taking a management contract for managing the distributary. In a selection meeting, some influential shareholders objected and claimed that they did not have any water related problem and that they did not want to organize themselves. They even hinted at a threat, that if IIMI's team again entered their area, the team members might get harmed. Those water users who favored the program requested the team to postpone the meeting for another time. Out of those three watercourses, at one watercourse, people were unclear about the objectives of organizing people. When the objectives were clarified to them, they inquired about other watercourses. Having been informed that over hundred watercourses had already identified their leaders, they wanted to cross check with some people of those watercourses about the project's objectives. After some days, this watercourse succeeded in selecting their leaders.



Selection Meeting for Mogha Numbers 19 & 20



Selection Meeting for Sub-System 2

In the other two watercourses, the shareholders were staunchly regressive and under the strong influence of the numberdar. The numberdar himself was a close friend of an irrigation official from the Gulab Ali Headworks area, from where the Hakra 4-R Distributary offtakes. This numberdar approached another numberdar, who happened to be an SOV, and somehow convinced him that the program had a hidden agenda to raise water rates and impose tax on the land. As the SOV was fully converted against the project, the SO alone went around and informed the water users about the next meeting. All of IIMI's team members attended this meeting, but only a few people came. The numberdar and his supporters claimed that they did not want anything and they were not ready to listen to us. It was explained to them that if the majority of the water users of the two watercourses were willing to say this at a meeting, then their decision would be confirmed. On the fixed date, around 45 people gathered at the designated meeting place. The meeting had to be abandoned as the people became aggressive against the project. They behaved as if they were looking for an opportunity to fight. Out of 123 watercourses, only these two remained unwilling to join the WUO process. Some details are given in Table 10.

Table 10. Details of Selection Meetings.

SUB-SYSTEM	Total W/Courses	Completed W/Courses	Total Water Users	No of Water Users who Participated	Participation rate (%)
Head Reach	25	23	697 ¹³	531	76
Middle Reach	23	23	315	226	72
Tail Reach	27	27	860	651	76
Minor 1RA	15	15	628	471	75
Minor 1R	33	33	929	761	82
4-R	123	121	3429	2640	77

Table 10 shows that the highest participation was in the Minor 1R, located towards the tail reach of the distributary. This can be attributed to the inadequacy of irrigation water, inequity and variability in water distribution affecting the watercourses in the tail sections of the distributary. Another important factor discernible from field work is that the community in this area is more politicized compared to other parts of the distributary.

¹³ Excluding 65 water users of the two problematic watercourses.

The lowest participation ratio in the middle reach can be explained by the fact that this part is situated near the Haroonabad town and well served with alternative employment opportunities. Another important characteristics of this sub-system is that most of the cultivators are tenants and lessees who are relatively less interested in long-term solutions of the irrigation related problems because they are unsure about their tenure.

At watercourses where land distribution was relatively even, the participation was higher. Although the caste structure in the Minor 1RA is similar to that of the head reach, but the resource endowment is relatively less skewed. Another important feature of this sub-system is that the population is concentrated in only three villages; namely, Khatan, Roda Singh and Laabh Singh, which keeps water users together as a community that is exhibited by their joint efforts to desilt the minor every year.

5.5 Fifth Dialogue : Federation Meetings

In the final and fifth step in social organization, the **"federation meetings"** were held to initiate the identification of office bearers for the pilot WUFs.

Introductory Meetings at the Sub-System Level: By mid-December 1996, the watercourse leaders had been selected at 119 out of 123 watercourses (except four watercourses from the head reach). The groups of watercourse nominees for the respective sub-system level organizations were then invited to select their office bearers, and also nominate members for the Water Users Federation of the distributary. The watercourse representatives were invited by visiting them in person and also through a letter of invitation.

The major objectives of these meetings was to refresh the minds of the nominees about the program, to consult them on certain issues, and to give them an opportunity to get to know one another. Some of the many ideas presented by the participants at these meetings are mentioned below:

- * unity is strength;
- * WUOs will create a sense of involvement and responsibility;
- * maintenance priorities according to local conditions;
- * more equitable water distribution due to social pressure;
- * less corruption;
- * proper and timely desiltation;
- * access to agricultural knowledge and related technology;
- * greater awareness of rights and responsibilities;

- * strict accountability and a supportive incentive mechanism; and
- * better resource mobilization.

One group suggested that if they could manage to collect 1 kg of cotton per acre CCA, it would amount to 1,100 maunds of cotton, which, at 800 per maund, would yield 880,000 rupees. Similarly, at 5 kg wheat per acre of CCA, they could gather 1,100,000 rupees which would be sufficient for O&M of the Hakra 4-R Distributary.

The WUO members also proposed that:

- * The watercourse representatives should be called "Khal Numainda" as there would be a confusion in calling him Chairman, etc., as there are several Chairmen already (WUA, Ushar Zakat, Union Council etc.)
- * The name of the Sub-system Organization should be "Tanzeem-Aabpashan, (WUO Gulab Ali/Haroonabad/ Tail/ Khatan and Minor 1R) Zone", so each Sub-System will be a zone, since the word "zone" is commonly used.
- * The committee at the Watercourse should be called "Mogha Committee"
- * The structure of the Tanzeem at the Zone should be:
 - Sadar (President)
 - Naib Sadar (Vice President)
 - Secretary
 - Secretary Ittela'at (information)
 - Khazanchi (treasurer)
 - a selected number of executive members as may be fixed by the respective zonal organizations.
- * The structure of the Distributary Organization should also be similar and all the office bearers (or a combination of the office bearers and general members) of the Zone should be federated to form the membership of the distributary organization.
- * The selection of the office bearers should be done by consensus by accommodating the various groups and not through a voting process as it may further create tensions. In case there are still no compromises on posts, there should be a rotation.

The participants at these meetings were briefed again about the basic objectives of an organized and participatory effort in irrigation management, and decentralization of management responsibilities and authority, greater equity in distribution of irrigation water, more reliable water supplies according to the agreed joint management action plan, better access to government facilities and services as organized groups, and self reliance for the farmers as IIMI will not provide any financial and material assistance. The ultimate objective of the pilot program was to devise policy guidelines for future replications at a larger scale.

Selection of Zone WUO Office Bearers and WUF Members: In the tail zone, the water users selected their Zone WUO office bearers and nominated the members for the distributary level federation in the introductory meeting itself. In other areas, the Sub-System WUOs, at their first meetings, fixed a second meeting to choose the leadership.

The WUO members from the head reach fixed a date and met on the day and chose office bearers and nominated members for the federation by consensus. The process was similar at the middle reach. The members of the 1RA Minor WUO wanted to meet informally first to decide about the office bearers. They allowed the SO to attend that meeting, which was held on Christmas day, and their decisions were made formal on the same day.

The IR Minor WUO members could not choose their leaders as one of the members at whose place the meeting was held started questioning the credibility of selected leaders, including himself!. His doubts were that the people in general were dishonest and these organizations were bound to fail due to this single reason. Realizing that this was not necessarily his real reason for this sudden frustration, others argued for the immediate objective. After a long debate, others decided to postpone the meeting for almost one month. The reasons for such a long postponement was because of the general elections in the country and the Eid holidays. They agreed to meet on 15 February 1997, at the Agriculture Extension Office so as to avoid another postponement. The meeting was held on the scheduled date and place, but after one-hour delay due to the delayed arrival of transport from the tail villages (65, 63/4-R). Selected office bearers from other sub-systems of the distributary also participated. The members started negotiating among themselves and jointly prepared a list of the proposed office bearers that was approved by the general body with two alterations. They also proposed an accountability committee and also selected 5 nominees for the federation including their President and the General Secretary.



**Federation Meeting at WAPDA Guest House, Haroonabad
5 March 1997**

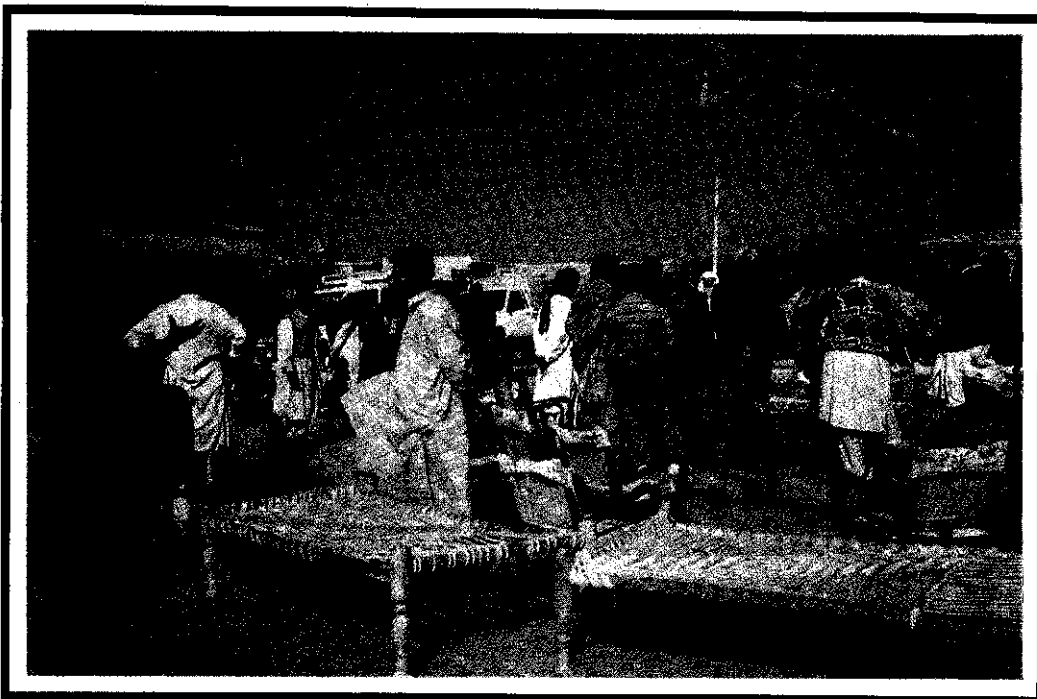
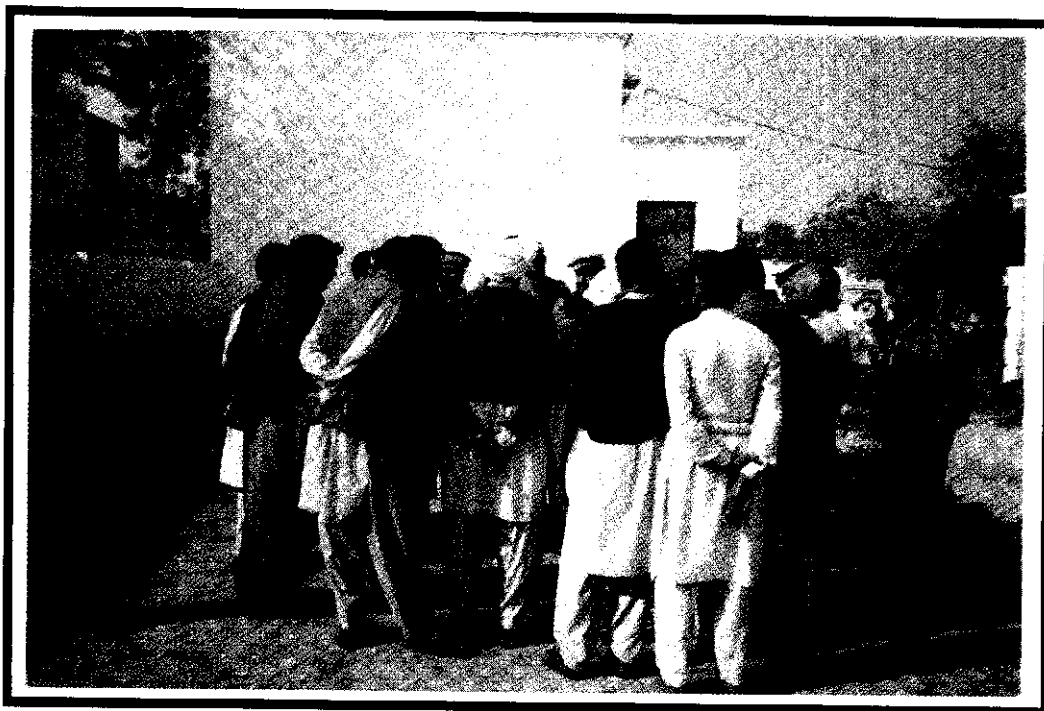
Introductory Meeting of the WUF Members: As the Sub-System WUOs had all selected their nominees for the membership of the distributary level WUF (on the basis of 5 nominees for each of the 5 Sub-Systems), a meeting of these members was held on 19 February 1997, at the IIMI staff house in Haroonabad. At this meeting, the members discussed, after a briefing from the field team, about the situation so far and the subsequent actions to be taken for deciding on the five WUF office bearers. They also discussed about a date, time and place for the meeting.

Most of the newly selected twenty five members of the Hakra 4-R Distributary Water Users Federation had this first opportunity to come to know one another. The close social relationships found in watercourse-based WUAs cannot be expected to be developed soon in Zone WUOs and the WUF. The introductory meeting held on 19 February was useful in paving the way for more meetings and small group interactions among the selected WUF members. Sufficient time was allowed for this process. The introductory meeting for the WUF members was a significant event as immediately after the meeting the interests among the water users for the WUF was intensified. The prospects of a selection process to identify WUF office bearers were very received with great enthusiasm. In fact, some water users would prefer to have an open election process, reflecting the possible involvement of different political party groups in the process. This, however, was avoided as the majority of the water users wished to keep party politics out of this exercise.

Inaugural Meeting of the Hakra 4-R Distributary WUF: On 5 March 1997, 24 out of the nominated 25 persons met at the WAPDA guest house premises at Haroonabad to decide on the executive committee of the WUF. There were several non-nominee members of WUOs who attended the meeting as observers, and a total of 80 water users assembled at the WAPDA Guest House premises. The enthusiasm among them was quite visible.

The deliberations lasted for more than three hours. After a deliberate slow start with introductions and initial briefings on the objectives of the meeting and the formation of the WUF, the meeting gradually gained momentum, and proceeded to consider the recommended democratic procedure and the need to provide equal opportunity for participation in the decision-making process. The 24 members first identified one member from each of the 5 Sub-Systems or Zones to be considered for the 5 office bearers' positions. At one stage, it appeared as if there was going to be split in the group for the position of the WUF President, as two Sub-Systems were advancing equally strong reasons to claim for the President's position. After hours of negotiating for a consensus, which took place in different combinations of small groups, finally, the five office bearers were selected.

Photograph - 7



Negotiating for Consensus

5.6 Main Characteristics of Organizational Leaders

The water users community in the command area formed the base group from which all of the leaders were selected for different organizational levels. The selection of organizational leaders was progressively effected at four different levels:

- (1) 121 nominees selected by the water users, on the basis of one nominee from each watercourse, as members of the 5 sub-system WUOs¹⁴;
- (3) sub-system WUO office bearers selected by the sub-system WUO members;
- (4) 25 WUF members selected by the sub-system WUO members on the basis of 5 selectees from each of the 5 sub-systems; and
- (4) 5 WUF office bearers selected by the 25 WUF members.

The background data was collected for 100 out of these 121 nominees to assess their characteristics. The analysis was conducted for two main areas, social characteristics and land ownership (see the database in Annex-5).

Social Characteristics: Table 11 presents a summary of this analysis on the social characteristics of the selected organizational leaders in terms of their age, number of years of working experience, educational level and family size.

Table 11. Main Social Characteristics of Organizational Leaders at Different Levels

Level of Selection	Number of Persons	Average Age (Years)	Average Experience (Years)	Average Years of Schooling	Average Family Size
WC Level Nominees for Sub-System WUO Membership	100	46	27	10.4	9.6
Sub-System WUO Office Bearers	21	48	30	9.5	9.6
WUF members	21	41	23	11.4	9.7
WUF Office Bearers	4	46	28	10.8	6.6

¹⁴ Of the 123 watercourses in the command area, two watercourses did not provide their nominees as their water users were not ready to participate in any organizational form.

The average age is similar for each of the five groups, and is in the range of 40-50 years, although the individual ages range between 15 years and 90 years. This shows that, once the 121 nominees were identified, there was no attempt by them to select the older persons for respective office bearers' positions. Care seems to have been taken to select the mature but active persons for these positions.

The average experience in irrigated agriculture among the selected organizational leaders seems to be consistently high, around 22 to 29 years, a factor that seems to have mainly guided the waster users in their choices. A similar high value appears to have been given to the educational level of the organizational leaders, most of whom appear to be having a reasonable level of education (the average being 10 to 11 years of schooling). One characteristic that seems to differentiate these groups is the average family size, which varies between 6.8 and 10.2 members (the range of individual family sizes varies between 1 and 40!).

Pattern of Land Ownership: Table 12 shows the pattern of land ownership among the selected organizational leaders at different levels, in terms of land owned and operated within the watercourse from where the nominee was selected, the total land owned within the Hakra 4-R Distributary and total land owned in all the places. Land ownership is considered an important indicator of the influence a person can exert on others.

Table 12. Pattern of Land Ownership among the Selected Organizational Leaders

Level of Selection	Number of Persons	Land Owned at Particular Watercourse hectares (acres)	Operated Area at Particular Watercourse hectares (acres)	Total Land Owned at Hakra 4-R Dy hectares (acres)	Total Land Owned hectares (acres)
WC Level Nominees for Sub-System WUO Membership	100	11.4 (28.6)	8.8 (22.0)	16.3 (40.8)	23.5 (58.7)
Sub-System WUO Office Bearers	21	8.8 (21.9)	7.9 (19.9)	14.1 (35.2)	20.6 (51.4)
WUF members	21	15.3 (38.2)	16.1 (40.3)	21.1 (52.8)	28.9 (72.4)
WUF Office Bearers	4	12.0 (29.9)	7.2 (17.9)	26.6 (66.4)	28.5 (71.1)

Table 12 shows that the average land extent owned by the watercourse level nominees as a total group is higher than that of the selected sub-system WUO office bearers. In contrast,

Table 12 shows that the average land extent owned by the watercourse level nominees as a total group is higher than that of the selected sub-system WUO office bearers. In contrast, the average land ownership for the whole group of watercourse nominees is less than the average for those who have been selected by them as WUF members and office bearers. This shows that there has been a tendency towards selecting the more resourceful persons for office bearers' positions of higher organizational levels.

At a glance, it appears that the highest concentration of land ownership is among the WUF members. The fact that some large land owners have been selected as organizational leaders in this pilot project may cause a concern about the sustainability of these newly established WUOs. There can be doubts that these organizations are likely to be hijacked by the influentials. However, out of the twelve nominees owning 40 hectares (100 acres) or more, none has been selected as a WUF office bearer; only three have been selected as WUF members; and two are sub-system office bearers (Annex-5). All other big land owners remain as ordinary members of the sub-system WUOs. The six big land owners selected for the various offices also have other qualifications, such as education and working experience.

The four persons selected as WUF office bearers from the 100 nominees are medium size land owners (17.4, 20, 37.8, and 38.6 hectares), whereas, of the 17 ordinary WUF members, 14 persons own less than 24 hectares each, and 3 persons own more than 80 hectares.

Table 13 shows that a large proportion of the 100 watercourse nominees would be within the 4-40 hectares category, and others are equally distributed into "below 4 hectares" and "above 40 hectares" categories. This distribution is fairly compatible with the distribution of the office bearers as well.

Table 13. Size Distribution of Land Ownership of the Organizational Leaders

Land Ownership Size Category	Number of Persons	Percent of Total No of Persons	Total Extent of Land (ha)	Percent of Total Land	Mean Land Ownership (ha)
Less than 1 ha	3	3.0	1.5	0.02	0.5
1 to 4 ha	10	10.0	62.0	1.05	6.2
4 to 40 ha	75	75.0	2842.5	48.42	37.9
40 to 80 ha	5	5.0	597	10.17	119.4
above 80 ha	7	7.0	2366.7	40.32	338.1
Total	100	100.0	5869.7	100	58.7

A large majority (88%) of the selected organizational leaders own less than 40 hectares. However, the other 12% of the leaders who own 40 hectares or more each account for 50.5% of the total land belonging to the whole group. These statistics depict a highly skewed land distribution pattern. At least at this early stage of the organizations, a strange balance seems to exist between the less resourceful majority with the likely strength of their larger number, and the minority group of bigger land owners with their land-based power.

Given this skewed land distribution pattern, an interesting aspect of participation is that both the small land owners, as well as big land owners, have shown an equal interest in forming water users organizations. Both categories of people have a stake in joining the organizations, as the small farmers' main objective would be to claim their share of water, whereas, the big farmers would like to safeguard their current favorable situation. The future potential of these new WUOs, therefore, would largely depend on the organizational ability to coordinate these different expectations.

6. EFFORTS IN FOSTERING INSTITUTIONAL SUPPORT

6.1 Field Coordination

In order to secure some field level collaboration, a Field Implementation Coordination Committee (FICC) was established during the early stages of the project. The field team's work plan had the following two objectives for the FICC:

- (1) To mobilize necessary institutional support to assist water users and catalyze their interests to establish appropriate Water User Organizations (WUOs); and
- (2) To facilitate interactions between water users and operating agencies.

This committee would represent the field staff of several line agencies involved in irrigated agriculture, who are located in the project area. It was anticipated that the FICC would *"help both IIMI staff and field staff of operating agencies to collaborate and cooperate closely and on a regular basis in order to monitor/steer the process of formation of Water User Organizations"* (SOFTWARE Work Plan, 1995: 7).

IIMI Head Office staff and SOFTWARE made a primary selection of potential members for FICC. Selection criteria taken into consideration were:

- * working at the field level in Hakra 4-R Distributary command area, or beyond;
- * some degree of autonomy in decision-making/activities; and
- * commitment towards collaboration on higher levels in the organization.

The IIMI Field Team Leader wrote an invitation letter to the selected members and approached their superiors for official nominations. In order to consolidate this collaborative arrangement and avoid the disruptive effect of intra-agency transfers, IIMI decided to base membership on designations instead of persons. The question of whether, when and how to involve farmers in the FICC was left to be discussed among the future FICC members. In order to get full participation of the potential partners, the project left the formulation of detailed objectives, possible activities and tasks of the committee to be decided in a truly participatory manner.

The first steps towards establishing the FICC were taken by the IIMI Field Team Leader in November 1995. The first actual FICC meeting took place on March 5, 1996. The second meeting was conducted on April 9.

Despite these efforts, inputs from this arrangement were not as anticipated, mostly due to lack of consistent involvement of agency staff who were often troubled by their frequent transfers. Yet, the existence of the FICC helped the project on many occasions.

6.2 Common Concern

During every meeting with the water users, the need for government support was emphasized if we are serious in making these water users organizations functional. The project staff endeavored to their utmost ability to explore **government's ability and willingness** to provide adequate institutional support to these fledgling organizations. Several meetings were held with senior agency staff, requests were made both orally and in written form, and contributed to the on-going policy efforts for institutional reforms. Also, an attempt was also made through written requests to government authorities to have at least a tentative enabling legal environment established for the pilot projects. The leverage IIMI has in this regard seems insufficient to forge an early breakthrough in securing the needed policy and management support from the relevant authorities.

In most of the dialogic interactions with the water users, the field teams were questioned on the probability of securing an effective legal framework for the WUOs. In addition to some consultancy inputs from overseas, some legal advice seemed necessary in the adoption of by-laws by the WUOs. Failing to establish contact with a legal organization of the government, the project approached the University system for help. Encouragingly, the Dean of the Faculty of Law, Punjab University obliged and agreed to study the existing legal framework and provide the necessary assistance to the WUOs. These inputs are expected to be received by end of April 1997.

While agencies have acknowledged the "considerable value" of greater farmer participation in irrigation management, their attitude towards pilot projects has generally been negative in the overall (**Asrar-ul-Haq et al, 1996**). The high intensity of resources spent by the sponsors of these pilot projects and lack of representativeness of the pilot project sites are the major reasons adduced for this view. Yet, the fact that the agency staff have generally distanced themselves from all stages of these pilot efforts is a major cause for a growing concern among the water users.

7. COMMUNITY PERCEPTIONS

The community perceptions about the pilot project varied as the social organization work progressed. Although the perceptions fluctuated between negative and positive feelings towards the project, basically upon reaching the Fourth Dialogue, the majority of the water users were clearly for the project.

7.1 Initial Doubts

Initially, the general attitude of the people towards the activities related to organizing of water users was negative, as the rumors about privatization of the irrigation system, installation of meters for water measurement, and increased water charges were quite common in the area. These rumors had raised doubts and confusion among the community.

The social sensitivity and political vulnerability of this action research effort was known as soon as the field work for rapport-building and identification of SOVs was started. Almost every water user interviewed referred to the story that people with motorcycles bearing (IIMI's) yellow number plates were part of a team from a "private sector distributary management" contractor sponsored by America or the World Bank. They thought that the new management was going to install water meters on the outlets to record the amount of water passing through the structures, and that this information would be fed to the calculators (computers) and water bills would be prepared. Like WAPDA's electricity bills, these new bills would be enormously high, in the words of rumor mongers "about Rs 500 to 1000 per hour".

On further investigation, it was found that the causes of such doubts, confusion and fears could be many. As the informants described the background to their doubts, the story ran as follows. Firstly, they had seen IIMI field teams working with foreign students calibrating the outlet structures and the distributary with flumes and current meters, and conducting an inflow-outflow test for 36 hours in the tail reach. Later, they had also seen about 50 people moving around the distributary with foreigners during October 1995, when IIMI staff conducted a training course on "Calibration of Irrigation Outlets" on the Hakra 4-R Distributary. They had seen foreigners going about with local people, along the distributary and in surrounding villages, meeting some villagers (this reference was to the work involved with collecting information for assessing the community characteristics). Fourthly, staff from local research institutes (IWASRI, WAPDA's WMED and Irrigation Research Institute)

conducted ponding tests and outlet calibrations in different reaches of the distributary during the closure period in 1995. They also heard that some foreigners (possibly referring to several expatriate missions) visited the Haroonabad area, and stayed at WAPDA or PID rest houses. These stories were talked about in every village, in the agro-supply shops, and in the grain market at Haroonabad. That the Hakra 4-R Distributary had been identified for privatization, or for sale to a foreign company, was a common belief among the people. One villager remarked, "the country is being sold to foreigners step-by-step as the mughal emperors sold the subcontinent to the East India Company".

These rumors which spread like wild fires were further fuelled by statements of groups with vested interest, who were generally opposing the social organization among water users. Such rumors had an extremely damaging effect on the field work. The field team had to spend considerable time to clarify these misunderstandings.

7.2 Irrigation-Related Problems

Major problems related to irrigation water that are normally analyzed by the professionals (adequacy, equity and variability of canal supplies) were found to be commonly aired by the water users. The predominant cause of these problems, in their view, was the corruption among government officials, and the close alliance between the officials and the influentials. The influential farmers and the corrupt officials were seen as a "twin menace". The most common grievance of the average water user was that the officials favored the influentials and big land owners by increasing the outlet sizes, arranging for them to engage in water theft and tampering of their outlets to draw more water, and manipulating the distributary rotations in their favor, etc. Influentials supported corrupt officials by getting them transferred according to their wishes, interfering in legal and departmental enquiries, providing consumables and giving them money (bribes), but the ordinary water users felt helpless as their complaints remained ineffective. The field information was that some people would have to pay 50-60 maunds of wheat (approximately worth 10,000 rupees) per watercourse per annum, and if they reduced it, the water supply was also reduced. The community perceived a doubt whether by getting organized and taking over the operations in the distributary, whether they would have to pay full water charges but get less water.

Some people thought that the field staff of the government departments were actively involved in spreading rumors about privatization, management contracts and installation of meters etc., as any step towards organizing water users would be to their disadvantage.

The main problems regarding irrigated agriculture as indicated by the water users of the area are:

- * There is a high incidence of waterlogging and salinity in the head reach due to persistent seepage and over-irrigation, breaches, and poor maintenance; and there is a general shortage of water at the tail reach;
- * The distributary is silted up and draws less water than design under normal flow conditions;
- * The inclusion of more area (as CCA and allowance for additional water for orchards) than sanctioned in many outlets without changing the design of their structures has caused a decline in the average amount of irrigation water available per unit area;
- * The authorization of reclamation shoots for rice cultivation is not done at the proper time, which further aggravates waterlogging; for areas other than in the head reach, it disturbs equity as the sanctioned discharge for these shoots is not accompanied with a corresponding increase in the sanctioned discharge for the distributary;
- * High water supplies are available when demand is low and low water supplies when demand for water is high;
- * Unreliability of water supply as the rotation among distributaries is not properly implemented; influentials at other distributaries manipulate the rotation schedules;
- * Persistent seepage from the unlined portions of the watercourses, loss of already scarce water, breaches and overflows in the watercourses;
- * The time of annual closure is not proper as during this period water is badly needed for the wheat crop, the maintenance tasks that should be carried out during this period are not attended to, the duration of the closure is also much more than stated in the documents or announced by the Irrigation Department, and the water users are not informed about the dates of closure start and end;
- * Corruption among irrigation officials invariably helps the "free rider" behavior, in which some individuals try to get more than their due share at the expense of the others, which disturbs the adequacy, equity and reliability of water supplies;

- * The gauges installed for indicating the amount of water are installed deeper so that these can show more water in the canals and distributaries than they actually carry;
- * The bed level of the distributary is lower than the lands in some sections of the distributary, and the outlets in these sections draw less water than what they are entitled to;
- * The water users are ready even to pay more water charges, if adequacy and reliability of water supplies are ensured;
- * The canal banks are weak and cannot bear the authorized discharge, and full- or over-supply may cause a breach;
- * For everyone to get his right according to equity and justice, there should be more (additional) water at the distributary head;
- * If water will be short at the head, people will say that the system (joint irrigation management) is not a valid improvement;
- * The outlets should be installed in such a manner that water stealing is not possible through tampering; and
- * There should not be any scheme on reclamation shoots in the future.

7.3 Benefits of WUOs

Most of the water users believe that getting organized would be helpful and ensure equity, justice and fair irrigation benefits, but only if the WUOs would act in a transparent manner. A WUF should work through the principles of democracy, empowerment and social pressure. If farmers were to own the distributary, they would care for it and would not think of damaging their own property. The farmers were happy to be able to obtain information on the discharges and rotation schedules. They would operate the system fairly as they would have to be accountable to the community, as they do now in case of the watercourse. Disputes among farmers will be reduced as their own local organization can settle them.



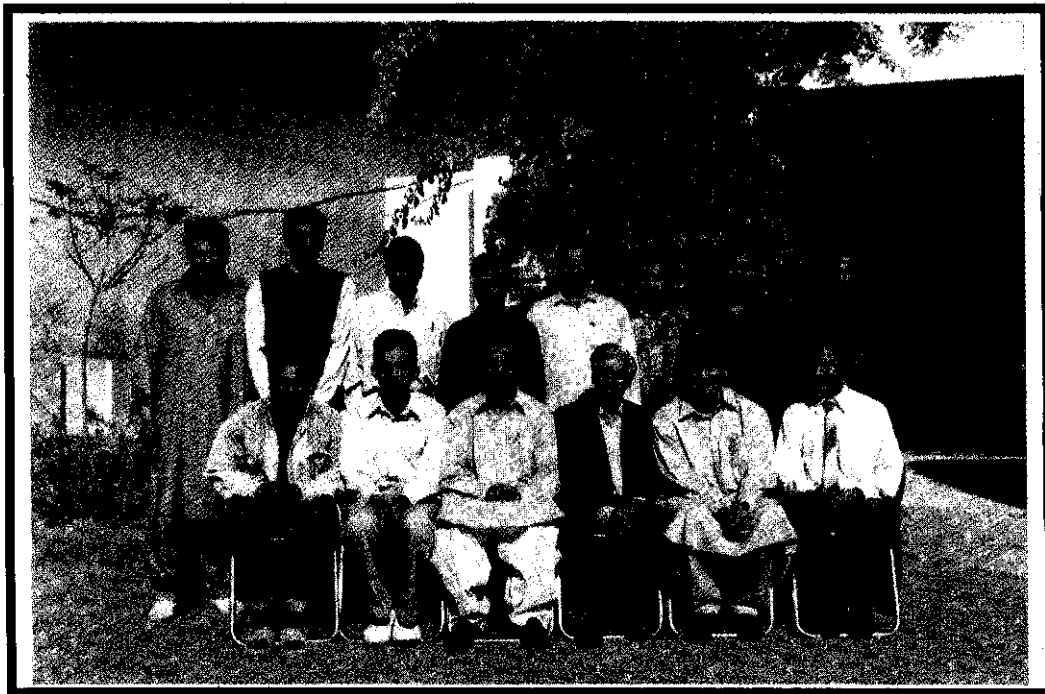
**Members of the Hakra 4-R Distributary
Water Users Federation**



**Office Bearers of the Hakra 4-R Distributary WUF.
Left to Right Ali Muhammad (Treasurer), M. Amin (General Secretary),
Mian Abdul Wahid (President), Sufi M. Iqbal (Secretary Information),
Abdul Shakoor Aakooka (Vice President)**

However, some of the water users see it as a solution for community development in general, including matters not directly related to irrigated agriculture. Also, beyond water distribution, they would like to see the WUF solving other problems related to agriculture, like provision of agricultural inputs, credit, collective marketing of the produce, etc.

They also thought that there should be certain pre-conditions for its success. The WUOs should have powers to implement decisions and sanctions both against free riders and corrupt Irrigation Department officials. The decisions needed to be supported by law, administration and the government to make it a success. If the government was not taking an interest in helping the farmers to participate, it would be a futile exercise because the departments owned the system and the officials would punish water users according to existing laws, particularly when they would feel threatened. The government was most likely to retreat as the majority of the government comprised feudals who already benefited from the existing system. Most of the water users do see a value in getting organized for solving problems related to irrigated agriculture. They believe that the main reason that their problems are not solved is that ***they do not have a "union"***.



IIMI's Social Organization Team

8. CONCLUSIONS

This paper is not a final output from the pilot project's social organization action research activities; yet, some tentative conclusions can be drawn from the above analysis. While these conclusions are helpful for on-going pilot project activities, they may also provide to the reader some understanding about the effort that has been made, in the given context of the project.

The pilot project on water users organizations in the Hakra 4-R Distributary command area started its work in the midst of skepticism. There were doubts about its potential success in a context which was known to be hostile to popular participation. A study on "decentralization" had commented that local government institutions in Pakistan had been traditionally dominated by the ruling elites comprising feudals and bureaucrats (Nasir, 1992). They had developed monopolies over these institutions and made it difficult for poor and middle class people to share power with them, and this was seen as a major reason for the wastage, corruption and poor performance in the present resources management system. This pilot project has taken a challenging task to confront these deep-rooted social problems. However, after the first two phases of its endeavors, the project has cleared some initial institutional hurdles, and succeeded in forming an organization to undertake decentralized management responsibilities. So far, it has proved itself to be socially viable.

The water users federation of the Hakra 4-R Distributary has now to be tested for its economic viability. For this, there should be an enabling environment of institutional acceptance to start off a set of economic activities associated with distributary level O&M management. For participation to be meaningful, there has to be an empowerment of those who are ready to participate. For farmer-managed irrigated agriculture to advance from the watercourse level to the distributary level, the authorities having management responsibilities for the distributaries will have to transfer their power to the water users.

Participation in this context means that the water users will share responsibility with the government, and does not mean their total independence from the government. In the context of the prevailing social dynamics in Pakistan's rural areas, it is difficult to suggest the latter. At least during the initial stages, water users' collective actions need to be guided and monitored. In this sense, an important concept that should accompany participatory irrigation management is the accountability that is associated with it.

Field interviews clearly indicate that the water users are keen to undertake the responsibility for effective water distribution within a distributary or minor. Evidently, inequity is least within the watercourses, whereas, it is highest within the distributaries, and is at a medium level among the distributaries. Higher equity within the watercourse is attributed to the form of organized behavior that exists with water allocation practices. An extension of this collective behavior to the distributary level is likely to reduce the inequity in the distributary.

The potential of WUOs in effectively handling distributary maintenance is less clear. The major issue is related to resource mobilization. Supported by a wide-spread public opinion, many water users perceive these institutional reforms, primarily, as attempts by the government to unload its O&M burden. They are very apprehensive about the additional costs to them, which can be more clearly seen than their additional gains. A hypothesis can be developed only after obtaining a reliable cost-benefit analysis of WUOs' functioning on a pilot basis, in an agreed program of action.

Some of the main conclusions and recommendations arising from the pilot effort at this stage are summarized below.

- (1) The water users do recognize the need for getting organized, but they cannot do it alone; they need a catalyst that should prepare the ground work well before actual organizational activities are undertaken.
- (2) The farmers of the area invariably want their irrigation systems rehabilitated and improved, and will participate in any attempt towards achieving that goal. But, they are also looking for an effective multi-task organization that could help them out of all kinds of exploitation from middlemen, "free-riders", rent-seekers, and other anti-social elements. A water users federation at the distributary level can serve as a starting point for achieving that objective. More work needs to be done for finding ways and means of making it sustainable.
- (3) If WUOs do not have adequate control and authority, as well as legal, administrative and economic protection, their sustainability will be at stake, as the members will lose interest and start doubting the usefulness of the organizations for achieving the perceived benefits. Early policy decisions are necessary to create a supportive institutional environment to nurture these infant organizations.

- (4) WUOs will only be ready to undertake objectives they define and choose in their own way, and for their own economic gain. Any excessive pressure from outside will harm the organizational efforts and the sustainability of such organizations.
- (5) For effective social organization in rural areas, extreme care has to be taken to ensure that the catalysts' interventions are not misunderstood by the community. Very often, the outsider is treated with mistrust by the rural people, and therefore, during the initial stages of the social organization process, the involvement of outsiders should be minimized.
- (6) Even if the WUOs are proved economically viable, the danger of WUO office bearers becoming vulnerable to the endemic social disease of corruption cannot be easily discounted. It is in this regard that the need exists for some effective monitoring by an appropriately designed accountability mechanism. Many water users have voiced the need for government support to the new WUOs if they were to successfully counter the problem of "free-riding" and rent-seeking behavior. This support should necessarily be aimed at making the WUOs as self-reliant as possible.

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LIST OF PROJECT-RELATED REPORTS AND PUBLICATIONS UP TO 15 APRIL 1997

The project's sub-component on water users organizations has generated the following reports and publications so far:

- (1) "IIMI's Proposed Research Activities on Water Users Associations in Pakistan", Concept Notes Prepared by D. J. Bandaragoda (3 April 1994);
- (2) "Research Inputs for an Action Program on Participatory Irrigation Management in Pakistan", Paper prepared by D. J. Bandaragoda and Gaylord V. Skogerboe for presentation at the EDI/Ministry of Water and Power Seminar on Participatory Irrigation Management held in Islamabad during 2-6 October 1994;
- (3) "Consultancy Inputs for the Preparation of Project Inception Report on Social Organization in Irrigation Management" by Piyasena Ganewatte and Prachanda Pradhan (January 1995), IIMI-Pakistan Publication, Consultancy Report C-1;
- (4) "Government's Participation in People's Programs: an Intermediary Role for NGOs in Developing Viable Institutions for Participatory Irrigation Management", Paper prepared by D. J. Bandaragoda, which was presented at the Third Annual South Asian NGO Summit 21-23 February 1995, Kathmandu, Nepal;
- (5) "Institutional Conditions for Effective Water Delivery and Irrigation Scheduling in Large Gravity Systems: Evidence from Pakistan", Paper prepared by D. J. Bandaragoda for presentation at the FAO/ICID Workshop on Irrigation Scheduling: Theory and Practice, held in Rome, Italy, during 12-13 September 1995;
- (6) "IIMI's Initiatives on Participatory Irrigation Management in Pakistan", A Briefing Note prepared by D. J. Bandaragoda and Gaylord V. Skogerboe for the EDI/MWP Workshop at Burban, Pakistan, during 1-4 October 1995;
- (7) "SOFTware Work Plan", prepared by D. J. Bandaragoda in consultation with the Social Organization Design Team, December 1995;
- (8) "The Transfer of Existing Schemes from Government Management to Farmers Management", prepared by the working group on Farmers Managed Old Irrigation Schemes in Pakistan. A paper presented at the seminar on sustainable development of irrigation schemes at Islamabad organized by PATA Project March 20, 1996.
- (9) "Why Should I?: Realities of Participation" by Mehmood Ul Hassan, Cris.d.Klien and N. I. M Roovers in Proceedings of Workshop on Farmers Participation in Drainage, WAPDA, Pakistan April 1996.

- (10) "Identification of Sub-Systems in the Hakra 4-R Distributary Canal System for Action Research on Social Organization", by Zafar Iqbal Mirza and Mehmood Ul Hassan, May 1996.
- (11) "Training Course on Field Calibration of Irrigation Outlets: Hakra 4-R and Sirajwal Distributaries; Fordwah Eastern Sadiqia Irrigation and Drainage Project, Haroonabad," Technical Report, June 1996, Pakistan National Program, International Irrigation Management Institute-Pakistan, Lahore.
- (12) "Water Users' Participation in Irrigation Management at Distributary Canal Level: Issues from IIMI's Pilot Projects", Paper presented by D. J. Bandaragoda at the National Seminar on Participatory Irrigation Management in Pakistan, held in Lahore, organized by the Federal Water Management Cell of the Ministry of Food, Agriculture and Livestock, Islamabad, and the On-Farm Water Management Programme of Punjab, Lahore, 11-13 August 1996.
- (13) "Distributary Level Water Users Associations in Pilot Projects for Farmer-Managed Irrigated Agriculture, Punjab and Sindh Provinces, Pakistan", by Prachanda Pradhan, IIMI-Pakistan Publication, Consultancy Report C-5, September 1996.
- (14) "Report of the Socio-Economic Baseline Survey for a Pilot Project on Water Users Organizations in the Hakra 4-R Distributary Command Area", draft report prepared by Muhammad Asghar Cheema, Zafar Iqbal Mirza, Mehmood-Ul-Hassan and D. J. Bandaragoda, October 1996.
- (15) "Consultancy Inputs on the Water Users Organization Program in IIMI's Social Organization Pilot Projects in the Sindh and Punjab Provinces", by Piyasena Ganewatte, IIMI-Pakistan Publications, Consultancy Report C-6, October 1996.
- (16) "Mobilizing Social Organization Volunteers: An Initial Methodological Step Towards Establishing Effective Water Users Organizations" by Mehmood ul Hassan, Zafar Iqbal Mirza and D. J. Bandaragoda. Research Report No. R-9, Pakistan National Program, International Irrigation Management Institute, Lahore. October 1996.
- (17) "Government Interventions in Social Organization for Water Resource Management: Experience of a Command Water Management Project in the Punjab, Pakistan", by Waheed uz Zaman and D. J. Bandaragoda. Research Report No. R-14, Pakistan National Program, International Irrigation Management Institute, Lahore. 1996.
- (18) "Issues in Institutional Development for Irrigated Agriculture in Pakistan" Paper presented by D. J. Bandaragoda and Gaylord V. Skogerboe at the National Conference on "Managing Irrigation for Environmentally Sustainable Agriculture in Pakistan, organized by IIMI during 5-7 November, 1996, in proceedings of the National Conference on Managing Irrigation for Environmentally sustainable Agriculture in Pakistan" Volume V, Institutional Development, November 1996, National Program, IIMI Pakistan, Lahore.

- (19) "Review of IIMI's Experience in Social Organization for Irrigated Agriculture in Pakistan" by D.J. Bandaragoda, Mehmood Ul Hassan, Yameen Memon, Muhammad Asghar Cheema and Zafar Iqbal Mirza" in proceedings of the National Conference on Managing Irrigation for Environmentally sustainable Agriculture in Pakistan" Volume V, Institutional Development, November 1996, National Program, IIMI Pakistan, Lahore.
- (20) "Review of On-Farm Water Management Experience in the context of User's Organizations" by M.A. Gill and Z.I. Mirza, in proceedings of the National Conference on Managing Irrigation for Environmentally sustainable Agriculture in Pakistan" Volume V, Institutional Development, November 1996, National Program, IIMI Pakistan, Lahore.
- (21) Applying Rapid Appraisal of Agricultural Knowledge Systems (RAAKS) for Building Inter-Agency Collaboration: Report on three RAAKS studies in the Project ' Managing Irrigation for Environmentally sustainable agriculture in Pakistan" by D. Kuiper, M.A. Khan, I.V. Oostrum, M.R. Khan, N.I.M. Roovers and M.U. Hassan, National Program, IIMI Pakistan , November 1996.

ANNEX-2

**VILLAGES AND RESPECTIVE WATERCOURSES
SUB SYSTEM 1 (RD 00 TO 46300 / 4-R)**

Mogha #	RD	Village(s)
1A	1208/L	GULAB ALI REST HOUSE
1	1240/L	BAJIK, RATIRAM PURA
2	4162/L	BAJIK, RATIRAM PURA
3	6231/L	BAJIK, RATIRAM PURA, GULAB ALI
4	14865/L	GULAB ALI
5	15670/R	GULAB ALI
	16290/R	ROSA SINGH, TEKURAM PURA, GULAB ALI
	17000/L	TEKURAM PURA/ GULAB ALI ???
6	17100/L	TACO RAM PURA
10	21812/R	RODA SINGH, TEKURAM PURA
9	22819/L	TEKURAM PURA, RATIRAM PURA, RODA SINGH
12	24474/L	TEKURAM PURA, RODA SINGH
14A	24582/R	RODA SINGH, LABH SINGH
16	28208/L	LABH SINGH
17	31980/L	BARA SAJWAR KHAN, LABH SINGH
18	33130/L	MEHMOOD PURA, BARA SAJWAR KHAN, LABH SINGH
18A	34630/R	GURMUKH SINGH, LABH SINGH
19	35730/L	MEHMOOD PURA, LABH SINGH
20	38610/L	MEHMOOD PURA
21	40400/R	GURMUKH SINGH, MEHMOOD PURA
22	43320/L	GURMUKH SINGH, MEHMOOD PURA, CHAK 76
23	44580/R	GURMUKH SINGH
25	45850/R	GURMUKH SINGH, ALI MUHAMMAD CHISHTI
26	45810/R	GURMUKH SINGH
27	46240/L	GURMUKH SINGH
28A	46237/R	CHAK 50

Villages and Respective Watercourses
SUB SYSTEM 2 (RD 46300 TO 72300/ 4-R)

Mogha #	RD	Village(s)
28	50310/R	CHAK 50
29	50950/L	CHAK 76
30	52050/L	CHAK 75
31	52050/R	
32	54700/L	CHAK 75
33	56730/L	CHAK 74, 75
34	57870/R	CHAK 50
35	57890/L	CHAK 74
36	60490/L	CHAK 74
37	59100/R	CHAK 49/3-R
37A	59130/R	CHAK 51
38	62670/R	CHAK 51
38A	62700/R	CHAK 51/ FACTORY WATER SUPPLY
38B	63910/R	CHAK 51/52 (MUNICIPAL COMMITTEE HAROONABAD)
40/B	65080/R	MUNICIPALITY
39	63910/L	CHAK 73
40	65080/L	CHAK 73
40A	66050/L	CHAK 73
41	71270/R	CHAK 52
41A	69310/R	CHAK 52
42	69490/L	CHAK 72
43	70640/L	CHAK 72
44	71750/R	CHAK 52
45	71735/L	CHAK 71

Villages and Respective Watercourses
SUB SYSTEM 3 (RD 72300 TO TAIL RD 112050/ 4-R)

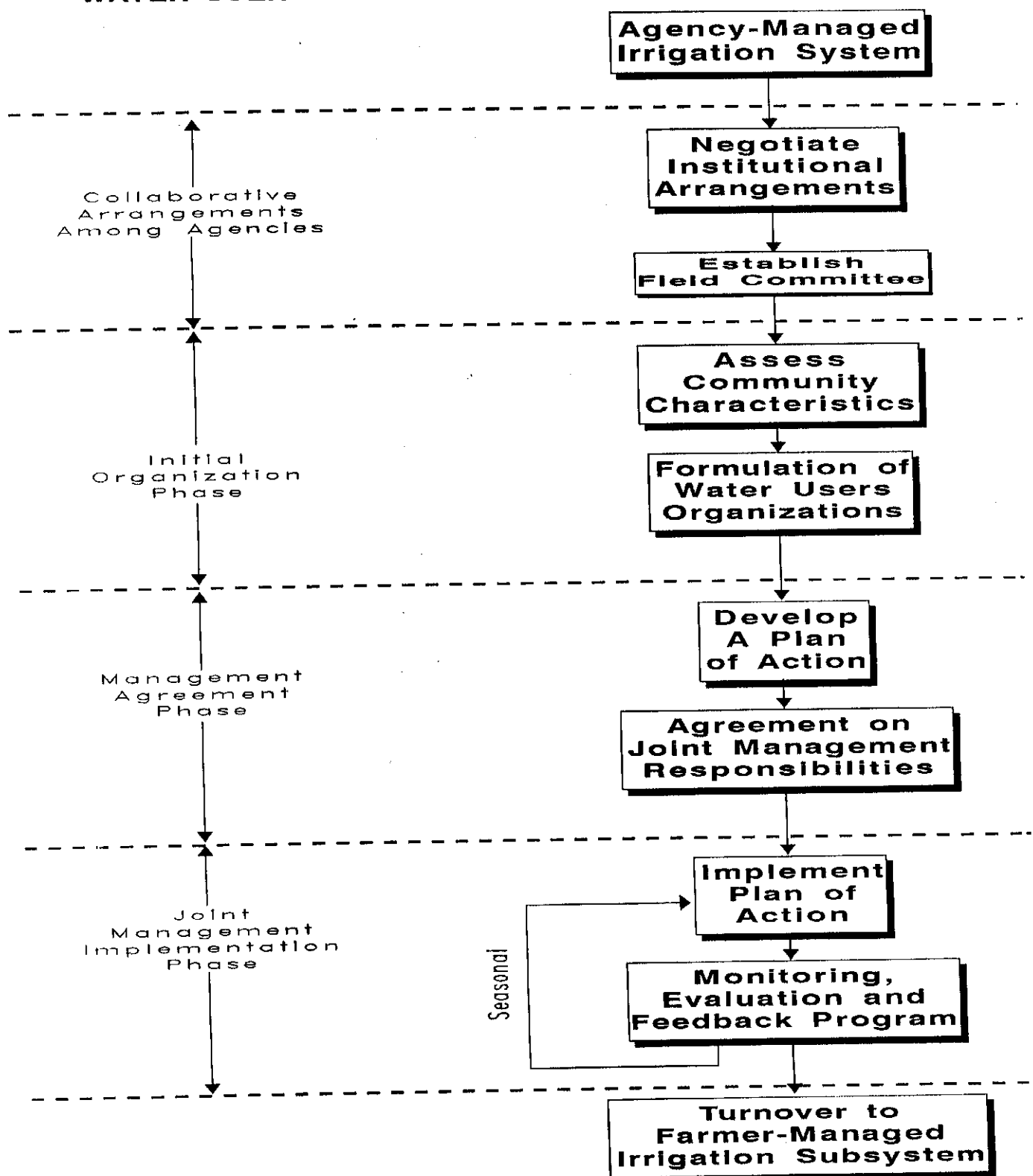
Mogha #	RD	Village(s)
46	75366/R	CHAK 55
48	78400/R	CHAK 56
47	79224/L	CHAK 71
48A	81350/R	CHAK 56
49	86376/L	CHAK 70
50	87640/R	CHAK 56
51A	88920/L	CHAK 70
51	89179/L	CHAK 70
52	91706/R	CHAK 56
53A	92631/L	CHAK 69
53	93870/L	CHAK 69
54	94300/L	CHAK 69
54A	95102/L	CHAK 69
55	95920/R	CHAK 61
56	96362/L	CHAK 69
57	98729/L	CHAK 68
58	101069/L	CHAK 68
59	102214/R	CHAK 61
63	107020/R	CHAK 62
64	107022/L	CHAK 67
65	107055/R	CHAK 62
65A	109980/R	CHAK 62/ 64
66	112050/TL	CHAK 66/ 67
67	112050/TR	CHAK 66/ 62

**Villages and Respective Watercourses
SUB SYSTEM 4 (MINOR 1RA/4-R)**

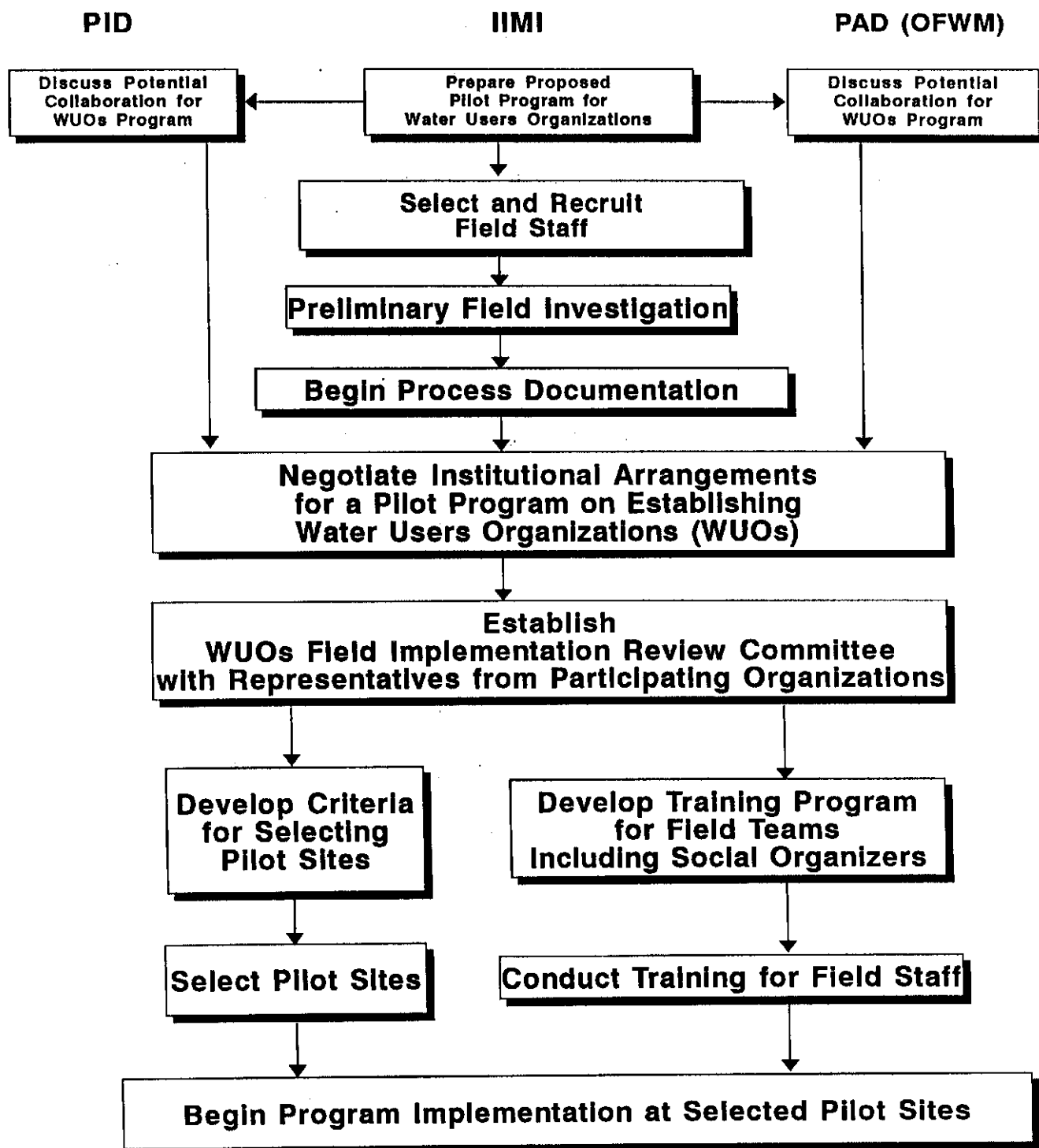
Mogha #	RD	Village(s)
1	674/L	RODA SINGH
1A	4700/L	RODA SINGH, LABH SINGH
2	4900/R	RODA SINGH
3	8565/L	LABH SINGH
4	9661/L	LABH SINGH
5	10291/R	LABH SINGH, RODA SINGH, AUDHAYPUR
6	11785/L	AUDHAYPUR, GUR MUKH SINGH
8	14080/L	AUDHAYPUR
7	16280/R	AUDHAYPUR
8A	18480/L	GURMUKH SINGH, AUDHAYPUR
9	19580/R	AUDHAYPUR, KHATAN
10	22000/TL1	AUDHAYPUR, ALI MUHAMMAD CHISHTI, GURMUKH SINGH
13	22000/TL2	AUDHAYPUR, ALI MUHAMMAD CHISHTI
12	22000/TC	ALI MUHAMMAD CHISHTI
11	22000/TR	KHATAN

**Villages and Respective Watercourses
SUB SYSTEM 5 (MINOR 1R/4-R)**

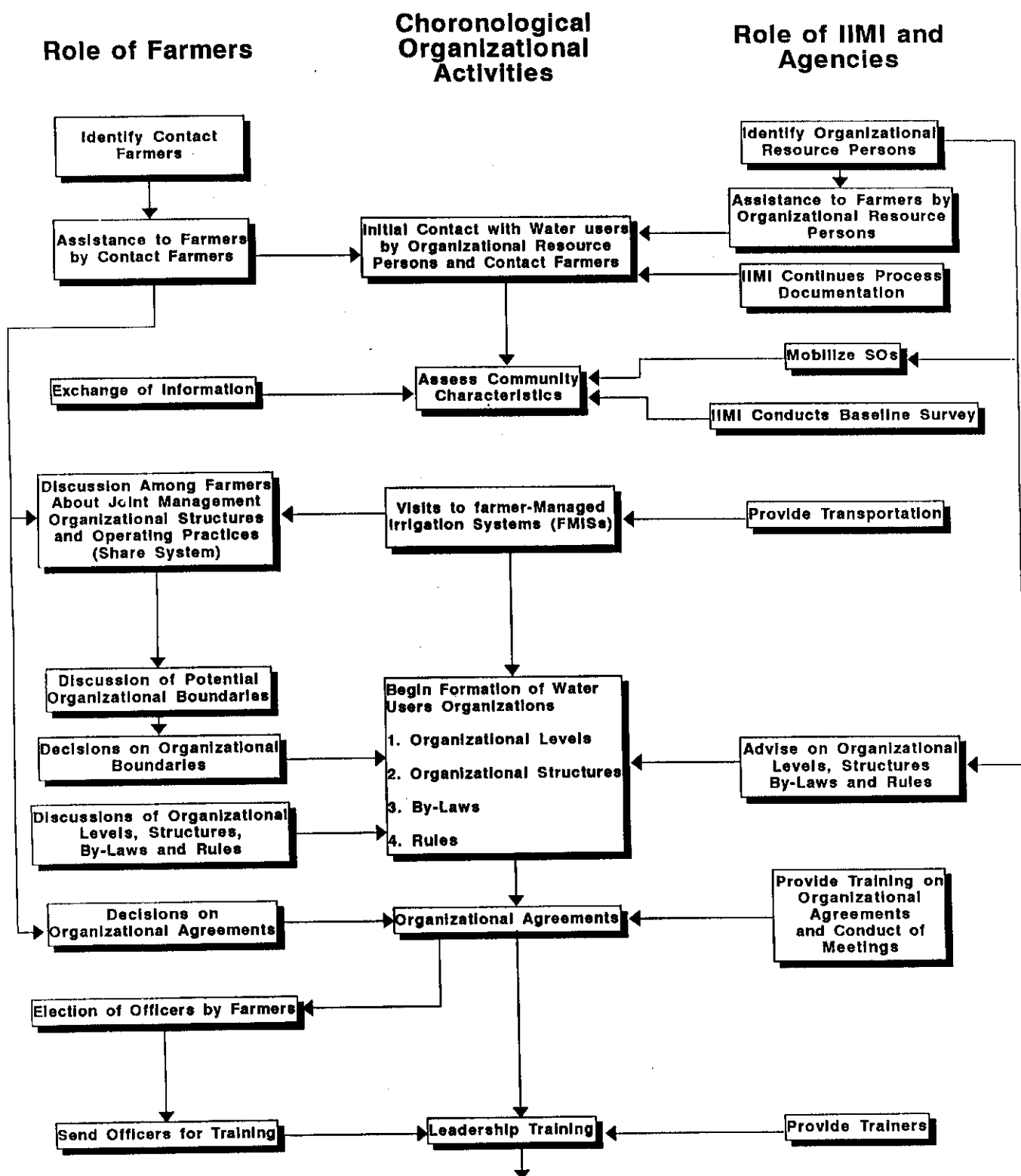
Mogha #	RD	Village(s)
1	1215/L	CHAK 55
1A	3750/L	CHAK 55
2	3420/R	CHAK 52/ 53
3	7140/R	CHAK 53/ 54
4	7641/R	CHAK 54
5	8043/R	CHAK 54
6	11792/L	CHAK 55
7	12515/R	CHAK 54
8	17679/L	CHAK 57
9	19116/R	CHAK 58
10	20419/R	CHAK 58
12	20630/L	CHAK 57
11	22600/R	CHAK 59
12A	25883/L	CHAK 57
12B	23738/L	CHAK 57
13	27061/R	CHAK 59
14	27514/R	CHAK 59
15	29418/L	CHAK 57
17	33674/L	CHAK 62
17A	33730/L	CHAK 62
17B	33940/L	CHAK 62
18	40030/R	CHAK 60
19	43648/L	CHAK 64
21	46500/L	CHAK 64
20	47529/R	CHAK 63
22	50623/TL	CHAK 64/ 65
23	50623/TF	CHAK 65
23A	50623/TR	CHAK 65/ 39/3-R

**PROPOSED PROCESS FOR CREATING SUSTAINABLE
WATER USERS ORGANIZATIONS IN PAKISTAN**

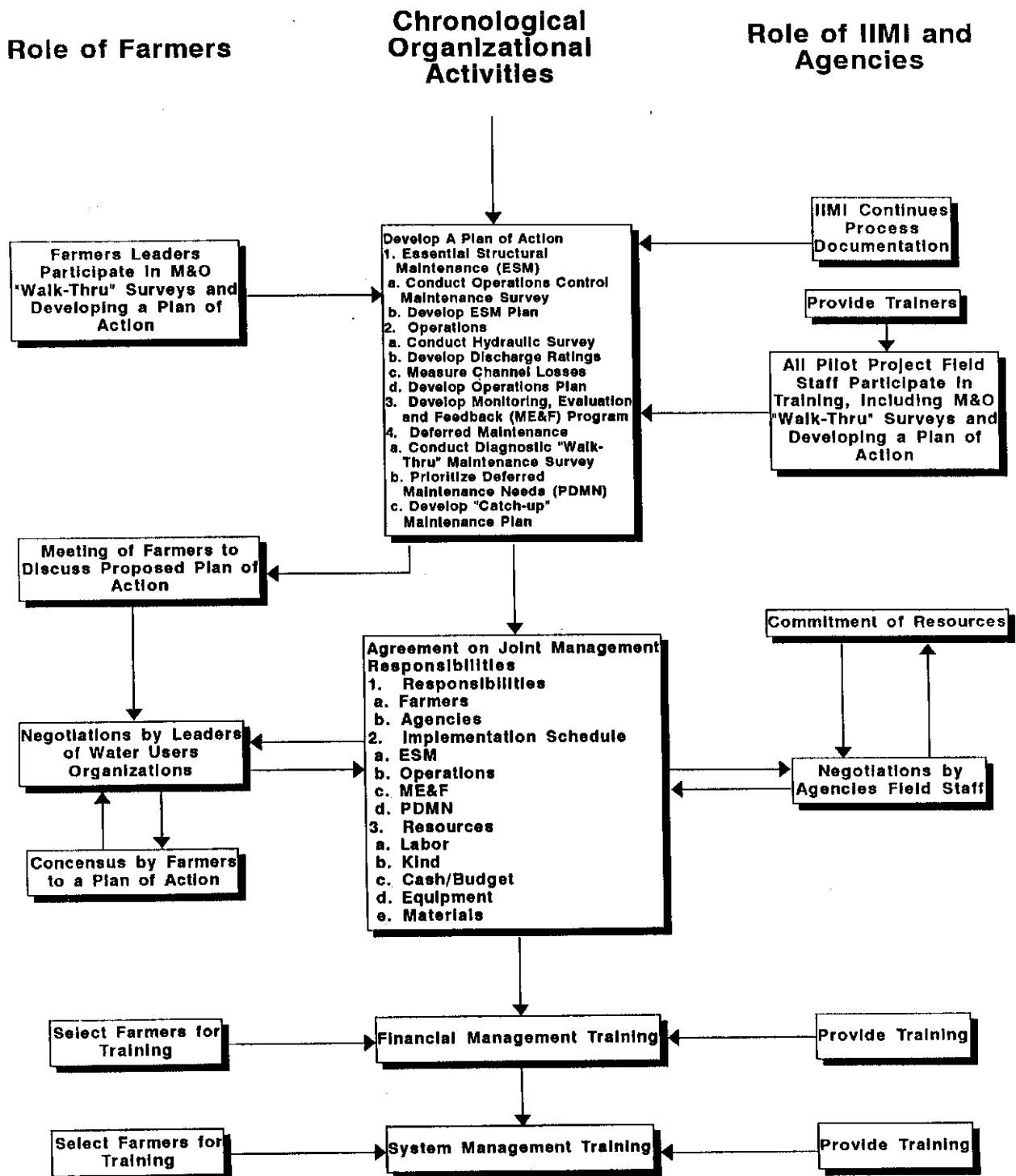
Phase I: COLLABORATIVE ARRANGEMENTS AMONG AGENCIES



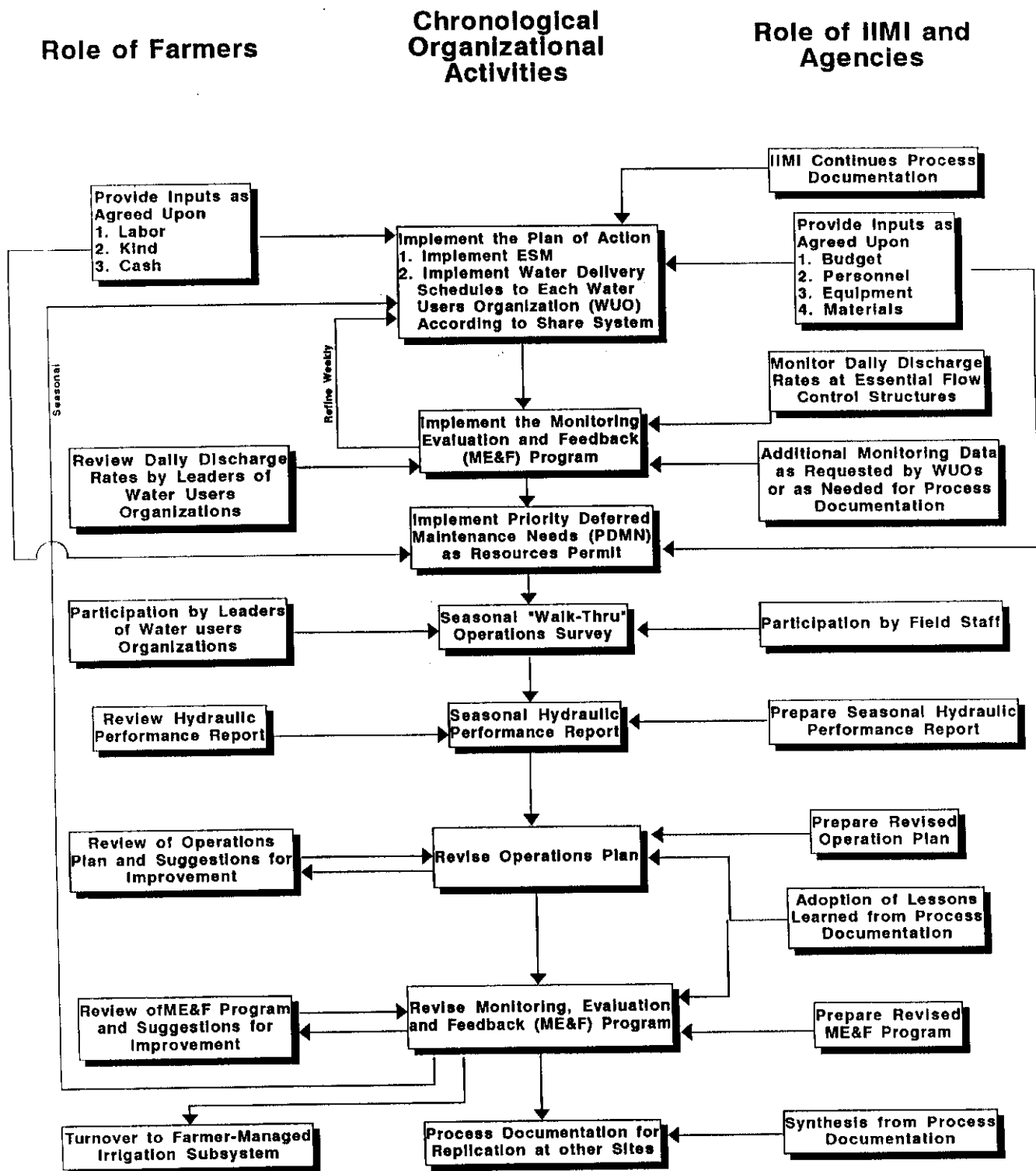
Phase II: INITIAL ORGANIZATION



Phase III: JOINT MANAGEMENT AGREEMENT



Phase IV: JOINT MANAGEMENT IMPLEMENTATION



**CHECKLIST FOR IDENTIFYING SOCIAL ORGANIZATION VOLUNTEERS
(CONTACT FARMERS) AT HAKRA 4-R DISTRIBUTARY**

WATERCOURSE _____ CHAK NO. _____

NAME OF THE CONTACT FARMER _____

FATHER'S NAME _____

SIZE OF HOLDING _____ CULTIVATION STATUS _____

CAST _____

EDUCATION _____

ADDRESS _____

- 1 Do you think the person is well motivated and has initiative for working for the community ? YES/NO

If yes, Explain how ? _____

- 2 Did he participate in some social/ community work in the past ? YES/NO

If yes, give details:

1 _____

2 _____

3 _____

- 3 Is he well informed ? YES/NO
- If yes, does he:
- Know more about the area ?
- Know more about the community, casts, traditions etc ?
- Know more about crops, problems of irrigated agriculture etc?
- Know about who can solve their water related problems ?
- Any other ?
- 4 Is he believed to be honest ? YES/NO
- If yes, did someone disbelieve his honesty ? YES/NO
- 5 Is he believed to be anti-social element YES/NO
- If yes, what did he do ? _____
- 6 Is he able to communicate well with you ? YES/NO
- 7 Can he talk to farming community ? YES/NO
- Has he some experience ? YES/NO
- 8 Does he seem reasonable and intelligent to you ? YES/NO
- Explain how? _____
- 9 Does he have some experience in public speaking ? YES/NO
- 10 Is he affiliated to some political party ? YES/NO
- If yes, to whom _____
- 11 Is there a political conflict in the area ? YES/NO
- If yes, is it SEVERE MODERATE MILD

12 Is there a strong commitment on his side for improvement in the situation ? YES/NO

Explain how ? _____

13 Total persons met _____ favored _____ opposed _____

OTHER OBSERVATIONS _____

DECISION: _____

NAME(S) OF THE TEAM MEMBERS

1 _____

2 _____

SIGNATURES:

DATE: / /

IMPORTANT CHARACTERISTICS OF THE ORGANIZATIONAL LEADERS

ANNEX-5

MOGHA #	Designation of the Nominee in the Organization (s)	Age of the Nominee	Education in Years	Family Size	Experience in farming (years)	Area owned at the particular Watercourse	Area operated at the particular WC	Total land ownership at Hakra 4-R	Total land ownership in the country
Sub-System 1 (Head Reach)									
23	Sub-System Member	35	10	8	6	8.00	0.00	41.50	41.50
25	Sub-System Member	75	0	3	65	30.00	30.00	32.00	32.00
02	Sub-System General Secretary	42	13	8	15	26.00	4.00	26.00	26.00
26	Sub-System Committee Member	47	10	8	10	11.00	11.00	11.00	11.00
04	Sub-System Secretary Information	33	14	5	27	25.00	25.00	25.00	88.50
27	WUF Member	25	12	6	8	8.50	17.00	26.50	26.50
05A	Sub-System Member	74	14	4	50	200.00	0.00	235.00	285.00
28A	Sub-System Committee Member	29	10	10	9	9.00	9.00	9.00	26.00
10	Sub-System Committee Member	50	10	9	44	10.00	7.50	25.00	50.00
20	Sub-System Member	32	0	15	28	62.50	41.50	87.50	87.50
21	Sub-System Committee Member	56	0	7	40	4.25	10.25	6.00	6.00
16	WUF Member	43	13	5	31	408.00	378.00	408.00	408.00
22	WUF Vice President, Sub-System President	38	9	8	24	42.00	12.00	43.50	43.50
18	Sub-System Committee Member	30	5	4	7	9.00	9.00	18.00	18.00
19	Sub-System Committee Member	36	12	4	16	4.00	4.00	4.00	19.00
14A	Sub-System Committee Member	32	5	15	26	18.00	16.00	87.00	87.00
17	Sub-System Member	15	6	14	0	205.00	0.00	342.50	492.00
18A	Sub-System Treasurer	56	0	9	50	18.25	18.25	24.75	24.75
01	WUF Member	38	12	10	30	0.50	7.50	8.50	8.50
03	Sub-System Committee Member	36	9	19	29	15.00	29.00	19.50	53.13
05	WUF Member	29	12	5	20	5.00	5.00	41.00	41.00
08	Sub-System Vice President	45	5	4	40	15.00	23.00	15.00	15.00
12	Sub-System Member	28	12	9	12	45.00	45.00	45.00	45.00

MOGHA #	Designation of the Nominee in the Organization (s)	Age of the Nominee	Education in Years	Family Size	Expenence in farming (years)	Area owned at the particular Watercourse	Area operated at the particular WC	Total land ownership at Hakra 4-R	Total land ownership in the country
Sub-System 2 (Middle Reach)									
43	Sub-System Member	54	9	12	35	12.50	0.00	12.50	17.50
29	Sub-System Committee Member	52	8	7	30	0.00	25.00	0.00	46.00
28	Sub-System Member	60	9	7	45	12.50	0.00	125.00	250.00
34	Sub-System Treasurer	34	10	11	20	50.00	50.00	50.00	100.00
37A	Sub-System Member	32	14	12	10	250.00	0.00	250.00	500.00
42	WUF Member	43	14	9	28	12.50	87.50	12.50	25.00
32	Sub-System Committee Member	50	10	3	12	6.25	6.25	6.25	6.25
35	Sub-System Member	35	9	14	15	12.50	12.50	12.50	22.50
36	Sub-System Member	45	10	2	30	16.00	16.00	66.00	166.00
37	Sub-System Vice President	63	9	4	40	50.00	50.00	50.00	75.00
31	Sub-System Member	48	9	4	30	50.00	50.00	50.00	125.00
33	WUF Member	58	8	13	20	47.00	47.00	52.00	52.00
39	WUF Member	40	16	12	25	30.00	20.00	95.00	205.00
30	Sub-System Member	60	8	16	40	25.00	50.00	25.00	29.00
41	Sub-System Committee Member	42	5	8	28	12.00	12.00	12.00	12.00
34A	Sub-System Member	28	10	8	9	9.00	0.00	54.00	61.00
40	WUF President & Sub-System General Secretary	39	12	7	25	9.00	9.00	94.50	94.50
32A	Sub-System Member	52	12	8	35	50.00	100.00	50.00	100.00
44	Sub-System Member	55	0	8	45	0.00	35.00	0.00	0.00
45	WUF Member	36	12	5	10	15.00	51.00	15.00	40.00
20A	Sub-System Secretary Information	35	12	8	10	50.00	80.00	75.00	75.00
41A	Sub-System Committee Member	40	0	13	30	0.00	2.00	0.00	0.00

MOGHA #	Designation of the Nominee in the Organization (s)	Age of the Nominee	Education in Years	Family Size	Experience in farming (years)	Area owned at the particular Watertcourse	Area operated at the particular WC	Total land ownership at Hakra 4-R	Total land ownership in the country
Sub-System 3 (Tail Reach)									
52	Sub-System Member	53	12	18	30	9.00	9.00	13.50	15.50
48A	Sub-System Member	50	5	8	35	5.50	5.50	11.50	13.50
48	WUF Member	47	10	6	15	1.50	7.50	1.50	1.50
53A	Sub-System Member	43	10	7	20	37.00	0.00	37.00	37.00
62	Sub-System Member	37	10	16	12	27.50	27.50	27.50	89.00
59	Sub-System Member	68	0	5	50	13.00	7.50	18.00	18.00
55	Sub-System Treasurer	55	10	8	35	25.00	25.00	25.00	59.00
47	Sub-System Member	65	5	3	50	9.00	27.00	15.25	51.00
51A	WUF Member	33	12	12	14	15.00	15.00	15.00	54.00
50	Sub-System Secretary Information	59	8	10	30	12.50	12.50	12.50	27.50
64	Sub-System Member	54	0	10	30	15.00	15.00	27.00	27.00
63	Sub-System Member	67	0	15	25	25.50	25.50	25.50	39.00
65	Sub-System Member	46	12	5	30	12.50	12.50	12.50	12.50
61	Sub-System Member	54	12	10	30	4.12	4.12	4.12	4.12
49	Sub-System Member	33	10	9	20	9.00	13.00	15.25	15.25
51	Sub-System Member	44	8	1	10	8.00	0.00	8.00	8.00
67T	WUF Member	55	12	6	35	4.13	4.13	4.13	5.13
66T	Sub-System Member	65	10	12	29	4.50	1.00	17.00	19.00
46	WUF Member	38	10	11	20	25.00	25.00	27.00	227.00
53	Sub-System Member	38	8	7	15	28.00	2.00	53.00	53.00

MOGHA #	Designation of the Nominee in the Organization (s)	Age of the Nominee	Education in Years	Family Size	Expenience in farming (years)	Area owned at the particular Watercourse	Area operated at the particular WC	Total land ownership at Hakra 4-R	Total land ownership in the country
Sub-System 4 (Minor 1RA)									
01A	Sub-System Committee Member	45	5	12	35	18.00	26.00	32.00	32.00
1	Sub-System Vice President	65	5	20	45	20.00	17.00	45.00	45.00
04	WUF Member	35	9	6	25	6.00	10.00	6.00	6.00
05	Sub-System Treasurer	53	5	12	40	10.00	20.00	35.00	35.00
06	Sub-System Member	49	8	5	10	24.00	25.00	31.00	31.00
07	WUF Treasurer	62	10	5	45	31.00	13.00	77.50	96.50
08	Sub-System Member	28	12	6	18	19.50	19.50	32.50	32.50
08A	WUF Member	35	12	5	15	17.50	9.00	33.00	33.00
09	Sub-System Member	60	8	4	35	6.00	6.00	19.50	19.50
13	Sub-System President	79	6	2	60	15.00	0.00	15.00	40.00
10	Sub-System Secretary Information	28	12	8	22	6.00	6.00	31.00	31.00
011	Sub-System Member	38	5	6	14	6.00	6.00	6.00	6.00
02	WUF Member	42	13	15	9	10.00	10.00	13.00	13.00
03	Sub-System General Secretary	29	12	10	7	10.00	10.00	24.00	23.00
12	Sub-System Committee Member	40	5	7	30	7.00	7.00	10.50	14.50

MOGHA #	Designation of the Nominee in the Organization (s)	Age of the Nominee	Education in Years	Family Size	Experience in farming (years)	Area owned at the particular Watercourse	Area operated at the particular WC	Total land ownership at Hakra 4-R	Total land ownership in the country
Sub-System 5 (Minor 1R)									
15	Sub-System Member	48	8	9	35	50.00	50.00	53.00	53.00
15A	Sub-System Committee Member	60	8	12	40	7.00	7.00	8.25	8.25
05	WUF Member	59	8	40	45	45.00	45.00	52.50	57.50
16	Sub-System Member	61	10	8	28	41.00	0.00	41.00	41.00
08	WUF General Secretary	44	12	7	20	37.50	37.50	50.00	50.00
17	Sub-System Member	30	16	19	3	31.00	31.00	31.00	62.00
10	Sub-System Member	39	12	13	22	15.00	15.00	26.00	26.00
17A	Sub-System Committee Member	40	8	26	25	25.00	25.00	62.50	85.00
12	Sub-System Member	56	10	9	38	8.00	8.00	27.00	27.00
17B	Sub-System Secretary Information	50	10	8	5	12.50	0.00	19.50	19.50
04	Sub-System Member	62	4	11	50	18.00	18.00	18.00	18.00
09A	Sub-System Treasurer	63	10	13	40	5.00	5.00	5.00	13.25
11	Sub-System Member	90	0	12	75	12.50	12.50	12.50	12.50
13	Sub-System Member	38	12	7	21	11.75	11.75	13.25	16.50
07	WUF Member	32	10	10	13	32.00	37.00	32.00	32.00
19	Sub-System Member	35	10	18	17	63.00	25.00	106.00	106.00
21	Sub-System Member	47	10	9	30	17.00	9.00	17.00	22.00
21A	Sub-System Member	50	0	13	35	3.25	6.50	3.25	3.25
22T	Sub-System Vice President	45	8	28	30	25.00	25.00	25.00	33.25
23T	Sub-System Member	50	0	10	40	3.00	1.50	9.00	15.00

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	Volume II: Research Approach and Interpretation	Carlos Garces-R Ms. Zaigham Habib Pierre Strosser Tissa Bandaragoda Rana M. Afaq Saeed ur Rehman Abdul Hakim Khan	June 1994
	Volume III: Data Collection Procedures and Data Sets	Rana M. Afaq Pierre Strosser Saeed ur Rehman Abdul Hakim Khan Carlos Garces-R	June 1994
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R-12	Modeling of Sediment Transport in Irrigation Canals of Pakistan: Examples of Application (M.Sc Thesis published as Research Report)	Gilles Belaud	Oct 1996

Report No.	Title	Author	Year
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