

YEARLY PROGRESS REPORT
ON
DfID-FUNDED ACTION RESEARCH PROJECT
SOCIAL ORGANIZATION FOR IMPROVED
SYSTEM MANAGEMENT AND SUSTAINABLE
IRRIGATED AGRICULTURE IN SMALL DAMS

(1 APRIL 1997 TO 31 MARCH 1998)

Prepared by

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**SOCIAL ORGANIZATION FOR IMPROVED SYSTEM MANAGEMENT
AND SUSTAINABLE IRRIGATED AGRICULTURE IN SMALL DAMS:
AN ACTION RESEARCH PROGRAM**



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1. INTRODUCTION

The current progress report aims to present the overview of the project's research activities in Mirwal and Shahpur Small Dams command areas, implemented during the one year period ending 31 March 1998. The main achievement of this period is the project's successful effort in establishing Farmers Organizations at both of the selected pilot sites.

At the inception of the project, a decision was taken to concentrate the available resources in two pilot sites, Mirwal and Shahpur small dams. The reason for this decision was that the logistical difficulties in involving a small field team in three places, fairly distant from one another, were more than originally anticipated.

The project was initiated with the establishment of a field station at Fateh Jang, the closest place having access to the two selected small dams. Initially, two social organizers and one field assistant were recruited and posted at the field station after providing them with the necessary training at IIMI Field Station, Haroonabad, at IIMI-Pakistan Head Office in Lahore, and at the Water Resources Research Institute (WRI) in Islamabad. This number had to be later increased as the project progressed, and at present, there are three social organizers and one field assistant in the Fateh Jang Field Station. They are being guided by Dr. Muhammad Asghar Cheema, Sociologist, and Mr. Don Jayatissa Bandaragoda, Senior Management Specialist, both of whom are based in the IIMI Head Office in Lahore. Details of IIMI's staff inputs are given in Annexure 1.

The project activities during the period were continued with full vigor and commitment, based on an agreed activity plan given in Annexure 2, and following a step-wise social organization process given in Annexure 5.

2. BASELINE SURVEY

The project area is characterized by deteriorating land resources and fragmented landholdings with limited water resources. The land tenure system in the area is mainly dominated by small owner-operated units. The rain-fed farms are under great income stress. Except where dams have been constructed, there is a great scarcity of drinking water supply, which is obtained from streams, springs, village ponds etc., and is dependent on rainfall (Zaidi, 1995).

To gain basic socio-economic information about the inhabitants of the area, cropping pattern, source of irrigation, irrigation practices and organizational behavior, a baseline survey (one of the planned project activities) was conducted in the two selected small dam command areas. The basic information on the three originally selected small dam systems is given in Annexure 3. The survey was completed for Mirwal in December

1996, and for Shahpur in January 1997. Overall, 194 farmers were interviewed from the two small dam areas, 59 from Mirwal and 135 from Shahpur (Cheema and Bandaragoda, 1997).

2.1 Summary of the Survey

- * Literacy rate in the pilot project area is 32.4 percent. For male, it is 49 percent and for female, it is around 16 percent.
- * Dam water is the main source of irrigation as reported by a majority of the respondents (73%), still there are some who use lift pumps and traditional wells to irrigate their fields.
- * Regarding distribution of small dam water, about half of the respondents were of the opinion that water was not equitably distributed.
- * Location of farm (i.e., tail reach of the canal), influential farmers and poor maintenance of the main water channel were reported as the main causes of inequitable distribution of dam water.
- * Dam water was reported sufficient by a majority (59.31%) of the respondents in Mirwal Dam, and by a minority (14.8%) of the respondents in Shahpur Dam.
- * About 99 percent of the Shahpur water users were of the opinion that their water channel was in a very much worse condition as compared to 5 years ago, whereas about 88 percent of the water users of Mirwal Small Dam thought that the functional conditions of the water channel had not changed.
- * Regarding their organizational behavior, the highest participation of farmers was reported in maintenance/ construction of a village mosque, school and dispute resolution.
- * About 97% of the respondents showed their willingness to work for any collective program for the welfare of the farming community, by contributing their labor or funds.
- * A very low percentage of the farmers benefited from Agricultural Extension Agent, OFWM representative, Small Dam Organization; but a high percentage of them got their land levelled through ABAD representatives.
- * The main crops of the area were reported as maize, wheat, chili, vegetable and fodder in irrigated areas, whereas peanut, oil seed, maize, wheat and fodder were the main crops grown in the barani areas.

- * Cropping intensity for the irrigated area was calculated as 123 and 118 percent for Mirwal and Shahpur small dams, respectively. While for the barani areas, it was 51 percent in Mirwal and 47.4 percent in Shahpur.
- * Average family income from all sources was calculated at Rs. 80,200 in the pilot project area. It seems less (keeping family size into account) than the national average.

2.2 Hydraulic Survey of Mirwal and Shahpur Dams

2.2.1 Mirwal Small Dam

The Mirwal Small Dam is located on the Rawalpindi-Kohat Road and is about 93 km from Rawalpindi and 41 km from the town of Fateh Jang. The live storage capacity of the dam is 2,726 acre-feet (AF), and it has a designed command area of 1,050 acres. The water channel has a designed discharge of 11 cusecs and runs underground (in pipes) at some places, while the rest of the canal is under trapezoidal open channel. All of the water channel is lined. It supplies water to about 95 farmers.

The total length of the canal is 9.97 km. The main canal after a length of 3.97 km is divided into two minors, the Kamelpur Sherjang Minor and Kisran Minor. The Kamelpur Sherjang Minor is about 1.81 km, out of which 1.2 and 0.61 km are under trapezoidal open channel and underground pipe section, respectively. The Kisran Minor is 4.19 km long, out of which 2.91 and 1.28 km are under trapezoidal open channel and underground pipe section, respectively. There are 44 outlets (moghas) in total, and all of them are of 6 inches diameter, irrespective of its command area, except one, which is of 9 inches diameter.

2.2.2 Shahpur Small Dam

The Shahpur Small Dam is located in Kala Chitta Range, about 47 km from Rawalpindi/Islamabad on Fateh Jang-Hassan Abdal Road and the dam location is about 14 km from Fateh Jang Town. It is constructed on Nadna Kas stream and has a storage capacity of 4,095 acre-feet. It was completed during 1986 and has a designed command area of 4,308 acres. The designed discharge of the channel is reported as 43 cusecs. The designed command of the channel, as reported in Annexure 3, is found higher than what has been reported by the Lumberdar (Headman of village Amir Khan) of the area i.e., 1,250 acres. Similarly, according to the Lumberdar, the design discharge of the channel is 15 cusecs, instead of 43 cusecs, as reported by the irrigation authorities. After checking this discrepancy with the Project Director, Small Dams Organization, the figures regarding designed command area and the design discharge of the channel, as reported

by the Lumberdar, were found correct. This is a multi-purpose dam. Beside supplying irrigation water to barani land, it is used for rearing fish and supplying drinking water to the nearby towns and villages.

The stored water of the Shahpur Dam, like that of the Mirwal Dam, is diverted to a distributary channel through a gated control valve at the lowest level of the live storage depth. The gated valve is controlled by a Valveman who is responsible for canal discharges.

The main canal is divided into two parts (Left Bank Canal and Right Bank Canal) after a length of 3.05 km, out of which 2.17 and .88 km are under open channel and pipe section, respectively. The Right Bank Canal (RBC) is 7.9 km long, out of which 7.22 and 0.68 km is under rectangular open channel and underground pipe section, respectively. The Left Bank Canal (LBC) is a 2.3 km long rectangular open channel. There are 43 moghas supplying water to the about 159 farmers.

All of the Shahpur Dam canal is really in bad shape because of poor construction and maintenance. According to the farmers of the area, the original construction work was of very poor quality, thus resulting in huge conveyance losses. The bed of the canal is without cement mortar at most of the sections. Since its construction, the aqueduct fell twice at two different sections, causing a huge damage to farmers' crops. Still, one can observe water leakage at many places allong the channel, which causes waterlogging in along adjacent areas, on the one hand, while reducing water supply for irrigation purposes, on the other hand. At present, immediately below the bifurcation point, the pipe outlets of RBC are choked with stones, mud and bushes, thus disturbing equitable water distribution between LBC and RBC.

3. IDENTIFICATION OF SOCIAL ORGANIZATION VOLUNTEERS (SOVs)

The methodology used in this action research program included a new idea of using "social organization volunteers", a selected group of persons from the community to assist the IIMI field team. This new approach in the social organization process has been successful in the formation of a Farmers Federation at Distributary 4-R Hakra one of IIMI's other pilot projects. The community based SOVs were selected on the basis of a pre-determined set of criteria.

3.1 Identification of Prospective SOVs

During early meetings with the farmers, field team members obtained the farmers' opinion about the probable SOVs. After receiving names of several individuals, the field team collected information on all of the recommended persons. This exercise consumed a considerable amount of time, as the team could contact only about two persons a day on an average, but managed to complete the task on time.

3.2 Selection of SOVs

After receiving this information from key informants, the next step was to select an appropriate number of SOVs to mobilize farmers in the social organization process. During the identification of SOVs, people used the term "Samaji Aadmi" to mean the SOV, which in local language means a social person having good relations with other fellow persons in the village.

As the activities of organizing farmers in the command area involved a complex social organization process, it was important to select the correct type of persons as SOVs. For this purpose, a number of factors had to be considered. The main criteria for selecting SOVs was that an SOV should:

- * be an honest person so that the farmers would trust him.
- * be imbued with an initiative for working with the community and should see the value in collective behavior for a common good.
- * be well informed about the area, local languages, castes, rituals, traditions, geographical details, water and land resources and irrigated agriculture in the area.
- * be non-controversial.
- * be able and willing to communicate freely with all sections of the local community, and be willing to engage in a two way communication so that he could disseminate the field team's message to the community. Be able to communicate effectively with the officials of Government Agencies working in the area.
- * be educated and should have the potential for acquiring some basic training to become a community based social organizer and be part of the extended field team.
- * be able to speak in public and have the capacity to listen to others.
- * not necessarily a farmer, a big land owner, or an influential.
- * be neither an aspirant to any office of the Farmers Organization nor to receive any reward for the services rendered by him.

The field team, keeping in mind the above criteria, filled a proforma (Annexure 3) after detailed discussion with the potential SOVs. This form was used to finally select the SOVs.

3.3 Main Characteristics of Selected SOVs

The important socio-economic characteristics of SOVs selected from the two pilot sites are given below (also see Table 3.1).

- * About half of the selected SOVs had ten years schooling or more. Farmers believed that the educated persons had a better understanding of the common problems and could communicate more effectively with others. The field team also found educated persons useful as they were found to be broad minded, open and critical, easy to communicate with and having an ability to absorb training.
- * Almost all of the identified SOVs resided either within the village, or in hamlets around the village, or at farm houses called "Dhok or Behk". This helped in social organization work, as they were available and easily accessible.
- * As far as the political affiliation is concerned, SOVs assured the field team that they would work for the welfare of the whole farming community and certainly not involve politics with the action research program.

Table 3.1. Important Socio-economic Characteristics of SOVs

| Characteristics | Mirwal Small Dam | Shahpur Small Dam | Overall |
|-----------------|------------------|-------------------|---------|
| Total SOVs | 20 | 28 | 48 |
| Education | | | |
| Uneducated | 2 | 3 | 5 |
| Primary | 3 | 4 | 7 |
| Middle | 4 | 7 | 11 |
| Matric | 4 | 9 | 13 |
| Matric + | 7 | 5 | 12 |
| Landholding | | | |
| up to 100 (kl) | 3 | 12 | 15 |
| 101-200 | 6 | 11 | 17 |
| 201-400 | 1 | 1 | 2 |
| 401-800 | 1 | 3 | 4 |
| 800 + | 9 | 1 | 10 |

kl -1 kanal = 1/8th of an acre.

4. SOCIAL ORGANIZATION PROCESS

The social organization field team and the SOVs adopted a step-wise process in organizing farmers in the two small dam areas. Each step was to progressively build up the level of awareness among the people regarding the environment, the need to get organized, and the social organization methodologies to be used. The step-wise process was adapted from the organizational development discussed in a management transfer procedure (Skogerboe et al., 1993), which is given in Annex 5. The second phase of this process, namely, initial organization, formed the main focus of the action research, and was conducted in five dialogic steps:

- * Familiarization Meetings;
- * Rapport Building Meetings;
- * Consultation Meetings;
- * Selection Meetings; and
- * Formation of Farmers Organizations.

4.1 Familiarization Meetings

Familiarization meetings started with initial interactions with the people in the area. These meetings were very informal and were conducted in small groups, as an entry point into the community. During the familiarization meetings, which also included visits for identification of SOVs, it was felt that the community had a poor understanding regarding any form of institutional development and was not willing to play any active role. No specific attempt was made to rectify this situation at this stage, as the main purpose was to gain an understanding of the internal dynamics of the community. The identified situation is outlined below.

- * The farmers were disillusioned about the government agencies and other nonproductive or dummy rural organizations created by various interventions;
- * Farmers were in the habit of seeking tangible benefits from such interventions (subsidies, physical work, credit, etc.);
- * Some were hesitant to form an organization at this stage because of the fear of being exposed about their illegal practices in getting extra water;
- * There was a hidden suspicion about privatization of irrigation systems, charging high "abiana" or water rates, increase in taxes;

- * Fear of conflicts within the community caused some reluctance to even try organizational behavior;
- * As a consequence of dominance of a few influentials, the other farmers were hesitant to take an initiative; and
- * Agriculture was not a full-time job for some of the farmers in the small dam command areas. The income base of the farmers is diversified in such a way that they did not spend sufficient time on good farming and appeared to have lost hopes in irrigated agriculture.

4.2 Rapport Building Meetings

Following up on familiarization meetings and the selection of SOVs, a series of small group meetings were conducted with the help of the SOVs to provide the people with information about the action research objectives and methodologies, and also to build up trust between the field team and the community.

The process of rapport building meetings was started simultaneously with the collection of further basic information about the area, the irrigation system, agriculture, socio-economic and political conditions of the command area. Details about IIMI were given, and the status of IIMI as an independent research-oriented organization was emphasized and its legal status in the country was explained.

The meetings usually started informally in a conversational mode by raising questions about the condition of crops, situation of water supply and other irrigated agriculture related problems. In every meeting, farmers showed a great deal of interest in talking about their problems, especially related to dam water, farm inputs and marketing of their produce. At the end of each meeting, the SOVs were requested to discuss this idea with other farmers and explain to them the role of IIMI in this regard.

4.3 Consultation Meetings

The rapport building meetings led to another series of more formal meetings in larger groups, involving the farmers in discussions regarding the solutions to their problems. People were consulted regarding the needed organizations, their structures, and their objectives. Consultation meetings, conducted at the village level, played a significant role in the social organization process. Consultation proved to be a vital part of the participatory action research program. These meetings were conducted in such an environment that farmers were free to express their views and suggestions. The main points discussed and negotiated in these meetings were:

- * Membership of Farmers Organization;
- * Organizational Structure of Farmers Organization;
- * The method of selecting the executive members; and
- * Authority and tenure of the executive members.

In these consultation meetings, IIMI field team's intervention was at a minimum level to assist in the discussions, and also to introduce some concepts, such as, ensuring equal opportunity for participation in the election or selection of office bearers, and the freedom of expression for everybody during discussions. Generally, the farmers agreed that they could get organized and that organized farmers could manage water more efficiently and more equitably than at present. Farmers were of the belief that the provision of legal authority and powers to Farmers Organizations is very important for their success.

The main decisions reached during these consultation meetings included the following:

- * As only a small number of farmers are using dam water, all of the farmers of the command area should be members of the Farmers Organization.
- * Selection meetings to identify organizational leaders should be first held at the village level, and all the farmers living in that particular village should be informed of the meetings.
- * SOVs and IIMI field team would be jointly responsible for ensuring that farmers in the command area are informed about meetings.
- * Mithial, Kisran and Traggar villages, in Mirwal Small Dam command area, should be treated as a single unit (village) as a small number of farmers from these villages have land holdings in the dam command area.
- * Meetings should start with reiteration of the objectives of the pilot project so that the farmers who earlier were unaware of this project might become aware of the needed details. Farmers should choose three executive members, who would represent each village in Mirwal Small Dam command. In Shahpur Small Dam, the number of executives members may vary from village to village. Executive committee members should be selected through mutual understanding, or by consensus, and not through competition.
- * After the selection of executive committee members from each village, there should be a combined meeting of these executive members and farmers of the command area, in which office bearers of the Farmers Organization should be selected through consensus in such a way that at least one office bearer should represent each village.
- * Tenure of the Farmers Organization office bearers should be one year.

Even at this stage, some farmers, influenced by the negative propaganda by some mischievous elements, opposed the organizational efforts. They feared that fees and taxes would be increased, or that the organization would be a cover for some hidden agenda such as, privatization of small dams, or introduction of agricultural taxes. The field team made valiant efforts to remove these doubts and misconceptions, and finally succeeded in maintaining the initial enthusiasm among the majority of the people.

4.4 Selection Meetings

The fourth dialogic step was to engage the farmers in a series of meetings to discuss and effect the selection of organizational leaders at the village level. A majority of farmers had proposed that office bearers should be educated, well informed about the command area, have the ability to interact with officials and other outsiders regarding problems of the area, and negotiate some solutions to those problems.

Efforts were made to inform every water user in each village about the date and time of the meeting, so that they were provided equal opportunity to participate. These selection meetings were normally held in the afternoon when most people were free to attend. In the Mirwal village, the meeting was conducted at the Mirwal Small Dam rest house on Sunday, March 23, 1997 at 8:00 a.m, as desired by the majority of the people. Date, time and venue of the meeting were usually decided in consultation with the SOVs. In addition to the information transmitted through the SOVs, other methods, such as announcements in the village mosque and letters of invitation mailed to every water user, were used to ensure maximum participation.

In total, four selection meetings were organized in the Mirwal Small Dam command area. The process of selection of executive members was started on 12-3-1997 and completed on 23-3-1997. Similarly, four selections meeting were arranged in Shahpur Small Dam command area during August and September 1997.

Details of the selection meetings and the outcomes are presented in Table 4.1 and Table 4.2.

Table 4.1. Details of Selection Meetings at Mirwal Small Dam.

| Village | Date of Meeting | Total Farmers | No. of Participants | % | No. of Executive Members Selected |
|-------------------|-----------------|---------------|---------------------|----|-----------------------------------|
| Mirwal | 23.03.97 | 13 | 8 | 62 | 3 |
| Nathein | 22.03.97 | 15 | 9 | 60 | 3 |
| Kamelpur Sherjang | 21.03.97 | 6 | 3 | 50 | 3 |
| Mithial & Kisran | 12.03.97 | 7 | 4 | 55 | 3 |

Table 4.2. Detail of Selection Meetings at Shahpur Small Dam.

| Village | Date of Meeting | Total Farmers | No. of Participants | % | No. of Executive Members Selected |
|--------------|-----------------|---------------|---------------------|-----|-----------------------------------|
| Amir Khan | 08.08.97 | 58 | 42 | 72 | 6 |
| Dhok Balouch | 07.08.97 | 52 | 40 | 77 | 5 |
| Shahpur | 10.09.97 | 17 | 11 | 65 | 5 |
| Kareema | 12.09.97 | 18 | 18 | 100 | 7 |

4.5 Selection of Office Bearers for Farmers Organizations

4.5.1 Mirwal Small Dam

On 6 April 1997, a meeting of the selected village level organizational leaders was held at the rest house of the Mirwal Small Dam. The meeting started at 10:00 A.M., and about 66 percent of the farmers of the command area (including all of the selected village leaders) were present. The purpose of the meeting was to select or elect office bearers of the Mirwal Dam Farmers Organization.

The meeting first decided to select four office bearers, without designation, one from each of the four villages in the Mirwal Dam command area. After the four members were identified, they were given time for deliberation among themselves to arrive at some decision about the designations. After 15 minutes of deliberation, they came out with a consensus on listing of four names with four designations (President, Vice President, General Secretary and Treasurer) for the Mirwal Small Dam Farmers Organization. An advisory committee comprising 7 members was also constituted by the farmers. The names of these office bearers, along with their designations, were announced by a

proposer and nobody opposed. A fifth office bearer, (Secretary Information) was selected later on 29 April 1997. The oath taking ceremony and first meeting of the FO was held on 8 May 1997.

Table 4.3. Office Bearers of Mirwal Small Dam FO.

| | |
|-----------------------|-------------------------------|
| President | Maj. (Retd) Taj Muhammad Khan |
| Vice President | Ghulam Asghar Khan |
| Secretary | Sardar Jaffar Khan |
| Treasurer | Muhammad Iqbal |
| Secretary Information | Khan Malik Tahir |

4.5.2 Shahpur Small Dam

A meeting of the selected farmers representatives from villages was held on 31 October 1997, at Government Primary School, Amir Khan, to select the office bearers for the Shahpur Small Dam Farmers Organization. Forty farmers (including farmers representatives) from all of the four villages in the Shahpur Dam command area participated in the meeting. The same procedure, as was adopted for the formation of Farmers Organization of the Mirwal Small Dam, was followed. With complete agreement, the farmers representatives first selected one nominee from each village. Then, after a deliberation of just 5-8 minutes, they presented the list of four names with their respective portfolios in the Farmers Organization. Along with the IIMI-Pakistan Field Staff, the meeting was attended by Mr. Tissa Bandaragoda, Senior Management Specialist, and Dr. Asghar Cheema, Sociologist, from IIMI-Pakistan Head Office, Lahore.

The oath-taking ceremony of the office bearers for the Shahpur Small Dam FO was held on 10 December 1997. The Project Director, Small Dams Organization and Chief, Agency for Barani Area Development, were the senior government officials who participated in the meeting and administered the oath for the office bearers of the Shahpur Small Dam Farmers Organization.

Table 4.4. Office Bearers of Shahpur Small Dam FO.

| | |
|-----------------------|--------------------|
| President | Ikhtlaq Ahmad Khan |
| Vice President | M. Azam Khan |
| Secretary | Muhammad Akram |
| Treasurer | Mehmood Khan |
| Secretary Information | Hukam Dad |

4.6 Training of Farmers

A series of short training courses were conducted during the period. Officials were invited from various government and semi-government departments, such as, Department of Fisheries, Department of Agriculture (Soil Testing Laboratory, Attock), Agricultural Development Bank of Pakistan, Agency for Barani Area Development (ABAD), and On Farm Water Management (OFWM), Rawalpindi.

The following training activities can be highlighted:

- * On 11 October 1997, farmer representatives from both pilot sites were given a training on social organization methods. Mr. Sohail Manzoor, Program Officer, National Rural Support Program (NRSP), Islamabad, was the chief trainer. His emphasis was that local development is difficult without the participation of local people. He also emphasized that planning is essential for problem solving, and that, through organization, problems and possible solutions and the needed resources can be reviewed and analyzed collectively, with a view to sharing of responsibilities. Decisions can be made through consensus, when everybody has an equal opportunity to participate and express ideas.
- * On 30 October 1997, Dr. Muhammad Aslam, Scientific Officer, Wheat Program of National Agricultural Research Center (NARC), conducted a training program in agricultural extension for farmers from the Mirwal Dam command area. He discussed issues regarding land preparation for wheat, sowing methods, suitable wheat varieties for barani and irrigated areas, seed rate, laboratory tests of soil, proper use of chemical fertilizers and pesticides.
- * On 12 January 1998, Dr. Muhammad Shafique was invited to train farmers in orchard raising in Mirwal Dam command area. He emphasized that the soil in this area was best suited for growing citrus plants. Though citrus plants need more care and more inputs than guava and peach plants, the raising of citrus plants is more profitable. Special care needs to be taken while spraying the orchards as pesticides/insecticides are very costly. He emphasized on the need to select disease resistant varieties of plants, and that efforts should be made to adopt natural methods to control insects and plant diseases, as artificial methods usually would disturb the natural ecological balance, as beneficial (friendly) microbes are also destroyed along with harmful ones in this process. By using balanced fertilizers, selecting good quality disease resistant varieties and proper irrigation, the plants become least susceptible to diseases. He also gave a field demonstration to illustrate the measures to be taken for digging a pit to grow a plant and how much the distance should be between two pits in a field.

- * A training program regarding operation and maintenance (O&M) of the small dam irrigation system was organized during 9-13 February 1998. Professor Skogerboe, Director IIMI-Pakistan was the chief trainer and was assisted by Dr. Akhtar Bhatti and Dr. Asghar Cheema.

After completing a walk-through survey of Shahpur irrigation system, Prof. Skogerboe discussed about water losses in the main water channel and inequitable distribution of water at the minor level. To him, the guiding principle for increased productivity was that there should be equitable distribution of water. Throughout Pakistan, there exists the problem of inequitable water distribution and unreliable supply of water, one major reason that justifies the formation of FOs.

He explained two criteria for the sustainability of Farmers Organizations:

- * Equity: This means distribution of water based on farm size, and without achieving that the FO is meaningless; and
- * The FOs should have the power to apply sanction against the wrong doers.

5. INSTITUTIONAL SUPPORT

Part of the action research program was to facilitate the strengthening of relationships between new FOs and government agencies. A series of meetings were held to introduce the pilot project and to mobilize the support of various government agencies working in the project area. At these meetings, an opportunity was given to farmers and government agency officials to discuss the problems faced by the farmers. The first farmer-agency meeting in this regard was held on 8 May 1997 at Mirwal Small Dam.

5.1 Farmer-Agency Meeting at Mirwal Small Dam

The first farmer-agency meeting held on 8 May 1997 at the Mirwal Dam Rest House attracted about 35 farmers. Officials from various government agencies, including Small Dams Organization, Soil Conservation, Agricultural Extension and On Farm Water Management participated in the meeting.

The meeting started with some presentations from farmer representatives. The Project Director, Small Dams Organization, was a key participant in the subsequent discussions. His contribution to the discussions clearly focused on the Department's willingness to hand over the small dam to an organized farmer group. He encouraged the farmers to get training in organization, and operation and maintenance of the irrigation system, with a view to having well developed farmers organizations to undertake all of the management responsibilities.

The meeting generated the following suggestions:

- * Preparation of a warabandi schedule for the Mirwal Dam;
- * Assessment and collection of water charges (abiana) by FOs;
- * Appointment of a valveman to operate the dam sluice gate;
- * Further coordination on organizational matters to be sought from On Farm Water Management (OFWM) Directorate; and
- * Agricultural Extension's assistance to FOs.

5.2 Farmer-Agency Meeting at Shahpur Small Dam

A farmer-agency coordination meeting was held on 12 December 1997 at the Shahpur Small Dam, with officials from various government agencies, including the Agency for Barani Area Development (ABAD), Small Dams Organization, On Farm Water Management (OFWM), and Agricultural Development Board of Pakistan (ADBP).

The farmers focused on inequitable water distribution, deteriorating dam water channel, lack of proper watercourses, the need for land leveling, and agricultural extension, as the main sources of their problems.

The Chief, ABAD, explained that the main purpose of constructing the Shahpur Dam was to grow vegetables and orchards to raise the living standard of the people in the area. So far, 31 small and medium dams have been constructed in the Rawalpindi Division and 174 more dams sites are available for future development. The Shahpur Small Dam was constructed 11 years ago, but until now it had been difficult to deliver water to all the farmers. The Shahpur Dam is among those dams where the performance is below expectation. He thanked IIMI-Pakistan for initiating the small dams pilot project in the area and working for the prosperity of the people. He urged the farmers to cooperate with IIMI staff and joined hands with them in their experiment to achieve effective collective action. He also pointed out that, due to this effort, officials from various government agencies have come here to listen to the farmers' problems and to discuss solutions.

The following items were discussed:

- * Leakage of water from the canal;
- * Repair of the canal bifurcation (disunity among the farmers has delayed the repair work);
- * The warabandi schedule is not being implemented properly;
- * The Shahpur Small Dam Farmers Organization (once established) will supervise the activities of the department's field workers;

- * Possibility of lift irrigation from the dam;
- * Assistance for land development and watercourse improvement;
- * Easy agricultural credit; and
- * The advantages of having an FO.

5.3 Walk-through Survey of the Mirwal Dam Canal

The main objectives of this walk-through were:

- a) To examine the present functional condition of the water channel and the watercourses;
- b) To observe the development status of the command area;
- c) To estimate the actual number of moghas (sanctioned and unsanctioned) from the dam canal;
- d) To identify farmers' problems; and
- e) To examine the warabandi schedule.

The following representatives from different Departments participated in the walk-through survey:

1. Sub-divisional Officer, Sub-engineer and Patwari of Punjab Irrigation Department's Small Dams Organization, Fateh Jang;
2. Water Management Specialist along with other staff of OFWM, Jand; and
3. Soil Conservation Officer, Jand.

On 5.6.1997, about 30 farmers, including the office bearers of Mirwal Small Dam Farmers Organization, assembled at the Mirwal Dam Rest House. Apart from IIMI staff, the SDO, Sub Engineer and Patwari from the Small Dams Organization, Water Management Specialist (an Irrigation Engineer by profession), Jand and Soil Conservation Officer, Jand were also present. Before the start of walk-through survey, Patwari (PID's field staff) from the Small Dams Organization read out a newly prepared warabandi schedule as requested by the farmers in a meeting on 29.4.1997. This new warabandi schedule was not acceptable to all of the farmers in the dam command area and they agreed to follow a modified version of the previous warabandi schedule.

As planned, the group started the walk-through survey from the head of the dam canal. It was decided to cover the main canal and the Kamelpur Sherjang Minor (Right Bank Canal) on 5.6.1997. They stopped at every mogha and enquired from the Patwari about the design discharge, the size of the head of the outlet, the command area and the number of shareholders receiving the water supply.

On 5.6.1997, the group covered about 8.5 kms along the Main Canal and Kamelpur Sherjang Minor. The canal runs underground in some places. Overall, the functional condition of the canal is good, but Kamelpur Sherjang Minor was found silted and overgrown with grass and bushes at some places, which were as tall as 8 to 10 feet. It was decided that the Irrigation Department, with the cooperation of farmers of that area, will take care of these weeds in the Kamelpur Sherjang Minor within two weeks or so. The group dispersed at 2:45 p.m. with the decision that farmers would again meet on 6.6.1997 at the point where the canal divides into two branches.

On 6.6.1997, farmers started arriving around 8:00 a.m. at the decided point. After collecting data on the upstream of the main canal, and then on the downstream in the Kamelpur Sherjang Minor, the group started patrolling along the Kisran Minor. The team covered 5.5 Km and collected the same information as was collected on 5.6.1997. At the tail of the canal, many new faces were noticed. People who had gathered there explained that, if they would have access to dam water, they were also able to bring more land under irrigated agriculture.

During the walk-through survey, the following main points were observed:

- * The warabandi schedule at the minor and watercourse level was not being implemented properly.
- * Unauthorized/unsanctioned moghas were also found in operation.
- * The size of all moghas, except one, which was of 9 inches diameter, was found to be 6 inches in diameter, irrespective of the command area, thus resulting in inequitable distribution of water.
- * In spite of the water rights for dam water, some farmers were denied of their rights. The farmers have invested in developing and levelling of their fields.
- * A majority of the watercourses were found lined. Unlined watercourses were found full of weeds and not properly maintained by the farmers.

- * In Kamelpur Sherjang Minor, excessive vegetation and siltation were observed, and the canal was almost not traceable due to vegetation in the minor.
- * The path along the main canal and the two minors was totally missing due to excessive vegetation.
- * At some moghas near the drop structures, big stones were placed in such a way that they served to raise the water level to get more water, depriving downstream farmers. These unauthorized structures were removed on the advise of the order of the SDO Small Dams Organization, who also directed his Sub-engineer to dispatch a warning letter to the concerned farmers.
- * On June 6, 1997, at 8:45 a.m., the discharge of the main canal and Kamelpur Sherjang Minor was measured and was found to be 7.5 cusecs in the main canal and 2.17 in the Kamelpur Sherjang Minor.
- * So far, farmers in the Mirwal Dam command area have developed only about 30 percent of their land. They showed their willingness to further develop their land and bring it under crops, if machinery is available at a subsidized rate.

5.4 Project Implementation Coordination Committee (PICC)

The planning for introducing a Project Implementation Coordination Committee (PICC) basically was to gain the support of officials from government agencies operating in the area. Members of the PICC were drawn from the Water Resources Research Institute (WRRRI) of NARC, Agency for Barani Area Development (ABAD), Small Dams Organization, On Farm Water Management, Agriculture Extension and Small Dams Farmers Organizations.

The first PICC meeting was held on 5 March 1998, in the office of ABAD, Rawalpindi, with the Director General, ABAD, in the chair.

The following members of PICC participated in the meeting:

Brig. Shafqat Ullah Cheema, Director General, ABAD, Rawalpindi.
 Dr. Shahid Ahmad, Director, WRRRI-NARC, Islamabad.
 Mr. Akhlaq Ahmad Khan, President, FO Shahpur Small Dam.
 Maj. (Retd) Taj Muhammad Khan, President, FO, Mirwal Small Dam.
 Mr. Jafar Khan, Secretary, FO, Mirwal Small Dam.
 Mr. Ali Asghar, DD, Soil Conservation Department, Rawalpindi.

Mr. Aamir Ashraf Khawaja, Project Director, SBADP, Rawalpindi.
Mr. M. Zahur Alam, DD (Development), Rawalpindi.
Mr. Amjad Saleem, Project Director, (OFWM), Rawalpindi.
Mr. Muhammad Aslam, Project Incharge, WRII-NARC, Islamabad.
Mr. Mumtaz Ahmad Awan, Director, OFWM, Rawalpindi.
Mr. Tasawar Hussain, DD, Agricultural Extension, Rawalpindi.
Mr. Muhammad Siddique, Small Dams Organization, Islamabad.
Syed Akhtar Hussain, PD, Small Dams Organization, Islamabad.
Mr. D. J. Bandaragoda, IIMI-Pakistan, Lahore.
Dr. M. Asghar Cheema, IIMI-Pakistan, Lahore.
Dr. M. Akhtar Bhatti, IIMI-Pakistan, Lahore.
Mr. M. Akram, Team Leader, IIMI-Pakistan Field Team, Fateh Jang.

After preliminary presentations describing the action research objectives and the work done so far, some issues were raised and discussed:

- * The first issue was related to the legal status of the Small Dams Farmers Organizations. Farmers organizations have been established at Shahpur and Mirwal Small Dams, but to make them more formal organizations, they would need to be registered with some government agency. Presently, in the Punjab Province, there is no provision in the Water Users Association Ordinance of 1981, that recognizes associations except at the watercourse level in canal irrigation systems. The Punjab Irrigation and Drainage Authority Act, which has been recently enacted, is still non-functional.

It was decided in the meeting that Mr. Mushtaq Gill, Director General OFWM, be approached for the necessary amendment in the WUA Ordinance of 1981, where like in Sindh and NWFP Provinces, FOs for distributary, small dam and tube-well systems can get legal coverage by registering themselves with OFWM in the Punjab Province. Alternatively, other opportunities, such as through the Societies Registration Act of 1860, or the cooperative societies Act of 1925, should be explored for their registration. Registration of FOs is important in that it would enable the FOs to enter into an agreement with any government or non-government agency for economic activities.

- * The second issue was the replication of pilot project results. It was suggested that On Farm Water Management (OFWM) with the assistance of IIMI-Pakistan should prepare plans to organize farmers at a third site (i.e., Bughtal Dam or any other dam that OFWM deems fit). IIMI will provide the technical assistance in the organization and sustainability of the FOs. This step would provide a workable institutional arrangement to replicate FOs in all other small dams.
- * Regarding the maintenance of Shahpur Dam's water channel to reduce water losses and to supply water to all of the four villages in the command area on an

equitable basis, Director General, ABAD, requested the Small Dams Organization to act quickly, and to give a time frame during which the repair work could be completed to the satisfaction of local farmers. The Executive Engineer, Small Dams, promised to complete the repair work within one month.

- * Regarding water rights of the farmers, the PD Small Dams pointed out that the Canal Act of 1873 allowed the Irrigation Department to acquire land for the construction of watercourses to supply water to all farmers in the command area, but this Act was not operative for small dams. It was agreed that the Small Dams Organization officials would study this issue closely and come up with some suggestions whereby the routes of the watercourses should be designed in such a way that it supplied dam water to the maximum number of farmers in the command area.

5.5 Collaboration with Other Agencies

A number of meetings were held between FO leaders, IIMI Staff and the officials of government agencies working in the area regarding problems that farmers of the area are confronting. Some of the collaborative activities undertaken are outlined below.

- * IIMI Staff held many discussions with their collaborating partner Water Resources Research Institute, Islamabad. The main focus of the discussions was to do some collaborative work at both the pilot sites. In this regard, a technical diagnostic survey was proposed by the WRRRI and was completed. A comprehensive report titled "Initial Technical Diagnostic Survey for Mirwal And Shahpur Dams in Pothwar Plateau" was prepared after conducting a survey during March 1997.
- * Discussions were also held with ActionAid Pakistan for their collaboration regarding training of farmers in the areas where they could improve their living standards. In this regard, ActionAid officials suggested doing a study on Training Needs Assessment. This work was accomplished, and the report would be completed during March-April 1998.

6. ACCOMPLISHMENT OF FARMERS ORGANIZATIONS

6.1 Mirwal Small Dam

- * Effective implementation of a warabandi schedule started at the minor and watercourse level from 9 June 1997, with the involvement of Mirwal Small Dam FO and the Small Dams Organization of Department of Irrigation and Power.

- * The FO mailed a letter of warning to all the water users in the Mirwal Small Dam command area with the instructions not to obstruct canal water in future. This was in addition to collective discussions and agreement reached during meetings.
- * Temporary obstructions to raise water level were removed from the canal by the PID staff with the assistance of FO office bearers. Instead, concrete structures have been constructed to supply sufficient water to the affected watercourses.
- * With the intervention of FO office bearers, water related conflicts at two moghas have been resolved.
- * The presence of wild boar in the area was reported to be a great problem for the farmers. With the involvement of FOs, the National Rural Support Program (NRSP) initiated some activities to prevent the occurrence of this problem.
- * The Mirwal Small Dam FO successfully organized the purchase of chemical fertilizers and wheat seed with the assistance and cooperation of the Agricultural Development Bank of Pakistan.
- * To change the cropping pattern and cropping intensity of the area, a program of cultivating citrus fruit plants during the spring season of 1998 was initiated by the FOs.
- * The FOs negotiated with the Manager, ADBP Jand, and the Agricultural Engineer, Soil Conservation, to use machinery to level the commandable unirrigated land in the area.

6.2 Shahpur Small Dam

- * With the involvement of farmer representatives, the repair work of the collapsed pillars under the Shahpur Canal Aqueduct was completed by the Small Dams Organization.
- * With the involvement of FOs and Small Dams Organization staff, the construction work and remodelling of the bifurcation point of Shahpur Dam Canal has been completed. The bifurcation point had been a source of conflict among the farmers of the area for the past several years. This issue was raised during the operation and maintenance training of farmers conducted by Professor Skogerboe, Director IIMI-Pakistan, and also at the PICC meeting.
- * About one thousand citrus plants were purchased and distributed among the farmers.

The enthusiasm shown by the FO leaders augurs well for the future. With the appropriate collective action for the maintenance of the water channels, establishment of water rights, arrangement of an effective management transfer of irrigation systems to the FOs, positive results can be expected out of this action research.

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IIMI Staff Inputs for the Action Research Program

Lahore-Based

| | |
|--------------------------------|--|
| Professor Gaylord V. Skogerboe | (Advisor on Water Management) |
| Dr. M. Akhtar Bhatti | (Short-Term Consultant) |
| Mr. D.J. Bandaragoda | (Institutional Specialist, Project Leader) |
| Dr. M.A. Cheema | (Sociologist) |

At Fateh Jang

| | |
|--------------------|---------------------|
| Mr. Muhammad Akram | (Field Team Leader) |
| Mr. Shabbir Ahmad | (Social Organizer) |
| Mr. Wahid Ahmad | (Social Organizer) |
| Mr. Nasir Mahmood | (Field Assistant) |

Annexure 2

ACTIVITY CHART

| ACTIVITIES | | A | M | J | J | A | S | O | N | D | J | F | M |
|--------------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|
| Year 1: April 1996/March 1997 | | | | | | | | | | | | | |
| 1 | Search, select and train field team | | | | | | | | | | | | |
| 2 | Negotiate institutional arrangements | | | | | | | | | | | | |
| 3 | Select two pilot sites | | | | | | | | | | | | |
| 4 | Conduct initial walk-through and identify key informants | | | | | | | | | | | | |
| 5 | Collect basic field information | | | | | | | | | | | | |
| 6 | Identify project coordination group | | | | | | | | | | | | |
| 7 | Develop process for pilot project | | | | | | | | | | | | |
| 8 | Develop questionnaire and conduct socio-economic baseline survey | | | | | | | | | | | | |
| 9 | Conduct technical baseline survey | | | | | | | | | | | | |
| 10 | Conduct awareness-building meetings | | | | | | | | | | | | |
| 11 | Preliminary data analysis of baseline surveys | | | | | | | | | | | | |
| 12 | Final report of baseline surveys | | | | | | | | | | | | |
| Year 2: April 1997/March 1998 | | | | | | | | | | | | | |
| 13 | Prepare report of the diagnostic analysis | | | | | | | | | | | | |
| 14 | Conduct semi-formal consultation meetings | | | | | | | | | | | | |
| 15 | Arrange formal water users meetings to select organizational leaders | | | | | | | | | | | | |
| 16 | Assist in conducting meetings and collective action for maintenance | | | | | | | | | | | | |
| 17 | Assist in reviewing allocation rules | | | | | | | | | | | | |
| 18 | Establish water users organizations in two pilot sites | | | | | | | | | | | | |
| 19 | Conduct training on O&M and improved irrigated agricultural practices | | | | | | | | | | | | |
| Year 3: April 1998/March 1999 | | | | | | | | | | | | | |
| 20 | Develop plan of action for O&M | | | | | | | | | | | | |
| 21 | Arrange for Joint Management Agreement | | | | | | | | | | | | |
| 22 | Training WUO leaders on organizational, financial and management aspects | | | | | | | | | | | | |
| 23 | Assist in implementing plan of action on O&M | | | | | | | | | | | | |
| 24 | Evaluate short-term effects of WUOs | | | | | | | | | | | | |
| 25 | Refine plan of action and internalize implementation strategies | | | | | | | | | | | | |
| 26 | Assist in establishing third small dam pilot project | | | | | | | | | | | | |
| 27 | Final report and seminar | | | | | | | | | | | | |

Note: The above time-line information reflects the adjustments made in the project period since the submission of the proposal.

Basic Information on Three Small Dam Systems 1

| Item of Information | Name of Small Dam | | | |
|-----------------------|----------------------------|-----------------------------|---------------------------|------------|
| | Mirwal | Shahpur | Bughtal | |
| Name of Stream | Durban Kas | Nadna Kas | Sirli Nallah | |
| Storage Capacity | 3.36 MCM (2726 AF) | 5.1 MCM (4095 AF) | 0.8 MCM (675 AF) | |
| | | | | Dead |
| Design Discharge | 0.31 M3/sec (11 cusecs) | 1.21 M3/sec (43 cusecs)* | 0.25 M3/sec (9 cusecs) | |
| Designed Command Area | 711 ha (1050 acres) | 1346 ha (4308 acres)** | 406 ha (600 acres) | |
| Year of Completion | 1990 | 1986 | 1990 | |
| O&M Cost | 93/94 | Rs. 1,72,400 | Rs. 6,55,800 | Rs. 50,000 |
| | 94/95 | Rs. 1,63,780 | Rs. 6,23,010 | Rs. 50,000 |
| Abiana Collected | 92/93 | Rs. 6,070 | Rs. 7,027 | Rs. 22,713 |
| | 93/94 | Rs. 15,647 | Rs. 20,132 | Rs. 23,572 |
| | 94/95 | Rs. 19,786 | Rs. 17,901 | Rs. 24,080 |
| Number of Water Users | 95 | 157 | 200 | |

* Actual discharge is 15 cusecs as reported by the Small Dams Organization.

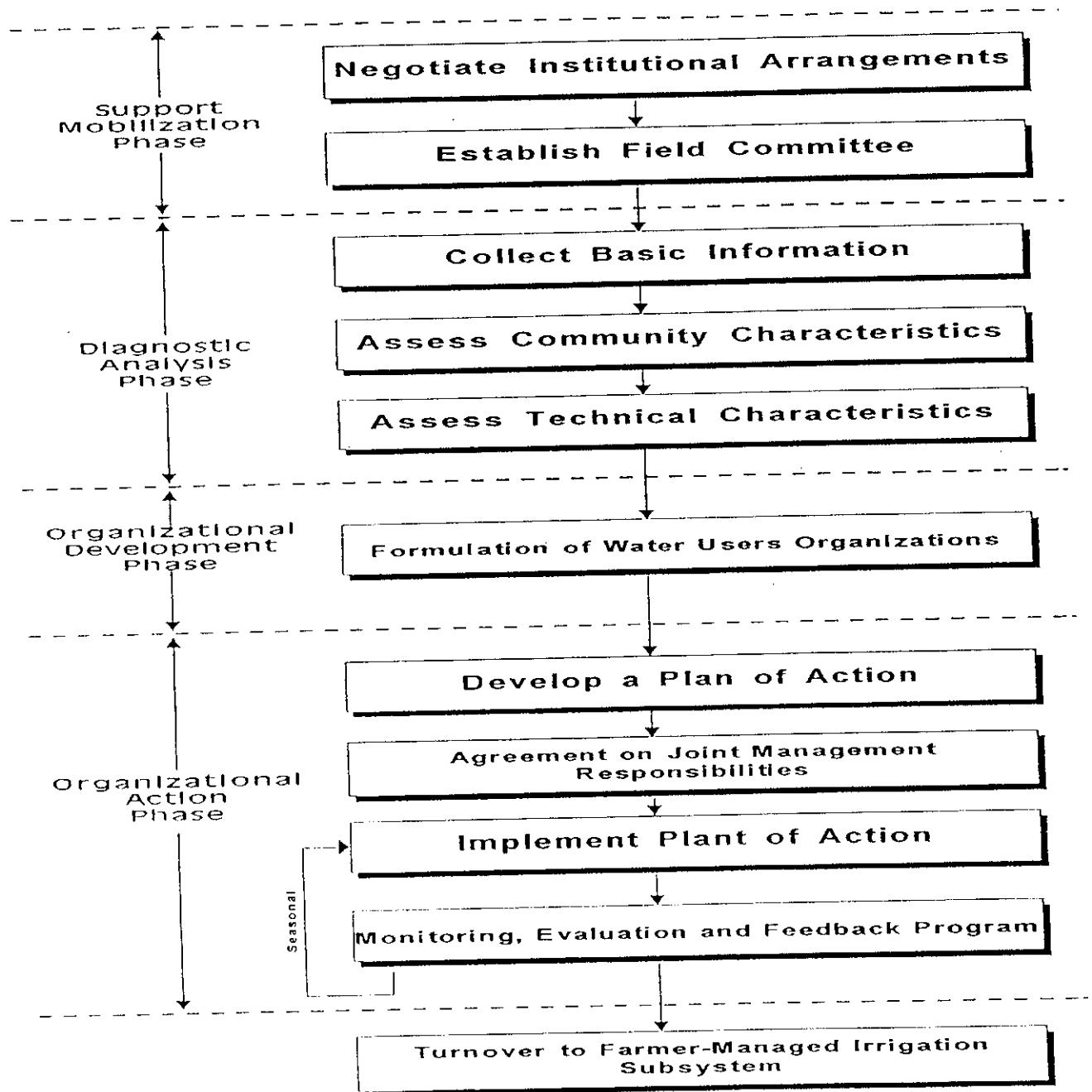
** Actual command area is 1250 acres as reported by the Small Dams Organization.

1. Information in this table was collected with the help of Dr. Shahid Ahmad and Mr. Muhammad Aslam of WRII.

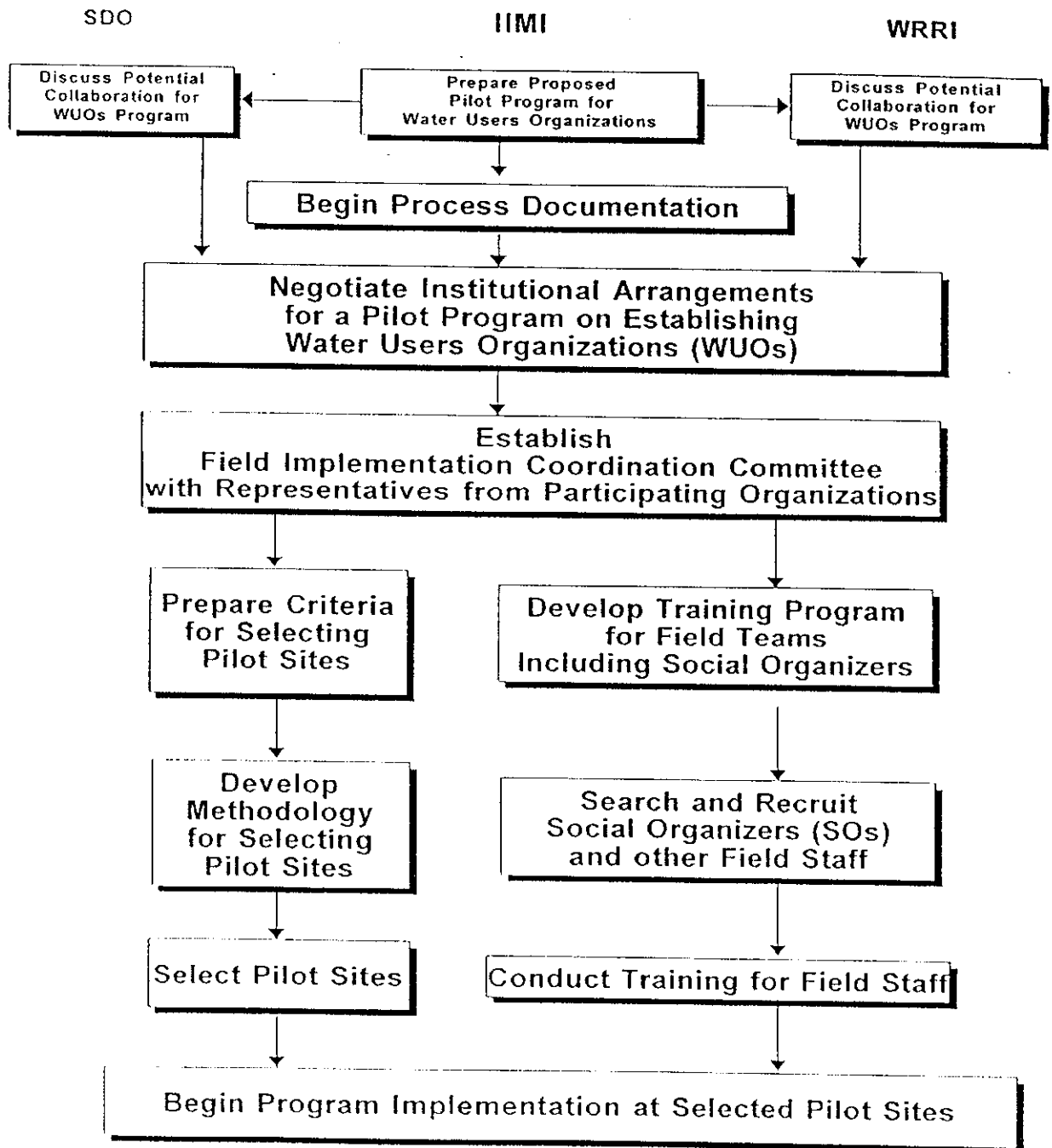
Testing Chart for SOVs

| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| 1. The person is well motivated and has initiative for working for the community | | | | | |
| 2. Participation in some community work | | | | | |
| 3. Well informed of area, socio-economic factors, irrigation and agriculture. Know more about the area ? Know more about the community, caste, tradition, etc. Know more about crops, problems of irrigated agriculture, etc. Know more about who can solve their water related problems ? | | | | | |
| 4. Honest and trustworthy ? | | | | | |
| 5. Is he believed to be a social element? | | | | | |
| 6. Ability to communicate well with you. | | | | | |
| 7. Ability to communicate with the farming community. | | | | | |
| 8. Experience in working with the farming community. | | | | | |
| 9. Does he seem reasonable and intelligent to you. | | | | | |
| 10. Affiliation to some political party ? | | | | | |
| 11. Commitment to work for improvement in the situation ? | | | | | |
| 12. Is there a political conflict in the area yes/no; if yes, how seriously is the person involved ? | | | | | |

**PROPOSED PROCESS FOR CREATING SUSTAINABLE
WATER USERS ORGANIZATIONS IN SMALL DAM PILOT PROJECTS**



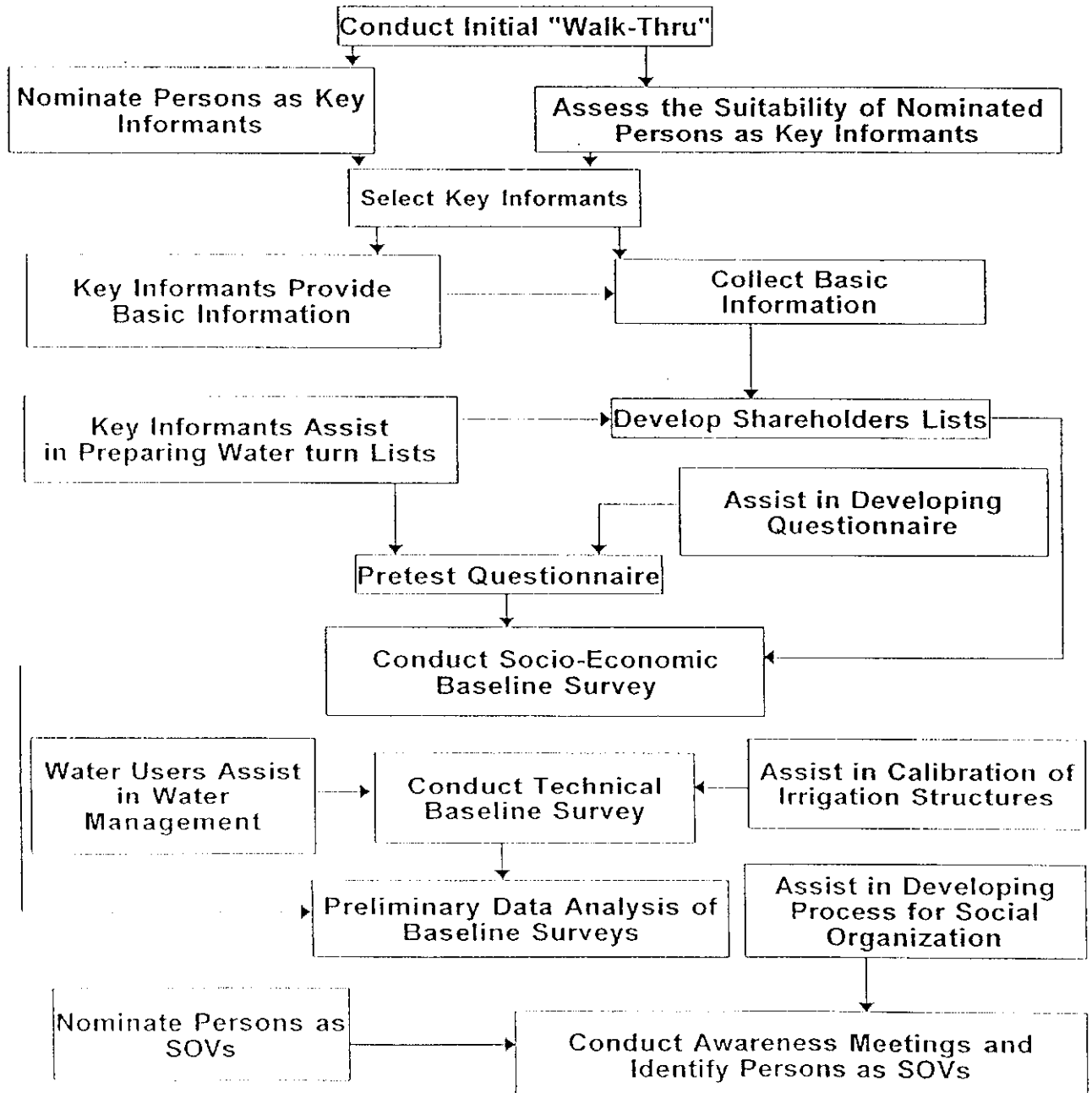
Phase I: SUPPORT MOBILIZATION



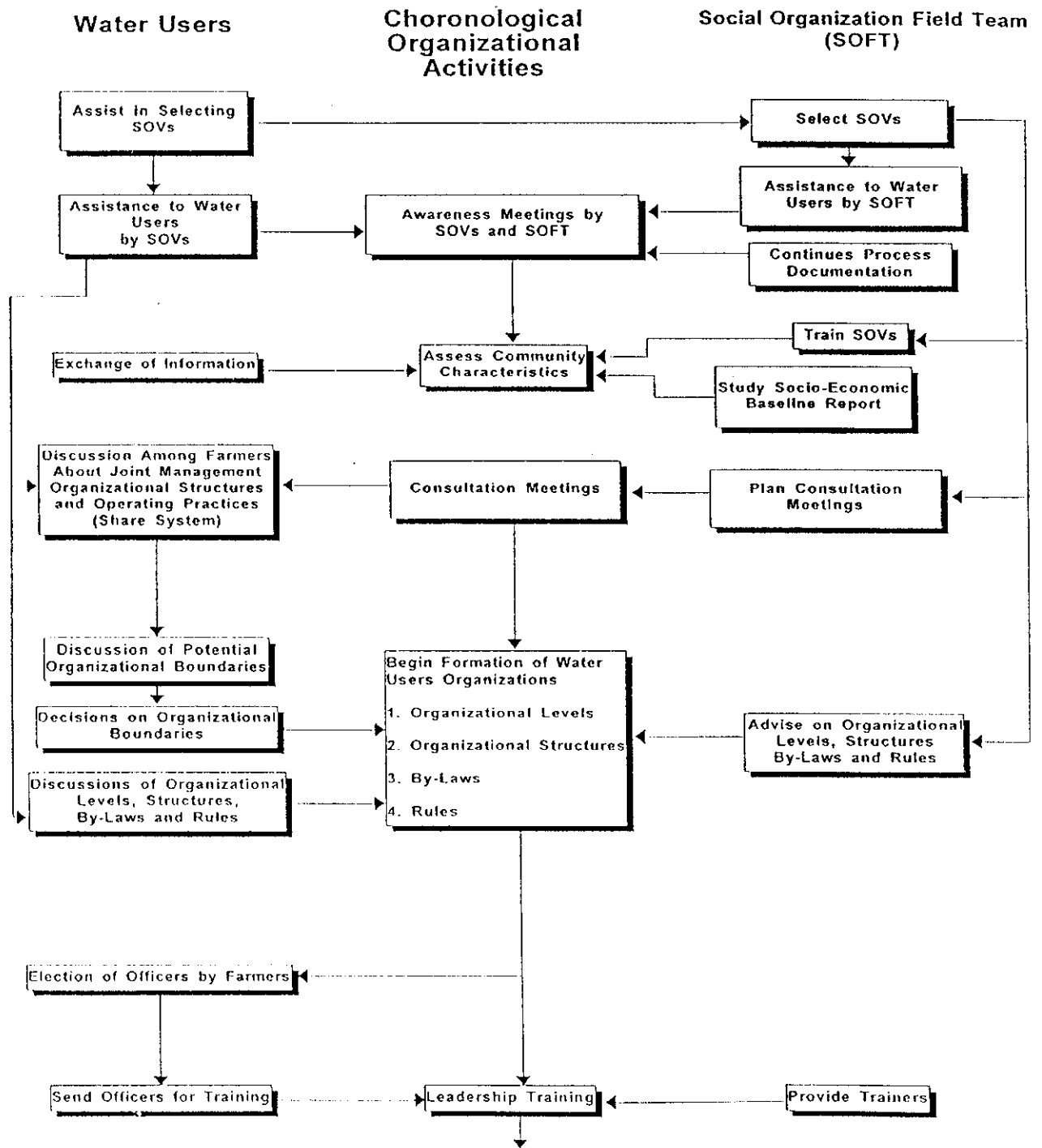
Phase II: DIAGNOSTIC ANALYSIS

Water Users

Social Organization Field Team
(SOFT)



Phase III: ORGANIZATIONAL DEVELOPMENT



Phase IV: ORGANIZATIONAL ACTION

