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WORKING PAPER 16

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Capacity building for Participatory Irrigation Management in Sind Province

Yameen Memon
Mustafa Talpur
Hammond Murray Rust



Working Paper 16

Capacity Building For Participatory Irrigation Management in Sindh Province of Pakistan

Yameen Memon
Mustafa Talpur
and
Hammond Murray-Ruest

International Water Management Institute

**Extended Project on Farmer Managed Irrigated Agriculture Under The National Drainage
Program (NDP)**

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The authors: Dr. Yameen Memon, Senior Researcher IWMI
Mr. Mustafa Talpur, Junior Researcher IWMI
Dr. Hammond Murray-Rust, Principal Researcher IWMI

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Please direct inquiries and comments to: IWMI 12 Km, Multan Road, Chowk Thoker Niaz Baig, Lahore 53700 Pakistan.

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SUMMARY

Through the newly established institutions in irrigation sector, FOs can play their role as major stakeholders in the operation and maintenance of the irrigation and drainage system. Thus the target of the Farmer Managed Irrigated Agriculture (FMIA) was the establishment of the institutions and provision of external support for strengthening the newborn institutions. The capacity building program was initiated after the formation of FOs on distributaries/minors. Due to lack of involvement in management, the farmers in Pakistan are less informed about water resources and their management. The governmental management pattern and the societal structure also kept farmers away from water resources management. In the socio-economic environment, the task envisaged for FOs is unattainable until intensive capacity building program is organized. Job analysis of the FOs was the key of this capacity building program.

International Water Management Institute (IWMI) under FMIA project assessed the training needs of the farmers. The training programs organized included social organizers volunteers (SOVs) workshops, awareness on institutional reforms, discharge measurement and walk thru surveys (O&M), organizational and financial management, FO rules, regulations, bylaws, action plan and transfer agreement, crop assessment and abiyana collection and workshops on agricultural production practices.

These training programs were organized for the social organizers' volunteers (SOVs); management committee members of watercourse associations (WCAs), Farmer Organizations (FOs) and officials of Area Water Board/ Irrigation Department and On-Farm Water Management.

In all 2,206 members of watercourse associations, farmer organizations and agency officials were given training in different fields. A total number of 2,039 office bearers/members of watercourse associations (WCAs) and farmer

organizations (FOs) participated in these training programs.

Majority of the office bearers (Chairman, Secretary and Treasurer) of watercourse associations and farmer organizations participated in the training programs. Ninety (90) percent of participants were literate. Twenty-three (23) percent of the participants were postgraduate having a masters degree while twenty-nine (29) percent participants had primary education. The participants were well distributed from head, middle and tail reaches of the distributaries/minors (35 percent from head, 31 percent from middle and 34 percent from tail reaches). On average participants had at least 20 years of farming experience. Mostly landowners and owner cultivators participated in the training programs. A smaller number of managers, lessees and tenants participated. Most of the members participated in more than one training program.

It is a widely recognized fact that without some form of long term and consistent support mechanism, the rural groups can not easily be maintained because the change process in rural societies is very slow. Some kind of external support is needed to nurture these newly born organizations, and this is likely to be true for the FOs.

It is recommended to impart training needs, assessed by the field team and water users, which could not be organized during the project period, to familiarize the farmers with all the skills they would require after the transfer of responsibilities of irrigation and drainage management (IDMT). The following training needs to be organized:

- Effective communication strategy and Conflict resolution;
- Equitable water distribution after IDMT;
- Optimum use of water;
- Business plan;
- Financial management.

1. INTRODUCTION

1.1 Institutional Reforms in Irrigation Sector

Many experts have concluded that the performance of irrigation systems in Pakistan is deteriorating since 1970's. Consequently the productivity of irrigated agriculture started to decline due to following reasons:

- Low efficiency in irrigation (35-40 efficiency);
- Unreliable supply and inequitable distribution of water;
- Inadequate maintenance;
- Insufficient cost recovery;
- Waterlogging and Salinity; and
- Lack of public participation

To improve the irrigation and drainage management system, the Government of Pakistan decided on the devolution of powers to the beneficiaries at the secondary canal (distributaries/minors) level. Accordingly, the Provincial Irrigation and Drainage Authorities (PIDAs) in all four provinces of Pakistan have been established through enactment of Provincial Irrigation & Drainage Authority Acts in 1997. The PIDA will be responsible for the intra-Provincial management aspects of the system from barrages to canal head works, and from main drains that cross canal commands and major drainage basins to inter-provincial drains.

1.2 Need for Formation of Farmer Organizations

At the second tier of the new institutional arrangement, self-accounting, self managed and self financing Area Water Boards (AWBs), initially set up as pilots, would be established around selected canal commands to take over and manage the irrigation and drainage system at canal command level.

The key elements of these reforms are Farmer Organizations (FOs) owned and controlled by farmers. The farmers would be encouraged, through a series of pilots in each AWB, to take over and manage the irrigation and drainage system below the distributaries/ minors head and sub-drains feeding into branch drains operated by AWBs.

Farmers' participation can be ensured through the formation of local level Farmers institutions that could serve as a platform for joint activities for common purposes. Through these organized bodies farmers can also mobilize resources and resolve the conflicts arising among them.

2. PROJECT BACKGROUND

In late 1995, the Government of Sindh invited International Water Management Institute (IWMI)¹ to conduct action research pilot projects on Farmers Organizations on three (3) distributaries. The main focus of action research was to test the viability of effective user organizations to manage and operate the distributaries/minor. The project achieved its target of organizing three Farmers Organizations (FOs) on three different distributaries in Left Bank Outfall Drainage (LBOD) project area. The FOs established under pilot project for “Farmers managed irrigated agriculture” in three selected distributaries in the Sindh province proved to be socially viable.

Due to administrative delays and inadequate legal authority for FOs, the operation and maintenance responsibilities of these distributaries could not be transferred to FOs. The government of Sindh extended the pilot project to facilitate these three FOs for the irrigation management transfer and assisted the farmers of ten more distributaries in the formation of FOs. The extended project started in April 1999 to assist farmers in the pilot areas to explore how the three distributary level farmer organizations (FOs) and the eighty Watercourse Associations (WCAs) in the pilot project can enhance their sustainability and to organize 10 additional distributaries.

More specifically, the extended program activities aimed at:

- Consolidating the already initiated social organization processes in the pilot area;
- Exploring the ways in which FOs could integrate irrigation and drainage functions in their O&M management responsibility;
- Assisting the FOs to develop a financially feasible plan of action in O&M management for irrigation and drainage in the distributary command area;
- Monitoring and evaluating the implementation of the action plan by the FOs;
- Assisting the FOs to establish an appropriate system of internal bylaws;

¹ Formerly known as International Irrigation Management Institute (IIMI)

- Forming ten Farmer Organizations (FOs) at Jamrao Canal Command Area.

During this second phase of the project eleven additional (instead of 10 envisaged in TOR) Farmers Organizations were formed thus, total number of FOs become fourteen. All these FOs have been registered under the SIDA act.

2.1 Social Organization Methodology for Farmer Organizations

To form the FOs, an action research program was conducted at fourteen (14) pilot distributaries in the Sindh province by the International Water Management Institute (IWMI) with the main purpose to test the viability of farmers’ managing parts of the irrigation and drainage systems. The methodology adopted to form FOs is presented in Figure 1.1.

Following the above mentioned steps and structure of the Farmers Organization, the social organization process started at watercourse level. In the beginning 330 Watercourse Associations (WCAs) were formed on 14 distributaries/minors. In few cases, where there was a single landowner on one watercourse joint watercourse associations were formed. During this process total 4,363 water users became formal members of 330 WCAs.

The WCA consists of farmers who own land on that watercourse. To run the day-to-day business at watercourse level, the members elected a management committee comprising of Chairman, Secretary, Treasurer and four executive members. Simultaneously, the WCAs nominated one or two representative(s) for the general body of the Farmers Organization at the distributary/minor.

At the second tier, the general body of Farmers Organization elected its management committee having a similar structure as of watercourse. The general body of the FO varies from 10 to 72 members according to the number of watercourses at the Distributary.

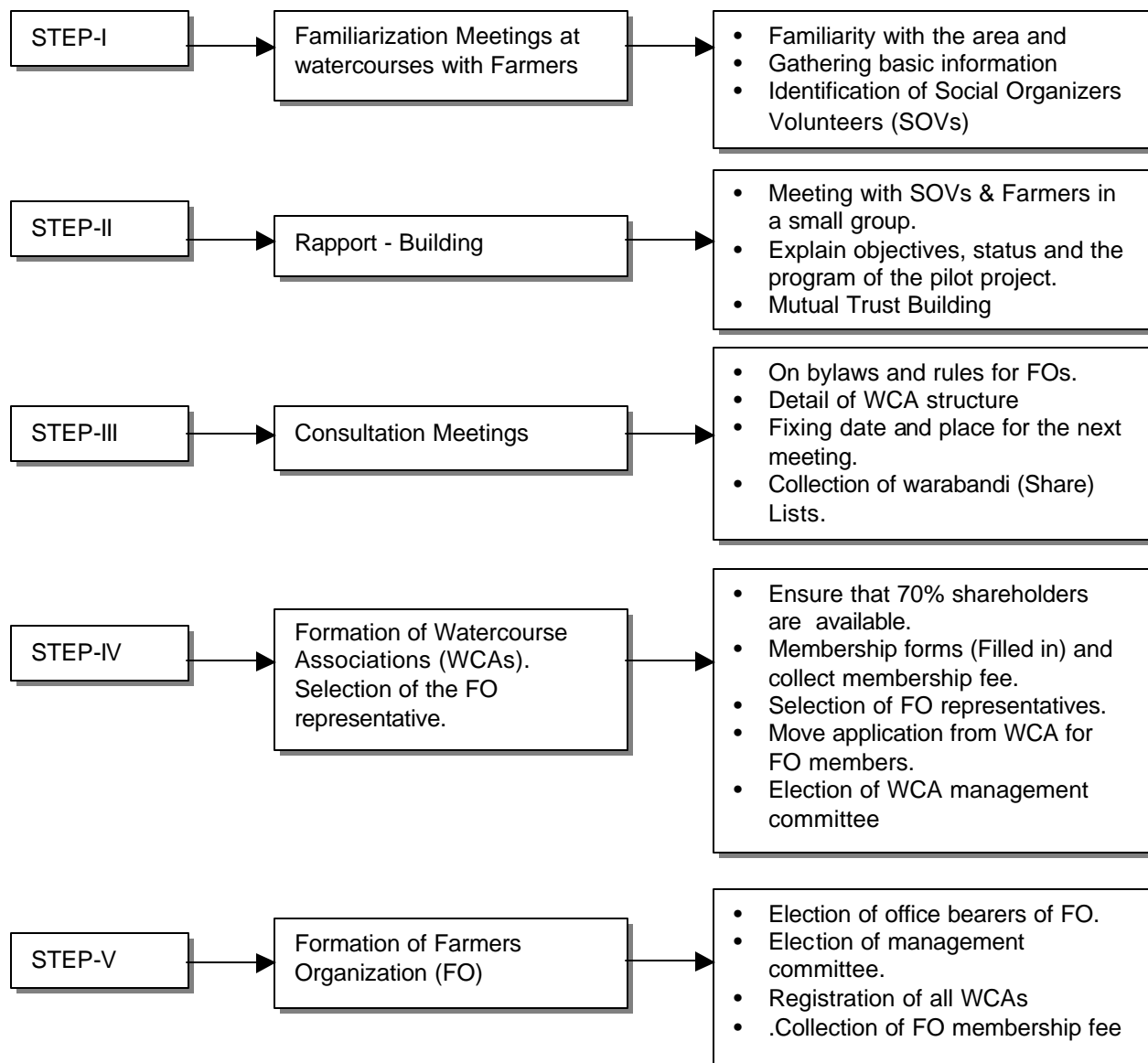


Figure 1.1 Steps Followed in Forming Farmer Organization.

2.2 Profile of the Pilot Distributaries

The study area is located in the southeastern part of Sindh province of Pakistan. It covers part of the districts Nawabshah, Sanghar and Mirpurkhas (Figure 2.1). The command area of Heran,

Rawtiani, Mohd Ali, Tail, Bareji, Mirpur, Sanhro and Dhoro Naro distributaries/minors come under the drainage component of LBOD.

Among fourteen distributaries, thirteen off take from the Jamrao canal of Nara Canal while one minor off takes from the Rohri Canal. The Nara Canal off takes from River Indus at Sukkur Barrage. The selection of distributaries was made as follows: Three distributaries were selected in the beginning of the project through organizing one-day workshops where concerned officials of

the department attended the workshop while ten other distributaries were selected by the Project Steering Committee constituted by the Provincial Development Working Party (PDWP).

The consideration was given to select small, medium and large size distributaries specially covering tail reach of the system. Salient features of the pilot sites are given in Table 1.1

Table 1.1. Profile of Distributaries/Minors

S#	Distributary/ Minor	RD, Canal	Total Length KM (RD)	CCA (Acres)	Design Discharge (cusecs)	No. of WCs	No. of WCAs formed	Membership of WCAs	Deposited Membership fee	FO formed on (date)	Registration No. and Date
1	Heran	129-Nara Canal	10.60 (32.0)	15,410	62.50	31	31	562	31,000	20-Oct-99	(5) 25-Jan-2000
2	Rawtiani	56.4-Dim Br.of Jamrao Canal	8.83 (28.96)	9,026	29.00	19	18	329	1,7000	30-Dec-99	(6) 25-Jan-2000
3	Mohd Ali	134-Dim Br. Jamrao Canal	4.67 (15.32)	3,833	10.90	10	10	76	10,000	2-Oct-99	(7) 25-Jan-2000
4	Tail Minor	95.0-Shahu Br.Jamrao Canal	5.15 (16.90)	8,286	27.00	14	14	177	14,000	26-Apr-2000	(12) 5-May-2000
5	Bareji	408.5-Jamrao Canal	12.00 (39.31)	13,049	41.50	24	24	295	24,000	19-Jan-2000	(3) 25-Jan-2000
6	Mirpur	342- Jamrao Canal	14.80 (48.50)	16,218	63.80	53	40	418	44,000	12-Oct-99	(1) 25-Jan-2000
7	Sanhro	408.5-Jamrao Canal	10.00 (32.90)	15,367	53.80	25	27	290	26,100	18-Jan-2000	(4) 25-Jan-2000
8	Belharo	150-West Br.Jamrao	13.87 (45.50)	17,077	58.60	32	28	456	32,000	27-Jan-2000	(8) 2-Feb-2000
9	Potho	215-West Br.Jamrao	10.35 (33.11)	8,063	30.00	19	18	285	19,084	22-Nov-99	(2) 25-Jan-2000
10	Bagi	619.74 Jamrao Canal	7.60 (25.20)	8,128	28.00	14	14	205	12,000	22-Apr-2000	(10) 5-May-2000
11	Dighri	164.52- West Branch of Jamrao	29.35 (93.50)	31,627	101.80	72	57	590	66,000	25-Apr-99	(11) 5-May-2000
12	Khatian	300 West Branch of Jamrao	7.70 (24.60)	9,567	27.50	21	19	189	21,000	14-Jun-2000	(15) 30-Jun-2000
13	Tando*	300-West Br.Jamrao	5.10 (16.70)	1,806	5.50	6	6	51	5,100	14-Jun-2000	(14) 30-Jun-2000
14	Dhoro Naro	91.40-Gajrah Branch of Rohri Canal	9.84 (32.27)	13,382	51.60	25	24	400	19,960	9-Mar-2000	(9) 16-Mar-2000

* This is the additional minor where FO has been formed. It is not included in the TOR.

3. DESIGNING A CAPACITY BUILDING PROGRAM FOR PIM

Capacity is the ability of the person or organization to do things with maximum competence. The organization needs to be effective in the delivery of the services and efficient use of resources (Alaerts et. al.1991). Peoples are key players in establishing an effective operation of the institutions. In case of irrigation service provision means to acquire, allocate and distribute water equitably and reliably to all the legitimate users in sustainable way. While in case of drainage FO needs to maintain surface drains having less than 15 cusecs discharge and guard the tubewell pumps, sump house of tile units and also maintain disposal channels. Enhancing the abilities of the leaders to smoothly establish the institution and perform the designed function is essential. Human resource development and capacity building program ensures sustainability of the institution, laws and regulation are efficiently used, and more resources are mobilized.

Through the newly established institutions in irrigation sector, FOs can play their role as a major stakeholder in the operation and maintenance of the irrigation and drainage system. Thus the target was the establishment of the institutions and provision of external support for strengthening the newborn institutions. The capacity building program was initiated after the formation of FOs on distributaries/minors. Due to lack of involvement in management, the farmers in Pakistan are less informed about water resources and their management. The governmental management pattern and the societal structure also kept farmers away from this business. In this environment, the task envisaged for FOs is unattainable until intensive capacity building program is organized. The job analysis of the FOs was the key of this capacity building program.

3.1 Objectives of the Capacity Building Program

The objectives of the capacity building program are well defined but are difficult to measure

because results of capacity building are intangible in most of the cases. The capacity building program was designed to form and strengthen the farmers' institutions and to develop the necessary skills among the leaders of these institutions. The objectives were to:

- Facilitate institution building process, legal requirement and formulate and adopt rules and regulations;
- Fill the knowledge gap among farmers regarding their new role and responsibilities;
- Transfer basic organizational and financial skills;
- Enhance technical know how of irrigation and drainage management;
- Provide external support to create conducive environment for weaving the fabric of new institutions.

3.2 Rationale of Training

The watercourses associations (WCAs) are the foundation of Farmers Organization (FO). The effective working of FO depends on WCAs. In other words the WCAs are the basic units of this new organizational set-up where people at all levels are involved at grass root level.

The soundness of WCAs is directly linked with the performance of the organizational leader i.e. office bearers and management committee members. In any institution the role of leaders is decisive which makes organizations functional or dysfunctional.

The FO at distributary level has to manage the overall organizational activities, keep close coordination with its members at WCAs level and also establish the external links with the concerned agencies for advocating and promoting the cause of the organization. Therefore, it needs abilities in leading the organization, negotiating with the concerned agencies, and presenting cases for its smooth working and promotion. FO is particularly concerned with ensuring water distribution equity between watercourses and in the assessment and collection of irrigation service

fees. This is the first effort in Pakistan to involve farmers in these two activities.

3.3 Training in Need Assessment

A team of researchers remained closely in touch with the members of farmer organizations and kept intensive interaction through organizational meetings, individual meetings, and other events and also through participatory rapid appraisal. The need for imparting training to FO members was assessed in the field of organizational, financial and technical aspects to undertake operation and maintenance of distributaries and minor canal level, assess and collect abiana (water charges) and run the organization.

The following fields were identified to develop the capacity of water users for smooth functioning of their organizations and operation and maintenance of the irrigation and drainage systems:

- Rules, regulations and bye-laws;
- Participatory irrigation management;
- Effective communication strategy and conflict resolution;
- Organizational and financial management;
- Project planning and implementation;

- Operation and maintenance of irrigation and drainage system;
- Equitable water distribution;
- Optimum use of irrigation water;
- Discharge measurement;
- Resource mobilization;
- Crop assessment, abiyana collection and record keeping;
- Business plan;
- Financial management.

As envisaged in the terms of references of the project, most of the training events were organized during the project period. However, few of training events directly related to IDMT could not be imparted, due to non-transfer of irrigation and drainage management to FOs.

The following training programs need to be organized:

- Effective communication strategy and Conflict resolution;
- Equitable water distribution after IDMT;
- Optimum use of water;
- Business plan;
- Financial management.

4. CONDUCTING TRAINING PROGRAM

4.1 Trainings Organized

As mentioned earlier, the training were envisaged in the project TOR and need was assessed by the field team. Table 4.1 shows the training programs

organized for the members of watercourse associations and farmer organizations during the project period.

Table 4.1 Training Organized.

S#	Training	No. of Participants
1	Social Organizer Volunteers (SOVs) workshop	361
2	Awareness on institutional reforms	120
3	Discharge measurement and walk thru survey (O&M)	487
4	Organizational and financial management	577
5	FO rules, regulations, bylaws, action plan and transfer agreement	184
8	Crop assessment and abiyana collection	105
9	Workshops on agricultural production practices	372
Total		2,206

4.2 The Participants

The training programs were organized for the following clientele:

- Social Organizer Volunteers (SOVs);
- Management Committee Members of Watercourse Associations (WCAs) and Farmer Organizations (FOs) and
- Officials of Area Water Board and On-Farm Water management.

In all 2,206 members of watercourse associations, farmer organizations and agency officials were given training in different fields. Some of the characteristics of members of WCAs and FOs who participated in the programs are presented briefly hereunder, whereas details are given in **Annex-1**. A total number of 2,039 office bearers/members of watercourse associations (WCAs) and farmer organizations (FOs) participated in these training programs.

- Majority of the office bearers (Chairman, Secretary and Treasurer) of watercourse associations and farmer organizations participated in the training programs;
- Ninety (90) percent of participants were literate;
- Twenty-three (23) percent of the participants were postgraduates;
- Twenty-nine (29) percent participants had primary education;
- The participants were well distributed from head, middle and tail reaches of the

distributaries/ minors (35 percent from head, 31 percent from middle and 34 percent from tail reaches);

- Mean age of the participants was 42 years. A few members aged more than 60 years took part in the training programs;
- The majority of farmers attending the training were well experienced. On average participants had at least 20 years of farming experience;
- Mostly landowners and owner cultivators participated in the trainings;
- A smaller number of managers, lessees and tenants participated in the training;
- Most of the members participated in more than one training program;

4.3 Methodology Adopted

The senior people from IWMI with experience in organizing FO on three pilot distributaries during the first phase of the project were involved as the trainers. In addition, some trainers were also invited from other organizations and departments. The training courses were organized at places suitable to all members of the FOs. Maps, drawing sheets and flip charts were used during training. Also during discussions the remarks of each participant sheets were noted down on sheets of paper. The participants were encouraged to share experiences on every aspect of the contents of the

training. Local language was used during the training and written material was distributed among the participants.

The latest communication equipment such as multi media, over head projector, flip charts and white boards were used to deliver the message properly and achieve the desired results. In the technical sessions equipment such as current meter and cutthroat flume was used. The theoretical/conceptual knowledge was augmented with classroom and field practice.

4.4 Material Distributed

The printed material distributed among the members during training included:

- farmers organizations bye-laws and SIDA Act;
- action plan for operation and maintenance of irrigation and drainage system;
- draft irrigation and drainage management agreement document;
- discharge measurement training notes.

4.5 Training to Social Organizer Volunteers

The original idea introduced in social organization was mobilization of local water users as volunteers. The main reason of mobilizing the local volunteers was to develop the organizational concepts among the community and to support the field teams in the area.

The social organizer volunteers (SOVs) were identified by rapid appraisal of the villages. In case of long distributaries having more than 25 watercourses, one SOV was identified from each watercourse command area and in case of medium and small distributary having less than 25 watercourses two SOVs were identified from each watercourse command area. The following criteria were considered while identifying the SOVs.

- The person is well informed about the area, its people, traditions, geographical details, water and land resources and generally about its irrigated agriculture;
- The person is non-controversial, is not known as a troublemaker, an exploiter, or an anti-social person;
- The person is willing to communicate freely with all sections of the local community, and

also with the outsiders who come to collaborate with the local people in community development activities;

- The person is motivated to help others and sees value in collective behavior for the common good;
- The person has the potential for acquiring some basic training to become a community-based social organizer, and becomes part of the extended field team; and
- The person's ability to speak publicly would be an added advantage. (Bandaragoda and Memon, 1997).

One-day training workshops were organized for SOVs for all 14 distributaries/minors. The contents of training were:

- Introduction of the project;
- Problems at the distributary;
- Benefits and characteristics of the farmers organization;
- Powers and Responsibilities of FO;
- Procedure for formation of FO.

4.5.1 Results of the Workshop

During brain storming sessions participants identified the problems related to irrigation, drainage and agriculture and also perceived benefits of FO.

Problems at Distributary

- Inequity in water distribution;
- Shortage of water particularly at the tail;
- Water theft by tampering outlets;
- Sudden closure of distributary due to rotation;
- Fluctuation in supply;
- Non availability of flow measuring devices;
- Silt deposition;
- Bad condition of inspection path;
- Free animal grazing on the paths;
- Broken culverts;
- Removal of fall structures;
- Reduced cross sections;
- Raised spoils;
- Dysfunctional head regulators;
- Non-availability of drainage system;
- Adulterated pesticides;
- Expensive fertilizer;
- Low prices of sugar cane and cotton;
- Waterlogging and salinity;
- Water course crest at high elevations;
- Unnecessary weirs;

- Weirs in drains causing restriction in flow

Perceived Benefits from FO

- Improved O& M of distributaries;
- Improved cost recovery;
- Lobbying for farming community;
- Resolved water related disputes;
- Ensured reliable water supply;
- Ensured equitable distribution of water;
- Ensured cost effective drainage management;
- Promoted local decisions and better implementation;
- Provided access to input and collective marketing; and
- Increased production per unit of water.

4.6 Organizational Management

Mostly one-day training on organizational management for office bearers of watercourse associations and management committees of farmer organizations and members of both the tiers was organized. The training contents were:

- Introduction of institutional reforms;
- Role of FOs;
- Action plan for operation and maintenance of irrigation and drainage system;
- Rules, regulations and bylaws of FOs;
- Irrigation and drainage management transfer agreement;
- Financial management of the organization;
- Maintaining proper records including minute's book, cash and receipt book and voucher file.

4.6.1 Results of the Training

The participants understood the:

- structure of new institutional reforms;
- new institutional arrangement;
- need of the reforms and role of farmers organizations;
- rules, regulations and bylaws for adoption in formation of FOs;
- proper documentation and record keeping for transparency;
- action plan for operation and maintenance of distributaries and drainage system;
- clauses of the draft irrigation and drainage management transfer agreement.

Strengths and weaknesses of their organizations were identified through SWOT exercise (Annex-2).

4.7 Discharge Measurement

Operation and maintenance of the distributary is the major objective of the FO. To operate the system for equal distribution of water, the discharge is to be measured at different locations and control points. Therefore, one-day training was organized for the members of watercourse associations and FOs using following methods:

- Cutthroat Flume;
- Current meter;
- Outlet calibration;
- Gauge calibration and;
- Floating.



Photo 1. Discharge Measurement Training.

4.7.1 Results of Training

The participants learned:

- Equations used in the flume rating tables and calculation of velocity measured by current meter;
- Use of rating tables and rating curves.

The group leaders presented the methods learned. Float method was easy to measure discharge. However, if rating tables were provided then gauge and outlet methods were more suitable and more accurate. The other two methods, Cutthroat Flume and Current meter, were not recommended. The participants agreed to use all the methods.

4.8 Walk thru Survey/ Maintenance Survey

Distributary canal maintenance is a continuous process of repairing or servicing the canal prism, embankments and appurtenant structures to meet or conform to canal maintenance standards. Canal standards are designed to keep the canal in what is described as “built” condition. Because canals carry water with sediment and embankments are

exposed to weather, and to animal and human activities, the original design specifications can not be kept without periodic maintenance. During canal closure period, the management committee members were taken for walk thru surveys of the distributary to identify maintenance needs.

The following operation characteristics were also discussed with the participants during training.

- Reliability in supply;
- Equitable distribution of water;
- Efficient supply of water;
- Accountability and discipline.

4.8.1 Results of Training

The participants:

- Identified the problems related to various aspects of maintenance of the distributary;
- Planned to desilt the distributary according to the need identified during the survey;
- Understood the physical structure as they had not done this survey before.



Photo 2. Walk thru Survey.



Photo 3. Crop Assessment Training.

4.9 Crop Assessment and Abiyana Collection

The FOs are entirely responsible for assessment and collection of abiyana in the institutional reform process. According to the SIDA Act 1997, FOs are financially autonomous and will generate their own resources to manage the system. It is the responsibility of FO to stop the revenue leakage. One-day training workshops were organized for the members of management committee of FOs to understand the crop assessment and abiyana (water charges) collection mechanism from members and non-members (non-agriculture users).

During the training emphasis was to understand the records that are required for assessment and collection:

Deh Map:

The maps show all the survey/block number location marks, sanctioned villages, old watercourses, pucca (metaled) roads etc. The survey and settlement department of revenue prepares Deh maps. The reference point for crop assessment can be judged through these maps.

Watercourse Command Map

The Irrigation Department for the allocation of water prepares watercourse command maps. The watercourse maps show the survey/block numbers, the outlet location in the deh and the demarcation of field channels.

Field Book

The field book is kept to enter all the survey/block numbers that have crops.

Landowners and land holdings

The record of rights is also an essential document for the assessment. The abiyana is charged from the possessor of land that is why the record of rights carries high importance.

Field Khasro

Field Khasro is the register containing names of owners, their land holding and cropped area. Almost all entries from field books are transferred to this book.

Jamabandi Register

In the Jamabandi register the cropped area is transferred from the field khasro and calculation of abiyana is made. The classification of crops and rates charged against crops are maintained.

Bill Book

The bill book is maintained for the record keeping procedure of abiyana assessment. The bills are issued to individual on the assessment figures mentioned in field khasro and Jamabandi register.

4.9.1 Results of Training

The participants learned through practical exercise:

- Surveying cropped area.
- Understanding command maps deh maps and field books.
- Calculating abiyana bills by completing all the record.
- Maintaining field khasro from field book,
- Maintaining Jamabandi register and preparing abiyana bill.

4.10 Training to Agency Officials

4.10.1 Social Mobilization and Irrigation Water Management

One-week training program on “Social Mobilization and Irrigation Water Management” was organized for Irrigation and Power Department and Directorate of On-Farm Water Management (OFWM) officials. The main purpose of the training was to facilitate the trainees in organizing such trainings for other officials and mobilize the farmers at the distributary canal level. The training covered the following topics:

- Overview of the Irrigation System of Pakistan;
- Sindh Irrigation and Drainage Authority (SIDA) Act 1997, rules and regulations and bylaws;
- Social Organization process;
- Action Plan, Irrigation and Drainage Management Transfer (IDMT) Agreement;
- Social Mobilization process;
- Discharge Measurement and its methods;
- Calibration of downstream gauges;
- Operation and maintenance of channel;
- Crop Assessment and Abiyana Collection;

- Business Plan for FOs and discussion;
- Optimum use of irrigation water;
- Financial Management and Record Keeping by FOs.

4.10.1.1 Results of the Training

The participants of training gave their assessment in shape of evaluation forms distributed among the participants. The analysis made on the evaluation of the participants is presented as **Annex-3**.

However, the essence of the evaluation is given below:

- The strategy framed for social mobilization is sufficient to mobilize water users;
- IWMI field staff are clear about the strategy and are getting targeted results;
- IWMI has provided full knowledge and training to FOs.;
- Participants perceived that the action plan prepared for the FOs would work as a guideline which will lead to:
 - equitable distribution of water;
 - proper maintenance of channels;
 - minimize seepage losses;
 - increase abiyana recovery;
 - enhance competence in technical activities; and
- IDMT is a very useful document, but it will change with passage of time.
 - Some of the concerns are:
 - program may not start on time;
 - people may not unite to solve their problems.
 - political/bureaucratic influence may hinder the process.
 - FOs are well trained and are able to achieve their objectives. They can solve their problems individually and collectively.
 - There is Cooperation and unity among FOs. They can manage and maintain the Irrigation system.
 - Time period of the training should have been little longer.

4.10.2 Awareness on Institutional Reforms

The institutional reforms in the irrigation sector are a new idea and therefore many people are still not aware of the program. It is envisaged that the awareness of these reforms particularly to the lower level irrigation officials is of utmost importance to gain the favor in the field. The lower level officials frequently meet water users in the

field. These officials can convince the water users convinced easily. Therefore one-day training workshop for the officials of Irrigation and Power Department was organized that covered the following topics:

- SIDA and AWB responsibilities in new institutional reforms;
- FOs functions and responsibilities;
- Support to FOs in the field from AWB officials;
- Effective coordination between FOs and agencies.

4.10.2.1 Results of the Training

In the first phase of the project, IWMI field team had encountered several problems while organizing the new farmer organizations at pilot distributaries. The water users were told that the distributaries are being privatized, meters would be installed on the outlets and price of irrigation water would be very high, and so on so forth. In fact the lower level irrigation officials spread these rumors. Learning lessons from past, awareness training workshops were organized at various places for IPD officials. The training workshops to IPD officials resulted in no resistance, rather they were supportive to the field team. Subsequently



Photo 4. Organizational Management Training.

this training helped in easy formation of FOs at distributary canal level. The more specific support was:

- Convincing the water users in the field to form watercourse associations;
- Getting required information from irrigation department such as share lists, maps etc.;
- Participating in the formation meetings at watercourse and distributary levels.

4.11 Workshops on Agricultural Production Practices

Several workshops were organized in collaboration with private and public organizations, agencies, and departments on different aspects of agricultural production practices such as agricultural crops, soil sampling, and pesticide and fertilizer applications. The participants learned:

- Technical side of agricultural production of various crops;
- Importance of soil sampling for their land;
- Application of appropriate dose and type of fertilizer for different crops.



5. IMPACT OF THE TRAINING PROGRAM

The impacts of training program assessed by the field team at different occasions are presented below:

5.1 Social Organizer Volunteers (SOV) Workshop

- Supported in convening the meetings at watercourse level;

- Helped in social mobilization process and formation of watercourse associations;
- Motivating members for more participation in WCA;
- Created awareness of institutional reforms in the community;
- Most of the SOVs were selected as office bearers of WCAs, as they were engaged in the process right from the inception.

SOVs made themselves responsible for arranging the meetings of water users in their villages. They believed that the water users could get free time only after sun set. The SOVs conveyed messages to water users through loud speaker of the mosque to participate in the meetings on one of the autaq (guestroom) of landowner, where they served evening tea and biscuits to all participants.

5.2 Organizational and Financial Management

- Water users irrespective of land holding, tenancy status and social and financial status, sat together and discussed common issues breaking the skepticism that big landlords and privileged water users can not sit together with deprived land owners.
- Members of organizations used their own transport to participate in the training program and no transportation charges were paid from the project funds.
- Intimacy among farmers of various watercourses and distributaries and even different districts was established. This new friendship among farmers created cohesion among various communities.
- Developed a sense of friendly competition among various farmer organizations to see who can do the best job.
- The organizations maintain proper records such as minute's book, correspondence files and cash-receipt and visitor books.
- To keep the financial record transparent, independent auditors audited the Accounts.
- new organizational leadership is emerging in these organizations, who have a vision of best for the future through these reforms
- Focussing on small groups of people at various levels has created organizational leadership. A group of leaders have emerged who possess all the qualities of leadership.
- Organized meetings on regular basis to discuss different issues

One of the members of management committee of FO gathered information on desired and actual gauge reading of Jamrao canal. He also collected the same for Dighri sub division which starts at 28 mile cross regulator. After comparing the data, he felt that Dighri sub division was getting fewer shares than the entitlement. He brought this issue before the Field Implementation Coordination Committee (FICC) where irrigation official was present. He also wrote letters to the concerned officials to increase the share for Dighri sub-division.

Five FOs management committees organized an oath taking ceremony jointly and invited about 375 members including government officials, NGO representatives, members of watercourse associations and farmer organizations, and prominent landowners of the area. All FOs contributed and organized joint program in a befitting manner. One of the speakers remarked that he has not seen such organized gathering of farmers in this area, which will eventually bring the irrigation water users together.

5.3 Discharge measurement and Walk Thru Survey

After attending the training, participants were able to:

- Understand the different ways of discharge measurements in the distributary and watercourse.
- Prepare the action plan and showed their ability to take over the responsibility of irrigation and drainage system and distribute water equitably among the members Record the water flow at head, middle and tail through gauges installed. They now understand the concept of design and actual discharges at the head of main canal, distributary and watercourse.
- Contact the concerned field officer of irrigation department in case of low discharge in the distributary/main canal.
- Play a significant role in preparing the clauses in irrigation and drainage management transfer agreement specially discharge at the head of the distributary
- Understand the outlet characteristics such as B, Y and H.
- Gain knowledge regarding physical characteristics of distributary and irrigation terminology
- Understand the proper desilting of the channel

Water users measure discharges of watercourses, which are apparently getting more water, and discuss it in the meetings of FO. One water user of Rawtiani minor measured the discharge of one of its watercourses and complained in the FO meeting that he measured discharge using float method and found more discharge as compared to its designed discharge mentioned in the outlet register.

5.4 Overall Impact

- Mobilization of human, capital and financial resources.
- Effective communication among different tiers of the organizations and between line agencies including irrigation department.
- Presentation of achievements of FOs at different forums such as inauguration ceremony of the AWB on Desert Pat Feeder Canal in Baluchistan, and AWB on Swat Canal Area Water Board Mardan in NWFP.
- Water users paid Rs.100/- as membership for watercourse associations, and watercourse association gave Rs.1000/- each to FO. The bank account is operated jointly by Chairman and Treasurer.

The Minister of Irrigation and Power Department N.W.F.P. appreciated the efforts of forming Farmers Organization Council (FOC). He suggested that such a council be formed in other provinces and at national level as well. FOC has been formed by the farmer organizations with the main objectives to:

- assist government and other actors in strengthening institutional reforms in irrigation and drainage management;
- collect and disseminate socio-economic and technical information related to irrigation, drainage and agriculture to various stake holders;
- advise public and private institutions, organizations and farmers on agricultural policies; and
- establish effective network to disseminate information.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

During the project period several need based training programs were organized for the members of 330 watercourse associations, farmer organizations and officials of agencies. The capacity of 2,206 people was strengthened. The main purpose was to run their organizations smoothly and operate and maintain the irrigation and drainage system.

After the training programs, the members were able to maintain their records properly, adopt the by-laws and communicate effectively among their members and agency officials. The members have learned how to measure flow at the distributary and watercourse level, and to maintain the distributary properly. To cope with day to day activities, they were able to mobilize the capital, human and financial resources in an organized way.

6.2 Recommendations

It is a widely recognized fact that without some form of long term and consistent support mechanism, the rural groups can not easily be maintained because the change process in rural societies is very slow. The examples of the Agha Khan Rural Support Program (AKRSP) and National Rural Support Program can be cited in this regard. Decade old village organizations in AKRSP still require external support and this is likely to be true for the FOs.

It is recommended that the training needs assessed by the field team and water users, which could not be organized during the project period, be imparted so that they become familiar with all the aspects they would face after the transfer of

The next step for them is to take the responsibility of irrigation and drainage management, which unfortunately was not possible during the project period. Therefore, it is premature to judge whether the members of these organizations will be successful in running their business sustainably. It is hoped that whatever they have learned from these programs would prove beneficial whenever they get an opportunity to run the system.

It was learnt that due to water users busy schedule they preferred to participate in one or two days training programs. The participants of tail areas demonstrated more interest in the discharge measurement training. They were of the view that they have acquired the skill to monitor water in the system and can safeguard their rights.

responsibilities of IDMT. Specially, the following training should be organized:

- Effective communication strategy and Conflict resolution;
- Equitable water distribution after IDMT;
- Optimum use of water;
- Business plan;
- Financial management.

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ANNEXURES

Annex-1: Profile of Members of FOs and WCAs Participated in the Training Programs.

Particulars	Frequency	Percent
Designation (WCA)		
Chairman	216	24
Secretary	182	20
Treasurer	170	19
Management committee Member	205	22
WCA members (general)	121	14
Designation (FO)		
Chairman	14	1.5
Secretary	14	1.5
Treasurer	14	1.5
Vice Chairman	1	0.1
Management committee Member	43	5
Total Office Bearers (WCA & FOs)	859	
Location of the Participants		
Head	310	35
Middle	286	31
Tail	305	34
Total	891	

Particulars	Frequency	Percent		
Age (Years)				
11:20	16	2	Mean Age:	42
21:30	188	21	Std. Dev:	13
31:40	272	30	Minimum	17
41:50	234	26	Maximum	90
51:60	128	14		
61+	61	7		
Farming Experience (Years)				
1:10	260	29	Mean Experience	20
11:20	285	32	Std. Dev:	12
21:30	201	22	Minimum	0
31:40	97	11	Maximum	65
41:50 and +	51	6		

Particulars	Frequency	Percent
Tenancy Status		
Land Owner	437	49
Owner-Cultivator	262	29
Lessee	69	8
Manager	14	2
Tenant	8	1
Land owner-cum-Lessee	98	11
Owner-cultivator-cum-lessee	4	0.4

Particulars	Frequency	Percent
Educational Level		
Illiterate	90	10
Primary	259	29
Matric	62	7
Intermediate	158	18
Graduate	116	13
Post-Graduate	209	23

Trained WCA and FO Members.

Particulars	Frequency	Freq Times	Total Trainees	Percent
Trained once	313	313*1	313	35
Trained twice	247	247*2	494	28
Trained thrice	183	183*3	664	21
Trained four times	88	88*4	352	10
Trained five times	21	21*5	195	4
Trained six times	9	9*6	72	1
Trained seven times	7	7*7	49	.8
Total	894		2,039	100

Annex-2: Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis of FOs.

Indicator	Strength	Weakness/Reason	Solution/Remedy
Role of Leadership	Leaders are honest Hard worker Democratic Educated Possess spirit Impartial character	<ul style="list-style-type: none"> Lack of communication Lack of punctuality Idleness Less responsible 	Should be reprimanded They should be apprised of their responsibilities
Record Keeping	Record is well maintained	So far IIMI assisted in this regard	<ul style="list-style-type: none"> In future FOs should maintain record on their own.
Punctuality	-	No one is punctual	Reprimanded and warned Every one requested to observe it and meeting will be start on time.
Regularity in Meetings	Meetings are almost regular	Less participation In some places IIMI assists	In future every should try to be less dependent on IIMI Irregular members should be given notices
Implementation of decisions	50% decisions are being implemented	<ul style="list-style-type: none"> water shortage creates problems Decisions are not being taken with consensus 	After IDMT decisions will be implemented easily Tried to take decision with consensus
Work sharing and accomplishment	Almost work is being shared Sub committees have been formed	Less accomplishment of tasks	Sub committees should be made effective
Fund raising and utilization	Fund utilization is satisfactory	Less cooperation of members for fund raising Few FOs took initiative while less efforts have been made so far	<ul style="list-style-type: none"> In future efforts will be made for fund raising Simple method or formula should be developed for fund collection After IDMT fund can be collected easily
Offices	-	Either FOs have no proper office or it is temporary	Permanent offices should be established Funds will be raised to construct offices
Publicity of FO activities	Few news are being published	Less contact with press people Discontinuity of SAATH Less press coverage	Every FO should send at least one news per month FOC will appoint a press secretary who will perform the job Saath should be continued
Understanding and implementation of bylaws	The level of understanding is OK after long discussions	Some clauses are not being properly implemented	Bylaws will be comprehensively understood and implemented.
Clarity of objectives of FO	Objective of FOs is very clear which is equitable water distribution	-	<ul style="list-style-type: none"> Government agencies should help in this regard.

Annex-3:

Table 1. Evaluation of the Participants on One-Week Training Program for Officials of Irrigation Department and On-Farm Water Management Directorate held on 7-12 August 2000 at IIMI Field Office, Mirpurkhas

S#	Particulars/ Activity	To large extent	To medium extent	To some extent
Did following sessions supplement the capacity?				
1	Discharge Measurement	7	6	1
2	Calibration	4	9	1
3	Assessment & Collection	2	11	1
4	Feasibility of Business Plan	2	11	1
5	Finance Management	4	8	2
To what extent technical sessions contributed towards knowledge?				
6	Current Metering	8	6	-
7	Gate Calibration	2	12	-
8	Gauge reading	5	7	2
9	Operation & Maintenance of distributary	7	5	-
To what extent the material provided would benefit?				
10	Overview of the Irrigation System	4	10	-
11	Social Mobilization Characteristics	5	8	1
12	SIDA Act	7	10	-
13	Social Organization Process	6	8	-
14	Action Plan	5	9	-
15	Discharge Measurement Methods	9	5	-
16	Gauge and structure calibration	5	8	1
17	Optimum use of Irrigation Water	5	6	3
18	Abiyana Assessment and Collection	1	11	2
19	Business Plan	3	10	1
20	Record Keeping by FOs	7	7	-
21	Financial Management by FOs	7	7	-

Note: Numbers indicate the responses from participants. Total number of participants was 14.

Table 2. Perceptions of participants on interaction with members of FOs

S#	Particulars	Strong	Moderate	Weak
1	Leadership skills	5	8	-
2	Presentation skills	8	6	-
3	Performance	6	8	-
4	Record Keeping	2	9	2
5	Interaction with partners	2	11	-
6	Clarity of objective or their future role	2	11	-
7	Advocacy on issues and problems	2	12	-

Table 3. Observations of participants in logistic arrangements provided during training.

S#	Particulars/	Best	Fair	Poor
1	Environment in Training Hall	10	4	-
2	Arrangement of Field Visits	7	7	-
3	Attitude of Trainers	11	3	-
4	Food	7	5	2
5	Equipment Used	10	4	-

General Observations and Comments by Participants

Comments on Stepwise Social Mobilization Strategy adopted by IIMI.

- Most of the participants pointed out that IIMI framed good social mobilization strategy sufficient for mobilizing farmers
- IIMI field officers/workers are clear about the strategy and are getting desired results.
- IIMI provided full knowledge and trainings to FOs.

1 FO Action Plan ?

Participants perceived that the action plan prepared for the FOs would work as guideline which will lead to:

- Equitable distribution of water;
- Proper maintenance of channels;
- Minimize seepage losses;
- Increase abiyana recovery;
- Competence in technical activities; and
- Practically comprehensive adaptable plan.

Some of the concerns were that:

- Program may not start on time;
- People may not unite for their problems.
- Political/bureaucratic influence may hinder the process.

2 Comment on the contents and workability of the IDMT document.

- Contents of IDMT are enough.
- Still the agreement is a draft and not signed, therefore no comments.
- If strictly adopted by FOs, they would achieve their goals.
- Good- if the agreement is approved, the program will succeed.
- More practical and workable.
- IDMT is very useful document. But it would change with passage of time.

3 Comments on FOs

- FOs are well trained to achieve their objectives. They can solve their problems individually and collectively. They really did well for solution of their problems relating to Irrigation and others aspects.
- Sufficient knowledge given to FOs. Cooperation and unity seemed among FOs. They can manage and maintain the Irrigation system.
- Improvement in mental approach of FOs. They will succeed.
- Positive meeting with FOs. There will be more cooperation among Irrigation staff and FOs through this program.
- The members of FOs have technical know how about discharge measurement.

4 Overall strengths and weaknesses of the training?

- Every trainer delivered quality lectures and was cooperative and polite.
- Time management was good
- Trainers were knowledgeable and method and material used for training was excellent.
- The trainers did not describe some topics of other documents.
- Time period of the training should have been longer.
- Besides field visit, tour program should have been organized.
- A junior person from IPD was called to train high officials.
- Food quality was not so good.

- Some resource persons were unable to explain objectives of training.
- Standard of stationery provided was not good.
- No time management after lunch.

IWMI Pakistan
Regional Office
12km
Multan Road
Chowk Thoker Niaz Baig
Lahore 53700
Pakistan

Headquarters
127, Sunil Mawatha
Pelawatta
Battaramulla
Sri Lanka

Mailing Address
P O Box 2075
Colombo
Sri Lanka

Tel.
94-1-867404, 869080

Fax
94-1-866854

E-mail
iwmi@cgiar.org

Website
www.iwmi.org



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