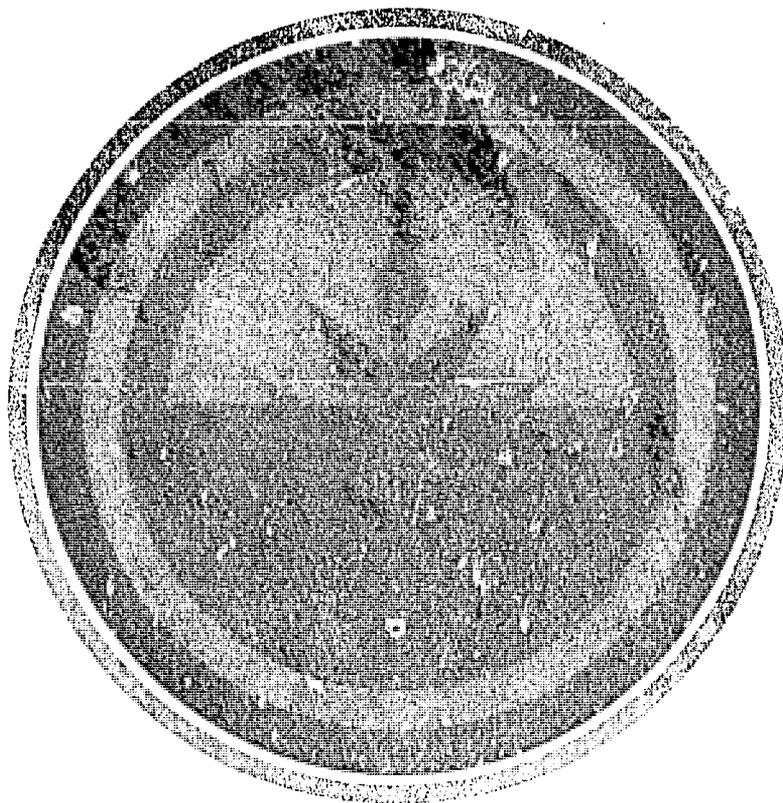


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**Framework for the
Management Plan:
Niazbeg Subproject Area**



**Water Management Synthesis Project
WMS Report 54**

**FRAMEWORK FOR THE MANAGEMENT PLAN:
NIAZBEG SUBPROJECT AREA**

and

**AN OVERVIEW OF THE
MANAGEMENT TRAINING AND PLANNING PROGRAM**

Prepared by the

Management Training and Planning Program Participants
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WMS Report 54

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EDITOR'S NOTE

The report "Framework for the Management Plan: Niazbeg Subproject Area" as presented in this document is fundamentally the result of the efforts of the participants of the Management Training and Planning Program in Lahore during April 1986 (see Annexes 2 and 3). Minor editing was done on the original report by Water Management Synthesis II staff for purposes of clarity of presentation. The following section, "An Overview of the Management Training and Planning Program" was written by Water Management Synthesis II staff to provide an understanding of the purpose, approaches, procedures, and intended outcomes of the Program.

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AN OVERVIEW OF THE MANAGEMENT TRAINING AND PLANNING PROGRAM

BACKGROUND

The purpose of the Command Water Management (CWM) Project in Pakistan is to develop effective approaches to addressing the problems involved in increasing productivity in irrigated agriculture. CWM is a jointly funded project of the Pakistan government, the International Development Agency (IDA) of the World Bank, and the U.S. Agency for International Development (USAID) and was initiated in 1984. The project was designed to develop and test approaches to improved planning, coordination and integration of the activities of the key irrigation and agricultural organizations at the command level of the irrigation system. The focus of CWM is on improving management from the farm level to the policy level in government in defined pilot areas in each of the four provinces.

The reason for the above stated purpose, design and focus of CWM was the realization of the complex nature of the problems faced in increasing productivity in irrigated agriculture. These complexities necessitate cooperative inter-organizational, as well as coordinated intra-organizational, approaches to achieve effective management in irrigated agriculture.

To support the successful start of the CWM Project, the Management Training and Planning (MTP) Program¹ was designed to be one step in the training activities provided by the Water Management Synthesis II (WMSII) Project. The purpose of MTP was to assist the CWM Project in each province to build on diagnostic analysis² (DA) and other project work that had been completed for pilot subproject areas in each province and to develop a set of plans for moving the project ahead. The MTP was designed to assist the involved provincial organizations to address the problem-solving, planning, coordination and monitoring requirements of the project, while developing an inter-organizational management plan defining the activities necessary for achieving the project's objectives.

¹This description draws extensively from the following article:
Jones, Andrea and Wayne Clyma. 1986. An Approach to
Management Improvement for Irrigated Agriculture: The
Management Training and Planning Program for Command Water
Management, Pakistan. Working Draft.

²Podmore, C.A. (ed.). 1983. Diagnostic Analysis of Irrigation
Systems; Volume I: Concepts & Methodology. Water Management
Synthesis Project, Colorado State University, Fort Collins,
CO. pp. 188.

Developed as a response to the identified needs of the CWM Project, MTP drew from the combination of the experience and concepts of the development model³ of Colorado State University and the performance improvement approach⁴ and team planning meeting⁵ models that are used by the International Development Management Center at the University of Maryland.

In general, MTP can be viewed as part of a four-step, systematic, problem solving process. The first step of this process, problem identification, involves identifying the magnitude of problems, their contributing factors, and other relevant information. The understanding provided by this information is used to develop goals for reducing the problems and identifying who needs to be involved to achieve those goals. The second step, generation and selection of solutions, involves generating potential solutions, evaluating alternatives, and reaching an agreement on the best solutions. All of those to be involved, as identified in the first step, must participate in the second, third, and fourth steps. The third step, implementation planning, involves the development of specific objectives relative to the defined goals, activity planning for the achievement of those objectives, and identification of who is to be responsible for each activity. The fourth step, plan implementation, involves the actual implementation of the plans with a monitoring and evaluation program.

To understand the preceding descriptions, a brief clarification of terminology is appropriate. A problem will have one or more contributing factors. The resolution of a contributing factor is stated in terms of a goal. The reaching of a goal is accomplished through the establishment and achievement of objectives. Therefore, a goal is a long range, broad target for improvement of a problem, while an objective is a short range, more narrowly defined target for a specific improvement. Both goals and objectives should describe an end result, be measurable, be achievable, and be defined by time.

³Clyma, W., M.K. Lowdermilk, and G.L. Corey. 1977. Research development process for improving farm water management. Water Management Technical Report No. 47. 4:439-451. Water Management Research Project, Colorado State University, Fort Collins, CO.

⁴Kettering, Merlyn and Barton Sensening. 1986. Proposal for a Country Assistance Methodology: A Working Paper. The International Development Management Center, University of Maryland, College Park, MD.

⁵Kettering, Merlyn and David Levine. 1977. The Team Planning Meeting Methodology: A Strategy for Improving Effectiveness of HRD Consulting in International Development. Development Program Management Center, U.S. Dept. of Agri., Washington D.C.

Problem identification for irrigation systems has, in part, been addressed through the DA process. In general, MTP was designed to build on the findings of a DA to complete the problem identification step and then accomplish step two -- generation and selection of solutions -- and step three -- implementation planning.

DESCRIPTION

The program model developed for the MTP focused on assisting the provincial organizations to build on the specific knowledge and understanding developed about the respective subproject areas through the results of the DA studies conducted by representatives of those organizations. This understanding was based on specific data concerning the priority problems and their magnitude, the contributing factors that caused a particular problem, and additional data on how the subproject area operates as a system.

MTP used an action training⁶ approach, meaning that the program brought together those responsible for the system to address the actual problem-solving and planning tasks of the project. Using this "learning-by-doing" participative approach, the issues and problems of effective water management were explored, addressed, and planned for in a collaborative process involving all appropriate key participants.

To facilitate the program, a team of water management (from Colorado State University) and management (from University of Maryland) specialists was employed. Their facilitation included providing structure and guidance for the participants as well as expert input to the process. This allowed the participants to focus on the content of the MTP without having to manage the process of MTP.

The MTP was designed to be a three to four week program consisting of three phases: entry, management training and planning, and consolidation. Essential steps that were taken before the MTP included the completion of the DA study of the project area by the involved organizations, pre-work visits to each province by MTP team members, and a structured team planning meeting.

The pre-work effort included visits with the subproject manager, his staff, and the various operational, executive and policy level officials of the concerned organizations. These visits were intended to give the team a better understanding of the project and its current status and management needs, to inform the key officials of the pending program, and identify potential participants for the program. The team planning meeting was employed to allow the MTP team to tailor the program to the province in question and plan to conduct it.

⁶Solomon, Morris J., Flemming Heegaard and Kenneth Korhner. 1977. An Action Training Strategy for Project Management. Development Program Management Center, U.S. Dept. of Agrl., Washington, D.C.

The input of the results from the DA study was considered critical to the MTP program. Personnel from the key organizations participated in the study, and therefore, shared ownership of its results. Farmer input to the DA through in-depth interviews was substantial. This provided a mechanism for systematic input of farmers to the understanding of the problems and needs of the area. The factually based understanding of the problems, their magnitude, and causes also created a basis on which a common understanding of the problems could be created. Otherwise, traditional views and perceptions could have resulted in continued conflict and disagreement among organizations. The use of the DA study as a basis of the planning was also effective in helping to generate executive and policy level support for the planning process.

After the pre-work and team planning meeting, the MTP was carried out over a four week period. The three phases of MTP are generically described⁷ below:

1. Phase I: Entry

During this phase, around a week in length, the MTP team attempted to meet with all the key officials in the province as well as the project manager and his staff. The intent of these meetings was to review the results of the DA study, identify the concerns and issues that needed to be addressed, determine expectations, solicit involvement and support for the program, and finalize the selection of participants. The purpose of this phase was to prepare and set the stage for the action training workshops of phase II, in which selected representatives of key organizations would participate in a problem-solving and planning effort.

2. Phase II: Management Training and Planning

This phase lasted almost two weeks and culminated with the completion of a draft management plan. The primary features of this phase were two action training workshops. The first workshop involved individuals from field and operational management levels of all involved organizations, including farmer representatives, that had been identified during the entry phase. The major focus of this workshop was on reviewing the results of the DA, providing input from the knowledge and experience of the participants (many of whom had participated in the DA study themselves), and reaching a common understanding of the problems and factors which contribute to the problems.

The second workshop brought together a smaller, operational level planning team representing the key organizations to build on the understanding developed in the first workshop. The focus of this workshop was to address the key problems and constraints to productivity to develop an inter-organizational management plan. The purpose of this plan was to set general directions, or goals, for the CWM Project, as well as to delineate more specific objectives, action plans, and the

⁷Jones and Clyma. 1986.

roles and responsibilities of the involved organizations. The written plan, in draft form, was completed by the planning team in the second workshop. This set the stage for a series of reviews for further input and approval by executive and policy level personnel during the final phase of the program.

3. Phase III: Consolidation

During the final phase, the team worked with the project manager and his staff to conduct briefings of the policy and executive level officials to get their support for, input to and, at times, decisions upon specific aspects of the management plan. The MTP team also worked with the project manager and his staff to identify specific follow-up steps they needed to take to ensure the effective implementation of the plan. This phase took one week.

All phases of the MTP process -- entry, management training and planning, and consolidation -- used a systematic involvement process to obtain commitment of the various levels and multiple organizations in the decisions made. Input to the decisions were also made by policy level personnel during the planning and before the plan was complete.

Outside resources were used during the planning process through the WMS II team, key personnel from involved organizations who might not normally be included, and host country personnel from outside organizations with specific expertise. Since the decisions in planning were made directly by those who would be implementing the plans, only the options they considered implementable were included in the plan. Through a collective understanding of the problems, planners were able to be innovative in solving the problems.

The problem-solving approach used in the MTP process (returning to the purpose each time a problem was addressed, developing a goal statement that represented a condition that resolved the problem, defining objectives that essentially represented steps in attaining the goal, and then planning activities that achieved each objective) maintained a focus on resolving farmer problems and increasing productivity. Numerous times during the planning process the planners would return to the goal statement and/or objectives to clarify or revise in planning specific activities or responsibilities to assure that the specific contributing factor and resulting problem was being addressed. Initial disagreements in planning a particular activity could be more easily resolved by returning to the higher levels.

OUTCOMES

The outcomes of an MTP program were the training of key officials in appropriate problem-solving and management skills as well as a draft management plan. The draft management plan contains the following: (1) a prioritized list of problems as agreed to during the first workshop; (2) a list of goals to be reached over the next one to five years; (3) for selected goals, one or more specific objectives to be achieved

within the next year; and (4) activity plans for the achievement of specific objectives. These activity plans include an indication of who is to be responsible for each step of a particular plan, including a process for monitoring and evaluation.

Implementation planning, using the approach applied in the MTP program, provides a mechanism for building consensus and understanding among diverse groups of individuals and organizations. The planning process itself can become a mechanism for focusing the organizations' efforts on increasing needed coordination and collaborative problem-solving and planning to attain objectives for the overall development of irrigated agriculture. The completed plan provides a tool for the ongoing guidance to the activities of those organizations and is the basis for initiating a systematic process for improving management.

Improving management is a primary challenge for CWM and planning is a key to improved management. With the diverse organizations involved in CWM, effective collaboration and coordination are critical needs and problem-solving is a key issue. The implementation planning process makes progress in each of these areas. Successful efforts at solving problems becomes a mechanism for more effectively involving farmers and gaining organizational acceptance. Continuing the process will result in further improvements in management and increased levels of performance. Thus, irrigated agriculture can be systematically improved through such a process, focusing on improving management.

NIAZBEG MTP

The attached management plan was developed for the Niazbeg Subproject in Punjab. Since each MTP is unique because of the uniqueness of situations in each province, as well as in each subproject, a brief discussion of the Niazbeg MTP and its resulting management plan is presented here for better understanding.

Since the Niazbeg MTP was the first program carried out, there was not an opportunity for any pre-work as described above. Instead, the entry phase was lengthened to allow the necessary preparation for the full program to be completed.

Also, because the Niazbeg MTP was the first, the process was as much a learning experience for the MTP team as it was for the participants. Although the Punjab organizations were well prepared, the plan developed did not evolve to the point of completed activity planning. This plan does present, however, the general goals and many more specific objectives to provide the guidance for further collaborative planning by the involved organizations so that they can develop the necessary activity planning.

Specifically, the Niazbeg management plan contains the following. After a general introduction, the body of the plan is presented which consists of three sections. The first section gives problem statements, goals, and organizations involved. The second section provides selected objectives. And the third section discusses next steps.

There are five problem statements made which were agreed to by all participants. Two to eight goals addressing contributing factors of the identified problems are listed under each problem statement. Along with these goals are a general indication of which organizations should be involved, as well as brief comments about the goals.

For seven goals addressing four of the problems, three to five objectives are presented. Each of these objectives was defined and agreed to by the participants as necessary to achieve a particular goal. Organizational involvement was also considered with the objectives, but the specific roles and responsibilities were not defined. A general strategy is included for each set of objectives, however, which does suggest organizational roles as well as overall approaches. Finally, for each set of objectives, monitoring issues are indicated.

The next steps needed to be taken by the Command Water Management organizations include a review of the existing draft to revise and finalize the problems to be addressed and the goals and objectives to be achieved, and then the development of specific activity planning to achieve those objectives and goals. Considerations of these steps are briefly discussed in the draft management plan.

It is important to remember that this draft management plan (including activity plans) is not an end in itself. The activity plans in a management plan are to achieve short-term objectives that will contribute to the achievement of long-term goals. Each year the status of the project must be evaluated in light of the long-term goals with new objectives identified which will move the project closer to its intended state. Based, then, on those new objectives, new activity plans must be developed through the implementation planning process.

**FRAMEWORK FOR THE MANAGEMENT PLAN:
NIAZBEG SUBPROJECT AREA**

**COMMAND WATER MANAGEMENT PROJECT
PUNJAB - LAHORE**

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PREFACE

Command Water Management (CWM) is a pilot project which aims to develop strategies replicable over a wide range of agroclimatic zones for increasing yields per acre. The Niazbeg Subproject may be considered experimental in the sense that coordinated programs, involving a number of agriculture, irrigation and other organizations serving farmers are being developed and linked closely together to improve service to agriculture and hence to increase agricultural production.

A diagnostic analysis (DA) study for the Niazbeg Subproject, completed late in 1985, served as a basis for management training and planning (MTP) which was initiated for the purpose of training relevant staff and for developing an initial draft management plan. A team, consisting of water management specialists and management experts, conducted a series of workshops for operational and field level officials from organizations involved in CWM. The constraints reported in the DA study were reviewed in these workshops. Then problem areas were defined, goal statements were established and in several cases, objectives were identified. Organizations involved in achieving each goal were specified.

This document includes an introduction section which explains the purpose, scope and methods of management training and planning. It also includes a very brief summary of the Diagnostic Analysis for the Niazbeg Subproject. In part II, the actual framework for the management plan for CWM/Niazbeg is presented. This framework, developed by the participants of the two management training and planning program workshops, contains statements of the identified problems of the subproject area and the agreed upon goals, objectives and organizations involved. This is followed by an identification of objectives for several selected goals. The final chapter, part III, discusses the next steps to be taken in order to plan detailed activities required to achieve objectives and goals.

Five annexes are attached. Annex 1 is a list of acronyms used, Annex 2 is a list of participants from Workshop I, Annex 3 is a list of participants from Workshop II, Annex 4 is a list of participants from the senior managers review with comments. Finally, Annex 5 includes the agenda, problems and recommendations, and comments from the final briefing for policy level people in the Department of Agriculture and Irrigation.

I. INTRODUCTION

A. PURPOSE

The purpose of this document is to present to the senior managers and policy makers the goals and objectives of the CWM Project to deal with problem areas as identified during a diagnostic analysis through a management plan. These strategies provide the CWM participating agencies -- viz., Irrigation Department, On-Farm Water Management, Agricultural Extension, credit institutions, and input suppliers -- with an integrated framework for developing detailed workplans. The DA study was conducted at the Niazbeg subproject area in November-December 1985, by an interdisciplinary team consisting of agronomists, engineers, economists and sociologists. The staff for the DA study included personnel from Command Water Management, On-Farm Water Management, the Irrigation Department, Agricultural Extension, and Punjab Economic Research Institute, assisted by Consultants from Water Management Synthesis II. The objective of the DA study was to identify the major constraints and problems responsible for low agriculture production in the project area so as to address them through an integrated approach under the newly commissioned Command Water Management Project.

The strategies and approach in this paper are the outcome of the deliberations of operational managers of the organizations who have an active role in CWM. The deliberations were coordinated through a series of workshops arranged by a management training and planning team sponsored by USAID.

B. SCOPE

This document focuses on the priority problem areas that came out of the DA study and the strategies for their solution. To delimit the scope of the DA study in the context of MTP, five priority problem areas were selected. An attempt was made by the workshop participants to develop a number of goal statements. The goal statements represent targets which contribute to the solution of the problem. In this document, a priority status has been assigned to certain goals. Moreover, a detailed list of specific objectives to be attained in pursuit of these goals has also been developed by the participants. In some cases, workplans, including specific locations and timeframes, are already in place for addressing these objectives. For other objectives, detailed workplans remain to be completed.

C. METHODOLOGY

This document is a product of the Management Training and Planning Program. It was prepared through interaction with personnel from organizations which have contributing roles in CWM at the policy, operations, and field levels.

The basic methodology of MTP is to use a collaborative mode to get input from a broad base of policy, operational and field level personnel. An integrative approach is used to get a general agreement on priority problem areas, goal statements and program objectives, which provide a basis for integrated workplans. The starting point of this process were the constraints and problems identified in the DA study. The MTP team, consisting of irrigation specialists and management experts, discussed the DA study and the management training and planning process with CWM related senior officials at the policy level. The officials provided commentary on the DA study and the MTP process and recommended personnel for participation in workshops.

The first workshop, held at the On-Farm Water Management Training Institute, Niazbeg, included thirty-one participants (Annex 1) who worked together toward defining goals, objectives, activities, roles, and responsibilities for each participating agency. The outcome from this workshop was carried forward into the second workshop "Developing the Management Plan." This was attended by 13 participants at field and executive levels of CWM-related personnel (Annex 2).

The outcome of the second workshop was a consensus on five priority problem areas, goals for each problem area, and objectives for some goals. This output is presented in this document as the beginning of a dynamic process of management and planning.

D. DIAGNOSTIC ANALYSIS

Diagnostic analysis is a process by which the comprehensive understanding of an irrigation system necessary to improve agricultural productivity and farmer well-being can be gained. The basic objectives of diagnostic analysis are to:

1. Understand an irrigation system as it actually operates -- both its strengths and its constraints.
2. Identify the major physical, biological, economic and social-organizational constraints to the system.
3. Rank the identified constraints and their causes according to the magnitude of their effect to assist in the development and assessment of solutions.

The DA approach is interdisciplinary; it involves personnel from engineering, sociology, economics and agronomy. Moreover, it is unlike usual research projects in that it is applied and problem-oriented. It attempts to specifically identify the priority problems of agricultural systems.

The Water Management Synthesis II (WMSII) Project, funded through the United States Agency for International Development (USAID), assists developing country officials to use diagnostic analysis. A team from WMSII assisted a counterpart Pakistani team in conducting a DA in the Niazbeg Subproject area located in the Punjab.

Pakistani organizations which provided personnel for the Niazbeg DA study included Command Water Management (Lahore), Irrigation Department (Lahore), On-Farm Water Management (Lahore), Agricultural Extension (Lahore), and Punjab Economic Research Institute (Lahore).

The DA identified some major constraints to agricultural production. The constraints as described in the DA study were used as the basic input for preparing this document, combined with the knowledge and experience of the field level personnel in Niazbeg. From the constraints identified, the problem areas and goal statements and, in some cases, statements of objectives were developed.

The constraints from the DA study, reported more fully in the "Brief on the Diagnostic Analysis of Niazbeg Command Area" are:

1. Lack of water control at the farm level especially during critical growth stages.
2. An inequitable and unreliable distribution of canal water along the main conveyance system.
3. An inadequate and unreliable distribution of water along individual watercourses.
4. A lack of farmer organizations which address the needs of farmers along entire watercourses.
5. Limited farmer access to necessary inputs and services.
6. Crop yields are lower than appropriate for the area.
7. There is a lack of overall institutional linkages between the private and government organizations which serve farmers.

II. FRAMEWORK FOR THE MANAGEMENT PLAN

A. PROBLEMS, GOALS AND ORGANIZATIONS INVOLVED

PROBLEM 1

The water availability is not sufficient for agriculture during various stages of plant growth for prevailing and future cropping intensities in the command area. The problem is more severe in some areas than others.

Goal	Organizations Involved	Remarks
1. Redesign, rehabilitate and restore the existing canal system to the designed equitable discharges for distributaries, minors and outlets. This will include lining where necessary to provide more efficient and equitable deliveries to the tail reaches of the system channels.	ID, WUAs and consultant (IDA)	Irrigation Department needs assistance for quality improvement.
2. Minimize conveyance losses in watercourses through redesign and channel improvement.	OFWM, WUAs and consultant (USAID)	Needs effective legal cover against non-cooperative farmers for watercourse rehabilitation.
3. The availability of groundwater needs to be explored and used effectively.		Needs identified organization.
4. Steady flow in all parts of the system by improving regulation and management techniques to deal with inequity of distribution in the canal system.	ID, WUAs and CWM	Requires introduction of latest technologies.

Goal	Organizations Involved	Remarks
5. Modern irrigation techniques applied to minimize losses and allow for effective use of available water (e.g., farmers scheduling for irrigation, improved water application techniques, precision land leveling, and improved field layout.)	Extension, OFWM and WUAs	Requires resources for farm level incentives.
6. Evaluate water requirements at the watercourse level and plan for adequacy.	CWM, OFWM, Extension and ID	To be taken up on an experimental basis.
7. Provide farm surface drainage as needed in priority areas.		Needs identified organization.

PROBLEM 2

Inequitable distribution due to unreliable control at off-takes and outlets and conveyance losses in the system.

Goal	Organizations Involved	Remarks
1. Restore the existing system to the designed equitable discharge for outlets.	ID, WUAs and consultant (IDA)	Requires political support and refined structures.
2. Strengthen the concerned agencies at all levels in their ability to enforce the policy decisions.	ID	Requires support from the water users.
3. Development of <u>warabandi</u> considering watercourse losses and topography of specific fields.	ID, OFWM, CWM and WUAs	In the present system, delivery of volume of water to the tail farmers is less due to watercourse losses.
4. Effective water users associations are established for appropriate operation and maintenance of watercourses and for support of equitable distribution of canal water supplies. This should be followed by federations of WUAs at the minor and/or distributary level.	OFWM, ID, Extension and CWM	At present, the WUAs are active during watercourse improvement only.
5. Minimize water losses in the system by earthen improvement or lining of watercourses and installation of <u>pucca nukas</u> . This effort needs to be extended up to improvement of field channels.	OFWM, WUAs and consultant (USAID)	At present the program is limited to <u>sarkari</u> watercourses and percentage of lining is also limited.
6. Position <u>nukas</u> on watercourses to be revised according to the requirement of the area.	OFWM, ID and WUAs	Normally there is only one sanctioned <u>nuka</u> for 25 acres producing long farm ditches.

Goal	Organizations Involved	Remarks
7. Coordinated designs of canals and watercourses are developed so that the full supply levels of both provide sanctioned discharges through the outlets.	ID, OFWM, CWM, Extension, consultant (USAID) and consultant (IDA)	
8. Adoption of revised design criteria which reflect the actual water supply available.	ID and consultant (IDA)	Channel requires to be designed on the current or designed discharges, whichever is higher.

PROBLEM 3

Inadequate and untimely use of inputs in less than optimal combinations due to the lack of availability, poor financial positions of farmers (especially in the case of irrigation water shortages), and lack of technical know-how.

Goal	Organizations Involved	Remarks
1. Improve the uniformity of water distribution to fields by precision land leveling (PLL) and by improving water application techniques through adjusting field sizes according to available flow rates.	OFWM, Extension and Credit agencies	At present there is no follow-up service after PLL or for water management extension.
2. Increase awareness and responsiveness of field officers for delivering the package of technology to farmers for increased production by updating technical knowledge of the field officers of various organizations in the disciplines required.	Extension, training institutes, OFWM and ID	The field assistants are lacking advanced knowledge and facilities for successful demonstrations.
3. Field officers from concerned agencies have a free hand to work to achieve specific goals and to bring awareness to policy makers of their difficulties.	Aid-giving agencies and Government of Pakistan	Limitations imposed by aid giving agencies cause delay in project implementation.
4. Develop better access to supply centers and seed depots.	Extension, Punjab Seed Cooperation, Punjab Agr. Development and Supply Cooperation	Recommend the number of depots after a thorough study.
5. Develop improved availability of credit to low and middle income farmers.	Cooperatives Department, Agricultural Development Bank of Pak., commercial banks, WUAs and Extension	Credit facilities need to be extended, especially to the small farmers.

PROBLEM 4

Lack of coordination among the CWP organizations inhibits the effective planning and implementation of activities for achieving project objectives.

Goal	Organizations Involved	Remarks
1. More effective working of coordination committees at all levels including Project Coordination Committee (PCC), Sub-project Coordination Committees (SCCs) and water users associations.	PCC and SCC represented organizations	Active coordination of the field workers and WUA representatives needs strengthening.
2. Improve understanding of the role of each agency and the affect of that agency's role on other agencies in CWM.	All CWM-related organizations	The role of each involved agency needs to be made very specific and agreed upon.
3. Improve communication and the effective flow of information occurring within CWM-related organization.	All CWM-related organizations	Requires more responsiveness to the information requested.

PROBLEM 5

Farmers, particularly low and middle income, are not adequately involved in the decision-making and management of organization serving agriculture.

Goal	Organizations Involved	Remarks
1. Develop farmers' organizations in the form of water users associations to effectively coordinate with agencies and to solve problems of the farming community.	OFWM, ID, Extension and CWM	The involvement of the WUAs needs to be extended in all the issues related to agriculture.
2. Involve water users associations representatives in existing <u>markazes</u> , and District coordinating and advisory committees.	WUAs, <u>Markaz</u> Council and District Council	WUAs need to be linked with other organizations.

B. OBJECTIVES FOR SELECTED GOALS¹

PROBLEM 1

The water availability is not sufficient for agriculture during various stages of plant growth for prevailing and future cropping intensities in the command area. The problem is more severe in some areas than others.

Goal 1

Redesign, rehabilitate and restore the existing canal system to the designed equitable discharges for distributaries, minors and outlets. This will include lining where necessary to provide more efficient and equitable deliveries to the tail reaches of the system channels.

Objectives

1. Increase conveying capacity of the system by making channels viable by raising the banks or desilting the bed.
2. Save seepage losses of water - about 8% - through lining of small channels (those below 30 cusecs capacity).
3. Improve commands by raising of water level in parent channels for better gravity flow.
4. Improve control and distribution of available water by providing gated structures at the distribution points.
5. Authorize delivery to each outlet by remodelling.

Involvement

1. Irrigation and Power Department, Government of Punjab.
2. OFWM Directorate, Government of Punjab.
3. Supervisory Consultants
 - NESPAK, NDC Joint Venture (IDA Component)
 - ACE-ZCL-AAA Joint Venture (USAID Component)
4. Water Users Associations

¹This section presents a further consideration of seven of the goals identified in the previous section for four of the problems.

Strategy

The functionaries of Irrigation, OFWM, and supervisory consultants jointly develop the sequence planning charts within the framework of their respective roles and responsibilities. The involvement of WUAs should be ensured at all levels.

Monitoring

1. Observe gauges.
2. Measure discharge after specific withdrawals.
3. Compare pre-project and post-project hydraulic data by regular hydraulic surveys.
4. Assess cropping intensities (impact - evaluation).
5. Assess yield per acre (present and post-project).

PROBLEM 2

Inequitable distribution due to unreliable control at off-takes and outlets and conveyance losses in the system.

Goal 7

Coordinated designs of canals and watercourses are developed so that the full supply levels of both provide sanctioned discharges through the outlets.

Objectives

1. Exchange preliminary data required for the design of the system is carried out among those involved in the canals and watercourses design such that the full supply level is established.
2. Monthly meetings and discussions between concerned organizations at appropriate levels to identify and resolve issues as well as exchange information.
3. Designs are finalized based on mutual consultation and exchange.

Involvement

Irrigation, On-Farm Water Management, and Extension Service departments involved in the process are to coordinate and exchange data through the Director, project management, Command Water Management Project, Punjab, with the respective consultants.

Monitoring

1. The final designs of distributaries and watercourses will be coordinated by the CWM office.
2. The IDA consultants will prepare the designs keeping in view the water levels required by OFWM.
3. The USAID consultants will approve the designs of watercourses keeping in view the designs of the distributary and minors.
4. Checking of the completed work as per design and specification will be carried out by the respective consultants for compatibility.

PROBLEM 2

Inequitable distribution due to unreliable control at off-takes and outlets and conveyance losses in the system.

Goal 3

Development of warabandi considering watercourse losses and topography of specific fields.

Objectives

1. Applications are received by the sub-district canal officer from farmers requesting amendment of warabundi based on water losses and topography.
2. The Irrigation Department examines and revises the position of warabundi based on a determination of topography (with assistance of OFWM) and an assessment of watercourse losses.
3. Revised warabundi are confirmed through water users associations as per normal procedures.

Involvement

1. Irrigation and Power Department, Government of Punjab.
2. OFWM Directorate, Government of Punjab.
3. Water Users Associations
4. Director, Project Management, CWM

Monitoring

Command Water Management, Project Management Office will monitor results of revised warabundi through interviews of WUAs and measurements of water application efficiencies.

PROBLEM 3

Inadequate and untimely use of inputs in less than optimal combinations due to the lack of availability, poor financial positions of farmers (especially in the case of irrigation water shortages), and lack of technical know-how.

Goal 2

Increase awareness and responsiveness of field officers for delivering the package of technology to farmers for increased production by updating technical knowledge of the field officers of various organizations in the disciplines required.

Objectives

1. Arrange orientation course for field officers at the OFWM Training Institute at Niazbeg and the Agricultural Training Institute at Sargodha, and study tours to various research institutes.
2. Provide necessary tools like transport, inputs for demonstration plots, soil testing kits, soil samplers, water management equipment, sprayers, and other technical materials for successful demonstration of a technology package to farmers.
3. Work out input requirements of the farmers through water users associations and make timely arrangements for coordination with various input supplying agencies.
4. Transfer a package of technology to the farmers by increasing the strength of the field staff as per jurisdiction of the CWM under the control of a separate Deputy Dir. of Agri.

Involvement

Organizations are Extension, training institutes as needed, the needed research institutes, OFWM, and the Irrigation Dept.

Monitoring

1. Training courses will be organized after specific intervals, and their implementation will be confirmed from the concerned periodically.
2. Specific targets will be assigned to the extension agents, and the output will be checked through the WUAs.
3. Specific dates for meeting with associations will be fixed, and attendance will be confirmed from the associations.
4. Baseline for existing agricultural practices will be developed and an evaluation will be carried out by subsequent studies.

PROBLEM 4

Lack of coordination among among the CWMP organizations inhibits the effective planning and implementation of activities for achieving project objectives.

Goal 1

More effective working of coordination committees at all levels including project coordination committees (PCCs), subproject coordination committees (SCCs) and water users associations (WUAs).

Objectives

1. Procedures are established for getting commitments and for effective follow-up of decisions taken in the coordination committees (PCC and SCC).
2. Subproject coordination committees are established through the combined efforts of all the involved departments.
3. Plans for the subproject area are initiated at the field level (SCC level).

Involvement

PCC- and SCC-represented organizations are involved.

Monitoring

PCC reviews coordination needs and monitors progress in information provided to meet needs. The Director, Project Management monitors recommended coordination processes and evaluates results.

PROBLEM 4

Lack of coordination among among the CWMP organizations inhibits the effective planning and implementation of activities for achieving project objectives.

Goal 2

Improve understanding of the role of each agency and the affect of that agency's role on other agencies in CWM.

Objectives

1. Pre-posting training of individuals involved in CWM regarding assignment.
2. CWM-related organizations (Extension, OFWM, ID, CWM) conduct joint field visits for common awareness and responsiveness to commitments.
3. Roving workshops for beneficiaries and field personnel about the project objectives and activities are jointly conducted by CWM related departments.

Involvement

PCC and SCC represented organizations are involved.

Monitoring

PCC reviews coordination needs and monitors progress in information provided to meet needs. The Director, Project Management monitors recommended coordination processes and evaluates results.

PROBLEM 4

Lack of coordination among among the CWMP organizations inhibits the effective planning and implementation of activities for achieving project objectives.

Goal 3

Improve communication and the effective flow of information occurring within CWM-related organization.

Objectives

1. A complete directory of personnel involved in CWM is developed and maintained.
2. Information regarding organizational plans is shared among organizations.
3. Technical data, especially canal and watercourse design, are shared as appropriate among involved organizations.

Involvement

PCC and SCC represented organizations are involved.

Monitoring

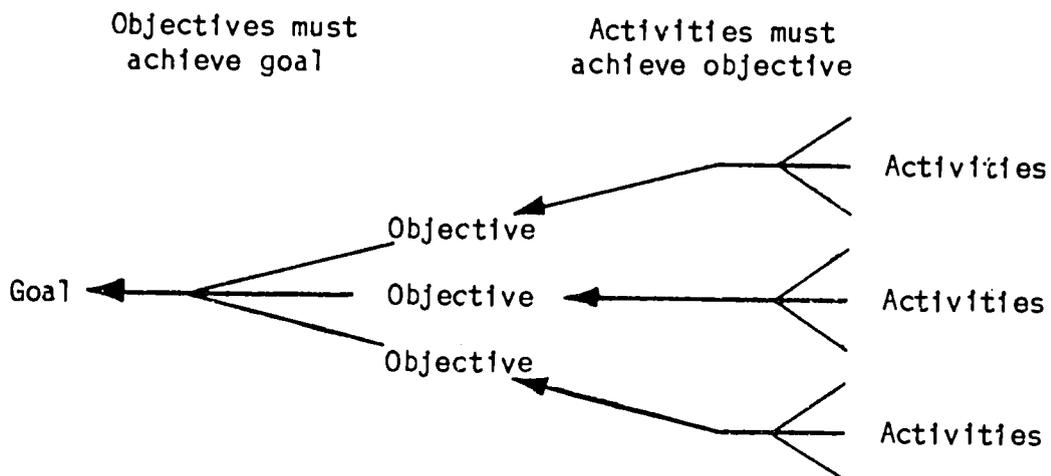
PCC reviews coordination needs and monitors progress in information provided to meet needs. The Director, Project Management monitors recommended coordination processes and evaluates results.

III. NEXT STEPS

This document reflects the ideas and thoughts of field and operational Command Water Management personnel about the priority problem, the goals, and the specific objectives of the project as it relates to Niazbeg in particular. The next step in the planning process is for review, feedback and input to be received on this framework by senior management and policy-making officials.

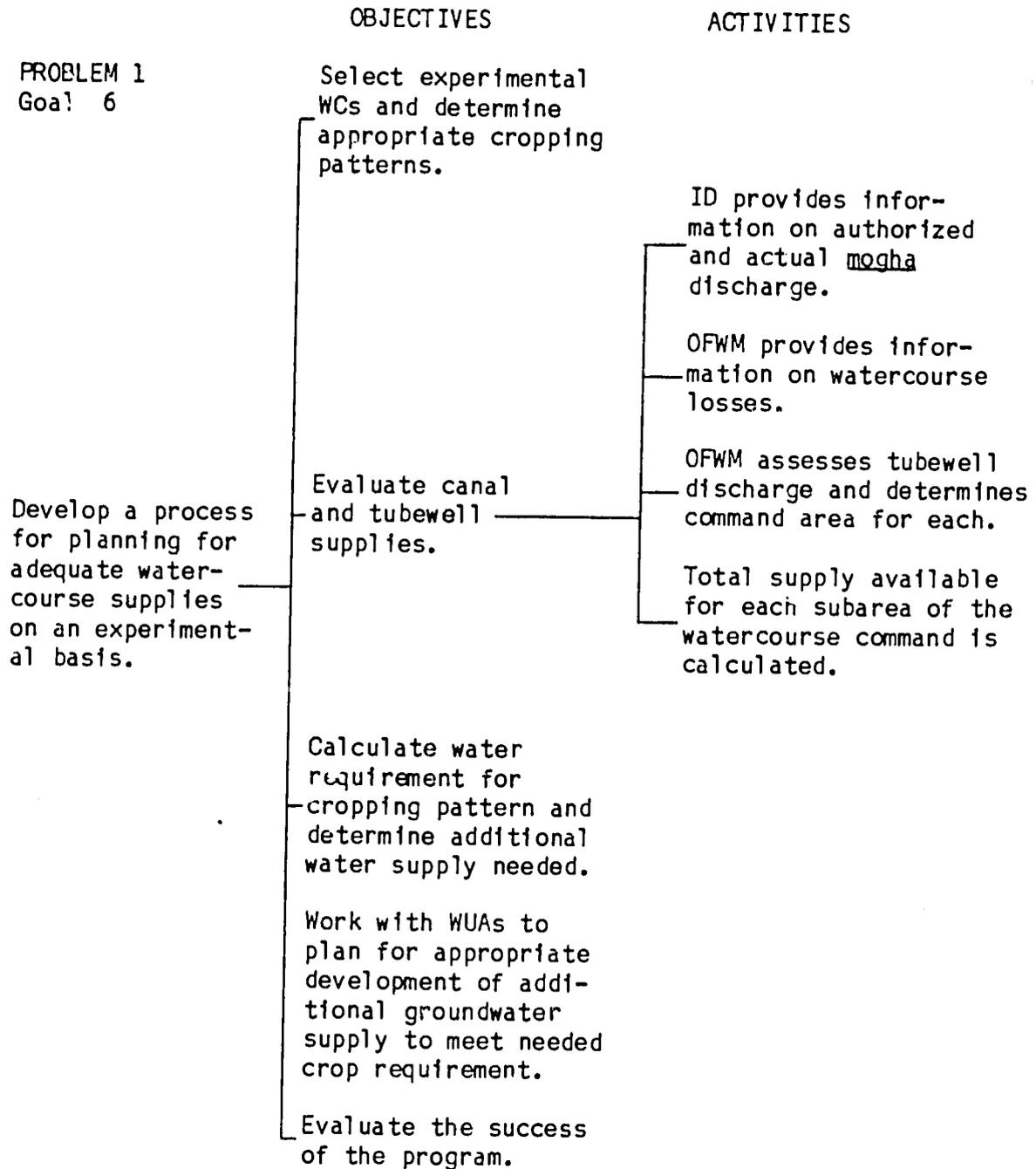
Once this framework has been appropriately modified and agreed upon, steps need to be taken by the involved organizations to define better how they will achieve the priority objectives through the development of more specific work plans. Because of the complexity of this project, it will be essential for the Director, Project Management, to take an active role in working with the organization to further define the plans for achieving the agreed upon objectives. A regular monitoring and reporting function can be based on this management plan framework and the more specific organizational work plans that are elaborations of it. The responsibility for monitoring and reporting the completion of work plans and the achievement of project goals and objectives becomes the joint responsibility of the Director, Project Management, and the Project Coordination Committee. In addition to monitoring the achievement of existing plans, this group must also become involved in replanning to meet the objectives as project priorities and conditions change.

Plans for achieving the goals of the Command Water Management Project can be depicted in the offices of the relevant agencies in the following form:



The Work Breakdown Structure:
Goal - Objectives - Activities Chart

Once each agency has identified the major activities it will be undertaking to accomplish the goals and objectives², these activity lists should be consolidated into overall charts. This summary can then be shared among agencies allowing for improved coordination and joint work. An example of how this chart might be completed is below.



²Both goals and objectives should describe an end result, be specific (measurable), be realistic (achievable), and be defined by time.

The work plans should include the specific activities required for implementing the authorized and agreed upon goals and objectives. The standard elements for each activity included in a work plan are:

1. What is to be done? The specifics about the results expected (outcome) when this activity is completed. For example, what structures will exist, what behavioral change will occur, what organizations will be created.
2. How will it be accomplished? Indicate the equipment to be used; meetings to be held; persons to be contacted for awareness, cooperation, and approval; and specific methods to be used.
3. When will it be done? Each activity should be accomplished within a given timeframe. This should be specifically stated. When a number of activities are required to accomplish an objective, they should be diagrammed using a network or bar chart to sequence them in a logical order.
4. Who will do it? The responsibility for each activity should be clearly stated and agreed upon. When activities are interrelated, part of a logical sequence, and implemented by different organizations, it is especially important to diagram the sequence of activities in a timeframe and get thorough understanding of the process from all parties concerned.
5. Where will it be done? What is the geological and social scope of the activity? For example, what villages, regions or canal reaches will be targeted, and what organizations, groups or communities will be involved?
6. What resources are required? Activities consume time and resources. It is important that the resources to conduct an activity are planned for, sent to committee and approved in advance of the actual work. Estimating the resource needed to carry out an activity requires the judgment of experienced personnel. If resources prove to be insufficient, the plan is sure to fall behind schedule.

On the next page is a useful format for activity planning.

Activity Planning

Activity	Duration and Timing	Resources Required	Organization/ Office Responsible	Others Involved
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1.

2.

3.

4.

5.

IV. ANNEXURES

ANNEX 1
LIST OF ACRONYMS

Consultant/USAID	ACE-ZCL-AAA Joint Venture
Consultant/IDA	NESPAK-NDC Joint Venture
CWM	Command Water Management
DA	Diagnostic analysis
ID	Irrigation Department
IDA	International Development Agency/World Bank
MTP	Management training and planning
OFWM	On-Farm Water Management
PCC	Project Coordination Committee/CWM
PID	Project Implementation Document
PLL	Precision land leveling
PPC	Provincial Policy Committee/CWM
SCC	Subproject Coordinating Committee/CWM
SMO	Subproject Management Office
USAID/AID	United States Agency for International Development
WC	Watercourse
WMSII	Water Management Synthesis II
WUA	Water users association

ANNEX 2

LIST OF PARTICIPANTS

MANAGEMENT TRAINING AND PLANNING PROGRAM Workshop I: Identifying and Addressing Problems

March 24 and 29, 1986

- A. Command Water Management - Subproject Management Office
1. Mohammad Salim Arshad, Director (P.M.)
 2. Mian Yousaf Ali, Deputy Director (Irrigation)
 3. Mohammad Usman Ghani, Assistant Director (M&E)
 4. Nasir Mahmood, assistant engineer
 5. Maqbook Elahi, computer programmer
- B. Extension
1. Zain-ul-Abedeem, Extra Assistant Director (Agriculture)
 2. Maqbool Hussain, Deputy Director Agriculture, Lahore Division
 3. Muhammad Afzal Bhatti, Extra Assistant Director (Agriculture)
 4. Pervaiz Akhtar, agricultural officer (Bhai Pheru, Dist Kasur)
- C. Irrigation
1. Zulfiqar Ahmed Khan, executive engineer (Irrigation)
 2. Nadeem Khan Assistant executive engineer (Irrigation)
- D. Banks
1. Farakh Jalal, regional technical officer (Agriculture Development Bank of Pakistan)
 2. Syed Mumtaz Hussain Shah, agricultural officer (Incharge, Credit Cell, Muslim Commercial Bank)
 3. Ijaz Mehdi Malik, agriculture officer (Incharge Agri. Cell Habib Bank Ltd., Central Zone, Alfalah Building, Lahore)
 4. Mian Mohammad Muneeb, assistant registrar (Cooperative Societies, Chunian)
 5. Abdul Waheen Ch., manager operation (National Bank of Pakistan)
- E. Soil Fertility
1. Mian Mushtaq (Soil Fertility Lab, Lahore)

F. Water Management Training Institute

1. Mushtaq Ahmed Gill, Director (Training)
2. Mumtaz Ahmed Awan, agronomist

G. Supervisory Consultants

1. Rashid Beg Akhtar, P.M., CWMP(USAID)
ACE-ZCL-AAA Joint Venture
2. S.N.H. Mashhad, P.M. CWMP(IDA)
NESPAK-NDC Joint Venture
3. Mohammad Akbar, project engineer
ACE-ZCL-AAA Joint Venture

H. QFWM

1. Ch. Mohammad Ashraf, Project Director (CWMP,
Lahore)
2. Allah Ditta Mansoor, water management specialist
(CWMP, Haroonabad)
3. Mehr Allah Ditta, water management specialist
(Vehari)
4. Munir Khan Baluch, water management specialist
(Shahkot)
5. Safdar Ali Cheema, water management specialist
(Lahore)

I. Input Suppliers

1. Fareed Akbar Hashmi, Manager (PAD & SC, Lahore)

J. Marketing

1. Major Shamim S. Khan, Deputy General Manager (Field),
PASSCO

ANNEX 3

LIST OF PARTICIPANTS

MANAGEMENT TRAINING AND PLANNING PROGRAM Workshop II: Developing the Management Plan

March 31 through April 2, 1986

1. Mr. Sikandar Hayat, S.E. Irrigation, Punjab, Government of the Punjab, Lahore
2. Ch. Mohammad Ashraf, Project Director of W.M. (OFWM/CWMP), Lahore
3. Mr. Rashid Beg Akhtar, Project Manager, CWMP-AID Components, Lahore
4. Mr. Saleem Arshad, Director, CWM, Lahore
5. Mr. Nisar Ahmad Malik, S.E. Depalpur Irrigation, Lahore
6. Mian Yusaf Ali, Deputy Director, P.M., P.M. Cell, Lahore
7. Mr. Abdul Rashid, XEN Lahore Division, Lahore
8. Mr. Maqbook Hussain, D.D.A., Lahore Division, Agriculture Extension, Lahore
9. Mr. Karamat Ali, engineer, NESPAK-NDC, Lahore
10. Mr. S.N.H. Mashhadi, Project Manager, CWMP(IDA), NESPAK-NDC-IV, Lahore
11. Mr. M. Usman Ghani, Assistant Director (P.M.), CWMP (P.M. Cell), Lahore
12. Mr. Zulfiqar Ahmad Khan, XEN, Irrigation, Lahore
13. Mr. Muhammad Afzal Bhatti, Extra Assistant Director, Agriculture, Lahore District.

ANNEX 4

MANAGEMENT TRAINING AND PLANNING PROGRAM

**PRESENTATION OF THE FRAMEWORK OF THE
MANAGEMENT PLAN AND THE MTP PROGRAM
TO THE SENIOR MANAGERS**

April 5, 1986

Pearl Continental Hotel
1300-1630 Hours

- A. List of Participants
- B. Comments from Participants of Saturday's Meeting

A. LIST OF PARTICIPANTS

Saturday Workshop

1. Dr. Bashir Ahmad, Chief Economist, Planning and Development Department
2. Ch. Noor Ahmad, Chief, Agriculture, Planning and Development Department
3. Mr. Rand K. Anwar, Chief Engineer (Dev.), Irrigation Department
4. Mr. Aslam Chohan, Chief Engineer (Operation), Irrigation Department
5. Mian Abdul Rasheed, XEN (Operations), Irrigation Department
6. Mian Sikander Hyat, Superintending Engineer, CWMP, Irrigation Department
7. Mr. Zulfiqar Ahmad Khan, XEN, CWMP, Irrigation Department
8. Mr. Mohammad Sadiq Cheema, Director General, Water Management
9. Mr. Muhammad Rifiq, Director, OFWM
10. Mr. Mushtaq Gill, Director, Water Management Training Institute
11. Mr. Maqbul Hussain, Deputy Director, Extension
12. Mr. S.N.H. Mashhadi, Project Manager, CWMP (IDA), NESPAK-NDC
13. Mr. Rashid Beg Akhtar, Project Manager, CWMP (USAID), ACE
14. Mian Yousaf Ali, Deputy Director, Project Management, CWMP
15. Mr. Salim Arshad, Director, Project Management, CWMP

B. COMMENTS FROM PARTICIPANTS OF SATURDAY'S MEETING

Held After Workshop II

1. The Director's (Project Management, CWM) proposed role in monitoring coordinated designs (Problem 2, Goal 7) was not acceptable to the Irrigation Department. It was agreed to revise the statements under the section on monitoring, paragraphs 1 and 4. The revised statement, as conveyed by the SE/CWM, was agreed to and has been incorporated in the document.

2. A discussion on the monitoring of the coordination of canal and watercourse designs was held. The points made were as follows:
 - The role of the Director, Project Management, should be to monitor the progress of the CWM Project and report to the PPC.
 - Questions were raised about whether the Director's (Project Management) role extends to monitoring coordinated designs by the consultants and the Irrigation Department.
 - There was agreement on the coordination role of the Director, Project Management, between the ID and OFWM for coordinated designs.

3. The suggestion of Workshop II as written in the framework of the management plan was to increase the strength of the field staff and revise the jurisdiction of the staff as per CWM areas under the control of one deputy director. The role of Extension was considered important and was discussed as follows:
 - It was stated that the increasing of staff strength would occur under Phase II of T&V.
 - Disagreement was raised with the idea of having a separate deputy director.

4. The equity of distribution of water was discussed. Comments were as follows:
 - Equitable distribution of water is difficult due to social pressure.
 - Suggestions were that farmers need to be involved in supporting equitable distribution.
 - Suggestions were that, on an experimental basis, one minor be selected for the development of a CWM board of a federation of WUA to help the ID in maintaining equity.
 - Irrigation Department should ensure equity of distribution to realize the full benefits of the project.

5. The development of groundwater in Niazbeg was discussed. Comments were as follows:
 - It was suggested that the Director, CWM, survey the existing programs available to develop groundwater, including those of the Agricultural Engineering Directorate for diesel tubewells and those of WAPDA and the Irrigation Department for electric tubewells.
 - Groundwater studies need to be conducted in Niazbeg.
 - The needs for a groundwater survey should be determined by the Director, CWM, by reviewing existing studies and resources to determine future action.
 - Funds are needed for planning the development of groundwater, although funds are available for the actual development of tubewells through the Agricultural Engineering Department and WAPDA.
 - Master Planning in WAPDA has completed a study of groundwater resources and this should be consulted.
 - The technical engineering consultants for the Irrigation Department could be involved in this effort.

6. Resources for successful on-farm demonstrations were proposed in the plan. It was indicated that these resources would be available under Phase II of the T&V program in the Niazbeg area.

7. Revised design criteria for canals (Problem 2, goal 8) will be dealt with by the PPC.
8. Extension needs to be coordinated with other organizations like the credit agencies. This type of coordination needs policy level support.
9. To more effectively meet credit needs, Tehsil level committees are there for monitoring availability of credit. A reporting system is needed in CWM to provide proper information to that committee.
10. A comparative analysis of different countries' experiences in the Command Water Management approach to irrigated agriculture should be provided.
11. The project will be more effective if plans are also distributed among the recipients (farmers).
12. Farmers should also be organized in a more effective way (current WUA are ineffective).
13. Monitoring of project progress should be extended to the development of farmers' organizations in CWM.

ANNEX 5

MANAGEMENT TRAINING AND PLANNING PROGRAM

**PRESENTATION OF THE FRAMEWORK OF THE
MANAGEMENT PLAN AND THE MTP PROGRAM TO THE
POLICY LEVEL
(IRRIGATION AND AGRICULTURE)**

April 9, 1986

Irrigation Department
(Conference Room)

1100-1300 hours

- A. Agenda
- B. Problems and Selected Recommendations
Related to the Niazbeg Subproject Area
- C. Summary of Comments

A. AGENDA

- * Introduction
- * Purpose of Meeting
- * Expectations/Agenda
- * Diagnostic Analysis
- * Review of Management Training and Planning (MTP) Program
 - Purpose of MTP
 - Purpose and Approach of Workshops
 - Outcomes of MTP
- * Problems and Recommendations
- * Comments and Discussions
- * Review and Closure

**B. PROBLEMS AND SELECTED RECOMMENDATIONS
RELATED TO THE NIAZBEG SUBPROJECT AREA**

INADEQUATE WATER SUPPLY FOR SOME AREAS.

Recommendations:

- a. Groundwater should be developed, and a process for its implementation established. (Goal 3 under Problem 1)

(To do this, an initial reconnaissance should be made by the Director, CWM, to determine how to proceed in developing this area. We believe there is sufficient evidence to support moving ahead to develop a program involving multi-departmental representation from such agencies as the Irrigation Department, On-Farm Water Management, Extension, and Soil Fertility.)

- b. Action research in watercourse planning is needed to demonstrate how potential crop yields can be achieved. (Related to Goal 6 under Problem 1)

(This would be a multi-agency effort to study and address the problems related to water and nonwater inputs in one watercourse. The approach would allow CWM to determine the best potentials for increasing agricultural production. One of the potentials to be considered is the addition of private tubewells for improved adequacy and reliability of the water supply.)

INEQUITABLE DISTRIBUTION OF WATER.

Recommendations:

- a. Outlets need to be remodeled to achieve equitable discharge. (Goal 1 under Problem 2)
- b. Water measurement structures should be installed and procedures developed for giving feedback to the Irrigation Department, Command Water Management, On-Farm Water Management, and the farmers. (Goal 4 under Problem 1)

(Recommendations (a) and (b) are linked. To monitor the continuing success of ensuring equitable distribution and improved water management techniques, measuring structures must be instituted and the information made available to farmers, as well as the provincial agencies.)

- c. The warabandi needs to be revised to take into account water-course losses and the topography of fields. (Goal 3 under Problem 2)

(The institution of this policy will be important to addressing the problem of inequitable distribution.)

- d. Designs of canals and watercourses should be coordinated. (Goal 7 under Problem 2)

(The process of coordinated design of canals and watercourses that has been instituted by the Command Water Management Project should be continued and strengthened. In addition, how it should be monitored needs to be defined for it to continue to work effectively.)

INADEQUATE ACCESS TO INPUTS AND SERVICES FOR FARMERS.

Recommendations:

- a. Introduction and follow-up of water application demonstrations by Agricultural Extension. (Related to Goals 1 and 2 under Problem 3)
- b. Access to seed and supply depots should be surveyed by Agricultural Extension through the water users associations and reported to PADSC. (Discussion in regard to Goal 4 under Problem 3)
- c. Farmers' needs for credit should be assessed by Agricultural Extension through the water users associations and the information passed to credit agencies. The use of credit should be monitored and the information passed to the tehsil level committees. Access to credit should be assured. (Discussion in regard to Goal 5 under Problem 3)

NEED FOR IMPROVED COORDINATION TO ACHIEVE COMMAND WATER MANAGEMENT OBJECTIVES.

Recommendations:

- a. CWM-related agencies should formulate their plans in consultation with the other agencies and specify activities in light of the framework for planning and the agreed upon goals and objectives developed in the Management Training and Planning (MTP) Program.
- b. Develop measures to monitor the achievement of objectives and ensure accountability. (Relates to Goals 1 and 3 under Problem 4)

FARMERS ARE NOT ADEQUATELY INVOLVED IN AGENCIES' DECISION-MAKING.

Recommendations:

- a. Water users associations should be made more effective through the joint field work of Extension, the Irrigation Department, and On-Farm Water Management so that they can better address such issues as equitable distribution and improved inputs and services.
(Goal 1 under Problem 5 and all other problem areas)

C. SUMMARY OF COMMENTS

MADE BY PARTICIPANTS DURING THE PRESENTATION OF THE MTP PROGRAM AND FRAMEWORK OF THE MANAGEMENT PLAN

April 9, 1986

The following comments were made by individual participants at the presentation on 9 April 1986.

1. Several participants emphasized the need for coordinating cropping patterns and distribution of water supplies. They pointed out that the individual self-interest of farmers leads to production of crops which have the highest return. However, high value crops often have high water requirements, like sugar cane. Water must be allocated equitably and in a way which is compatible with cropping patterns. To meet national needs for food and fiber, command areas of certain cropping patterns require additional water. Reallocation may need to be worked out collaboratively among the private sector and agencies controlling public supplies of water.
2. There were several comments regarding the need for increasing water supplies through developing groundwater resources. Attention was called to the fact that water is the main constraint in Pakistan's agriculture.

It was mentioned that the surface supply is well known. The amount and quality of groundwater available for private development, however, needs to be fully assessed. Then a process should be developed for assisting farmers with investment analysis and procurement of appropriate technology and credit.

The following are some of the issues and suggestions related to tubewell development that were raised:

- The investment needed for groundwater development is a major obstacle.
- Quality of groundwater should be continuously monitored.
- The charges for canal water can be appropriately reduced for farmers who use tubewells exclusively or in combination with canal water.

- Credit arrangements for developing private tubewells must be compatible with the repayment capacity of the farmers.
 - The energy requirements for operating tubewells must be carefully considered. Electricity is scarce and diesel fuel is quite expensive.
 - There was a question raised about the extent to which the public sector should be involved in providing technical assistance and capital for private development of tubewells by farmers.
 - Continued study of the quantity and quality of groundwater resources should continue for the purpose of providing information to planners and developers. There seemed to be some question about what organizations would be responsible and the source of funds for this work.
3. One participant commented that the framework for the management plan is a good first step. There are many details which still must be addressed.
 4. A comment concerning improvement of the warabandi systems suggested it will be complicated and will face a lot of problems. A suggestion was that WUAs working with OFWM and PID would address this issue.
 5. One person requested information on the role of WUAs in providing feedback to the PID regarding fluctuations in the supply of canal water.
 6. Some concern was expressed over the priorities to be assigned to CWM goals. It was suggested that improvement in the effective supply of water to farmers fields should have high priority.