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GOVERNMENT OF N.W.F.P.

MANAGEMENT PLAN *

FOR

COMMAND WATER MANAGEMENT

WARSAK LIFT CANAL SUBPROJECT AREA

*Gov't of Northwest Frontier Province
Pakistan*

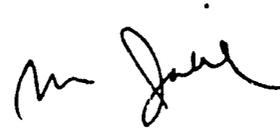
May 10, 1986

MAY 10, 1986

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(Engr. Mohd. Jalil Khan)
Subproject Manager
Command Water Management
May 10, 1986

LIST OF ACRONYMS AND ABBREVIATIONS

ACE-ZCL-AAA-----	Associated Consulting Engineers (Joint Venture)
ABL-----	Allied Bank Limited
ADBP-----	Agricultural Development Bank of Pakistan
ADA-----	Agricultural Development Authority
Ag. Ext.-----	Agricultural Extension
Asst. Dir.-----	Assistant Director
ADP-----	Annual Development Plan
AO-----	Agricultural Officer
APM-----	Adjustable, proportionate modular
CE-----	Chief Engineer
CSU-----	Colorado State University
CWM-----	Command Water Management
DA-----	Diagnostic Analysis
Dep. Dir.-----	Deputy Director
DSPM-----	Deputy Sub-Project Manager
EADA-----	Extra Assistant Director Agriculture
Ext.-----	Agriculture Extension
FA-----	Field Assistant
FATA-----	Federally Administered Tribal Areas
FY-----	Fiscal Year
HBL-----	Habib Bank Limited
ID-----	Irrigation Department
IDA-----	International Development Agency
IDMC-----	International Development Management Center, University of Maryland
ISRP-----	Irrigation Systems Rehabilitation Program
MTF-----	Management Training and Planning Program
NBP-----	National Bank of Pakistan
NESPAK-NDC-----	National Engineering Services Pakistan (Joint Venture)
NWFP-----	North West Frontier Province
NIFA-----	Nuclear Institute for Food & Agriculture
DFWM-----	On Farm Water Management
P&D-----	Planning & Development
PBC-----	Pakistan Banking Council
PC-I-----	Planning Commission (Document) I
PPC-----	Provincial Policy Committee
PI-----	Project Implementation Letter
PLL-----	Precision Land Levelling
PRC-----	(Consulting Firm)
SCC-----	Sub-project Coordination Committee
SDO-----	Sub-divisional Officer
SE-----	Superintending Engineer
SMO-----	Sub-project Management Office
SPM-----	Sub-project Manager
TIPAN-----	Transformation and Integration of Provincial Agricultural Network
UBL-----	United Bank Limited
USAID-----	United States Agency for International Development

LIST OF ACRONYMS AND ABBREVIATIONS (Cont.)

WAPDA-----Water and Power Development Authority
WC-----Watercourses
WLC-----Warsak Lift Canal
WMES-----Water Management Extension Specialist
WMS II-----Water Management Synthesis II Project, USAID
WMO-----Water Management Officer
WUA-----Water Users' Association
XEN-----Executive Engineer

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I. INTRODUCTION

The purpose of this document is to present a management plan for Command Water Management's (CWM) Warsak Lift Canal subproject. Within the context of the purpose and objectives of CWM, this document addresses the problems of the Warsak Lift Canal area which were identified through a Diagnostic Analysis (DA) study and further clarified through a Management Training and Planning (MTP) Program that involved all CWM related organizations. (See Appendices A and B for an overview of the MTP Program and the Executive Summary of the DA study.)

This management plan should be considered as a stage in the continuous, ongoing process of problem identification, role identification, problem solving, and planning. The strategies presented in this plan provide the CWM participating agencies, viz. Irrigation Department, On Farm Water Management, the AID and IDA consultants, agricultural Extension, credit institutions, and input suppliers with an integrated framework for developing individual subplans.

In the following subsections of this introduction, there is a review of the purpose of CWM and a discussion of the roles of the participating agencies. In Section II, the management plan is presented. It identifies the priority problem areas of the Warsak Lift Canal area and defines the goals and objectives of CWM organizations for addressing these problems. For most of these objectives, a detailed and specific activity plan is given. Finally, Section III, "Follow-up, Monitoring and Replanning," summarizes the strategies that will be used by the CWM project to implement and use this plan as a working document to guide its efforts.

Appendices A through F provide background material related to this planning effort that will be useful to the reader in understanding how the plan was developed and who was involved at each phase.

A. COMMAND WATER MANAGEMENT

The FC-1 for Command Water Management for Northwest Frontier Province, prepared in March 1984, describes the project and its purpose and objectives as follows:

The project is mainly management oriented. It is to strengthen the management of the existing institutions, infrastructure, agricultural inputs and services, along with required

physical improvements so as to effectively remove major constraints in irrigated agricultural production.

Hence, in this project, improvements are emphasized in association with improved deliveries of non-water inputs and services. Project components that would most efficiently remove major agricultural production constraints have been included in this project to achieve the following objectives:

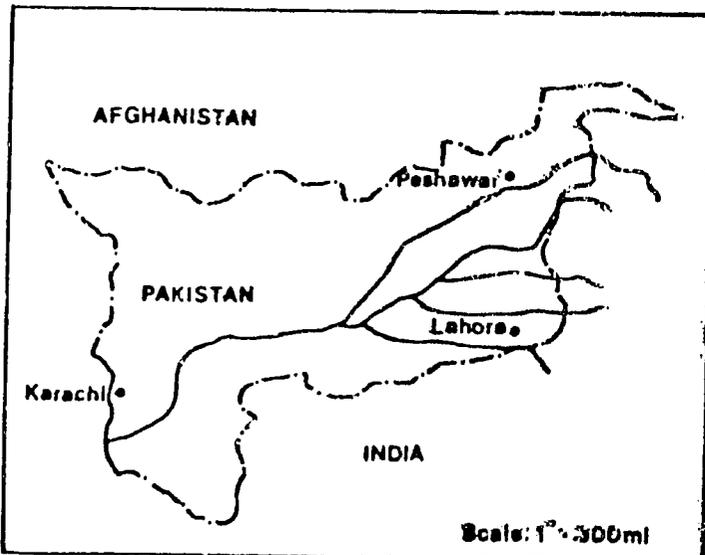
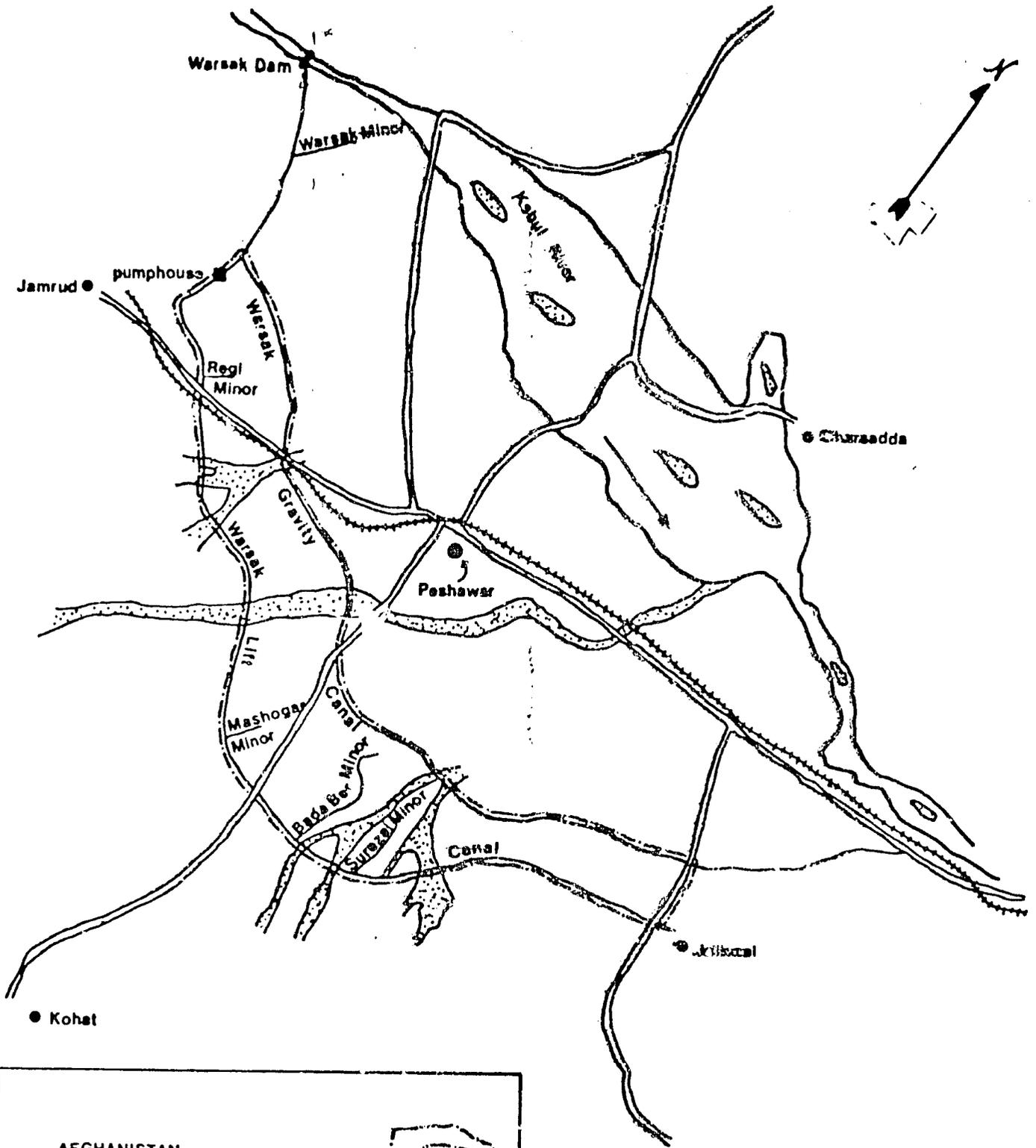
1. To increase agricultural production through improved water management and efficient agricultural services and non-water inputs.
2. To develop water management techniques and programmes replicable over a wide range of agro-climatic zones.
3. To reduce inequities in water deliveries in the tail reaches as compared to the head reaches.
4. To build within the provincial agencies a continuing capability for planning, implementing, operating and maintaining integrated and efficient programmes of irrigated agriculture.
5. Strengthen farmer participation in formal water user associations to improve their overall water and non-water input management.

The designated Command Water Management Project area in NWFP is the area receiving irrigation water through the Warsak Lift Canal System. Figure 1 shows the Warsak Lift Canal subproject area. The project covers a gross area of 54,599 acres out of which the cultivable command area is 43,369 acres. (See Appendix C for a chart describing the organizational relationships involved in CWM in the Northwest Frontier Province.)

B. DEVELOPMENT OF THE PLAN

The CWM Warsak Lift Canal subproject involves several participating agencies. In order to help facilitate the inter-organizational coordination needed to implement the project, a process of participatory, collaborative planning was initiated which led to the development of this document.

The strategies and approaches included in this management plan are the outcome of deliberations of field, operational and executive level managers of the organizations which have an active role in CWM. These deliberations were coordinated through a series of interviews and workshops arranged by a Management Training and Planning (MTP) Program that took place from April 22 through May 14, 1986.



-  Road
-  Railroad
-  Subproject boundary

Scale: 1" = 5 mi

Figure 1. Warsak Lift Canal Subproject Command Area.

The basic methodology of the MTP was to use a collaborative planning process to get input from a broad base of policy, operational and field level personnel. An integrative approach was used to get general agreement on priority problem areas, goal statements and program objectives which then begin to develop integrated workplans.

The starting point for the MTP process was a DA study of the Warsak Lift Canal (WLC) subproject command area. This study was conducted by an interdisciplinary team from the Subproject Management Office (SMO) and personnel from the line departments of Irrigation and Agriculture including Extension and On-Farm Water Management. The DA study involved field investigations and analysis of the agricultural and irrigation systems in the subproject area. From the knowledge and understanding gained through the DA study, constraints to agricultural production in the Warsak Lift Canal area were identified.

The general constraints identified during the DA study were:

1. An inadequate water supply.
2. An unreliable water supply.
3. An inequitable distribution of water.
4. Limited capital investment.
5. Limited farmer cooperation.
6. Inadequate institutional linkages.

The MTP program was conducted by an interdisciplinary team of irrigation management specialists and organization management experts working through USAID's Water Management Synthesis II project. In the first phase of the MTP program the DA study and the plans for the MTP program were discussed with personnel from participating agencies including policy level officials. Comments and suggestions from these interviews were provided as input to the participants in Workshop I. The participants in Workshop I devoted two days to defining problems, developing goals for addressing the problems and clarifying roles and responsibilities for each participating agency. (See Appendix D for a Summary of Workshop I.)

The outcomes of Workshop I were used as input for a second workshop attended by personnel from operational and executive levels of participating agencies. The outcomes of Workshop I were refined and detailed activity plans were developed for selected problem areas and goals. A product of Workshop II was a draft management plan which is to be reviewed by policy level personnel from the Departments of Irrigation, Agriculture, Planning & Development and Finance. (See Appendix E for a list of participants and comments by farmers that were input to that workshop.)

C. ROLES OF COMMAND WATER MANAGEMENT ORGANIZATIONS

Through the Command Water Management Project, the programs and activities of provincial and private agencies are expected to be actively coordinated with one another. This is to ensure that each agency contributes to the work of the other in meeting the development goals. Below is a brief description of the specific roles played by each of the key organizations and committees in CWM.

1. The Provincial Policy Committee (PPC). The PPC is the provincial body that is ultimately responsible for the project. It is composed of the Additional Chief Secretary, Planning and Development (Chairman), and the Secretaries of Agriculture, Finance, and Irrigation.

The role of the PPC is to provide policy guidance and overall supervision and monitoring of the project, including maintaining liaison among involved public and private agencies. The committee reviews and approves the annual work plans submitted by the Subproject Manager.

2. The Subproject Coordinating Committee (SCC). The SCC is composed of representatives of all the involved agencies. The role of the SCC is to provide an opportunity for representatives of the CWM-involved organizations to engage in collaborative planning and problem solving; communication and coordination, and monitoring of project progress. (See Section II.E. for a discussion of the SCC)

3. The Subproject Management Office (SMO). The SMO is headed by the Subproject Manager who reports directly to the Chairman of the PPC. The role of the SMO is to take leadership in developing and implementing a coordinated process of assessing, defining and addressing the problems of irrigated agriculture in the subproject area. The SMO is responsible for carrying out with line agencies the coordinated planning, implementation, monitoring, and replanning of activities to meet the defined goals and objectives of the project. The SMO is also an expert technical resource to assist in the accomplishment of project goals and objectives.

4. Agricultural Extension. The role of Agricultural Extension is to educate farmers, assist in providing timely access to inputs, and provide for the transfer of technology for increasing agricultural production in coordination with all line departments. In addition, Agricultural Extension has the role of assisting in the development of Water Users Associations as viable organizations that can actively maintain the renovated watercourses and otherwise promote agricultural production.

5. Irrigation. The role of the Irrigation Department is the construction, operation and maintenance of irrigation works to provide a designed amount of water distributed equitably and reliably to the command area. In the Warsak Lift Canal area the Irrigation Department

is undertaking a rehabilitation project affecting the pumping station, the main canal and the outlets.

6. On Farm Water Management (OFWM). The role of OFWM is to minimize water losses through improvement of the watercourses, precision land levelling and water management extension techniques for increased agricultural production. In the Warsak Lift Canal area, OFWM is responsible for the improvement of watercourses, the development of Water Users Associations, and the improvement of farmers' irrigation practices.

7. IDA Consultant, NESPAK-NDC. The role of the IDA consultant is to assist the Irrigation Department's work in CWM by supplying designs, reviewing estimates, seeking authorizations for carrying out work, and supervising the work.

8. AID Consultant, ACE-ZCL-AAA. The role of the AID consultant is to assist the OFWM Directorate by checking the field surveys, reviewing watercourse designs and estimates, inspecting watercourse construction, and providing technical help in overcoming any difficult problems.

II. THE MANAGEMENT PLAN

An outcome of the MTP process was a redefinition and consolidation of the major problems using the constraints identified from the DA study as a starting point. These major problems were categorized under five general groupings: the main canal system, the on-farm system, use of inputs, farmer cooperation and involvement, and organizational cooperation. For each of these five groupings one or more problem statements were developed with a list of contributing factors to each problem. This was followed by goal statements, with lists of involved organizations, to address the priority problems and their contributing factors. Finally, specific activity plans for the achievement of most of the objectives are then presented.

A. THE MAIN CANAL SYSTEM

1. PROBLEM STATEMENTS

1. The water supply is inadequate to satisfy the existing cropping patterns and intensities during peak use periods.
2. The water supply is unreliable both in terms of time and quantity.
3. Water distribution is inequitable with certain outlets in the head reach drawing more water than sanctioned while certain outlets in the tail reach draw less water than sanctioned.

2. CONTRIBUTING FACTORS

To inadequacy:

- * Low water allowances for the subproject.
- * Reduced capacity of the pumps.
- * Excessive conveyance losses in the main canal.

To unreliability:

- * Downtimes resulting from mechanical and electrical equipment failures.

- * Downtimes resulting from power failures and voltage fluctuations.
- * Seasonal reductions in diversions from and choking of the trash rack at Warsak Dam.
- * Downtimes resulting from breaches in the main canal.

To inequity:

- * Altered outlets.
- * Unauthorized withdrawals in tribal area.
- * Heavy siltation in the head reach of the canal.

3. GOALS AND INVOLVED ORGANIZATIONS

<u>GOALS</u>	<u>INVOLVED ORGANIZATIONS</u>
1. Reduce downtime by 75% resulting from mechanical and electrical equipment failures while increasing the water supply by restoring the capacity of the pumping station.	CWM; Irri. Dept.; USAID; NESPAK; FRC; Pakistan Embassy, WA. D.C.; and Pump Manufacturer
2. Reduce downtime by 95% resulting from power failures.	CWM; Irri. Dept.; and WAPDA
3. Eliminate reduced operating capacities resulting from voltage fluctuations.	CWM; Irri. Dept.; Siemens; and WAPDA
4. Eliminate downtime resulting from breaches in the main canal.	CWM; Irri. Dept.; NESPAK-NDC; and Forest Dept.
5. Reduce conveyance losses in the main system to a maximum of 10%.	CWM; Irri. Dept.; NESPAK-NDC; and USAID
6. Ensure the authorized discharge at each outlet to within \pm 5% of the sanctioned discharge; proportional to the discharge in the main canal.	CWM; Irri. Dept.; NESPAK-NDC; and Local Admin.
7. To have increased the water supply by 50 cusecs over the next 5 years through the <u>development of groundwater</u> .	ID; WAPDA; and Ag.Dept.-Eng.

4. SPECIFIC PLANNING

Goal 1. Reduced downtime by 75% resulting from mechanical and electrical equipment failures while increasing the water supply by restoring the capacity of the pumping station.

Objective 1-A. Implementation of the scheme "Replacing existing pumps of Warsak Pump House".

This includes the replacement of pumps and 2x3 MVA transformers with 2x7.5 MVA transformers; the repair of existing reflux valves, gate valves, and electrical installations; and the procurement of spare parts.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Tenders floated for international bidding.	April 1, 1986	ID/USAID/ NESPAK	ISRF
2. Receipt of tenders.	May 15, 1986	USAID and Pakistan Emb. WA	ISRF
3. Evaluation of tenders.	May 30, 1986	USAID/NESPAK	ISRF
4. Review.	June 10, 1986	FRC	ISRF
5. Approval and Issue Order.	1 June 30, 1986	FID/USAID/ NESPAK	ISRF
6. Document downtimes over past five years.	Sep. 30, 1986	XEN	ID
7. Inspection at factory.		ID/NESPAK	ISRF
8. Delivery of first pump to Karachi.	2 Dec. 1, 1986	Manufacturer/ USAID and ID	ISRF
9. Inspection		NESPAK	ISRF
10. Shipment to site.	3 Feb. 28, 1987	ID/NESPAK	ISRF
11. Installation	Mar. 7, 1987	Manufacturer/ ID/NESPAK	ISRF
12. Test run.	4 Apr. 15, 1987	Manufacturer/ ID/NESPAK	ISRF
13. Document downtimes after pump replacement.	Apr. 15, 1988	XEN	ID

Monitoring Plan:

Milestones:

- 1 Approval
- 2 Delivery
- 3 Shipment
- 4 Test Run

Whom:

- SE
- SE
- SE
- SE

How:

- Contact with USAID/NESPAK
- Contact with USAID/Manufacturer
- Contact with XEN
- Contact with XEN

Objective 1-B. Provide silt removal facilities on Warsak Main Canal during FY 86/87.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Survey and Investigation data.	June 30, 1986	ID/NESPAK-NDC	CWM
2. Prepare proposal.	1 Aug. 31, 1986	ID/NESPAK-NDC	CWM
3. Prepare design.	2 Sep. 30, 1986	NESPAK-NDC	CWM
4. Issue authorization.	Nov. 15, 1986	ID/Fed. Coord./ NESPAK-NDC	CWM
5. Float tenders.	Dec. 15, 1986	XEN	CWM
6. Award contract.	Dec. 31, 1986	XEN	CWM
7. Construction (Closure works)	3 Feb. 15, 1987	XEN/ NESPAK-NDC	CWM
8. Construction (Non-closure works)	June 30, 1987	XEN/ NESPAK-NDC	CWM

Monitoring Plan:

Milestones:	Whom:	How:
1 Proposal	SE/XEN	Review
2 Design	SE/XEN	Review
3 Construction (Closure works)	SE/XEN	Inspection

Goal 2. Reduce downtime by 95% resulting from power failures.

Objective 2-A. To influence WAPDA by July 1986 to arrange for the improvement of the electrical supply system to Warsak G.S.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Write a letter to WAPDA explaining the problem and requesting WAPDA to implement their proposal.	May 30, 1986	SPM/CWM	
2. Follow-up reference to WAPDA.	June 7, 1986	XEN Warsak	
3. Prepare a working paper documenting downtimes over the last five years.	June 30, 1986	SPM with WAPDA	
4. Meeting between ID Sec. and WAPDA.	July 15, 1986	SPM/CWM	
5. Document downtimes after improvements.		XEN/SDO	ID

Goal 3. Eliminate reduced operating capacities resulting from voltage fluctuations.

Objective 3-A. Complete a study during FY 86/87 concerning the installation of a 11 KV capacitor bank at the 66 KV G.S. at Warsak Pump House.

This study would answer the questions:

- * What % of the voltage fluctuation could be controlled?
- * How much could the power factor be improved?
- * How much would it cost?
- * Time it would take to get it, its availability?
- * Time of installation and installation cost?

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Document downtimes over the last 5 years.		SE/XEN/SDO	
2. Contact Siemens for the study.	May 30, 1986	SE/XEN/SDO Siemens rep. in Islamabad	20,000 CWM?
3. Contact WAPDA for the study.	May 30, 1986	XEN/SDO CE Design WAPDA T&G Lahore	

Monitoring Plan:

Milestone: Feasibility report(s) by June 30, 1986.

Whom: XEN (Qayyum)

How: Contacts

Goal 4. Eliminate downtime resulting from breaches in the main canal.

Objective 4-A. Cover 350 ft. of the reach from RD 0 to RD 7,000 during FY 86/87.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Document downtimes	June 30, 1986	XEN/SDO	
2. Finalization of design.	1 Sep. 30, 1986	ID/NESPAK-NDC	CWM
3. Float tenders.	Nov. 30, 1986	XEN	CWM
4. Award contract.	Dec. 15, 1986	XEN	CWM
5. Construction	Jan. 31, 1987	XEN/NESPAK-NDC	CWM

Monitoring Plan:

Milestones: Finalization of design.

Whom: XEN

How: Review

Remaining Issue: The remaining 2400 ft of canal covering is included in ISRP Phase II for Rs. 7,200,000 but is not yet finalized.

Objective 4-B. Provide an escape structure at RD 146,000 during FY 86/87.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Survey and Investigation data.	June 30, 1986	ID/NESPAK-NDC	CWM
2. Prepare design.	1 July 31, 1986	ID/NESPAK-NDC	CWM
3. Float tender.	Sep. 30, 1986	XEN	CWM
4. Award contract.	Oct. 31, 1986	XEN	CWM
5. Construction	Jan. 31, 1987	XEN/NESPAK-NDC	CWM

Monitoring Plan:

Milestones: Design
 Whom: XEN
 How: Review

Objective 4-C. To have influenced the Chief Conservator of Forests to remove those trees from along the main canal which are standing on the tops and inner slopes of the canal banks.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Prepare a working paper for the removal of trees (the number and location of trees) which documents the number of breaches caused by tree roots over the last 5 yrs.	July 31, 1986	SE/XEN	ID
2. Arrange and hold a meeting with the Chief Conservator of Forests.	Aug. 30, 1986	CE/ID Sec.	

Monitoring Plan: None

Goal 5. Reduce conveyance losses in the main system to a maximum of 10%.

Objective 5-A. Line 4 miles of the main canal in reaches from RD 40,000 to RD 72,000 during FY 86/87.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Survey and Investigation data.	July 31, 1986	ID/NESPAK-NDC	CWM
2. Prepare design.	1 Sep. 30, 1986	ID/NESPAK-NDC	CWM
3. Float tenders.	Nov. 30, 1986	XEN	CWM
4. Award contract.	Dec. 15, 1986	XEN	CWM
5. Construction	Jan. 31, 1987	XEN/NESPAK-NDC	CWM
6. Evaluate losses.	July 31, 1987	XEN	ID

Monitoring Plan:

Milestones: Design
Whom: XEN
How: Review

Objective 5-B. Line 4 miles of the main canal in reaches from RD 72,000 to RD 119,000 during FY 87/88.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Survey and Investigation data.	July 31, 1987	ID/NESPAK-NDC	CWM
2. Prepare design.	1 Sep. 30, 1987	ID/NESPAK-NDC	CWM
3. Float tenders.	Nov. 30, 1987	XEN	CWM
4. Award contract.	Dec. 15, 1987	XEN	CWM
5. Construction	Jan. 31, 1988	XEN/NESPAK-NDC	CWM
6. Evaluate losses.	July 31, 1988	XEN	ID

Monitoring Plan:

Milestones: Design
Whom: XEN
How: Review

Remaining Issue: The lining of additional 20 miles (remaining reaches) is not provided for under any contract (30,000,000 Rs). Could this be covered by unallotted funds or a special grant?

Goal 6. Ensure the authorized discharge at each outlet to within $\pm 5\%$ of the sanctioned discharge; proportional to the discharge in the main canal.

Objective 6-A. Convert 60 pipe outlets into APM outlets during FY 86/87.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Finalization of design.	July 31, 1986	ID/NESPAK-NDC	CWM
2. Authorization	1 Sep. 30, 1986	ID/NESPAK-NDC	CWM
3. Float tenders.	Oct. 31, 1986	Fed. Coord. XEN	CWM
4. Award contract.	Dec. 15, 1986	XEN	CWM
5. Construction	Jan. 31, 1987	XEN/NESPAK-NDC	CWM
6. Measure discharges	July 31, 1987	XEN/SDO	ID

Monitoring Plan:

Milestones: Authorization
Whom: XEN
How: Contact

Objective 6-B. Provide 9 measuring facilities on Warsak Lift Canal system during FY 86/87 and develop a strategy for monitoring.

ACTIVITY	COMPLETION DATE	RESPONSIBLE	RESOURCES
1. Survey and Investigation of appropriate sites and facilities/prepare proposal.	July 31, 1986	ID/NESPAK-NDC	CWM
2. Arrange for funding.	1 Sep. 30, 1986	SFM/XEN	?
3. Float tenders.	Oct. 31, 1986	XEN	
4. Award contract.	Dec. 15, 1986	XEN	
5. Construction	Jan. 31, 1987	XEN/NESPAK-NDC	
6. Calibration	Mar. 31, 1987	XEN/NESPAK-NDC	

Monitoring Plan:

Milestones: Funding
Whom: XEN
How: Contact

Goal 7. To have increased the water supply by 50 cusecs over the next 5 years through the development of groundwater.

Objective 7-A. To have planned and received funding for drilling 10 trial bores in the Warsak Lift Canal subproject area by the end of FY 86/87.

<u>ACTIVITY</u>	<u>COMPLETION DATE</u>	<u>RESPONSIBLE</u>	<u>RESOURCES</u>
1. Review PC-1 for WAFDA groundwater study and if required suggest changes to WAFDA, ID and P&D.	May 19, 1986	XEN/WLC	
2. Check with FATA Development Corp. to see if they have information regarding groundwater in tribal areas.	May 19, 1986	CWM/DSPD	
3. Ensure that an investigation is completed by WAFDA for public tubewells and a written proposal is included in the ADP.	March 31, 1987	XEN/Tubewells	

Remaining Issue: Funding source. (Irrigation Department through APF for Rs. 6,000,000 ?)

5. ACTIVITIES SCHEDULE (MAY 1986 THROUGH AUGUST 1987)

May 1986	June 1986
1-A Tenders received → Tenders evaluated →	Review → *14 Approval & Issue Order →
1-B ←	Survey and Investigation →
2-A Letter to WAPDA →	Follow-up → ← Prepare a working paper →
3-A Document downtimes → Contact Siemens and WAPDA →	Receive feasibility report (a) → *15
4-A ← Document downtimes →	
4-B ←	Survey and Investigation →
4-C	
5-A/B	
6-A	
6-B	

- 1-A Replacement of pumps
- 1-B Silt removal facilities
- 2-A Electrical supply
- 3-A Capacitor bank
- 4-A Canal covering

- 4-B Escape
- 4-C Tree removal
- 5-A/B Lining of canals
- 6-A Outlet conversion
- 6-B Measuring facilities

July 1986	August 1986
1-A	
1-B ←	*1* Prepare proposal →
2-A Meeting →	
3-A	
4-A	
4-B ← *1* Prepare design →	
4-C ← Prepare a working paper →	Arrange and hold meeting →
5-A/B ← Survey and Investigation →	
6-A ← Finalize design →	
6-B ← Survey and Investigation and prepare proposal →	

- 1-A Replacement of pumps
- 1-B Silt removal facilities
- 2-A Electrical supply
- 3-A Capacitor bank
- 4-A Canal covering

- 4-B Escape
- 4-C Tree removal
- 5-A/B Lining of canals
- 6-A Outlet conversion
- 6-B Measuring facilities

September 1986	October 1986
1-A ← Document downtimes →	
1-B ← Prepare design → *2*	
2-A	
3-A	
4-A ← Finalize design → *1*	
4-B Float tender →	Award contract →
4-C	
5-A/B ← Prepare design → *1*	
6-A Authorization → *1*	Float tenders →
6-B ← Arrange for funding → *1*	Float tenders →

- 1-A Replacement of pumps
- 1-B Silt removal facilities
- 2-A Electrical supply
- 3-A Capacitor bank
- 4-A Canal covering

- 4-B Escape
- 4-C Tree removal
- 5-A/B Lining of canals
- 6-A Outlet conversion
- 6-B Measuring facilities

November 1986	December 1986
1-A ← Delivery of first pump →	*2* Inspection →
1-B Authorization →	Float tenders → Award contract →
2-A	
3-A	
4-A Float tenders →	Award contract →
4-B	
4-C	
5-A/B Float tenders →	Award contract →
6-A	Award contract →
6-B	Award contract →

1-A Replacement of pumps
 1-B Silt removal facilities
 2-A Electrical supply
 3-A Capacitor bank
 4-A Canal covering

4-B Escape
 4-C Tree removal
 5-A/B Lining of canals
 6-A Outlet conversion
 6-B Measuring facilities

January 1987	February 1987
1-A	*3* Shippment to site
1-B ← Construction (Closure works) →	*3* ← Construction (Non-closure works) →
2-A	
3-A	
4-A ← Construction →	
4-B ← Construction →	
4-C	
5-A/B ← Construction →	
6-A ← Construction →	
6-B ← Construction →	← Calibration →

1-A Replacement of pumps
 1-B Silt removal facilities
 2-A Electrical supply
 3-A Capacitor bank
 4-A Canal covering

4-B Escape
 4-C Tree removal
 5-A/B Lining of canals
 6-A Outlet conversion
 6-B Measuring facilities

March 1987	April 1987
1-A ← Installation ↑	*4* ← Test run ↑
1-B ← Construction (Non-closure works) →	
2-A	
3-A	
4-A	
4-B	
4-C	
5-A/B	
6-A	
6-B ← Calibration →	

1-A Replacement of pumps
 1-B Silt removal facilities
 2-A Electrical supply
 3-A Capacitor bank
 4-A Canal covering

4-B Escape
 4-C Tree removal
 5-A/B Lining of canals
 6-A Outlet conversion
 6-B Measuring facilities

May 1987	June 1987
1-A	
1-B	
← Construction (Non-closure works) →	
2-A	
3-A	
4-A	
4-B	
4-C	
5-A/B	
6-A	
6-B	

- 1-A Replacement of pumps
- 1-B Silt removal facilities
- 2-A Electrical supply
- 3-A Capacitor bank
- 4-A Canal covering

- 4-B Escape
- 4-C Tree removal
- 5-A/B Lining of canals
- 6-A Outlet conversion
- 6-B Measuring facilities

July 1987	August 1987
1-A	
1-B	
2-A	
3-A	
4-A	
4-B	
4-C	
5-A/B ← Evaluate losses → ← Survey and Investigation →	
6-A ← Measure discharges →	
6-B	

1-A Replacement of pumps
 1-B Silt removal facilities
 2-A Electrical supply
 3-A Capacitor bank
 4-A Canal covering

4-B Escape
 4-C Tree removal
 5-A/B Lining of canals
 6-A Outlet conversion
 6-B Measuring facilities

B. THE ON FARM SYSTEM

1. PROBLEM STATEMENTS

1. The water supply is inadequate to satisfy the design cropping patterns and intensities during peak use periods.
2. Water distribution along individual watercourses is inequitable with head farmers receiving a higher flow rate than tail farmers.

2. CONTRIBUTING FACTORS

To inadequacy:

- * Excessive conveyance losses along individual watercourses.
- * Excessive field application losses due to unlevel fields.

To inequity:

- * Excessive conveyance losses along individual watercourses.

3. GOALS AND INVOLVED ORGANIZATIONS

<u>GOALS</u>	<u>INVOLVED ORGANIZATIONS</u>
1. To increase the available water by reducing conveyance losses to the extent the watercourses have 80% efficiency, thereby allowing for an increase in crop yields and intensity.	CWM, OFWM, ID, Extension, Deputy Comm., NUAs
2. To have reduced the field application losses through adoption of improved irrigation practices.	CWM, OFWM, Extension

4. SPECIFIC PLANNING

Goal 1., To increase the available water by reducing conveyance losses to the extent the watercourses have 80% efficiency, thereby allowing for an increase in crop yield and intensity.

Objective_1-A. By June 30, 1987 to have constructed the 25
WCs-----

for which designs are prepared resulting in 80% efficiency.

ACTIVITY	TIME	RESPONSIBLE	RESOURCES
1. Receive PIL's for 15 WCs submitted USAID.	May 31, '86	USAID	
2. Obtain approval for 10 additional designs from OFWM/CWM and submit to consultants and USAID.	May 31, '86	OFWM Director CWM Project Manager ACE	
3. Finalize tenders for materials on all 25 WCs.	June 1, '86 to July 1,	OFWM Deputy Director, HQ	
4. Meet with existing 25 WCAs through joint tour in order to develop interest and commitment for WC rehabilitation and maintenance and repayment of 10% materials cost.	June-July 1986	CWM Assist. Dir. and WMES Ext. EADA, Pesh- awar ID SDO, Ziladar	
5. Begin physical work on WCs		CWM Assist Dir. and Field Team	
2 WC	1 July, 86		
2 WC	1 Aug, 86		
3 WC	1 Sept, 86		
3 WC	1 Oct, 86		
3 WC	1 Nov, 86		
3 WC	1 Dec, 86		
3 WC	1 Jan, 87		
3 WC	1 Feb, 87		
3 WC	1 March, 87		

 25 WCs total

- | | | |
|--------------------------------------|------------|---------------------|
| 6. Complete work on 10 WCs | 1 Feb. 87 | OFWM
ACE-ZCL-AAA |
| 7. Complete work on remaining 15 WCs | 1 July, 87 | OFWM
ACE-ZCL-AAA |
-

Monitoring:

MILESTONES TO BE MONITORED: Monthly targets for initiation and completion of watercourses.

WHO? SMO, SCC, OFWM Deputy Dir., HQ, AID Consultants

HOW? SCC monthly reports on WCs initiated and completed and pre and post conveyance loss measurements for completed WCs.

Objective 1-B. By Sept. 1986 the Extension and Irrigation personnel in the WLC will have educated and referred farmers to OFWM for renovation of WCs and FLL.

ACTIVITY	TIME FRAME	RESPONSIBLE	RESOURCES
1. Information pamphlet on WCs and FLL in local language and distributed to field workers.	by July 1 1986	CWM Assist. Dir. OFWM Assist. Dir. Field Ext. Deputy Dir Information	
2. Training program for 3-4 days scattered over month.	June-July 1986	Deputy Dir OFWM, Asst. Dir. Trainees: EADA Pesh. & Khyber ID XEN WLC	

MILESTONES TO BE MONITORED:

Completed pamphlet and training program. Increase in referrals, July through November.

WHO? SMO
SCC
OFWM Dep Dir. HQ
ID XEN WLC
Ext. Dep. Dir. Pesh and FATA

HOW? Report by OFWM and Extension to SCC.

Objective 1-C. To have identified and designed 25 additional WCs for renovation during FY 87/88.

<u>ACTIVITY</u>	<u>TIME FRAME</u>	<u>RESPONSIBLE</u>	<u>RESOURCES</u>
1. Identify additional 25 WCs on which to organize WUAs	July 1 to Nov 30, 1986	CWM Assist. Dir. and field team	
2. Organize and register WUAs	Aug 1 to Dec 31 1986	CWM Assist. Dir. and WUES	
3. Survey and design watercourses	by March 31, 1987	CWM Assist. Dir. ID Sub Engineer	
4. Get necessary approvals	by June 30 1987	OFWM Dir., SFM, Consultants. USAID	

MILESTONES TO BE MONITORED:

Monthly targets (see time line).

WHO?

SCC, OFWM, Deputy Director HQ

HOW?

Monthly reports to the SCC and SMO on the WUAs identified and registered and progress on designs.

c

Objective 1-D. Have the farmers on 25 WCs actively involved in maintaining their WC by end of 86/87

<u>ACTIVITY</u>	<u>TIME FRAME</u>	<u>RESPONSIBLE</u>	<u>RESOURCES</u>
1. Upon completion of WCs OFWM informs ID XEN and Deputy Com. that WUAs exist and the name of each WUA Chairman.			OFWM Dep Dir. CWM Asst Dir. ID XEN WLC Deputy Com.
2. Ziladars oriented to new role in working with WUAs on WC maintenance.	by July 31 86		ID XEN WLC ID Collector ID Chief Eng. OFWM Dir.
3. ID XEN requests Dep. Com. to form committee to review WC cleaning for whole system.	by July 31 86		ID XEN Deputy Com.
4. As needed during the year and during closure committee of ID (ziladar) OFWM (sub eng), Ext. (field asst) Dist Admn (tehsildar) and WUA chairman check WC maintenance.	Jan.-Feb.		ID, OFWM Ext. Dist. Admin.
5. ID XEN WLC and CWM Asst. Dir. evaluate success of strategy and revise.	Feb. 87		ID XEN WLC CWM Assist. Dir

MILESTONES TO BE MONITORED:

Formation of WC maintenance review committee for WLC; evaluation of success.

WHO:

ID XEN, WLC
SCC

HOW:

Report on the review of WC during January.

Goal_2. To have reduced the field application losses through adoption of improved irrigation practices.

Objective_2-A. To have demonstrated effective irrigation and cropping practices through the establishment of 25 demonstration plots over the FY 86/87.

ACTIVITY	TIME FRAME	RESPONSIBLE	RESOURCES
1. Budget established for PLL demonstration.	By Aug. 15	CWM, SPM OFWM Dep Dir HO P&D	
2. Select 13 sites for Rabi demonstration: get agreements from farmers; plan and design sites.	Aug/Sept 30	CWM Asst. Dir. WMS Ext. EADA, Fesh. and AO	
3. Do PLL and field layout on 13 sites with on the job training for 1 WMO, 1 WMES, 4 subeng., 2 field assts.	Oct-Nov	CWM Assist. Dir	CWM for PLL Assistance from OFWM directorate for training
4. Land preparation & planting (Rabi Crops).	Oct-Nov	Ext. EADA Farmers	Seeds: Ext. Fertilizer: CWM.
5. Plan 12 demo plots for 1987 Kharif	Feb. 87	CWM, OFWM Ext.	
6. Farmer Field Day planned and held.	April 87	Ext. EADA Fesh CWM Asst. Dir.	Refreshments needed
7. Evaluation of success & report recommendations. Plan 12 demo. plots for 1987 kharif crop.	May 87	Ext. EADA Fesh CWM Asst. Dir. Ext. Statistical Div.	

Monitoring Plan:

MILESTONES TO BE MONITORED:

Agreements, demonstration plans completed, plots in place, farmers field day, demonstration evaluated and reported.

WHO?

SCC; CWM Sr. Mgr, M&E; Ext. Statistical Div

How?

By making field visits and measuring time of irrigation, and yields of crops.

5. ON-FARM ACTIVITIES SCHEDULE (MAY 1986 THROUGH JUNE 1987)

May							June						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

Fill for 15 WCs	Finalize tenders for materials
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Select 13 sites for demo plots and >

Plan tour of 25 WUAs	21	OFWM Ext. ID>
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Prepare Water Management Pamphlet	23
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Design Field Work Training	24	>
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MILESTONES:

- | | |
|------------------------------|-----------------------------------|
| 1. Work on 2 WCs-July 1, '86 | 12. Select sites for demo plots. |
| 2. Work on 2 WCs-Aug 1, '86 | 13. Complete FLL for demo plots. |
| 3. Work on 3 WCs-Sept 1, '86 | 14. Plant Rabi demo plots. |
| 4. Work on 3 WCs-Oct 1, '86 | 15. Harvest Rabi demo plots. |
| 5. Work on 3 WCs-Nov 1, '86 | 16. Farmers Field days. |
| 6. Work on 3 WCs-Dec 1, '86 | 17. Report result of demo plots. |
| 7. Work on 3 WCs-Jan 1, '87 | 18. Identify & plan Kharif plots. |
| 8. Work on 3 WCs-Feb 1, '87 | 19. PLL for Kharif demo plots. |
| 9. Work on 3 WCs-March 1 '87 | 20. Plant Kharif demo plots. |

Total 25

10. Work completed on 10 WCs-Feb 1, '87
 11. Work completed on 15 WCs-July 1, '87

July							August						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

1	Physical Works on	2	Watercourses	>
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plan demonstrations	12
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Land levelling Operations	>
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Tour of 25 WUAs	22
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Field Workers of EXT & ID Training Program	25
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Identification of New WC	26	for renovation FY 87/89	>
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Registration of WUAs	>
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- 21. Plan tour of 25 WUAs
- 22. OFWM, EXT, ID meet with 25 WUAs.
- 23. Prepare Info. Pamphlet
- 24. Design fieldworkers training program
- 25. Conduct training for Ext. and ID field workers

- 26. Identify 5 WCs for renov. FY87/88
- 27. Identify 5 WCs for renov. FY87/88
- 28. Identify 5 WCs for renov. FY87/88
- 29. Identify 5 WCs for renov. FY87/88
- 30. Identify last 5 WCs for renovation in FY 87/88

September							October						
1	1	2	1	3	1	4	1	1	2	1	3	1	4
3	Physical works					4	on water courses						>
Land levelling Operations										13	>		

27	Identification of WCs	28	for renovations	>
31	Registration of WUAs	32	Registration of WUAs	>

31. Registration of 5 WUAs for renovation FY87/88
32. Registration of 5 WUAs for renovation FY87/88
33. Registration of WUAs for renovation FY87/88
34. Registration of WUAs for renovation FY87/88
35. Registration of total 5 WUAs for renovation FY87/88

November							December						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

5	Physical work on WC	6	Physical work on WC
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< Establish 13 Rabi Demo plots	14	13 Rabi Demo plots	>
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29	Id WCs for Renova.	30
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< 33	Registration of WUAs	34	Registration of WUAs	35	>
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January							February						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

7	Physical work on WC	8	10	Physical work on WC	>
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13 Rabi Demo plots					>
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Plan 12 Kharif Demo plots				18	>
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Survey and design WCs for		36	renovation in FY 87/88	>
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36. Survey and design WC for renovation FY 87/88
37. Survey and design WC for renovation FY 87/88
38. Complete design of all WC for renovation FY 87/88
39. Obtain all approvals and PIL for renovating 25 WCs in FY 87/88
40. Finalize tenders for materials to renovate 25 WCs in FY 87/88

March							April						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

9	Physical work on WC	>
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Rabi Demo Plots	Harvest plots	15
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Field Days	16
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PLL Karif Demonstration Plots	19	>
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< 37	Finalize design of WCs	38	Approval of WC design	>
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May							June						
1	1	2	1	3	1	4	1	1	2	1	3	1	4

Physical work on WCs												11	>
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<	Evaluate results of plots	17
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<	Plant Pharif Demo Plots	20
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<	Approval of 25 WC for renovation in FY 87/88	39	>
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Finalize tenders	40
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C. USE OF INPUTS

1. PROBLEM STATEMENTS

Farmers in the Warsak Lift Canal area do not use recommended and appropriate doses and combinations of inputs and farming practices.

2. CONTRIBUTING FACTORS

- * Insufficient Extension services are provided because of lack of staff.
- * Inadequate and unreliable water supply.
- * From farmers' point of view, procedures for getting bank loans are too difficult.
- * Credit agencies have not given any special emphasis to the needs of farmers in WLC area.
- * Markets do not adequately reward farmers for their production.
- * Subsidies have been removed from agricultural inputs which makes them too costly for farmers, given the low prices they get for their crops.
- * Farmers do not understand the value of benefits from PLL, and seem unwilling to pay the full cost of it.
- * Poor roads and lack of transportation makes it difficult for farmers to obtain fertilizer, approved seed and other commercial inputs.

3. GOALS AND INVOLVED ORGANIZATIONS

<u>GOALS</u>	<u>INVOLVED ORGANIZATIONS</u>
1. Improved farmers' knowledge of level and combinations of inputs for obtaining maximum profits from crop production.	Extension, OFWM, CWM
2. Improved farmers' knowledge of accessing and using credit for obtaining inputs for crop production.	Extension, CWM, ADBP, Commercial Banks

4. SPECIFIC PLANNING

Goal 1. Improved farmer knowledge of levels and combinations of inputs for , obtaining maximum profits from crop production

Objective 1-A. Establish within FY 86/87 an adaptive research program for the WLC area that tests alternative input technologies for local farmers.

<u>ACTIVITY</u>	<u>TIME FRAME</u>	<u>RESPONSIBLE</u>	<u>RESOURCES</u>
1. Through SPM, contact the Director of Research Department about conducting field test in project area.	by June 30	SMD Staff (Agronomist) Director NIFA Dir. Research at Agric. Univ.	
2. Develop plans for field plots with Director of Outreach.	June 30 to August 30	SMD staff (Agronomist) Director Outreach/TIPAN Extension	
3. Establish plots.	October 1 to October 30	Outreach/TIPAN SMD Staff Extension AD, FA (Agronomist)	
4. Conduct farmer field day(s).	April	SMD Staff (Agronomist) TIPAN Extension FA	
5. Evaluation, reporting and planning for next cropping season.	April 15 to May 15	TIPAN SMD staff (agronomist)	

Monitoring Plan:

Milestones:

- 1 Plans developed for test plots.
- 2 Plots established.
- 3 Field Day.
- 4 Plans completed for next cycle.

Whom:

SMD Staff
(Agronomist)

How:

Field visits,
reports to SCC

Objective 1-B. Have a general training program for SMO AOs and FAs with collaboration of the NWFP Agricultural University.

ACTIVITY	TIME FRAME	RESPONSIBLE	RESOURCES
1. Through the SPM, inform DG of Extension and contact Dep. Dir. Ext. and EADA to request training by the Agri. Univ.	by June 15	SPM, SMO, Coop. Dept. Extension	
2. Conduct needs assessment of training needs (utilizing USAID credit and input survey data, if possible).	June 15 to June 30	TIFAN SMO staff EADA	USAID
3. Develop curricula based on needs assessment.	July 1 to July 15	TIFAN SMO staff EADA	
4. Discuss plan with Agricultural University.	July 15 to July 20	TIFAN EADA SMO staff	
5. Conduct training.	Aug.	TIFAN EADA SMO staff	
6. Evaluation and plan training for next cycle.	Sept.	SMO staff EADA	

Monitoring Plan:

Milestones:

- 1 Needs assessment complete.
- 2 Training event completed.
- 3 Plans completed for next cycle.

Whom:

CWM Sr. Mgr.
for M&E

How:

Reports to SCC

Objective 1-C. Establish an Agricultural Development Authority (ADA) sale point jointly with private firms for seeds, insecticides and fertilizer at the WLC on a trial bases.

ACTIVITY	TIME FRAME	RESPONSIBLE RESOURCES
1. Through SPM contact the Managing Director of ADA. Refer to previous contact with Javed Qaiser, Deputy Managing Director. Also contact private firm for sale of pestitides at the sale point.	by June 20	SMD staff (DSPM) ADA Extension (D.D.) Private firms
2. Select a site for the new sale point.	July 1 to July 15	SMD staff EADA
3. Notify farmers of the new sale point.	July 15 to Sept. 30	Extension SMD staff
4. Establish new sale point.	Oct.	ADA Private firm

Monitoring Plan:
Milestones:

- 1 Agreement to establish sale point.
- 2 Establishment of sale point.

Whom:

SMD and
ADA

How:

Field Visits
and report to
SCC

Objective 1-D. To have increased the participation of WLC Agri. Extension staff in the Command Water Management Project by designating it a special pilot area and realigning the organizational boundaries so that they are consistent with the boundaries of the Warsak Lift Canal project area.

ACTIVITY	TIME FRAME	RESPONSIBLE	RESOURCES
1. Readjust the organizational jurisdiction of extension staff and designate the WLC sub-project as a pilot area.	by May 31	Ext. (DG)	
2. Identify resources needed for a strengthened Extension staff in WLC and make a funding proposal to PPC.	— by June 10	Ext. (DG) CWM, (SPM) PPC	
3. Develop revised job descriptions and workplans for the changed posting of Extension staff.	by June 30	Ext. (DD) SMD (DSPM)	

Monitoring Plan:

Milestones:	Whom:	How:
1 Ag. Extension staff assigned to project area.	SMD and Extension	Report to SCC
2 Job descriptions and workplans complete.		

Goal 2. Improved farmers knowledge for accessing and using credit to obtain inputs for crop production.

Objective 2-A. Establish a program of credit education for farmers and new credit services through the Cooperative Department.

ACTIVITY	TIME FRAME	RESPONSIBLE	RESOURCES
1. Through the SPM contact TIPAN for a course to train SMO staff, AOs and FAs.	Sept. 1 to Sept. 15	SMO Staff (Agronomist)	
2. Conduct a survey of credit and inputs needs in the project area and use information as a basis for developing curriculum for in-service training.	June and July	SMO staff USAID (Deputy SPM)	USAID
3. Develop in-service training curriculum.	August	SMO staff (Deputy SPM) TIPAN EADAs AOs, FAs	
4. Conduct in-service training.	Sept.	SMO staff (Deputy SPM) TIPAN EADAs AOs, FAs	
5. Make farm visits to discuss credit opportunities with farmers.	Sept. to Nov.	AOs, FAs Extension	
6. Cooperative Department prepare a proposal to create a post of Inspector with Sub Inspector in each Union Council.	May 10 to May 21	Cooperative Department (Deputy SPM)	
7. Through the SPM, send the proposal to the PPC for consideration and approval.	June	SMO staff (Deputy SPM) SPM	
8. Establish field office for Sub-inspector.	July	Coop. Dept.	

Monitoring Plan:

Milestones:	Whom:	How:
1 Credit survey completed.	SMD	Observations, field visits.
2 Inservice training conducted.		Report to SCC
3 Proposal presented to PFC.		
4 Field office staffed.		

D. FARMER COOPERATION AND INVOLVEMENT

1. PROBLEM STATEMENT

Farmers have shown limited cooperation among themselves and with concerned government agencies in improving agricultural productivity.

2. CONTRIBUTING FACTORS

- * Ethnic diversity.
- * Lack of effective WUAs or Cooperative Societies.
- * Unreliable water supply.
- * High rate of illiteracy.

3. GOALS AND INVOLVED ORGANIZATIONS

<u>GOALS</u>	<u>INVOLVED ORGANIZATIONS</u>
The development and involvement of Water Users Associations and cooperative societies were considered under a number of the goals developed to address the problems of the On Farm System, Use of Inputs, and Organizational Cooperation.	DFWM, ID, Cooperative Dept., CWM, Extension

4. SPECIFIC PLANNING

The below objectives, which deal specifically with WUAs or cooperative societies, were developed under problem area of On-Farm System and Use of Inputs.

On-Farm System

Objective 1-C: To have identified and designed 25 additional WCs for renovation during FY 87/88.

Objective 1-D: Have the farmers on 25 WCs actively involved in maintaining their WCs by the end of FY 86/87.

Use of Inputs

Objective 2-A: Establish a program of credit education for farmers and new credit services through the Cooperative Department.

For the detail plans please refer to these sections.

Issue: Additional roles and responsibilities that WUAs can productively assume need to be identified and fostered, (e.g. in overall water and non-water inputs management; monitoring the progress of the project; and ensuring equitable distribution of water..FA

E. ORGANIZATIONAL COOPERATION

1. PROBLEM STATEMENTS

There is a lack of knowledge, understanding and cooperation in planning and implementation amongst various involved agencies.

2. CONTRIBUTING FACTORS

- * Need to share information.
- * Need to assist one another in specific areas.
- * General isolation; barriers to cooperation.
- * Need for active collaboration and/or coordination in problem areas and on special project tasks.

3. GOALS AND INVOLVED ORGANIZATIONS

<u>GOAL</u>	<u>INVOLVED ORGANIZATIONS</u>
1. To have increased the effective coordination of CWM involved organizations	All SCC members: CWM, ID, DFWM, Extension, IDA and AID consultants, WUA, ADA, Commercial banks, ADBP, Cooperative Dept.

SPECIFIC PLANNING

Objective 1-A. To have initiated by the end of June a more effective and fully representative SCC that meets monthly and effectively addresses project related problems and decisions. (See Appendix F for a description of the coordination needs of each organization.)

<u>ACTIVITY</u>	<u>TIME FRAME</u>	<u>RESPONSIBLE</u>	<u>RESOURCES</u>
1. SCC meetings held each month addressing the areas listed below.	Once each month	SPM, DSPM, and all SCC members (see above)	

Issue: Need to select WUA representatives who are representative of a larger federation of WUAs.

AREAS TO BE ADDRESSED AT THE SCC MEETING

1. Review the management plan.
2. Develop implementation programs for how the objectives of the management plan will be achieved.
3. Monitor progress against our plan; discuss the achievement of goals.
4. Replanning to take into account changing conditions.
5. Exchange information about the design parameters of canals, outlets and watercourses (OFWM, ID, NESPAK, ACE).
6. Resolve problems amongst agencies.
7. Examine policy issues for presentation to FFC (e.g. how to successfully remodel the outlets).
8. Implement decisions taken at the review meeting of the Federal Coordinator.
9. Clarify the specific organizational plans for coordination and coordinate overall activities.
10. Develop new programs.

III. FOLLOW-UP, MONITORING AND REPLANNING

The purpose of the CWM management plan is to provide guidance to the Subproject Manager, his staff, and the involved agencies in meeting the overall objectives of the project. The plan reflects the ideas and thoughts of field, operational, and executive level personnel about the priority problems of the Warsaw Lift Canal pilot project area. Based on intensive planning sessions over a two week period, the plan contains project goals, one year objectives, and activity plans and schedules that have been established to address these problems.

The next steps in the planning process include a review by the policy level of CWM, further modification and definition of the plan, and ongoing implementation. In many cases the activity plans identified in the plan are exploratory activities, which can and must lead to more specific planning for how the activities will be carried out and the objective achieved. Leadership for ensuring that the proper review of the plan occurs, that modifications are incorporated, and that there is follow-up and more definitive planning in each area will be taken by the Subproject Management Office with the involvement and guidance of the Provincial Policy Committee and the Subproject Coordinating Committee.

In addition, specific monitoring and evaluation plans must be developed and implemented. These plans will address three general levels of monitoring and evaluation. The first level is that of the individual activity plans outlined in this management plan. The responsibility for monitoring and reporting on the completion of activity plans lies with the Subproject Manager working with the assistance of his staff and the Subproject Coordinating Committee. This monitoring should occur through a monthly system of reporting on project progress to the SMO and the SCC.

The second level is that of monitoring and evaluating the effectiveness of individual activity plans in achieving the objectives, and ultimately the goals, which they were intended to achieve. The responsibility for this level of monitoring and evaluation will lie with the organizations responsible for implementing the particular activity plan plus the Subproject Management Office staff.

The third and final level of monitoring and evaluation is that associated with the effectiveness of the project as a whole in achieving the intended purpose of the project, that is, increased agricultural production. This effort must go hand-in-hand with the

Baseline Survey which is planned. Those parameters which are identified as important and measured during the Baseline Survey are the parameters which must be monitored throughout the life of the project. The responsibility for this monitoring will again fall to the subproject Management Office staff, but they should seek and draw upon assistance from the organization which carried out the Baseline Survey.

Because project conditions and requirements frequently change, reviews of the plan and replanning to address these new conditions are important. The continuing, collaborative involvement of the appropriate agencies and organizational levels in monitoring and replanning project activities will be essential to their effective implementation.

APPENDIX A

OVERVIEW OF MANAGEMENT TRAINING AND PLANNING PROGRAM

MEMBERS OF THE FACILITATING TEAM

MTP SCHEDULE

OVERVIEW OF MANAGEMENT TRAINING AND PLANNING PROGRAM

The Management Training and Planning (MTP) program in HMFP was conducted in support of Pakistan's Command Water Managements (CWM), Warsak Lift Canal (WLC) project. The MTP program has been the latest in a series of training activities funded by USAID for CWM through the Water Management Synthesis II Project. Previous training programs have included training assistance in conducting a Diagnostic Analysis (DA) study of the needs and constraints of the WLC project area.

The overall purpose of the MTP program was to serve as a linkage between the DA study, that identified water management needs and constraints, and the development of operational plans that identify needed improvements and how they will be carried out. The MTP focuses on the development of that plan while assuring the development of critical management skills and knowledge for the individuals and organizations involved. The MTP program for HMFP was conducted from mid April through mid-May, 1984. It was facilitated by a five member team of water management and management science specialists.

The MTP program consisted of a brief pre-work effort and three phases. The pre-work effort had half the team visit Peshawar for the week of April 8th to April 14. During this time the advance team visited with the CWM Sub-project Manager, his staff and various executive and policy level individuals of concerned departments and organizations. These visits were designed to give the team a better understanding of the project, its current status and management needs, inform the key individuals of the pending program, and identify potential participants for the workshop.

After a brief interlude the full team arrived in Peshawar on April 22 to begin program. The first phase of the MTP lasted from April 22 to April 27. During this time the team revisited the various offices to review the program, solicit the expectation of the concerned departments, finalize the selection of participants for the workshop, and plan the first workshop.

The planning and training portions of the MTP consisted of two workshops. The first was for two days, April 28 and 29th. This was attended by farmers, field and operational level individuals, many of whom participated in the DA study. The first workshop focused on reviewing the DA study and problems identified in it, discussing these problems and developing strategies to address them. For the second workshop, a planning team consisting of representatives of all involved agencies at the Deputy Director and Executive and Superintending Engineer level, met for four and a half days, from May 4th to May 8th. This workshop involved mostly operational level individuals with

the part-time participation of key executive level and outside resource persons.

During the second workshop the actual management plan for CWM was developed. The planning process was a collaborative effort of the representatives working in small groups and sharing and integrating their results within the full planning group.

The final phase of the MTP, from May 10 to 14 included return visits to the executive and policy level individuals. This was to review the draft management plan and obtain suggestions on how it might be improved and discuss any policy issues that needed to be addressed to facilitate the implementation of the plan.

USAID/Water Management Synthesis II Team of Facilitators

Andrea L. Jones, Team Leader	University of Maryland
Asif A. Brohi	University of Maryland, National Bank of Pakistan
M. E. Quenemoen	Colorado State University
Richard L. Tinsley	Colorado State University
Paul L. Wattenburger	Colorado State University

MTP SCHEDULE

April & May 1986

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SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDA	THURSDAY	FRIDAY
19	20	21	22 Entry Meetings	23	24	25
26 Workshop Prep.	27	28 WORKSHOP I	29	30 Consolidation of Workshop I results	MAY 1	2 Workshop Prep.
3 Work- shop Prep.	4	5	6	7	8	9
WORKSHOP II Development of Draft Management Plan						
10	11	12	13	14	15	16
finalization						

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APPENDIX B

**DIAGNOSTIC ANALYSIS OF COMMAND WATER MANAGEMENT'S
WARSAK LIFT CANAL SUBPROJECT AREA**

EXECUTIVE SUMMARY

DIAGNOSTIC ANALYSIS OF COMMAND WATER MANAGEMENT'S WARSAK LIFT CANAL SUBPROJECT AREA

Executive Summary

The Command Water Management (CWM) Project was initiated to increase agricultural production within an irrigation command area. A diagnostic analysis (DA) study was undertaken by CWM to identify activities that would lead to improved productivity by a combination of increasing yields and increasing cropping intensity. The DA study of the Warsak Lift Canal Sub-project area was begun in November 1985. The DA involved an interdisciplinary team from the Subproject Management Office (SMO). Line departments of Irrigation and Agriculture, including On Farm Water Management and Extension, participated in the study.

The DA consisted of field studies of the operating irrigation system and the farming systems it serves to identify the constraints to improved productivity and the causes for the constraints. The information and understanding developed during the DA provides the basis for collaborative planning for the improvement of both the irrigation and agriculture system, and the development of operational plans to implement those improvements. The constraints identified in the DA of the Warsak Lift Canal Subproject include:

A. Unreliable Water Supply

Water reliability is perhaps the primary constraint to increasing agriculture production in the subproject area. An unreliable water supply not only inhibits the effective application of water, but also influences the use of non-water inputs as well. The problem of unreliable water supply is partially due to the lack of an appropriate management plan for operating the system and the absence of control structures necessary to facilitate the implementation of such a plan. Another important contributing factor to of this constraint is the disruptions in the canal water supply. There are basically four reasons for these disruptions:

- power disruptions,
- problems at the pumping station,
- water shortages, and
- breaches in the main canal.

Power disruptions of even one minute can result in disruptions in the water supply of two to three hours. This is because of the time required to reprime and start the pumps. Equipment failure is a regular occurrence and keeps one or more of the pumps out of operation nearly all the time. Thus there is effectively no backup pump available. Water shortages usually only force a cutback in the total discharge by allowing the operation of three

pumps at a time. Breaches are rare, but if one occurs can force the closure of the canal for an extended period of time. As an example of this unreliability, it was observed during the DA study that there was a four day period in which no water was in the main canal. This disruption was the result of problems with the pumping station.

An unreliable water supply that occasionally results in no flow, makes it difficult for farmers to plan their activities for maximum production. If water is uncertain then investments in inputs such as fertilizer, certified seed, and pesticides become risky. Under these conditions farmers naturally minimize the use of production inputs, particularly if they must be purchased with credit. When provided with a reasonably reliable water supply, farmers can usually adjust their cropping activities to assure a positive return on their crop production investments.

B. Inadequate Water Supply

Although providing an adequate supply was never an objective of the irrigation systems in Pakistan, an inadequate water supply can have many repercussions in the operation of the system. Inadequacy in the supply to the subproject is caused mostly by the command area deliberately being designed too large for the available supply of water. The problem of inadequacy is accentuated by the pump discharge being only 75% of the intended discharge. The loss in pump discharge is largely the result of the dam being silted full, and a large amount of highly abrasive sediments are carried in the canal water and go through the pumps.

In addition, the conveyance losses at all levels effectively reduce the water supply. The zigzagging of the watercourses makes these losses even greater. To the extent the zigzags are contributing to retaining a non-erosive flow, straightening the watercourses to remove the zigzags needs to be done with caution.

The inadequate water supply tends to encourage farmers to act as individuals each trying to enhance his own supply in order to maximize his irrigated area. Farmers at the head of the system make modifications to their outlets so as to increase the flow of water into their watercourse, at the expense of the farmers at the tail of the system. Even though the farmers were receiving more than their allotted share, they were still complaining of not having sufficient water for both their kharif and rabi crops.

The water supply could be increased by increasing the pump discharge to the design level of 200 cusecs. This is already a part of the Irrigation System Rehabilitation Program. Another means of increasing the water supply would be by reducing the losses in the system. A final possibility for improving the water supply could be the development of groundwater. The potential for doing this needs to be examined.

C. Inequitable Distribution of Water

The equitable distribution of available water in the irrigation system is a major objective of Pakistan. This is really a social objective that may not readily be reflected in total crop production. The inequity in the system comes from the decreasing amount of water being available the further the distance from the source. Along the Warsak Lift Canal the inequity reaches its maximum for the last 16 km which no longer receive any water. Inequity also occurs along watercourses as conveyance losses continually reduce the water supply available down the watercourses.

D. Limited Capital Investment

With all the risks associated with an unreliable water supply, the farmers are reluctant to invest in production inputs such as fertilizer, chemicals and improved seed. They are particularly reluctant to obtain credit. Credit is available from various institutions, but goes largely unused. The institutes claim the farmers are not literate enough to take advantage of the opportunities, while the farmers claim the procedures are too complicated and time consuming. By the time a loan is approved it is too late to utilize the inputs. The reluctance of farmers to invest in production inputs could be a primary reason for the generally low yields in the area.

E. Limited Farmer Cooperation

There seems to be little farmer cooperation in both maintaining and operating the watercourses. Many of the farmers help maintain their own watercourse, but a large number of the farmers do not participate and there is no effective mechanism to penalize those who do not assist. Likewise, farmers are reluctant to share water, or allow neighbors to complete their irrigations by receiving additional time at the end of their turn.

Some of the lack of cooperation may be attributed to the difference in ethnic groups. It may also be a direct result of the unreliability of the water supply, encouraging individuals to act independently. No farmer would want to do someone a favor, and then have the return favor come during one of the disruptions in service. From the farmers perspective, it would be better to accept what is yours when your time comes. Also, a lack of knowledge and skilled leadership hinders farmers from developing and participating in watercourse-wide organizations.

F. Institutional Linkages

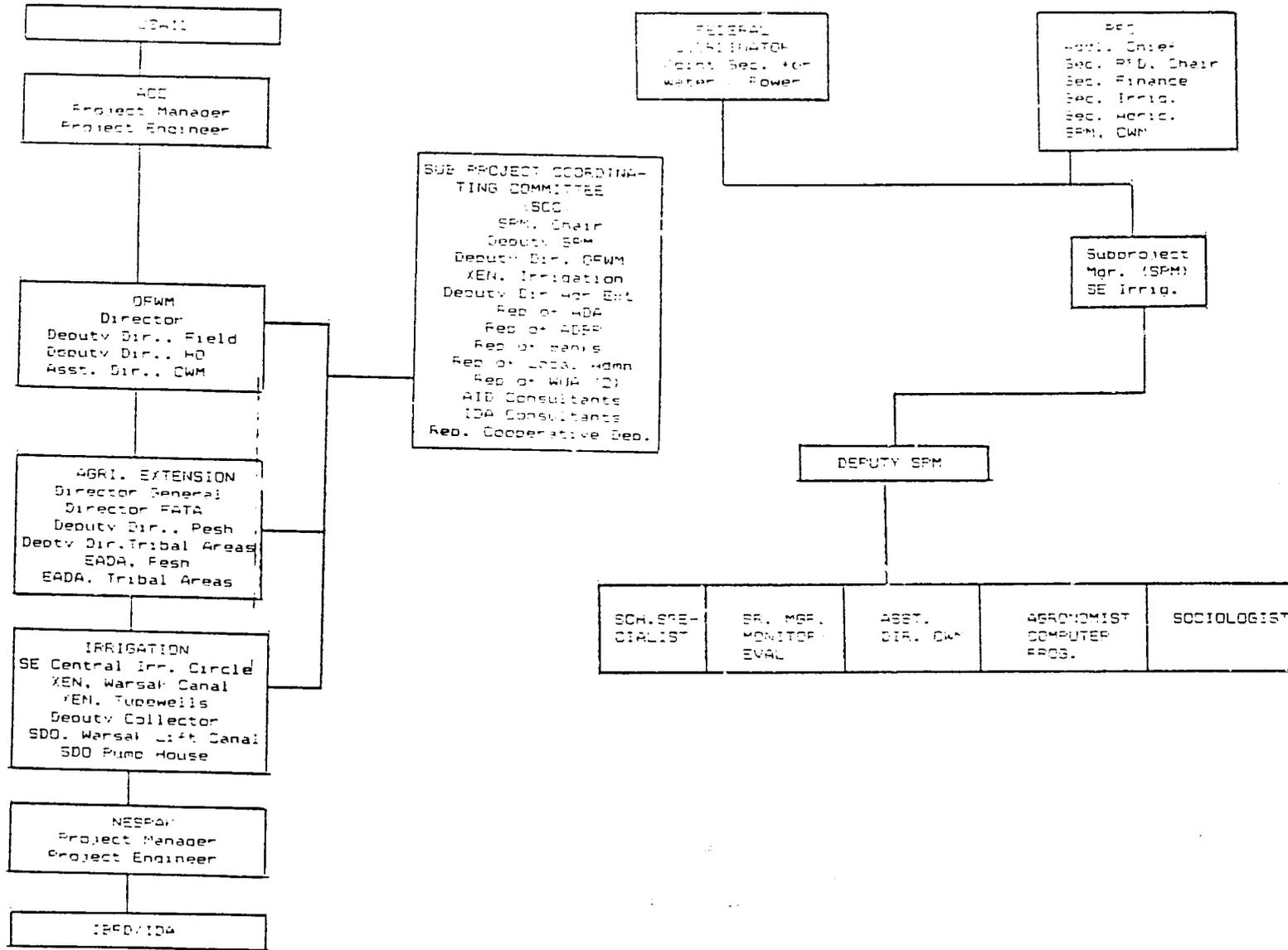
The DA study did not directly consider the formal and/or informal relationships between the departments, organizations, and agencies involved in supplying water, inputs and/or services to the farmers on the Warsak Lift Canal. However, one of the objectives of the CMM is to build within provincial agencies a continuing capability for planning, implementing, operating and

maintaining integrated and efficient programs for irrigated agriculture. Accomplishing this objective will require the collaborative effort of all the involved groups and how those groups relate and are interrelated is an important consideration.

Currently there are no formal mechanisms to facilitate the collaborative planning by any of the departments, organizations or agencies involved. In addition, all of the departments, organizations and agencies involved operate according to objectives that are somewhat narrowly defined. This lack of institutional linkages can be a major constraint to the development and implementation of appropriate, broad based strategies and plans whereby agricultural production in the sub-project can be increased.

APPENDIX C
COMMAND WATER MANAGEMENT STRUCTURE

CWM ORGANIZIGRAM



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APPENDIX D

SUMMARY OF WORKSHOP I
PARTICIPANTS IN WORKSHOP I
WRITTEN COMMENTS OF FARMERS

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May 2, 1986

NORTH WEST FRONTIER PROVINCE
COMMAND WATER MANAGEMENT PROJECT
MANAGEMENT TRAINING AND PLANNING PROGRAM

SUMMARY OF WORKSHOP I

The Command Water Management (CWM) was initiated in NWFP to increase agricultural production in the command area of the Warsak Lift Canal comprising 43,000 acres. The Departments of Irrigation and Agriculture, including Agriculture Extension and On Farm Water Management, completed a Diagnostic Analysis (DA) of the area early this year which identified the most serious problems constraining agricultural production. Using the DA study as a basis, a Management Training and Planning (MTP) program is currently underway to develop a management plan aimed at solving problems and to provide staff training on critical management skills and knowledge.

The first of two workshops was held April 28 and 29 for the purpose of bringing together farmers and field/operation level personnel from organizations having responsibilities in the Warsak Lift Canal area to (1) clarify problem statements, (2) understand the factors contributing to the problems, and (3) propose goals and strategies to solve problems. A brief summary of seven selected problem areas, with factors contributing to these problems and suggested goals and strategies for solving them, follows.

1. Unreliability of Supply.

The water supply is unreliable both in terms of time and quantity. The unreliability of supply is the result of a number of factors including: full power supply failures and voltage fluctuations, mechanical and electrical equipment failures at the pumping station, breaches in the main canals, closures to recover bodies, reduced diversions from Warsak Dam, and choking of the trash rack located at the intake to the tunnel feeding the main canal.

To increase reliability, the following goals and strategies were suggested: ensure a continuous and full power supply by providing an auxiliary power supply to the pumping station and making arrangements to give priority consideration to the pumping station during periods of high demand; minimize mechanical and electrical equipment failures by replacing and upgrading old equipment and providing adequate facilities for maintenance and repair at the pumping station; eliminate breaches by covering selected reaches, providing additional escapes, and removing trees from along canal banks; and ensure a full supply from Warsak Dam through negotiations with WAFDA concerning diversions and cleaning of the trash rack.

2. Distribution and Inequity Along the Main Canal.

Certain outlets in the head reach of the main canal draw more water than sanctioned while certain outlets on the tail reach of the main canal draw less water than sanctioned. This inequity of distribution along the main canal is the result of altered outlets, unauthorized withdrawals in the tribal area, and heavy siltation in the head reach of the main canal.

To achieve equity along the main canal would involve ensuring authorized discharge at each outlet so that everyone receives no more and no less than his due share. Strategies to achieve this goal would include revision of chakbandies and replacement of all outlets with AFM outlets, redesign and construction of the main canal up to RD 40,000, implementation of the Canal and Drainage Act in the tribal area, and installing and developing a strategy for the use of measurement structures.

3. Distribution and Inequity Along Individual Watercourses.

Water distribution is inequitable along individual watercourses with head farmers receiving a higher flow rate than tail farmers. This inequity of distribution along watercourses is primarily the result of high conveyance losses and illegal cuts in the main watercourse.

To achieve equity along the individual water courses would involve ensuring that every farmer receives his due share of the water. Strategies to achieve this goal would include reducing conveyance losses by improving watercourses and making allowances for reviewing losses in the warabandi in terms of additional proportionate time for tail farmers.

4. Inadequacy of Supply.

The water supply is inadequate to satisfy the designed cropping intensities of 40 percent in kharif and 40 percent in rabi seasons. Under the existing cropping patterns and intensities the problem is even more severe. This inadequacy is the result of inadequate water allowances, reduced pumping capacities, excessive conveyance losses along main canals and watercourses, application losses, and the excessive acreage of "high delta" crops such as sugarcane and rice.

To improve the adequacy of supply the following goals and strategies were suggested: increase pumping capacities by replacing the pumping units, reducing main canal conveyance losses by lining selected reaches, reduce watercourse conveyance losses by improving watercourses, reduce application losses by introducing improved irrigation practices, and reduce the acreages of "high delta" crops by encouraging farmers to grow "low delta" crops through appropriate programs, and supplement supply through the development of groundwater.

5. Agricultural Inputs and Credit.

There was a general consensus that production could be increased through better use of amounts, quantities and

qualities of seeds, fertilizers and pesticides. Factors believed to contribute to this problem area included insufficient funding for extension services, inadequate/unreliable irrigation water supply, unavailability of inputs at appropriate times during cropping seasons, and lack of knowledge by farmers of input requirements for optimum production. Regarding credit, Workshop I participants listed the following reasons why the agricultural credit system does not serve farmers adequately; credit is not always available on time, farmers do not know how to access credit, farmers are irresponsible about using credit funds for intended purposes and about repaying loans, and credit agencies have not recognized special credit needs of CWM areas.

The Workshop I participants suggest that a widespread basic agricultural education program should be developed for the project area. Such a program should include village seminars sponsored by Agricultural Extension and credit agencies, demonstrations of advanced technology at "melas" and shows, and the establishment of model farms in the Warsak Lift Canal area to demonstrate improved practices. They also proposed improved funding for Agricultural Extension and credit agencies so that these agencies may fulfill their effective role in CWM. Establishment of a special Agricultural Extension cell in the Warsak Lift Canal area was recommended.

6. Farmer Cooperation.

Farmers have been noted to lack cooperation among themselves and with government agencies. For example they are slow to accept improved agricultural practices, are often tardy in repayment of bank credit, sometimes refuse to pay water charges and at times use unfair means of getting irrigation water. Some of the factors noted by participants that contribute to this problem are farmers' illiteracy, lack of agricultural education, and lack of Water User's Associations and Cooperative Societies. Also farm incomes are seldom adequate to cover expenses, a situation which encourages farmers to spend borrowed funds on family living rather than on farm inputs.

Potential goals and strategies suggested by the Workshop I participants focused on education of farmers in credit and agricultural practices and on development of Water User's Associations. Strategies mentioned were to encourage small-scale agro-industry to supplement farm income and to expand the role of Water User's Associations to mediate in local conflicts/disputes on distribution of water.

7. Organizational Cooperation.

The need for greater organizational cooperation to address the issues discussed above was not one of the areas defined in the Diagnostic Analysis study. During Workshop I this area was defined as the need for greater communication, understanding and cooperation in planning and implementing Command Water

Management related activities. Specifically these were identified needs for sharing information and collaboration on ongoing activities and special joint projects by Extension, OFWH, ID, credit agencies, the supervising consultants and others. Strategies suggested to address this need included developing the Subproject Coordinating Committee into a more active information sharing body. In addition a need for more informal small group contributions and special task forces for specific problems and projects was identified.

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LIST OF PARTICIPANTS IN WORKSHOP 1

Name	Title/Position	Organization
Mohammad Aslam Khan	Field Engr.	ACE-7DL-AAA
Ch. Karamat Ali	Field Engr.	NESPAK-nx
Habib-ur-Rehman	Incharge Training	ABL
Fazal-e-Rabbi	Asst. Director	CWM
Khan Zada	Agri. Economist	CWM
Mohammad Kamal	Irrigation Engr.	CWM
Shah Ali Naqi	XEN	Irrigation
Masood Parvez	SDO	Irrigation
M. Ashfaq Paracha	Sr. Agri. Credit Officer	United Bank Ltd
Malik Hidayatullah	Deputy Director	OFWII
Sultan Mohd Khan	Deputy Director	ADBP
Shaikh I. Karim	ACM	Habib Bank Ltd
Shaukat Khan	Engineer	NESPAK
Mohd Aurangzeb	SDO	WLC, Irrig.
Farvez Akhtar	Officer Incharge Credit	NBF
Noor Rehman	EADA	Agri. Ext. Serv.
M. A. Bangash	Managing Director	ADA
M. Iqbal	Deputy Director	Agri. Ext. Serv.
Ibrahimullah	Deputy Collector	Irrigation
Abdul Ghaffar	Deputy Project Manager	CWM
Abdul Hamid	Asst. Chief	P&D Dept
S. Shaukat Hussain Shah	Asst. Director	Agri. Ext.
Mohd. Yousaf	Deputy Director	OFWII
Sher Afzal Khan	Sociologist	CWM
Mohd Jalil Khan	Project Manager	CWM
Akhtar Ali Ismaili	Deputy Secretary	Irrigation
Abdul Qayum Khan	XEN, Warsak Canal	Irrigation
Nisar Khan	Farmer	
Qasim Khan	Farmer	
Malik	Asst. Chief W & P	P&D
Shaukat Ali	Agronomist	CWM
Mazullah Khan	Agri. Super. Credit Off.	Muslim Com. Bank
Rehman Gul Khattak		ADA

WRITTEN COMMENTS BY FARMERS

During the two workshops two farmer attended and submitted written comments or letter to the facilitating team. These comments and letter are enclosed below.

Farmers Problems

1. Inadequacy of WLC Water

-Water tax relaxation (paying Rs. 32/Jareb actually Rs 16/Jareb.

-Crop destroyed due to breaches.

-Need to install tubewells on each outlet.

-Contracting for concretizing outlets not accepted due to potential malpractices.

-Work to be done through rural committees, as has been done in past under Integrated Rural Development Program.

2. Supply of pesticides is limited (as per claims from Govt. Agri. Dept.)

3. Non-availability of quality seeds.

4. Subsidy for fertilizers is needed.

5. Difficulties in obtaining credit from ADBP. Regarding the high interest rate:

-either eliminate interest,
-or reduce the rate.

6. Land-levelling requires us to rent bulldozers at Rs. 120/hr which is out of the reach of a small farmer, thus robots is required.

7. In order to establish private tubewells it is required to contact WAFDA. This is very difficult. To obtain power connections is a matter of years.

-For this, area committees should be formed and responsible local people should be appointed to supervise this operation.

To: The In-Charge, Warsak Dam, World Water Management

Subject: Problems of agriculturists and their socio-economic problems.

Sir,

It has been learnt that a program is to be launched for the welfare of agriculturists, specially for Khalil-Momand area. According to the program agriculturalists will be required to pay 10% of development costs. In this connection it is stated that being too poor, we cannot pay this amount.

Second, it is pointed out that the Warsak Canal (lift) is not giving us proper utility due to its ill design. Mostly we find it dry and sometimes destroyed at various places due to floods. At the time of crops ploughing and later stages this canal cannot feed proper water to our fields. It is suggested that instead of any other program, the flow of water in the canal should be confirmed first. Then other sub-projects may be started.

Furthermore it is stated that the Water Management wishes to plan and construct waterways from the canals to some forage i.e. up to 500 feet. It is stated that the work should be done to its full extent. However, farmers living at the tails of the canal and watercourses will never cooperate.

It is therefore requested that first the Warsak Canal (lift) be made sure of water flow.

Yours sincerely,

Qasim Khan
Villager

29/4/86

APPENDIX E
PARTICIPANTS IN WORKSHOP II

**List of Participants
Workshop 2
May 4-8, 1986**

CWM:

M. Jalil Khan	Subproject Manager/SE Irrig.
Abdul Ghaffar	Deputy Subproject Manager
Khanzada	Sr. Manager for Monitoring & Evaluation
Shaukat Ali	Agronomist/computer programmer
Sher Afzal Khan	Sociologist (part-time)
Mohammad Kamal	Scheduling Specialist
Fazal-e-Rabbi	Ast. Director, OFWM, CWM

OFWM:

Dost Mohammad Khan*	Director
Mohammad Yousef	Deputy Director, Head Quarters
Malik Hidayatullah	Deputy Director, Field
Sher Afzal Khan	Deputy Director, Monitoring & Eval.

IRRIGATION DEPT.:

Mohammad Amin Khattak**	Secretary
Akhtar Ali Ismaili	Deputy Secretary
Shah Ali Naqi	XEN
Abdul Qayyum Khan	XEN, Warsak Canals Div.,
Masood Farvaiz	SDO, Warsak Pump Station
Muhammad Aurangzeb*	SDO, Warsak Lift Canal
Ikramullah	Deputy Collector, Peshawar

EXTENSION:

Lai Mohammad Khan*	Director General
Sahibzada Mohd Ashraf	Dep. Director, Peshawar
Mohammad Iqbal	Dept. Director, Tribal Area
Shaukat Hussain Shah	EADA, Peshawar
Noor Rehman*	EADA, Khyber Agency

FINANCE:

Roohul Amin*	Section Officer
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NESPAK-NDC (IDA consultants to ID):

Ch. Muhammad Akbar	Project Engineer
Shaukat Khan*	Senior Engineer

COOPERATIVE DEPT.:

Mohammad Ali Shah	Deputy Registers
Fazal-e-Akram*	Deputy Registers, Head Quarter

AGRICULTURAL DEVELOPMENT AUTHORITY:

Javed Qaiser* Director

P&D Department:

Mohammad Ajmal Khan** Chief, Water and Power
Malik Aziz-ur-Rahman** Assistant Chief, Water and Power

CREDIT INSTITUTIONS:

Amanullah Khan SVP & Chief of Credit,
National Bank of Pakistan

Ashfaq Paracha* Sr. Agri. Credit Officer, UBL
Shaikh I. Karim* ACM, HBL
Habibur Rahman* Officer-Incharge, Agri. ABL
Rafat Ali Khan* Officer on Special Duty, PBC
Sultan Mohd Khan* Deputy Director, ADBF

FARMERS:

Mohammad Nisar Khan* Chief of Mohamand
Subhan Shah* Farmer
Abdul Rauf Khan* Farmer

WAPDA:

Mir Zaman Khan* Chief Engineer
Yar Mohammad Khan* Executive Engineer, G.S.O.
Noor Mohammad Khan* Executive Engineer

TIPAN PROJECT:

R. William Seiders* Outreach Specialist

(*) Indicates resource persons

(**) Indicates special participation in the final discussion

APPENDIX F
ORGANIZATIONAL COORDINATION

ORGANIZATIONAL COORDINATION

The following comments were written during Workshop II by participants representing the Irrigation Department (ID), On-Farm Water Management (OFWM), Agricultural Extension, the Command Water Management Subproject Management Office (CWM), and the IPA Consultants. The worksheet instructions are given below, with the comments of each representative.

Organizational coordination involves regular communication, coordination on tasks and collaboration in planning and problem solving among organizations. Reflect on and then note below the specific kinds of coordination (i.e. information sharing, joint work, assistance to each other, etc.) that your organization needs from the organizations listed below:

1. Needed from On Farm Water Management: (how often, at what time intervals)

Information on the watercourses to be lined and straightened on a monthly basis. (ID)

Ensure that no water is wasted during its conveyance from canal to the farm (quite often, quarterly). (ID)

Watercourses renovation program; coordination for outlets remodeling; help and motivation of farmers for implementation of remodeling of outlets program; motivation of farmers to adopt crops according to water availability; formation of BUAs and making them effective to handle small disputes over water distribution. (ID)

Monthly and quarterly progress reports within a week from the end of month/quarter (physical as well as financial); to participate in SCC meetings regularly; information regarding development of BUAs when applicable; and timely submission of reports. (CWM)

Information needed once a month at the SCC meeting for review of progress; discuss implementation plan to coordinate with other agencies in SCC; apprise difficult and problematic areas as often as needed in SCC; responses of BUA in watercourse improvement activity in SCC; and assist in preparation of reimbursement application of completed work when done. (CWM)

Information on water level required at head of watercourses through AID consultants for deciding the design and type of outlets. (IPA Consultants)

Regular monthly meetings should be held with OFWM; technical information keeping in view the targeted activities be made available by OFWM; joint touring of the area and field in collaboration with the BUA should be done. (Extension)

2. Needed from Irrigation Department:
(how often, at what time intervals)

Boundary maps of individual fields with water distribution schedule on time/area basis as soon as possible; monthly and quarterly reports of progress and expenditure within a week from the end of month/quarter; timely submission of reimbursement applications; and to participate in the SCC meetings regularly. (OPHM)

Supply information needed for watercourse improvement; progress on canal improvement in SCC and when needed; supply water according to need of crops; and prepare work plan in respect of canal improvement once a year and progress review at SCC meeting. (OPHM)

Timely supply of survey and field data; identification of problems to be solved; detailed cost estimates; annual work plan; quarterly physical and financial progress reports; details about awarding contracts; statements of expenditures; and reimbursement applications. (IDA consultants)

Before starting survey of watercourses, OPHM needs some information about watercourses regarding moghas, DCA, warabandi etc.; some assistance to motivate the farmers for 1) signing of recovery agreement, 2) providing labour during construction and 3) watercourses' maintenance. (OPHM)

Regular monthly meetings to review the work of the previous month; joint towing of projects in the command area be done; refresher courses and informative training be organized. (Extension)

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3. Needed from the Command Water Management Subproject Management Office: (how often, at what time intervals)

Monthly progress reports along with information on bottlenecks. (ID)

Reports on whether the work is being carried out according to the schedule and the works are done completely. The CWM comprises all the elements needed in the project; as such they can share ideas and coordinate on ~~regular basis~~. Therefore they should meet, discuss, and coordinate on regular basis. (ID)

To hold monthly meetings of the SCC; to arrange fundings; early clearance of schemes from consultants and federal coordinator; and annual work plans. (ID)

Assistance to expedite the supply of information and data required from Irrigation Department and DFWM; and timely approval of annual work plan from FEC. (IDA Consultants)

Arrange to start important work of the watercourses before issuance of EIL; and financial support for civil works as far as other contingencies/expenditures. (DFWM)

Periodically meetings should be organized; information on the ongoing progress should be made available to this department. (Extension)

**4. Needed from Agricultural Extension:
(how often, at what time intervals)**

Assessment/analysis of the yields of the prevailing crops per acre and expected yield of the demonstration plots per acre and each crop season. (ID)

They should highlight the problems to others and in time inform the Irrigation Dept. of the need and the cropping pattern; seasonal meetings, at least every three months. (ID)

Conduct watercourse renovation education program and to arrange for timely non-water inputs. (ID)

Motivate farmers to cooperate with activities of CWM project continuously; advise farmers on agro-economic practices including use of water and non-water inputs; contact farmers jointly with (DFWM) and Cooperative Societies and credit agencies to educate them to effectively use available facilities quarterly or when needed; set up demonstration plots in project area; and refer issues needing research on crop, water use to TIFOU for advice. (DFWM)

Give assistance to motivate farmers for signing 10% recovery agreements for doing improvement work and maintenance; selecting watercourses to be improved and demonstration plots; and maintenance of important watercourses. (DFWM)

5. Needed from the Command Water Management AID Consultants/ACE-ZCL-AAA (how often, at what time intervals):

Before a job is completed or finalized, the consultants should bring to the notice of the ID; whenever requested, report of design and estimates should be submitted. (ID)

Timely technical advice ~~when required~~; inspection notes regarding site visits and surveys and execution of work checking; and to assist in compilation of reimbursement applications. (CWM)

Assist to design irrigation structure; provide consultancy in problem area when needed; and assist in supervision of work when under execution. (CWM)

Supply of water level required at head of watercourse. (IDA Consultants)

Before finalization of estimates they should check our design/estimates; during improvement work of the watercourses, they should inspect the site and guide (not after completion of work). (QFWM)

Monthly review and coordination meetings should be held to review the work. (Extension)

6. Needed from the Command Water Management IDA
Consultants/NESPAK-NDC (how often, at what time intervals):

Before a job is completed or finalized, it should be brought to the notice of this dept.; whenever requested timely submission of report of design and estimates. (ID)

Early clearance of proposed schemes, and authorization from federal coordinator; completion of feasibility proposals of schemes included in Work Plan 86-87; help in preparation of re-imbursment application; and help in implementation of Activity Plan finalized in Workshop 2. (ID)

Examine survey work related to WC; scrutinize design and estimates as per plan of operation and when needed; and resolve technical issues as when needed. (CMM)

Monthly meetings and joint touring of the project area should be arranged; also information should be made available of the work done on similar projects in other countries.

7. What do you think should be addressed in the monthly Subproject Coordination Committee meeting? That is, what information should be shared, problems or planning addressed?

Progress in respective fields; bringing problems by each dept. and solving it by identifying how and who will solve it and then processing it accordingly. (ID)

The targets given to the different departments working for CWM program should be discussed with the aim to know the progress and the problem faced by any functionary; before planning is going to be laid down for the completion of the project, problems should be discussed in detail. (ID)

Any problem during the month; progress on fundings/reimburse-ments; agenda of FFC meetings, review meetings. (ID)

Review of all related problems from any agency within the context of CWM projects. (CWM)

Review of progress of all agencies involved; Assist in preparing plan of operation/work plan; address problems amongst agencies; provide assistance and information to other agencies; fix meetings with other agencies; coordinate overall activities of all agencies involved; examine policy issues and put before FFC for approval/assistance. (CWM)

Information should be exchanged about; design parameters of irrigation channel; design parameter of outlets and their type; and water level required at head of watercourse. (IDA Consultants)

Project progress; any difficulties in problem facing. (OFWM)

To review the progress in light of the target fixed in the beginning and how much progress has been achieved; difficulties and bottlenecks and requirements should be sorted out and solution to address these should be done.