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IRRIGATION SYSTEMS MANAGEMENT - II PROJECT

PLAN OF WORK

PREPARED FOR THE

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

BY

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TABLE OF CONTENTS

	Page
LIST OF EXHIBITS	iii
LIST OF ACRONYMS	iv
EXECUTIVE SUMMARY	v
CHAPTER: I. BACKGROUND AND OVERVIEW OF ISM-II	I-1
Background	I-1
Overview of the Project	I-2
II. COMPONENTS OF ISM-II	II-1
Introduction	II-1
Rehabilitation/Civil Works	II-1
Purpose	II-1
Approach to Work	II-1
Operation and Maintenance	II-2
Purpose	II-2
Approach to Work	II-3
Equipment Management and Utilization	II-3
Purpose	II-3
Approach to Work	II-4
Institutional Development	II-4
Physical Improvements and Training Activities	II-5
Monitoring and Evaluation	II-5
Purpose	II-5
Approach to Work	II-5
Monitoring within the PIDs	II-6
PLM Monitoring Information for USAID	II-6
Project Team Monitoring	II-6
Hydraulic and Agroeconomic Impact Monitoring	II-7
Training	II-7
Purpose	II-7
Approach to Work	II-7

TABLE OF CONTENTS (cont.)

		Page
	Computerization	II-8
	Purpose	II-8
	Approach to Work	II-8
III.	**PRIORITIES FOR THE FIRST YEAR**	III-1
	Selection of Priorities	III-1
	Project Priorities	III-1
	Rehabilitation/Civil Works	III-1
	Operation and Maintenance	III-2
	Equipment Maintenance and Utilization	III-2
	Monitoring and Evaluation	III-3
	Training	III-3
	Computerization	III-3
	Provincial Emphases and Priorities	III-4
	Punjab	III-4
	Sindh	III-5
	NWFP	III-5
	Balochistan	III-6
IV.	**ORGANIZATION AND STAFFING**	IV-1
	Introduction	IV-1
	Provincial Advisors	IV-1
	Chief of Party	IV-3
	Technical Advisors	IV-4
	Chief Design Engineer	IV-4
	Equipment and Workshop Specialist	IV-5
	Hydraulic Engineer	IV-5
	Operations and Maintenance Specialist	IV-6
	Monitoring and Evaluation Specialist	IV-6
	Training Specialist	IV-7
	Computerization Specialist	IV-7
V.	**SUMMARY**	V-1

LIST OF EXHIBITS

		Page
1.	Overview of the ISM-II Project	I-3
2.	ISM-II Technical Assistance Organization Chart	IV-2

LIST OF ACRONYMS

ACE	Associated Consulting Engineers
ACOP	Alluvial Channels Observation Project
AMU	Administrative Management Unit
CADIS	Computer-Aided Design of Irrigation Systems
CDE	Chief Design Engineer
COP	Chief of Party
DAI	Development Alternatives Incorporated
FCC	Federal Coordination Cell
GOP	Government of Pakistan
ISM	Irrigation Systems Management
ISRP	Irrigation Systems Rehabilitation Project
MIFC	Management Information Flow Center
M&E	Monitoring and Evaluation
NESPAK	National Engineering Services of Pakistan
NWFP	Northwest Frontier Province
O&M	Operation and Maintenance
PA	Provincial Advisor
PC	Provincial Coordinator
PEA	Punjab Engineering Academy
PERI	Punjab Economic Research Institute
PID	Provincial Irrigation Department
PLM	Purpose Level Monitoring
TA	Technical Assistance (consultants)
TNA	Training Needs Assessment
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority
WMED	Watercourse Monitoring and Economics Directorate

EXECUTIVE SUMMARY

One of Pakistan's greatest resources is her irrigated farmland and the extensive network of barrages, canals, drains, and other structures serving this land. One of the greatest challenges facing the country is operating and maintaining this irrigation infrastructure so that it can distribute a safe, reliable supply of water well into the future. The Irrigation Systems Management-II (ISM-II) project is designed to help meet this challenge and to provide farmers with the reliable irrigation deliveries needed to fuel a healthy agricultural economy. By improving farmers' incomes, the investment in irrigation management represented by the ISM-II project will help farmers support the self-sustained operation of Pakistan's irrigation systems.

ISM-II approaches improvement of system operation by focusing on the development of the four Provincial Irrigation Departments (PIDs) and the Federal Coordination Cell, the institutions responsible for irrigation system management. The project's institution-building activities are divided into the following six primary components:

Rehabilitation/Civil Works

This component is aimed at improving the capability of the PIDs to perform the data collection, design, review, and supervisory functions required for system rehabilitation.

Operation and Maintenance

This component emphasizes strengthening the PIDs' capabilities to perform routine maintenance on canals and ancillary structures.

Equipment Management and Utilization

This component is designed to institutionalize the management of mechanical activities and to upgrade the skills of workshop personnel and equipment operators.

Monitoring and Evaluation

The M&E component stresses development of reliable monitoring systems that will satisfy the long-term requirements of the PIDs and will support effective tracking and management of ISM-II.

Training

The Training component assists in local and overseas training of PID staff. Training activities will focus on institutionalizing training activities within the PIDs.

Computerization

Computerization activities will develop the PIDs' capabilities to collect, store, and analyze information to support a broad range of PID functions. This component

will promote the long-term expansion of the PIDs' computer resources.

The first four of these components represent distinct, yet complementary activities required for upgrading, maintaining, and operating irrigation systems. The training and computerizationcomponents will support the PIDs by institutionalizing training and computerization activities to strengthen the departments' technical and administrative operations.

In developing this plan of work, we have attempted to recognize the great regional diversity that characterizes Pakistan and to formulate a program that responds to conditions in each of the provinces. A key strategy of ISM-II is to identify the long-range goals and the particular resources and requirements of each PID and to prioritize effort based on these assessments. For this reason the project components presented in this plan of work have been and will continue to be modified to best address the circumstances of the various PIDs. Nevertheless the fundamental goal in all provinces remains to improve operation and maintenance of irrigation systems.

Technical assistance within each province will be led by the Provincial Advisors posted in each of the PID headquarters. These four advisors will be in daily contact with PID officials, in particular the Provincial Coordinators, facilitating implemetation of the program. They will receive technical support from the project's Chief Design Engineer, Equipment and Workshop Engineer, Hydraulic Engineer, Evaluation and Monitoring Specialist and Training Specialist. In addition, members of the USAID staff will provide substantial assistance, particularly in the areas of computerization and operation and maintenance. A broad spectrum of experts is also available on a TDY basis to support the resident staff.

The Harza/DAI team is headed by the Chief of Party. Based in Islamabad, the Chief of Party is in frequent contact with all members of the Technical Assistance team, the Federal Coordinator, and with USAID officials. In addition, the Chief of Party represents the project before other offices of the Government of Pakistan and other donor agencies.

Because our strategy is to institutionalize programs that can be sustained by the PIDs using their own resources, this plan of work stresses evaluating the functions that must be performed in an effective program of irrigation system operation and maintenance, appraising how these functions are now carried out by the PIDs, and providing technical assistance to improve these functions. While our emphasis is on methods that can be successfully incorporated into the existing PID structure, this is not to say that innovations are inappropriate. For example, the project will significantly increase the availability of computers and trained computer users. This expansion is expected to lead both to more rapid execution of routine operations. Computerization and training programs may also lead to fundamental improve-

ments in the ability to PID officials to manage information and to apply this information in decision making.

The plan of work presented in the following pages reflects the results of extensive consultation with members of the USAID staff, the Pakistan government, and the Harza/DAI Technical Assistance team. The consensus among all parties is that clear communications and good rapport are requisites for successful implementation of this complex project. Therefore, this plan of work presents both project activities and the framework of close collaboration between USAID, the Government of Pakistan, and the Harza/DAI team, through which the activities will be carried out. Our expectation is that through this cooperative approach, the contributions of ISM-II will continue long after the project's completion.

I.

BACKGROUND AND OVERVIEW OF ISM-II

BACKGROUND

The Indus Basin irrigation system in Pakistan is the largest contiguous irrigation system in the world. Flowing from the Indus River and six tributaries, this system of three major storage reservoirs, 19 barrages, and 43 canal commands serves a total cultivable area of 34 million acres. Canals fed by the Indus and its tributaries total about 40,000 miles, which, in turn, feed an additional 250,000 miles of public watercourses.

In addition to its size, the Indus Basin area is characterized by low channel gradients, high sediment loads and complex groundwater conditions. Irrigation water in the Punjab and the Sindh is drawn almost entirely from Indus Basin surface and ground waters. However, in Balochistan and the Northwest Frontier Province small irrigation systems lying outside the Indus Basin are common.

Since its independence, Pakistan's strategy for the Indus Basin has focused on three areas: (1) conservation of water and redesign of the conveyance system to effectively use water available under the Indus Basin Treaty; (2) reclamation and control of salinity and waterlogging; and (3) improvement in the delivery of water to farmers' fields.

The concentration of effort in these areas contributed to the neglect of essential operation and maintenance (O&M) activities. This was particularly unfortunate because the completion of the link canals increased the total supply of water in the system and hence the need for timely maintenance. As a result, water distribution became increasingly unreliable, and inequities in distribution between head-enders and tail-enders grew more pronounced. Additionally, over-toppings and breaches of canals caused damage to crops and households while inadequate or poorly functioning drains failed to remove seasonal water surpluses or raised groundwater tables.

The Irrigation Systems Management (ISM) project is the first major instance of foreign donors directly supporting the activities of the Provincial Irrigation Departments (PIDs) in the construction, operation and maintenance of irrigation and drainage systems. Each department has extensive field organizations and central secretariats with offices responsible for design, planning, equipment management, hydrology and research. Despite similarities in structure and operations, the PIDs vary in their capabilities and traditions as well as in the range of hydraulic and agronomic conditions they face.

Coordination of project related activities among the PIDs is accomplished through the Federal Coordination Cell (FCC). The cell was established under a Federal Project Coordinator in the Ministry of Water & Power. The FCC is responsible for the flow of funds from donors to the PIDs and is active in monitoring, and, when necessary, synchronizing project activities.

OVERVIEW OF THE PROJECT

The goal of ISM-II, the second phase of the ISM project, is increasing agricultural production by improving the reliability of water delivery and the equity of water distribution throughout the four provinces of Pakistan. The project is designed to achieve this goal by providing technical assistance to the Provincial Irrigation Departments. In particular, ISM-II will focus on strengthening the physical tools and the organizational resources available to the PIDs to rehabilitate and maintain the vast canal systems under their charge. In addition to increasing the benefits of irrigated agriculture, the project will control costs by developing a sound mechanism for canal maintenance that will reduce requirements for repeated system rehabilitation. For these reasons, ISM-II is a significant step toward assuring a financially sustainable system of irrigation management.

ISM-II will stress functions that can be sustained by the PIDs after the project's completion. Therefore, the Technical Assistance (TA) team will devote relatively little effort to the development or introduction of new methodologies. Rather, we will emphasize evaluating the functions that must be performed in an effective program of irrigation system rehabilitation and maintenance, appraising how these functions may be carried out by the PIDs, and providing technical assistance for institutionalizing these functions. Where possible, we will consolidate progress made during ISM-I to see that initiatives undertaken at the beginning of the project can be sustained after the project's completion.

Work carried out under ISM-II will be coordinated with and serve as a complement to the World Bank's Irrigation Systems Rehabilitation Project (ISRP). System rehabilitations conducted under ISRP will offer important opportunities for the institution building emphasized in ISM.

Exhibit 1 presents a general view of how ISM-II is structured to support and strengthen functions performed by the PIDs.

Overview of the ISM-II Project

OVERALL GOALS

Equitable, Reliable Water Delivery — ***Financially Sustainable System Operation***

Through

- Improved Cost Recovery
- Improved Maintenance Efficiency

THREE PRINCIPAL PROJECT OBJECTIVES

- Strengthen O&M Effectiveness
- Support Rehabilitation of Canals & Drains
- Improve Utilization of Equipment

SIX PRINCIPAL PROJECT COMPONENTS

Civil Works/Rehabilitation

- Strengthen PIDS' Capability in Subsystem Rehabilitation
- Improve Data Collection and Analysis; Standardize Design Procedures

Operation and Maintenance

- Improve PIDS' Performance of Routine O&M
- Implement Pilot Equipment Program; Revise O&M Manuals, Yardsticks and Budgeting

Equipment Management and Utilization

- Build PID Capacity to Use and Maintain Equipment
- Mobilize Workshops; Increase Inventory of Operational Equipment Improve Equipment Management

Monitoring & Evaluation

- Strengthen Monitoring Capabilities within the PIDS
- Monitor and Evaluate Project Related Activities

Computerization

- Develop Hardware, Software and Personnel Resources of the PIDS
- Encourage Computer Usage in Planning, Design and Management

Training

- Develop the PIDS' Capacity to assess Training Needs and Plan Training Programs
- Train PID Personnel in Maintenance, Design and Management Functions

Exhibit 1

As shown in Exhibit 1, the ISM-II project is divided into the following six components:

- Rehabilitation/Civil Works,
- Operation and Maintenance,
- Equipment Management and Utilization,
- Monitoring and Evaluation,
- Training, and
- Computerization.

The first four components correspond to the principal objectives outlined in Exhibit 1. In addition considerable effort will be devoted to the Training and Computerization components. In part, the role of training and computerization will be to support the successful implementation of other components. However, these two components are also significant in their own right. For example, the Computerization component is expected to significantly improve information management in the PIDs.

II.

COMPONENTS OF ISM-II

INTRODUCTION

This chapter describes project activities being performed under the six project components and reviews the emphasis that the TA team will place on these activities. Chapter III describes how project components have been combined to form initial work programs specific to each province.

REHABILITATION/CIVIL WORKS

Purpose

Well-conceived and executed rehabilitation works will improve the performance of canal systems leading to more reliable and equitable irrigation and more effective drainage. The purpose of this project component is to improve the capability of the PIDs to perform the data collection, design, review and supervisory functions required for rehabilitation. Our emphasis will lie in assisting the PIDs in strengthening the professional design environment at the field and central office levels. In addition, the TA team will cooperate with the PIDs and National Engineering Services of Pakistan (NESPAK) to see that civil works carried out with both USAID and World Bank funding leave behind subsystems and systems that have been designed as a unit and are well constructed and well maintained.

Approach to Work

In each province the Provincial Advisor (PA), the Chief Design Engineer (CDE) and the Provincial Coordinator (PC) will review current strategies for system rehabilitation to identify shortcomings and to develop a program to remedy significant deficiencies. We will emphasize establishing a systematic program of data collection, design, review, and construction management.

Among the activities to be included in this review are the following:

- Selection of schemes requiring rehabilitation;
- Collection and analysis of survey, hydrological, and geotechnical data;
- Production of suitable designs, drawings, and specifications;
- Provision for systematic review of calculations and drawings;
- Assessment of the role of consultants in rehabilitation activity and evaluation of the capability of the PID to direct and review consultants' work; and
- Supervision of rehabilitation construction.

After addressing the relative significance of these and other aspects of system rehabilitation, the TA team will assist the staff of the PID in evaluating how any recommended improvements in the PID's approach to system rehabilitation can be incorporated into the department's regular structure. The following are among the possible recommendations:

- Modifying criteria for selection of subsystems to be rehabilitated;
- Strengthening capability for collection and analysis of survey and hydraulic data;
- Strengthening of approval and control of design inputs and modifying standards for investigation and survey work;
- Reviewing and standardizing design procedures for canal linings, bridges, headworks and other features;
- Determining an appropriate system of review for designs created at various levels within the PIDs;
- Determining the appropriate level of responsibility for preparation and review of specifications and bid documents; and
- Assessing needs for training in surveying, and hydraulic data monitoring, computer utilization, construction management, and contract supervision for appropriate PID personnel.

One important goal of the TA team and of PID personnel will be effective utilization of the Central Design Cells and clear description of the Design Cells' responsibilities relative to the Design Directorates. The TA team will assist each PID in determining the role the Design Cells should play in design and review of rehabilitation work. Based on this assessment, the TA team and the PID personnel will recommend a program to maintain a level of well trained staff in these cells adequate to perform necessary design and review work. An outcome of these activities will be increasing the efficiency of the PIDs in achieving their planning and design goals for long-term, cost-effective system rehabilitation under the ISRP program.

OPERATION AND MAINTENANCE

Purpose

If properly maintained, rehabilitated systems should perform well for many years. The TA team will stress development of an effective program to strengthen the PIDs' capabilities to perform routine maintenance on canals and ancillary structures.

This program will include maintenance of newly rehabilitated canals as well as older works. The overriding objective of the O&M component will be to assist the PIDs in developing a vision of how they intend to perform operation and maintenance. Ultimately, all components of ISM-II are designed to bring this vision to life.

Approach to Work

Specific O&M activities to be performed by the TA team include the following:

- Facilitate implementation of the pilot maintenance equipment program. Provincial advisors will assist in establishing this pilot and will aid the PIDs in resolving problems as they arise. While the equipment provided in this pilot program is suitable only for maintaining canal banks, implementing and monitoring this trial should provide USAID and the PIDs with valuable insights into the feasibility of operating and maintaining equipment at the subdivision and division level.
- Upon review of the draft provincial O&M manuals by the PIDs, incorporate comments and suggestions and issue completed manuals.
- Update O&M yardsticks used in preparation of the annual O&M Budgets and Workplans. The TA team will advise the PIDs in development of these documents.
- Develop a manual on drain maintenance to serve as a companion to the other O&M manuals. This manual will emphasize problems such as weed control and bank sloughing associated with surface drains.
- Assist in studying the telecommunications requirements of the PIDs and in recommending how best to meet these needs.

EQUIPMENT MANAGEMENT AND UTILIZATION

Purpose

The Equipment Management and Utilization component is designed to institutionalize the management of mechanical activities and to upgrade the skills of relevant personnel so that the PIDs may confidently plan, organize and carry out these activities. Improving utilization and maintenance of equipment will enable the PIDs to more effectively rehabilitate and maintain irrigation systems.

Approach to Work

The TA team will collaborate with PID officials in the following two major areas:

1. Institutional development measures designed to promote effective utilization of equipment and workshop facilities; and
2. Physical improvements and training activities to strengthen the PIDs capacity to manage, operate, and repair equipment.

While the bulk of the TA activity will be devoted to physical improvements, we believe that for the equipment and workshop program to succeed, the capabilities of the mechanical sections must not only be developed, they must be used. For this reason, policy decisions on how best to utilize equipment and workshops will be important.

1. Institutional Development

The TA team will assist in evaluating equipment and workshop utilization and in developing programs for effective maintenance and use of these resources. Activities involved in this process include

- Assisting the PIDs in preparing annual construction equipment utilization plans;
- Institutionalizing the Equipment Task Force in each province;
- Organizing monitoring and evaluation activities by tracking equipment utilization and status using MAINSAVER equipment management software; and
- Assisting the PIDs in review of their mechanical design capabilities.

Institutionalization of the Equipment Task Force is of particular significance because this body will be the forum for developing policies specifying how equipment will be used and how repair work will be directed to the shops. In provinces having more than one workshop, routing of work and parts among the facilities may be another topic appropriate for review by the Equipment Task Force.

In the event that the workshops have difficulty retaining skilled mechanics and machinists, the Equipment Task Forces may be compelled to consider adjustments in pay scales for workshop personnel or the possibility of allowing mechanics from the private sector to repair PID and other vehicles while renting workshop facilities.

10

2. Physical Improvements and Training Activities

Activities in this area of concentration include the following:

- Procure missing parts to fully mobilize workshop equipment;
- Complete installation of MAINSAVER software and apply the program to organize stores;
- Procure spare parts for early overhaul of a limited number of machines;
- Finalize parts procurement list for equipment overhaul program; and
- Plan training program for equipment operators and workshop personnel.

MONITORING AND EVALUATION

Purpose

The purpose of the Monitoring and Evaluation component is to develop reliable monitoring systems that will satisfy the long-term requirements of the PIDs and will support effective tracking and management of the ISM-II project. The project's long-term aim is to institutionalize sustainable monitoring activities within the PIDs.

Approach to Work

We believe that the concept of Purpose Level Monitoring (PLM) as presented by USAID provides a valuable and consistent framework for all monitoring activities within this project. Therefore, an early activity of the M&E program will be to advise in the development of key indicators and critical events to be used in appraising the progress of project components in each of the provinces.

Monitoring activities will be supported by the TA team at four levels:

1. Strengthen monitoring capability within the PIDs
2. Provide Purpose Level Monitoring information for USAID
3. Provide progress monitoring for use by the project team
4. Assist the Hydraulic and Agroeconomic Evaluation program

1. Strengthening Monitoring Within the PIDs

Strengthening the M&E capabilities of the PIDs is a high priority of ISM-II. Our strategy will be to build on existing PID monitoring and reporting capabilities and to tailor the M&E program to the requirements of each PID. We will make a clear distinction between M&E requirements for the ISM-II project and those of the PIDs. Computerization will be an important tool in development of M&E capabilities.

One program suggested in ISM-I was establishing Management Information Flow Centers (MIFCs) to provide a central facility for presentation of management information compiled from all offices of the PIDs. Rather than approach this goal directly, we will facilitate the establishment of various components of a computerized M&E capability. Over time, these components may be woven together by the PIDs to form a functional MIFC.

The Alluvial Channel Observation Project (ACOP) is committed to training PID staff in hydraulic monitoring. In collaboration with the Provincial Coordinators, the TA team will develop plans that facilitate the transfer of ACOP capabilities to the PIDs.

2. Provide Purpose Level Monitoring Information for USAID

The USAID Mission office is currently developing a PLM system for ISM-II. This system will track progress towards purpose-level objectives by carrying out the following procedures:

- Define project purpose;
- Select indicators that track progress toward this purpose;
- Report data indicating project status relative to these indicators; and
- Analyze data to assess rate of progress and to identify impediments.

3. Internal Monitoring of Project Team

Internal monitoring will be performed by a simplified PLM system that will focus on the use of resources available to the TA team. This monitoring will be designed to maintain an effective allocation of these resources by addressing issues such as the following:

- Review and refine project objectives;
- Provide information for review and establishment of priorities;
- Provide background information for discussions on policy and institutional issues; and

12

- Warn of unresolved issues or difficulties project personnel should anticipate.

4. Hydraulic and Agroeconomic Monitoring (Impact Monitoring)

A critical monitoring activity will be the evaluation of eight sample rehabilitated subsystems. These evaluations will assess the costs and benefits of repairs by measuring hydraulic conditions and crop production before and after rehabilitation. Evaluation of hydraulic parameters will be performed by ACOP, while the Punjab Economic Research Institute (PERI) and the Watercourse Monitoring and Economics Directorate (WMED) will evaluate agroeconomic impacts. This monitoring will be handled directly by USAID and the FCC with the TA team actively assisting in the timely inception and completion of the work. Although there are many difficulties inherent in implementing a monitoring program that can fairly evaluate the long-term impacts attributable to system rehabilitation, this program offers the potential of providing valuable information.

TRAINING

Purpose

The Training component is designed to provide local and overseas training to PID staff to enable them to perform key roles in operation and maintenance of canal systems. As well as addressing short-term requirements for training, this component will focus on institutionalizing training activities within the PIDs through development of the Administrative Management Units (AMUs).

Approach to Work

The TA team will assist PID personnel in developing training programs in each province that are congruent with project priorities. These programs will emphasize efforts to improve technical and management skills in areas directly related to operation and management of canal systems. Specific training activities involving the project team include the following:

- Assisting the PIDs in determining appropriate course topics and in identifying institutions capable of training PID personnel. An effort will be made to establish a solid working relation between each PID and a local training institution.
- Assisting the AMUs in evaluating the service pattern, training history, job assignments and other qualifications of PID personnel eligible for training.

- Assisting the PIDs/FCC in preparing the comprehensive In-Country and Overseas Training Plan. This plan will be based on the Training Needs Assessment (TNA) produced by each PID.
- Assisting the PIDs/FCC in formulating the detailed In-Country Training Plan for each year and in setting up training schedules.
- Assisting in institutionalization of the AMUs within the PIDs. These units are designed to develop and administer training programs and to handle personnel records including information on posting, length of service, and other data. Full utilization of the computers located in the AMU's may also enable these units to contribute to the evaluation and monitoring activities of the departments.

These points present our approach to defining training requirements within the PIDs. However, work remains to be done to determine the mechanisms that will be used to deliver the training. For example, although the Punjab Engineering Academy (PEA) appears to be a likely center for activity in that province, similar training centers have yet to be identified in the other provinces.

COMPUTERIZATION

Purpose

Computerization activities will be central to developing the PIDs' capabilities to collect, store, and analyze information required for a broad range of PID activities. In particular, the computerization program will emphasize use of computers as a management tool for inventory control, development of budgets, and allocation of resources. The program will also promote the systematic long-term expansion of the PIDs' computer resources.

Approach to Work

The emphasis of the Computerization component will be placed on fully utilizing computer facilities available to the PIDs. This goal will be achieved by installing computers at key locations within the PIDs and FCC, by establishing programs to support and maintain these computers, and by stressing training of PID personnel in computer applications. The TA team and the project systems analysts will work closely with the PIDs to continue work begun during ISM-I and the bridging period in evaluating the status of computer availability and utilization within each PID and in developing programs suited to the priorities of each province.

14

Among the activities in which the TA team (including the USAID Senior Systems Analyst) will assist the PIDs are the following:

- Assess staffing requirements and ability to maintain computer facilities and to monitor computer usage;
- Implement in-country training of computer users;
- Proceed with program of computer procurement, installation, training, and software development; and
- Support expanded use of application software. This support includes provision of documentation, implementation of existing applications, and exchange of application software among provinces. New applications that may be considered include

  1. Entry of O&M yardstick data on a spreadsheet for development of O&M budgets and work plans;
  2. Use of computers in storage and retrieval of hydraulic monitoring data;
  3. Use of computers to generate text and graphics for reports and presentations;
  4. Installation and full operation of MAINSAVER by the Equipment Management Unit;
  5. Installation and full operation of personnel and training data bases in the AMUs; and
  6. Assistance to the Design Cells in the development and use of Computer-Aided Design of Irrigation Systems (CADIS) and other computer-aided design software.

15

III.

PRIORITIES FOR THE FIRST YEAR

SELECTION OF PRIORITIES

A key objective of ISM-II is to concentrate the resources available to the project on the most important problems facing each PID. We recognize that the requirements and resources of the PIDs differ. Therefore, we have organized our work program to address these differing requirements while maintaining a structure consistent with the overall project objectives.

The project activities described below were developed after extensive consultation with members of the USAID staff, the Pakistan government, and the TA team. Together these activities represent the general program that will be followed in ISM-II. Within this framework, programs are being developed for each province that reflect local concerns and that identify areas where immediate action is vital to maintaining a logical sequence of activity. This section of the workplan refines the general project framework presented in chapters I and II by addressing the particular concerns voiced by each province and by discussing progress that we plan to attain during the project's first year.

PROJECT PRIORITIES

In all four provinces, priority will be placed on certain activities within each of the six project components. The following section presents the current assessment of these priorities.

Rehabilitation/Civil Works

High priority within this component will be placed on evaluating design approaches and organizations within each PID. In some instances this may lead to significant modifications in the design activities. Decisions on commodity procurement to support data collection and design activities will depend to some extent upon how these activities are organized.

During the project's first year, results expected from the Rehabilitation/Civil Works component will vary according to the requirements of the four PIDs. Two high priorities are the following:

- Standardization of irrigation structures will begin by reviewing existing designs and identifying those which are appropriate as the basis for future work.
- A program for strengthening data collection and analysis for design will

17

be initiated in each PID.

Operation and Maintenance

Priority will be given to preparation of annual O&M workplans and to implementation of the Pilot Maintenance Equipment Program, completion of O&M manuals already in draft form and updating of O&M yardsticks. During the project's first year we anticipate achieving the following results:

- Assistance will be provided to the PIDs on development of annual operations and maintenance workplans. To meet donor requirements, an O&M Program of Work for fiscal year 1990-1991 was prepared in July of 1990. Over the long term, technical assistance will emphasize developing a systematic process in each PID for preparation and monitoring of annual O&M plans and budgets. Computerized data processing will be initiated.

- The Pilot Maintenance Equipment Program will be fully operational. Procurement of trial equipment will be completed, and equipment will be assigned to the selected divisions and subdivisions and used in routine maintenance activities. As the trial proceeds PID, USAID, and TA personnel will observe the program's effectiveness and suggest modifications as required.

- Work will be completed on the four provincial O&M manuals.

- Procedures for updating O&M yardsticks and incorporating these updates in O&M budgets will be developed.

Equipment Maintenance and Utilization

During the project's first year, the Equipment Maintenance and Utilization component will focus its activities on the following areas:

- The status and requirements of each workshop will be assessed and parts procured for full mobilization.

- Parts will be procured and repairs performed on a small number of machines in the equipment inventory.

- MAINSAVER will be installed and put into active service in organizing departmental stores.

- Training in repair of heavy equipment will begin for workshop staff.

- A comprehensive order of parts will be placed in preparation for an extensive program of equipment repair and overhaul.

Monitoring and Evaluation

To successfully monitor and evaluate progress throughout the life of the project, urgent priority will be placed on establishing the following M&E programs:

- Implementing hydraulic and agroeconomic evaluation of eight representative rehabilitated subsystems. This program will be established and fully functioning during the first year of the project.
- Implementing purpose level monitoring for use by USAID. The PLM program will be established and will be providing necessary information within the first year.
- Improving the flow of information within the PIDs and between the PIDs and the FCC. The initial steps toward improving information management within the PIDs will be taken in the first year. In future stages of the project, strengthening M&E programs within the PIDs will be the focal point of the M&E program.
- Implementing project monitoring to assist the project team. Within the project's first year we expect to have an effective project monitoring program designed to assist the project team in making the best use of its available resources.

Training

The following will be priority issues for the training component during the first year of ISM-II:

- A training needs assessment will be completed for each PID.
- In-country and overseas training plans will be prepared.
- Institutions capable of assisting the PIDs in implementation of their training programs will be identified.

Computerization

During the first year of the project, the following activities will be priorities of the computerization component:

- Sustainability of computer facilities will be promoted by increasing the number of PID staff trained in computer usage, by improving access to computers and software and by strengthening the PIDs' maintenance of computer facilities.
- Support will be provided in software development and training for design activities, budgeting, and other departmental operations.
- Installation of MAINSAVER will be completed and support provided for its full implementation.
- Software development and documentation for the Administrative Management Units will be completed.

PROVINCIAL EMPHASES AND PRIORITIES

As noted in the introduction to this plan of work, Pakistan's great regional diversity is reflected in differences in size, resources, and priorities among the PIDs. In developing this plan of work, we have attempted to formulate a program that is responsive to conditions in each of the provinces and that recognizes both their long-range goals and their particular requirements.

Punjab

Rehabilitation/Civil Works

The Punjab places a priority on review and standardization of design procedures for structures. This work is to be supported by data provided by the Alluvial Channel Observation Project (ACOP) while the PID's capacity to perform hydraulic monitoring is strengthened.

Monitoring and Evaluation

The PID emphasizes establishment of the infrastructure required for hydraulic and institutional monitoring.

Operation and Maintenance

Within this component, the Punjab PID stresses updating of O&M yardsticks, completion of the O&M manuals, and, possibly, updating of other manuals.

Computerization

Implementation of the computer component is a priority item as is appointment of a systems analyst.

Training

Existing training modules are now being used in the Punjab. Expansion of the training program is a priority.

Equipment Maintenance and Utilization

Along with carrying out other aspects of this component, the Punjab will utilize the workshop facilities to begin a program of gate repair on six barrages.

Sindh

Rehabilitation/Civil Works

Recognizing the importance of drainage in the province, special emphasis will be given to upgrading selection and design procedures for rehabilitation of drains.

Operation and Maintenance

The Sindh is particularly interested in developing a drainage maintenance manual to accompany the manuals now being revised.

Equipment Maintenance and Utilization

A priority in the Sindh will be to improve utilization of workshop equipment and to establish a systematic program for machinery repair and overhaul.

Monitoring and Evaluation

The emphasis will lie on development of capability for hydraulic monitoring including observations of sediment, embankments, and structures.

Computerization

Appointment of a Systems Analyst and installation of computers in the Chief Engineers' offices are priorities.

Training

The training program in the Sindh will correspond to the program in chapter II.

NWFP

Rehabilitation/Civil Works

Priority items include improving data collection, improving and standardizing design and review procedures, and developing of standard designs.

21

Operation and Maintenance

Priorities in this component are the revision of O&M yardsticks and development of annual O&M plans.

Equipment Maintenance and Utilization

The PID emphasizes institutionalization of the equipment task force and developing administrative procedures to insure that the PID workshop is fully utilized. Full mobilization of workshop equipment and training of workshop personnel are also priorities.

Training

NWFP stresses identification of training topics and preparation of an overseas training plan.

Computerization

Appointment of a Systems Analyst and establishment of a computer maintenance and support budget are priorities.

Monitoring and Evaluation

The M&E program in the NWFP will be correspond to that described in chapter II.

Balochistan

Training

Most of the subengineers trained during ISM-I left the PID when the department was divided to create a separate Public Health Engineering Department. For this reason training of departmental staff in design, construction management, computer utilization and other activities is a priority. In addition, developing the PID's capacity to provide on-going training programs is being emphasized.

Computerization

Establishment of a fully equipped computer room at the divisional level and full utilization of computers in design, recordkeeping and other areas is strongly supported in Balochistan. The PID has a well qualified systems analyst on its staff.

Rehabilitation/Civil Works

The principal objective of this component will be establishing the design directorate and standardizing design procedures for canals and associated structures. This activity will be carried out in coordination with the PID's new Chief Engineer of Design. Emphasis will be placed on improving the quality of redesign and rehabilitation work.

· 22'

Operation and Maintenance

The PID is interested in development and utilization of O&M manuals and yard-sticks specifically intended for use on the small systems prevalent in Balochistan.

Equipment Maintenace and Utilization

In Balochistan this component will follow the outline in chapter II.

Monitoring and Evaluation

The M&E program in Balochistan will follow the outline in chapter II.

. 23'

IV.

ORGANIZATION AND STAFFING

INTRODUCTION

Clear communications and good rapport between the participating parties are essential for an institutional development project such as ISM-II. An atmosphere of cooperation and direct communication has been fostered between USAID, the Government of Pakistan, and the Technical Assistance team during the initial months of ISM-II. The TA team will work to strengthen this collaboration so that the team can effectively advise and assist the Provincial Irrigation Departments and can efficiently expedite requests from the PIDs through the FCC to USAID. Key personnel in providing these services are the Provincial Advisors and the Chief of Party. These personnel will be supported by technical specialists in each component of project activity. Exhibit 2 displays the organization of technical assistance for ISM-II.

PROVINCIAL ADVISORS

The four Provincial Advisors (PAs) are responsible for overseeing and orchestrating project work in each province. In this capacity as project representative and advisor, each PA will hold frequent discussions with the Provincial Coordinator (PC) and the Provincial Secretary. The PA serves as both facilitator and as troubleshooter. He will identify constraints to project implementation and will offer assistance as needed. In the Punjab and the Sindh, the PA's role will be largely advisory while in the NWFP and Balochistan the PA/TA team may become involved in the actual preparation of work. In all provinces a high priority will be placed on development of annual O&M plans. Other activities may include advising on improving data collection, design procedures, and training programs.

Considerable support in the areas of workshop and equipment management, design, operation and maintenance, training, monitoring and evaluation, and computerization will be available to the provinces from the project technical staff. PAs and PCs will be fully advised of pending visits by technical staff, USAID personnel and other project participants. Frequently these visits will come at the PA's request. Whenever possible, visits will be scheduled to enable the PAs to participate as needed in the visitors' program.

An important function of the PA/TA team will be advising the PIDs on staffing required to successfully institutionalize newly established or upgraded departmental units. The number and qualifications of personnel needed in each province to staff the workshops, the design cell, the computer cell, the AMU, and other proposed units must be carefully evaluated in light of long-term PID priorities and funding projections. Two key considerations will be the PIDs' willingness to place these units within a general pattern of career development and their ability to pro-

- 25

ISM-II Technical Assistance Organization Chart

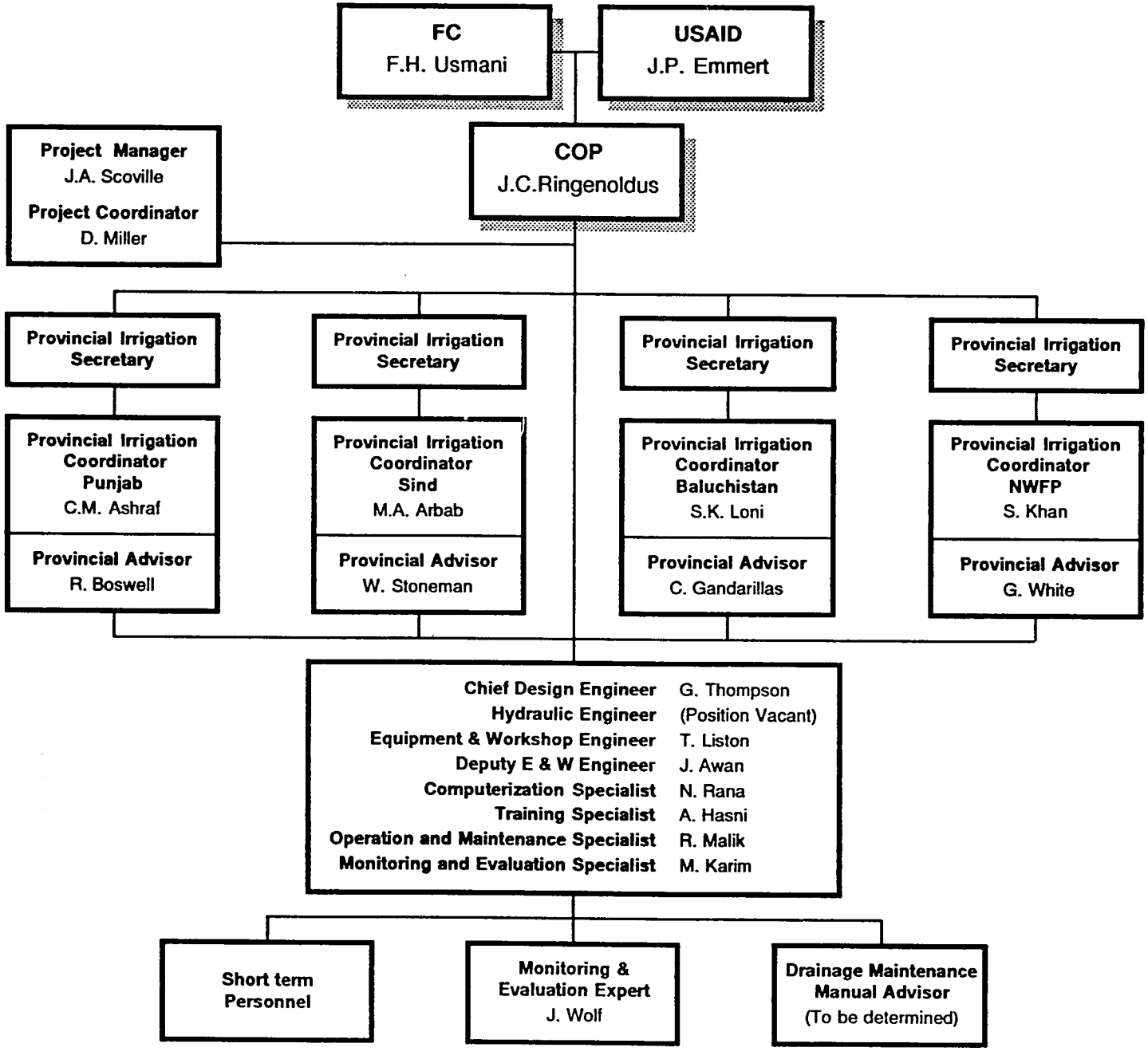

Exhibit 2

vide incentives to draw personnel from attractive field positions to office assignments. As realistic staffing programs emerge, the PAs will promote sanctioning of necessary positions.

Consultations between the PAs and PCs will be carried out through frequent, informal discussions. All parties have attempted to foster this communication by locating the PAs' offices near those of the PCs. The PAs will have less frequent contact with the Provincial Secretaries. The PAs will supplement these conversations with monthly memos to the PCs to document progress, indicate impediments and set forth how the PA proposes to carry out upcoming activities. A quarterly assessment report to the PCs and the COP will include a detailed presentation of progress as well as listing constraints to the attainment of project objectives and recommending approaches to overcome these problems. In addition to these regular communications, the PA may write occasional memos, such as trip reports to document observations for the PC. Copies of all monthly memos and quarterly reports will be forwarded to USAID.

Quarterly meetings will be held in each province among concerned project staff from the PID, USAID, and the TA team. These meetings will offer an opportunity to review progress, and, when necessary, to adjust the provincial plan of work.

CHIEF OF PARTY

With the advisory team located in five cities, communication, coordination and supervision among the TA team members, and between the TA team, USAID and the GOP will be essential. The COP will be the keystone of this organization. He will be informed of the activities of all members of the TA team and will represent the project in Islamabad before the FCC and USAID. One of the COP's roles is to serve as an advisor to the FCC. In this capacity, the COP will hold frequent discussions with the Federal Coordinator to exchange information on project activity. In addition, the COP will coordinate assistance from the TA team to implement such activities as the FCC computer cell. The COP will also participate in quarterly meetings of the Federal Review Board and will hold frequent, informal meetings with USAID project and contract personnel to discuss issues regarding project implementation and to resolve contractual questions that may arise.

The COP's principal activity will be to support other members of the TA team in performing their assignments. In this regard, the COP will assist, as required, in scheduling visits by Technical Advisors to the provinces. In addition, the COP will use his knowledge of individual PA's background and expertise to identify opportunities in which the skills and interests of one PA can contribute to meeting challenges faced by another. This form of support will not be allowed to interfere

with the primary duties of each PA to his province. The COP will call upon the organizational strengths of Harza/DAI in responding to requests for short term consultancies. On this and other matters of home office support, communications between Harza and the project team will generally be channeled through the COP.

Copies of all PA monthly memos and quarterly reports will be forwarded to the COP and to USAID. These documents, along with information gathered from conversations with project participants and from technical advisors' reports, will form the basis of the COP's quarterly reports to the FCC and USAID.

As well as attending quarterly meeting of the Federal Review Board, the COP will also be present at quarterly provincial review meetings and at meetings of the provincial Equipment Task Forces.

TECHNICAL ADVISORS

The technical advisors will perform the majority of the specialized technical work of the project team. They will serve as consultants to each of the PIDs by responding to specific requests and, more importantly, by helping the PIDs formulate and implement strategies for institutional development. The technical advisors will keep the PAs involved and informed so that the PAs and PCs will have a detailed understanding of overall project status. This understanding will guide the PAs in recommending further action. Technical advisors will provide monthly activity reports to the COP and will document activities for the use of PAs as required.

Chief Design Engineer

Based in Lahore, the Chief Design Engineer (CDE) will advise the PAs and PID staffs on design activities. In this role he will participate in the PIDs' review of their overall design approach and organization and will assist as needed in the development of programs for collection and review of design inputs. Several PIDs have expressed interest in upgrading and standardizing their procedures for design of bridges, falls, and other structures. The CDE will assist the PAs in this work. As an extension of this activity, the CDE will work with the PAs and the Computerization Specialist in installing design software within the Design Cells and in training staff in its use.

To monitor progress and identify shortcomings in rehabilitation design, the CDE will review designs of problematic systems submitted to NESPAK for review and approval. While not part of the formal approval process, this review will allow the CDE to evaluate the standard of designs prepared by the PIDs.

A project-supported Pakistani civil engineer is to be posted in each province. The duties of these engineers will vary from province to province but are likely to include support of the CDE and the design efforts of the PIDs.

Equipment and Workshop Specialist

The E&W Specialist will assist in such activities as mobilization of PID workshops, organization of workshop stores and overhaul of heavy machinery as well as consulting with the PAs and the PIDs on departmental planning. This planning role will include assessing training required to institute an effective program of equipment utilization and maintenance. It will also include advising on the development of equipment utilization plans and annual O&M plans that reflect PID needs and resources.

Other activities that may involve the E&W Specialist include planning equipment utilization during the Pilot Equipment Program and aiding TDY specialists develop programs for gate repair that can be efficiently carried out by PID facilities. The E&W Specialist will also work with the PAs and the Computerization Specialist to install, support, and operate the MAINSAVER equipment management program.

The E&W Specialist will participate in meetings of the provincial Equipment Task Forces. These meetings will be a forum for discussion of progress and obstacles of each province's Equipment Maintenance and Operation program. In particular, the E&W Specialist will advise the Task Forces on policy issues affecting workshop operation and equipment utilization.

The E&W Specialist will be assisted by a project-supported Pakistani mechanical engineer in each of the four provinces. These mechanical engineers will aid the PID staff in carrying out project works and will advise the PA's on their day-to-day activities. The E&W Specialist will work closely with a project-supported Pakistani deputy. As well as being a highly capable mechanical engineer, this deputy is intimately familiar with work accomplished during ISM-I and will maintain continuity between the two phases of the project.

Hydraulic Engineer

The post of project Hydraulic Engineer is the one expatriate position yet to be filled. We now view the Hydraulic Engineer as being an experienced research engineer stationed at the Punjab Hydraulic Institute. One responsibility of the position will be to advise on development of a research program to study the behavior of alluvial channels. Improved understanding of channel behavior would be applied to up-

29

grade channel design. In addition to work involving alluvial channels, the Hydraulic Engineer may advise the Hydraulic Institute in other areas such as instrumentation of physical models of hydraulic structures.

Along with his involvement in activities at the Hydraulic Institute, we anticipate that the hydraulic engineer will assist ACOP in the development of hydraulic monitoring capabilities within the PIDs.

Operations and Maintenance Specialist

The continued development of maintenance manuals tailored to the requirements of the Punjab, the Sindh and the NWFP is being headed by a Pakistani O&M Specialist. In addition, the O&M Specialist will work with the PA and the PID staff in Balochistan to design O&M materials suited to that province's conditions. Upon completion of these publications, the O&M Specialist will advise the PIDs on how best to use the manuals to improve O&M methods.

The O&M Specialist is also likely to be involved in the development of a manual covering maintenance of drainage systems. To carry out this activity, we anticipate that the O&M Specialist will team with an expatriate drainage engineer. Together they would perform the research, consultations and writing required to produce the manual. In instances in which there is clear and strong involvement and interest by the PIDs, the O&M specialist may also undertake the revision of other materials. When working on manual revisions the O&M Specialist will receive substantial assistance from the PID staff.

Monitoring and Evaluation Specialist

Monitoring and evaluation is a priority area for project activity. The project has on staff a Pakistani M&E Specialist who will advise the PIDs and the FCC on implementing this program. The M&E Specialist will work closely with USAID staff and with the PIDs and the FCC in developing and implementing a PLM program. The specialist will also consult with other members of the TA team in developing a streamlined PLM program to satisfy the monitoring requirements of the project team.

The long-term work of the M&E Specialist will be to advise and assist the PIDs and the FCC in assessing their own monitoring requirements and in formulating and implementing sustainable programs to meet these needs. As described in chapter II, we anticipate that the M&E Specialist will focus on the following four areas:

Strengthening monitoring capabilities within the PIDs;

- Developing Purpose Level Monitoring data for use by USAID;
- Providing progress monitoring for the project team; and
- Assisting the Hydraulic and Agroeconomic Impact Evaluation.

As well as working closely with members of the TA team and personnel from the PIDs, the FCC, and USAID, the M&E Specialist will be advised by an expatriate specialist serving on a TDY basis. This specialist will participate in the formulation of the various monitoring programs and will advise on the implementation of monitoring activities throughout the life of the project.

Training Specialist

Training activities for ISM-II will be coordinated by a Pakistani expert in engineering training. The Training Specialist will advise the PIDs on assessment of requirements for in-country and overseas training and on development of training plans based on this assessment. The Training Specialist will be supported by other members of the TA team in this activity. As mechanisms for delivering training become better defined, the Training Specialist will coordinate with USAID staff to determine how best to implement recommended training programs.

The Training Specialist will also advise the PIDs on institutionalizing training assessment and planning within each department. In particular, the Training Specialist will assist the PIDs in developing the resources of the Administrative Management Units to serve these functions.

Computerization Specialist

The USAID Senior Systems Analyst will serve as the project Computerization Specialist. As the key advisor in implementation of the computerization program, the Computerization Specialist will advise the PIDs in building an institutionalized program that will allow the PIDs to systematically expand their use of computers. The specialist will consult with the PIDs and the PAs on implementing a systematic program of training, maintenance, and software acquisition as well as on expanding usage of and access to computers.

As part of his activities, the Computerization Specialist will play a central role in continuing to assist the PIDs assess how computers may facilitate departmental operations by simplifying the production and distribution of budgets and other management information. Members of the TA team will consult with the specialist on installation and use of software such as MAINSAVER and on the development or procurement of software for design or other applications.

The Computerization Specialist is now supported by USAID funded systems analysts in the Punjab, the Sindh and the NWFP and by a PID sanctioned analyst in Balochistan. We expect that a USAID supported analyst will soon be available in Balochistan and that the Punjab, Sindh and NWFP PIDs will appoint sanctioned full-time systems analysts.

V.

SUMMARY

SUMMARY

The Irrigation Systems Management Project-II is designed to improve the lives of Pakistan's farming community and the productivity of the nation's agriculture by strengthening the operation and maintenance of the irrigation systems on which farmers rely. ISM-II addresses these improvements by focusing on the development of the institutions responsible for irrigation system management, the four Provincial Irrigation Departments and the Federal Coordination Cell.

ISM-II activities are designed to be responsive to conditions in each of the provinces and to recognize the long-range goals and the particular resources and requirements of the PIDs. Stationed in the provincial capitals, the four Provincial Advisors will work closely with the Provincial Coordinators and with other members of the PID staff to tailor the ISM program to best fit the needs of each province. The objective of this approach is to concentrate donor resources on priorities agreed upon by the PIDs, the TA team and USAID. The Chief of Party, the Federal Coordinator and the USAID staff will be closely advised of activities within each of the provinces and will guide and coordinate project work.

The six general components of project activity are

- Rehabilitation/Civil Works,
- Operation and Maintenance,
- Equipment Management and Utilization,
- Monitoring and Evaluation,
- Training, and
- Computerization.

Resident technical advisors to the project include members of both the Harza/DAI team and of the USAID staff. These advisors will provide technical support to the PIDs in identifying and implementing project activities within each of the components. The resident staff will be assisted on specific assignments by experts working on a TDY basis.

Many of the activities described in the plan of work build upon the considerable resources and experience that already exist within the PIDs by strengthening the organizations' ability to manage, monitor and utilize these resources. In addition, a number of activities, particularly in the areas of monitoring and evaluation, training, and computerization, expand the scope of the PIDs' capabilities by introducing functions that complement those already well established. The underlying theme in all ISM-II activities is to identify and implement programs that will develop the resources and capabilities of the PIDs and the FCC and will foster institutional growth continuing well beyond the life of the project.

MR. MILLER

HARZA ENGINEERING CO. /DEVELOPMENT ALTERNATIVES INC.

IRRIGATION SYSTEMS MANAGEMENT PROJECT - PHASE II

WORK PLAN
(TRAINING)

1990 - 1993

75

IRRIGATION SYSTEMS MANAGEMENT PROJECT PHASE - II

TRAINING WORK PLAN
1990 - 1993

1. INTRODUCTION

1.1 The plan outlines all the training activities for the four Provincial Irrigation Departments and the Federal Cell over project duration. Although at present, the role of HARZA/DAI team in training has not been fully defined, yet enough guide lines are available in the Project Paper and HARZA/DAI contract agreement with USAID.

1.2 The plan includes all actions for which HARZA/DAI will be supporting Provincial Irrigation Departments and Federal Cell in implementing and completion of the training tasks.

1.3 The plan is subject to modifications, once the HARZA/DAI role is clearly defined as a result of Project Implementation Workshop and by conferring with USAID, Federal Cell and PID officials.

2. TRAINING ACTIVITIES

2.1 PREPARATION OF IN-COUNTRY & OVERSEAS TRAINING FOUR YEAR (1990-1993) PLAN FOR THE PIDs.

The PIDs/Federal Cell will be assisted for preparation of four year(1990-1993) In-Country and Overseas Training Plan. The Training Plan is to be based on **Training Needs Assessment(TNA)** for each PID. The training needs for each PID will be assessed in consultation with Provincial Advisor, Provincial Coordinator and Administrative Management Unit Staff. For this purpose all training imparted in the past will be reviewed, service pattern/job assignments of the individuals will be examined from the existing records and fields of study/Course topics best suited to PID's need will be selected. The plan will be prepared strictly in accordance with the PC-1/Project Paper provisions and provincial share as agreed(List of PC-1/Project paper provisions, outlining provincial share is attached for reference).

2.2 ASSISTANCE FOR IMPLEMENTATION OF TRAINING PLAN.

The four irrigation departments and the Federal Cell will be assisted by Training Expert for implementation of the approved Training Plan over project duration. The likely responsibilities of the Training Expert will be:

2.2.1 Providing clear and effective lines of communication between PIDs, Federal Cell, HARZA/DAI team, USAID and other concerned agencies.

2.2.2 Assist Federal Cell in processing of training requests/requirements, management/implementation of training for PID, monitoring and maintaining the training records.

2.2.3 Facilitate holding of Training Advisory Committee meetings for each PID and Task Force meetings of the Punjab Engineering Academy and assist in completion of the actions as brought out in the meetings.

2.2.4 Assist PIDs in formulation of the detailed In-Country Training Plan for each year and setting up of schedules.

2.2.5 Assist PIDs in writing of "Requests for Training" (RFTs) for each course covering necessary information pertaining to course including budgets and submission/processing with Federal Cell and USAID.

2.2.6 Assist PIDs in selection of subcontractors for conducting the courses.

2.2.7 Assist PIDs and subcontractors in developing a detailed outline/curriculum for each course including its duration.

2.2.8 Assist PIDs/Federal Cell for assessing/allocation of budgets, logistics and equipment required for each course.

2.2.9 Assist PIDs in guiding and reviewing the work of contractors and faculties responsible for developing and teaching the courses.

2.2.10 Assist PIDs in evaluation of the courses after they have been taught and recommend revisions/improvements if necessary.

2.2.11 Assist PIDs, Federal Cell and USAID in monitoring and compiling of training records.

2.2.12 Assist PIDs, Federal Cell and USAID in processing candidates for Overseas training.

2.3 ASSISTANCE TO ADMINISTRATIVE MANAGEMENT UNITS (AMU)

The Administrative Management Units were established in each PID during ISM Phase-1. These units are meant for taking on following functions:

2.3.1 Develop Annual Training Plans and budgets.

2.3.2 Develop outlines/curriculum for In-country courses.

2.3.3 Overseeing all training provided for the department.

2.3.4 Undertaking skill assessment and training needs studies.

2.3.5 Develop training costs Yard sticks.

2.3.6 Collect and computerize training and personnel data on all PID employees.

2.3.7 Selecting and processing candidates for overseas training.

2.3.8 Following up on employees who have completed training to determine utilization, effectiveness of training and need for additional training.

The Provincial Irrigation Departments will be assisted in making these units fully functional. Federal Cell will also be provided assistance in setting up of a Training Management System.

2.4 IDENTIFICATION OF TRAINING CAPABILITIES

During ISM phase-I number of Public and Private sector training establishments were assessed for their capability of training PID's personnel. Some of these were selected and used for imparting training to PIDs. Some of the local institutions which participated in training were the Punjab Engineering Academy, Universities of Engineering & Technology at Lahore, Peshawer and Jamshoro, Agricultural Universities of Faisalabad and Tando Jam and National Logistic Cells Centers at Gujranwala and Karachi. Seven of the private firms were given Indefinite Quantity Contracts for conduct of training. PIDs and Federal Cell will be assisted for identification of more number of private firms and also approaching institutions like WAPDA Academy, National Institute of Public Administration, Pakistan Institute of Management and Pakistan Administrative College for examining their role for providing training to Irrigation Departments.

2.5 SUPPORT FOR PID TRAINING ACADEMIES

2.5.1 **SIND** : Sind PID will be assisted in implementation of the plans for setting up of a new Engineering Academy. How?

2.5.2 **NWFP/BALUCHISTAN** : NWFP/BALUCHISTAN PIDs will be assisted in drafting of development plan and it's implementation for a Training Center at Peshawer for the professional training requirements of both the NWFP and BALUCHISTAN PID. Sustainability

2.5.3 **PUNJAB** : Punjab Engineering Academy will be provided continued assistance over the project duration for it's development programs and implementation of physical expansion plan.

HARZA ENGINEERING CO. /DEVELOPMENT ALTERNATIVES INC.
IRRIGATION SYSTEM MANAGEMENT PROJECT - II

TRAINING WORK PLAN - 1990 - 93

Task No	TASK	1990 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1991	1992	199
1.	Drafting of four year In-Country & Overseas Training Plan for the four PIDs.													Contnu	Contnu	Con
2.	Assist Provincial Irrigation Departments in formulation of detailed In-Country Training Plan for each year and setting up of schedules.													Contnu	Contnu	Con
3.	Assist Provincial Irrigation Departments and Federal Cell in implementation of the four year Training Plan.													Contnu	Contnu	Co
4.	Assist Provincial Irrigation Departments for holding of Training Advisory Committee meetings and Punjab Engineering Academy for Task Force meetings.													Contnu	Contnu	Co
5.	Assist Provincial Irrigation Departments in making the Administrative Management Units fully functional.													Contnu	Contnu	C
6.	Assist Federal Cell and Provincial Irrigation Departments in assessing training capabilities of Public/private sector organizations for imparting training to PIDs.													Contnu	Contnu	
7.	Assist PIDs in establishment of Training Academies at Peshawer and Jamshoro and extension of Punjab Engineering Academy.															

ISM - II TRAINING

PROVINCIAL SHARES

IN COUNTRY TRAINING

Sr.No.	Type of Training	PC-1 Provision	Punjab 50 %	Sind 30 %	NWFP 10 %	Baluchistan 10 %
1.	Design & Mathematical Modeling Course (16 months)	20	10	6	2	2
2.	General Engineering Courses (3 Months)	300	-	-	150	150
3.	Equipment Management (1 Month).	150	75	45	15	15
4.	Mid Level Management (2 Weeks)	125	62	37	13	13
5.	Training Modules (2 weeks)	730/800	365	245	60	60

OVERSEAS TRAINING

1.	Ph.D (42 Months)	3	1	1	1	-
2.	M.S.Degree(24 Months)	10	5	3	1	1
3.	Non Degree(12 Months)	10	5	3	1	1
4.	Short Term Technical Courses(1 Month)	250	125	75	25	25
5.	Short Term Study Tours(1 Month)	50	25	15	5	5

JOB DESCRIPTION

(Mohammad Adil Hasni)

Title of Position : Training Expert

Work Station : Islamabad

Supervisor : Chief of Party (Harza Engineering)

Responsibilities : As a professional civil engineer, the incumbent is charged with the responsibility of advising/ assisting the Provincial Irrigation Departments in the development and institutionalization of an effective process for implementation of the ISM - II training plans as approved by GOP/USAID. The scope of work will cover all aspects of overseas and in-country training related to Federal Cell and the four Provincial Irrigation Departments.

Duties :

1. Develop an overall comprehensive draft training plan, in line with the training provisions in Project Paper and PC-I, for USAID and GOP review covering on the job, in-country and overseas training.

2. Survey and evaluate the management and technical training needs of PIDs staff of design offices, equipment management units, computer rooms, mechanical workshops and supervisory, operational and maintenance staff for construction/O&M equipment(Workshops & equipment related training needs to be assessed in consultation with Harza workshop & equipment engineers).Organize, conduct and monitor the above training programs.

3. Assist PIDs in identification and selection of suitable candidates on the PID staff who can most benefit from ISM training.

4. Coordinate scheduling of courses and selection of participants for overseas training with PID executives, ARD, HRD and AED.

5. Provide needed technical assistance to FCC for overall management of in-country courses.

6. Provide needed technical assistance to Administrative Management Units of the four PIDs for their institutionalization within the PIDs and for scheduling, monitoring and evaluating ISM training courses undertaken by local institutes and consulting firms.

7. Process and handle prequalification, RFPs, tendering for IQCs and small purchases related to training with particular reference to Training Modules. Organization, scheduling, monitoring and evaluation of various courses.

8. Survey/examine the potential and prospective role of governmental and quasi-governmental training institutions for providing training to PIDs. Prepare and process requests for waivers for utilization of their services.

9. Provide needed technical assistance to support the activities of Punjab Engineering Academy and implementation plans for the Sind and NWFP/Baluchistan Engineering Academies.

10. To have effective liaison with Provincial Irrigation Departments, Federal Coordination Cell, USAID and other related agencies for matters pertaining to training activities.

11. Carry out any additional assignments as assigned by the Chief of Party and Provincial Advisors.