

Colorado State University  
 Water Management Research Project  
 in Pakistan.

CSU FIELD PARTY QUARTERLY REPORT  
 Contract AID/ta-c-1411

October 1 - December 31, 1978.

STAFF MOVEMENTS

Dr. Sidney Bowers, Soil Scientist resigned from the CSU staff effective November 19, 1978. Dr. Bowers accepted a direct hire appointment with USAID and is presently still located in Lahore.

The field party presently consists of the following:

John Reuss	Chief of Party
Helmer Holje	Economist
Norman Illsley	Agric. Engineer (Equipment)
Dwayne Konrad	Agric. Engineer (Irrigation)
Douglas Merrey	Social Anthropologist (Faisalabad)
Dwayne Westfall	Agronomist

The resignation of Dr. Bowers leaves us one staff member short. While recruitment efforts have been under way the replacement of Dr. Bowers is still uncertain due to the fact that the time remaining on the contract is less than the length of a normal tour of duty.

Dr. W. D. Kemper departed Pakistan in early October after completing his survey of water management problems in Baluchistan. There were no other TDY staff in country during the quarter.

Mr. Abdul Ghaffar joined our local staff as of December 7, 1978. Present local staff includes:

Technical Staff

Naveed Ahmed	Programmer Statistician
Mohammad Yasin	Agriculture Engineer
Abdul Khaliq	Agriculture Engineer
Mohammad Azeem Cheema	Agriculture Engineer
Abdul Ghaffar	Soil Scientist

Administrative Staff

Sabir Hussain	Office Manager
Abdul Rehman	Secretary
Mrs. Mary Rahm	Secretary (Part-time)

MONA RECLAMATION EXPERIMENTAL PROJECT (Work Plan I)

The proposal for local currency funding has been approved by AID/W. The Mission is presently drafting the Project Agreement. Meanwhile work is progressing normally in the field.

Survey's have been completed for the skimming well site. Virtually any site selected for such a program will have some deficiencies. In this case we have been concerned that a WAPDA drainage tubewell installed about one half mile away to pump saline ground water and discharge it to a drain might interfere with the experiment. On evaluation of the information collected by these survey's we have decided that detrimental effects are unlikely. If the TW has any effect at all it should lower the water table in the general area. This would be beneficial as the water table is somewhat higher than we would consider desirable in part of the experimental area. The skimming wells will be installed by local contractors. Tenders are presently being prepared for the major well installation.

The "jet junctions" described in the previous report continue to draw favourable comment from farmers and technical visitors alike. A second installation is complete and operating successfully. This unit uses local materials, i.e. bricks and mortar, and a locally fabricated cast concrete "jet". Total cost appears to be less than Rs.500 as compared to over Rs.3,000 for the initial installation. Some visitors had expressed the opinion that the junction would increase the load on the pump motor and possibly decrease the pump discharge. The new design eliminates the direct connection between the device and the tubewell discharge pipe, thus effectively demonstrating that no discharge reduction or additional loading can occur.

Work is progressing satisfactorily on the designs for the watercourse improvements scheduled for this year. A combined irrigation - surface drainage system is planned for one of these watercourses. The major difficulty at the time is still the non-availability of cement through regular WAPDA procurement channels. New regulations centralize all cement purchases in WAPDA and forbid local purchases. As a result planned lining will have to be contracted. Tenders are being prepared.

The economics section have prepared three reports that are now in the final publication process.

1. Economic Analysis of Different Watercourse Improvements.
2. Marketing problems of citrus growers in the project area.
3. The impact of Mona project on agricultural economy (1976-77).

Dr. Holje has assisted in the preparation of these reports. He is also helping with a study involving use of village ponds and small tubewells to provide greater flexibility to the Warabundi system.

Herbicide experiments on wheat have been initiated and the irrigation advisory is being tested. In this program irrigation water requirements for various crops are calculated using historical weather data and a computerized model. These are then used as guidelines for advising farmers on crop irrigation requirements.

#### TRAINING PROGRAM FOR WATER MANAGEMENT ADVISORS (II-a)

This is the training program for water management advisors conducted by University of Agriculture Faisalabad to train extension staff for the On-Farm Water Management Project field teams.

No training session was scheduled during this quarter but there have been a number of activities related to the program. Dr. Westfall and Mr. Merrey interviewed all graduates of the first session (1977). Information derived from these interviews will be used to improve the next session. Analysis and interpretation is under way and a report will be prepared.

The next session is scheduled to begin February 21. Additional training materials are being prepared by both field party and campus staff.

The most significant development regarding the training program is the preparation of plans to incorporate this as part of the Water Management For Rural Development Research Project being developed at UAF. These plans include providing seats for instructors from the Agricultural Training Institutes. These instructors would then incorporate Water Management training into their program of training field assistants. A second abbreviated 8 week program is being planned for training Agricultural Extension Officers. The Planning and Development Department of the Punjab has approved incorporation of the training component into the proposal.

#### WATER USERS ASSOCIATION RESEARCH (II-b)

Data collection on phase I of this program has been completed. Ten watercourses have been thoroughly studied. An interim report on the results from the first four watercourses has been prepared by Mr. Mirza and Mr. Merrey and has been distributed.

An initial evaluation of the data from the ten watercourses has been made but final interpretation is not yet complete. Staff is now undertaking the detailed planning for phase II, under which several types of water users associations will be organized and tested. Mr. Merrey has been assisting Mission and ARC in plans for similar studies in the other Provinces.

A Sociologist has been recruited for our PAS staff. He will be stationed at Faisalabad and his primary responsibility will be to help Mr. Merrey with this and related programs.

After the long delays in funding and some start up problems it is encouraging to see this program making satisfactory progress.

#### EVALUATION AND MONITORING (II-c)

This program is still awaiting approval. It has been incorporated into a proposal by the Federal Ministry of Agriculture. If the proposal is approved the evaluation and monitoring component will be conducted by WAPDA much as originally planned. We are still in the "it should be taken up in the meeting next month stage".

#### TRAINING AND RESEARCH CENTER (II-d)

The major activity at the center involving CSU this quarter has been the design and installation of a weighing lysimeter. We have felt for some time that a major deficiency of ongoing studies to determine crop water use in Pakistan is the lack of accurate information on water use by a closed cover reference crop. Dr. Bowers designed a simple low cost unit that was fabricated by Mr. Ken Olds of the Christian Technical Training Center in Gujranwala. Mr. Illsley and OFWM staff have been helping with the installation. Major installation work is completed and the instrumentation is presently being installed. It is hoped that this unit will serve as a model for reference measurements at various sites concerned with research on irrigation water requirements.

#### WATER MANAGEMENT RESEARCH FOR RURAL DEVELOPMENT UAF (III)

This proposal has again been revised and submitted to the Provincial Government for consideration. This report is somewhat belated so we can confirm that the program was approved by the Provincial Development Working Party. Fortunately an initial allotment of Rs.700,000 was also provided so that field work can be started in time for the coming Kharif season. Unfortunately, there are indications that the present coordinator will not continue in that capacity. We hope this does not result in undue disruption.

#### RESEARCH INSTITUTIONS (IV)

Prior to Dr. Bowers leaving the field party he traveled to Baluchistan to assist in the planning process for a small research program in that Province. The PC-1 (Planning Document) is being prepared by province staff. Present indications are that this PC-1 will be submitted to the Agricultural Research Council for funding.

The program for improving water management research capability by means of improved water delivery systems at the research institutions was not active during the quarter. This was not budgeted by ARC for the fiscal year 1978-79 so we had assumed there could be no funding prior to July 1, 1979. We are now hopeful that internal re-budgeting in ARC will allow an earlier start.

REGIONAL ANALYSIS (V)

Activity in this sector has been limited to Campus. Dr. Walker informs us that he has finished the presently planned modules of the watercourse command simulation model. The computer tape for this model will be brought by Dr. Sparling in late January. Dr. Sparling has been doing work with the Linear Programming Model to establish water values associated with cropping systems and irrigation water supply. We expect him in Pakistan on TDY during the next quarter.

INTERNATIONAL TECHNICAL ASSISTANCE (VII)

Several significant activities should be mentioned. Mr. Konrad helped arrange for WAPDA Master Planning and Survey staff to make initial measurements on 15 watercourses in Northwest Frontier Province. These results demonstrate clearly that high losses are common in NWFP. They also seem to support the hypothesis that many watercourses in NWFP do deliver water more efficiently than those on the Indus Plain. The net result seems to be that perhaps more stringent selection procedures are in order in that Province to assure that farmers will be enthusiastic about the results of improvement programs.

The CSU field party collected abstracts for all reports or papers we could locate that have been published by the project. The result was 154 abstracts. We expect this will be very useful both internally and among cooperating agencies or institutions. Probably some were missed so we hope to provide a later edition with the gaps filled and more recent materials after a few months.

At the request of the AID Mission and the Barani Project Mr. Norman Illsley spent considerable time during the quarter working on a very simple bullock drawn peanut harvester. Results are encouraging as in initial tests the equipment worked substantially better than some other models tested.

February 25, 1979.