

PROJECT APPRAISAL REPORT (PAR)

93101103
 PD-AA-674
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1. PROJECT NO. 931-0116	2. PAR FOR PERIOD: June 1, 1975 TO Dec. 30, 76	3. COUNTRY	4. PAR SERIAL NO. DI
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5. PROJECT TITLE
 OPTIMUM UTILIZATION OF WATER FOR AGRICULTURE - ON-FARM WATER MANAGEMENT
 (Efficient Use of Water - Utah) Sp

6. PROJECT DURATION: Began FY _____ Ends FY _____	7. DATE LATEST PROP	8. DATE LATEST PIP	9. DATE PRIOR PAR
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10. U.S. FUNDING	a. Cumulative Obligation Thru Prior FY: \$ 1,050,000	b. Current FY Estimated Budget: \$ -0-	c. Estimated Budget to completion After Current FY: \$ -0-
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME UTAH STATE UNIVERSITY	b. CONTRACT, PASA OR VOL. AG. NO. csd-2459
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I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
	X		No actions required. Will terminate on schedule.	

D. REPLANNING REQUIRES
 REVISED OR NEW: PROP PIP PRO AG PIO/T PIO/C PIC/P

E. DATE OF MISSION REVIEW: _____

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE Gilbert L. Corey, TA/AGR/SWM <i>GLC</i> 12/12/76	MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE Leon F. Hesser, Director, TA/AGR <i>LPH</i> 12/14/76
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II. NARRATIVE

A. Review Procedure:

A review was conducted in September by the Project Manager, Gilbert L. Corey, Dillard H. Gates, TA/AGR/SWM, Thomas Eliot, TA/PPU and Bruce Anderson, Director CID. This project was reviewed along with the 211(d) grants of Colorado State University and University of Arizona since the three form a water chain package within the Consortium for International Development (CID).

B. Summary of Accomplishments:

The University has maintained a center of competence in the general field of on-farm water management. A library of important documents has been maintained. The University Librarian is actively working with representatives of the other CID universities, on a program to integrate the activities and where possible establish an information exchange system as well as a uniform and combined retrieval system. Utah State has participated in CID-sponsored workshops to develop a coordinated information data system to be called CIDNET.

Two new courses of instruction have been developed under the grant. These courses, Trickle Irrigation and Irrigation Project Planning and Evaluation have been taught once. Training materials for a short course on practical aspects of on-farm water management have been collected.

Emphasis has been placed on preparation of state-of-the-art reports and practical circulars and other instructional material suitable for training technicians in LDCs. Utah State has provided the initiative in developing reports in four areas.

An attempt was made to determine the state-of-the-art of water movement for intercropping systems in various parts of the world and particularly where intercropping practices are being encouraged. This was done by searching the literature, attending a symposium on multiple cropping sponsored by the American Society of Agronomy, August 24-30, 1975, at Knoxville, Tennessee, and by visiting the IRRI Station in Manila and the Asian Vegetable Research and Development Center in Taiwan. Utah State was unable to find published or unpublished information on water management of multiple cropping systems. It seems that where various cropping combinations are evaluated, the growers either rely on the rainfall for the needed moisture or where water is available they irrigate "as needed." According to Utah State this popular subject needs to be researched in order to have information to be collected into a state-of-the-art publication.

An analytical review of the literature on water management of heavy soils has essentially been completed. The present knowledge is

described in the report along with some suggestions for use of the information. The review as now completed, can serve as a reference for anyone involved in the solution of water management problems of heavy soils, and for instruction in methods of management.

A committee has been appointed and is working toward the development of a report on methods of irrigation. It has found that this is a very broad topic which will require more resources than budgeted for this program. The members have prepared a proposal indicating the nature of the problem and scope, a work plan for completion of the study, a budget, and an indication as to the personnel to be responsible for the various tasks. An attempt was made to prepare a popular circular on trickle irrigation for the small peasant farmer, but the task was discontinued because of unsuitable low cost equipment. In an effort to provide information on sprinkler irrigation for the small farmer, efforts turned to development of low energy requirement low pressure systems. A draft of a report on very low pressure sprinkler irrigation has been completed.

There has been a continued effort to develop a strategy for transferring technology to the developing countries. The following four papers were presented during the year in order to explain the program of information transfer.

"A strategy for Soybean Production Technology Transfer, L. N. Leininger and H. B. Peterson. World Soybean Research Conference, August 3-8, 1975, Urbana, Illinois."

"An Agricultural Technology Transfer System, Jack Keller and L. N. Leininger. Specialty Conference. Irrigation and Drainage Division, American Society of Civil Engineers. August 13-15, 1975, Logan, Utah."

"A Strategy for Corn Production Technology Transfer. L. N. Leininger and H. B. Peterson. International Maize Symposium. September 8-12, 1975. Urbana, Illinois."

"Predicting Soybean Growth as Affected by Water. Hill, R. W., K. H. Ryan, and R. H. Shaw. World Soybean Research Conference. August 3-8, 1975, Urbana, Illinois."

Utah State University has strengthened several linkages. The principal domestic linkages has been with the CID universities and the University of Puerto Rico for the tropical soil consortium. Much closer relations have been developed with FAO. The grant directors from Colorado State and Utah State conferred with the FAO staff in Rome in September. There is continuing exchange of publications and staff members from FAO. A workshop at the West-West Center and the Water Management Training Center, in the Philippines was attended. The Asian Vegetable Research Center in Taiwan and IRRI in the Philippines

was visited. Working relations have been developed with CIAT, CIMMYT, IRRI, World Bank and IADB. Many contacts were also made when our staff participated in the World Soybean Research Conference and the International Maize Symposium.

C. Utilization and Impact

As a direct result of the 211(d) program, the competence at Utah State University in the field of water management has been greatly improved. The number of professionals has been increased and their individual competence also improved. It has been realized that the support from the grant program cannot be continued indefinitely. In order to maintain this competence and to protect the investment made by AID and the University, they are exploring ways in which the staff and program can be maintained.

A proposal has been submitted to Office of Exploratory Research and Problem Assessment of the National Science Foundation. This proposed research on "Development and Utilization of a Food Production Technology Transfer System." Negotiation has been carried out with the Inter-American Development Bank. It is interested in a joint venture entitled, "Strategies for Agricultural Technology Transfer in Latin America." As a portion of the World Food and Nutrition Study by the National Academy of Science, the Utah project was proposed to "develop and organize in a retrievable form the data which relates the phenological processes and production of important food crop cultivars to specific weather-soil-water environments." If this program is implemented, utilization would be directed to making technology available to the people in developing countries.

At the present time more requests for professional assistance are coming from CID and other agencies and companies than Utah State can supply. There seems to be a great need for the competence developed through the Grant and there is also funds available to procure the services. Although the competence in the area of water management has been greatly increased, there remains a great need for further increase in number of qualified scientists.

During the year USU provided nine (9) staff members for five short term teams that went to LDCs sponsored through contract with the University. It also provided 13 staff members for seven teams organized by CID. As an example of a team activity, USU is providing a team for Honduras which will require 46 man weeks during the period of January 30, 1976 and February 28, 1977. Five staff members, all speaking Spanish, have participated in three trips to the country. The team is to render technical advice and assistance to the Ministry of Natural Resources of the Government of Honduras in developing a nationwide plan for improving the utilization and management of farm resources in order to improve the well being of small farmers. Among other things, the team will estimate the needs for and cost of irrigation systems to supplement rainfall and improve yields, by crop and by region.

A training workshop was held for a CID team going to the West African country of Niger. Information and techniques developed under the grant project served as a basis for the training. Representative of the University of Puerto Rico also participated in a workshop on the utilization of the transfer technology in their LDC research. Dr. Keller is scheduled to go to Puerto Rico and Brazil as a follow-up of this activity.

During the year approximately 100 requests for publications were received from individuals in 20 countries and 17 states of the U.S. Publications on irrigation requirements, precipitation dependability and moisture availability in Latin American countries are most frequently requested.

Special supervision has been provided to graduate students from LDCs. The majority of the graduate students in the Department of Agricultural and Irrigation Engineering are from developing countries. The short course taught in Spanish for the engineers from Guatemala was completed and the course was concluded with a field trip to Idaho, and California irrigation projects. As a major portion of the activity to expand the knowledge base, a photo copy ready manuscript of "Irrigation System Evaluation and Improvement" is ready for reproduction. The information contained in this manuscript is very much in demand and requests have been received to translate the manuscript into Spanish.

D. Recommendations:

Utah State University through this grant and AID contracts has developed a pool of talent in on-farm water management. This talent bank now has considerable experience in LDC agriculture and has been utilized heavily by AID.

The University has an IQC contract with AID and staff members are also available through AID's relationship with the Consortium for International Development (CID).

The outlook for continued utilization is excellent since many of AID's proposed projects involve on-farm water management. It is recommended that this 211(d) grant terminate on schedule on 30 June 1977 so that the University can direct its efforts and programs toward utilization and technology transfer.