WATER MANAGEMENT SYNTHESIS II

CID/AID-DAN-4127-C-00-2086-00

3RD QUARTERLY REPORT

April 1, 1985 to June 30, 1985

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April 1, 1985 to June 30, 1985

Submitted by:
The Consortium for
International Development

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Quarterly Report Covering Period January 1, 1985 - March 31, 1985

WATER MANAGEMENT SYNTHESIS II PROJECT

QUARTERLY REPORT COVERING PERIOD APRIL 1, 1985 to JUNE 30, 1985

I. INTRODUCTION

A. General

This report summarizes the activities of the Water Management Synthesis II Project for the second quarter of FY85, covering the period April 1, 1985 through June 30, 1985. This report includes information relative to current activities, roster summary and finished activities as well as university highlights.

The central purpose of WMS II is to develop and disseminate (in AID-assisted countries) more efficient water management technologies and practices to increase agricultural production and rural equity. The WMS II program is a joint project of S&T/AGR, S&T/MD, and the Asia Bureau of AID. These offices contribute funds and participate in the development, approval, and execution of project activities. The Consortium for International Development (CID) is the Prime Contractor for WMS II. Cornell University, Utah State University, and Colorado State University, through the Consortium for International Development, share the lead university responsibilities for the Water Management Synthesis II Project.

B. A Summary of Significant Project Accomplishments

By the end of this reporting period, (June 30, 1985) we had completed the visits by an AID mid-term Evaluation Team, made further progress on developing a Workplan for FY86-FY87, held numerous planning and discussion on work for the Africa Bureau and continued a busy schedule involving the regular on-going work of WMS II.

1. Considerable effort went into preparing for the visits of the mid-term Evaluation Team. In addition to preparing for the Team visits to each University and to CID, WMS II had the opportunity to review what we have done and to consider what we need to do during the remainder of the project. The questions asked by the Team enhanced the process of learning by reviewing the past and planning for the future. We believe this process will result in a more effective project, and the effectiveness should be further enhanced as we respond to the final mid-term evaluation report.

2. During the latter part of this quarter, financial summaries were developed in preparation for the 8-9 July, 1985 CPMT meeting. The purpose of this CPMT meeting was to review the University proposed activities for the FY86-FY87 Workplan. Since the FY86-FY87 Workplan is the workplan for the remainder of this project, we must know the financial resources which will be available for the last two fiscal years of the project. In late July, the financial summaries were updated. Both the version prepared for the CPMT meeting and the 31 July summary are presented on pages 4 and 5. It was agreed that Alternative A (no-ceiling increase) would be the primary basis for planning the FY86-FY-87 Workplan, and this would permit each University to fund SS and TT/TR at the level of $208,000 per year. In late July, an updated financial analysis (presented in Table 4, page 5, from a 31 July memo, McConnen to CPMT) resulted in slightly modified figures. The July CPMT budget control figures are represented by the Target Workplan column in Table 4. The principal conclusion reached by this analysis is that actual expenditure for FY85 activities would have to be $124,001 less than the Unexpended Budget for FY85 activities if we were to be able to plan on the basis of the Target Workplan. While the details must still be worked out, the level of funding for the Target Workplan seems to be a realistic basis for planning the FY86-FY87 Workplan.

3. In late June, 1985, a draft of a memo from McConnen to Fleuret and Headrick was written for discussion at the July, 1985 CPMT meeting. The purpose of writing a draft memo was to use it as a basis for both developing a consensus of the decisions reached so far and to develop plans for the future. As a result of comments received, a revision of that memo will be available for the August, 1985 CPMT meeting.

4. The most significant accomplishment of this quarter has been the continuation of the successful efforts by the lead universities to place effective teams in the field. The following attest to a continuation of good work done by WMS II personnel in developing countries:

a. An 18 month effort to develop a Command Water Management Training Program (CSU) was successfully completed with endorsement of the plan by the Government of Pakistan and AID (Islamabad).

b. The India Irrigation Sector Strategy Review was completed and will be distributed during FY85-IV. This represents the completion of an important effort by WMS II (USU) which may well have a significant impact on the development of irrigation in India.

c. The El Salvador P.P. has completed a draft of the P.P. and the Mission appears to be pleased with the result.

d. Three activities were begun in Africa, Swaziland, Chad and Mauritania, and all are likely to produce good work which will bode well for our expanded work in Africa.

e. The presentation of the results of the Africa Survey at an Africa Bureau meeting were well received. Unfortunately, the paper was not finalized during FY85-III.

f. Two WMS II sponsored papers on recurrent costs were presented at the Las Banos ADO Conference in April. A version of the Cornell Rehab Game was also presented at that Conference.

g. The long term work continued in India, Peru and Sri Lanka. The India effort was completed and some changes were made in the staffing of the Peru activity.

h. The CSU Special Study on interfacing reached a milestone as the clearance by the Mission and GOSL finally permitted staff to be placed in the field in Sri Lanka.

SOURCE:
6 August 1985 memo
to CPMT from McConnen

WMS II BUDGET ALTERNATIVES - FY86 & FY87

	A No Ceiling Increase $	B Ceiling Increased To $21.4 mil.	C Ceiling Increased To $21.04 mil./w Increase Admin.
FY86-FY87 Allocation	6,400,000	8,200,000	8,200,000
AID Initiated (Total)	2,200,000	2,700,000	2,700,000
Buy-ins	1,400,000	1,900,000	1 700,000
Africa Bureau	800,000	800,000	800,000
Present Core Expenditures	4,200,000	5,500,000	5,500,000
Administration	1,700,000	1,700,000	2,000,000
Un.Core Expend.	2,500,000	3,800,000	3,500,000
Total Special Studies			
SS (2 Years)	1,250,000	1,900,000	1,750,000
Per Un. (2 yrs.)	417,000	633,000	583,000
Per Un./Per Yr.	208,000	317,000	292,000
Total TR&TT (2 yrs)	1,250,000	1,900,000	1,750,000
Per Un. (2 yrs.)	417,000	633,000	583,000
Per Un./Per Yr.	208,000	317,000	292,000

SOURCE:

CPMT Meeting Notes
8-9 July, 1985
Denver, CO

TABLE 4
REQUIRED ADJUSTMENTS IN UNEXPENDED BUDGETS TO MEET JULY 1985 CPMT TARGET

	Modified FY85 Workplan $	Target Workplan $	Changes Required $
Actual Expenditures	$ 8,261,385	$ 8,261,385	$ 0.0
Unexpended Budget			
FY85 Activities	$ 4,755,889	$ 4,631,888	$ -124,001
Prior Yr. Activities	$ 654,852	$ 140,000 a)	$ -514,852
Reported Expenditures and Commitments	$13,672,126	$13,033,273	$ -638,853
Remainder of Funds	$ 973,807	$ 6,612,660	$ +638,853
Current Balance for Buy-ins	$1,312,660	$1,312,660	$ 0.0
Africa Bureau	$ 800,000	$ 800,000	$ 0.0
Core Funds to be Budgeted for FY86 & FY87	$3,861,147	$4,500,000	$ +638,853
2 Yr. Administration Budget	$1,700,000	$1,700,000	$ 0.0
Core Funds for TA,TT/TR & SS Activities	$2,161,147	$2,800,000 b)	$ +638,853
Budgets 2 Yrs. 3 Universities			
TT/TR	$1,080,574 c)	$1,250,000	$ +169,426
TA	0.0	$ 300,000	$ +300,000
SS	$1,080,574	$1,250,000	$ +169,427

a) Conservative assumption is that savings will equal at least $513,663.

b) Assumes that $300,000 will be available for Core funded TA

c) $148,860/Un/Yr.

UPDATED 17 August, 1985
* (Changes(
** No New Est. Made

SOURCE:

CPMT Meeting Notes
809 July, 1985
Denver, CO

TABLE 4
REQUIRED ADJUSTMENTS IN UNEXPENDED BUDGETS TO MEET JULY 1985 CPMT TARGET

	Modified FY85 Workplan $	Target Workplan $	Changes Required $
Actual Expenditures	$ 8,261,385 *$(9,523,235)	$ 8,261,385 *$(9,523,235)	$ 0.0
Unexpended Budget	*$(3,580,957)	*$(3,461,319)	*$(-119,638)
FY85 Activities	$ 4,755,889	$ 4,631,888	$ -124,001
Prior Yr. Activities	$ 654,852	$ 140,000 a)	$ -514,852
	*$ (657,719)	*$ (57,719)	*$(-600,000)
Reported Expenditures and Commitments	$13,672,126 *$(13,761,911)	$13,033,273 *$(13,042,273)	$ -638,853 *$(-719,638)
Remainder of Funds	$ 5,982,807 *$(5,893,022	$ 6,621,660	$ +638,853 *$(+719,638)
Current Balance for Buy-ins **	$1,312,660	** $ 1,312,660	$ 0.0
Africa Bureau	$ 800,000	$ 800,000	$ 0.0
Core Funds to be Budgeted for FY86 & FY87	$3,861,147 *$(3,780,362)	$4,500,000	$ +638,853 $(+719,638)
2 Yr. Administration Budget	$1,700,000	$1,700,000	$ 0.0
Core Funds for TA,TT/TR & SS Activities	$2,161,147	$2,800,000 b)	$ +638,853
Budgets 2 Yrs. 3 Universities			
TT/TR	$1,080,574 c)	$1,250,000	$ +169,426
TA	0.0	$ 300,000	$ +300,000
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a) Conservative assumption is that savings will equal at least $513,663.

b) Assumes that $300,000 will be available for Core funded TA

c) $148,860/Un/Yr.

II. SPECIAL FOCUS

In this section of the report, each university presents an in-depth report of current work undertaken by that university.

A. Colorado State University
B. Cornell University
C. Utah State University

A. COLORADO STATE UNIVERSITY SPECIAL FOCUS

Dr. E.V. Richardson completed a rapid appraisal of the irrigation potential for Swaziland in June. A summary of his report follows.

INTRODUCTION

Obviously in the time available, an independent analysis giving detailed figures on climate cropping patterns, water requirements, water availability, soils markets, etc. would not be possible nor was it contemplated in the scope of work. This was to be a rapid appraisal to provide guidance to USAID Agriculture's program. Fortunately, there are many fine reports and many knowledgeable people with information and data concerning Swaziland's irrigation. The reports, in particular the Corps of Engineers (COE, 1980), Tate and Lyle (1982), EATS (1984), Murdock (1968), and JPTC (1984) provide an analysis of Swaziland's present and future irrigation. These and the other reports provide sufficient information upon which to make recommendations. This report will not summarize the available information, but will provide the writer's observations and recommendations.

Landholding in Swaziland is one of two types. Title Deed Land (TDL) and Swaziland National Land (SNL). Title Deed Land is as the name implies, land that is in private ownership. Swaziland National Lands are held by the King in trust for the people. Farms (homesteads) on SNL are assigned to heads of household, and are small (1-10 ha). In theory, a homesteader on SNL could lose his land but in practice this doesn't happen. SNL is approximately 56% of all the land.

The report is organized as follows: Observations on irrigation, recommendations, training and education, then scope of work review.

Observations

1. General

Swaziland has a good but limited potential for irrigated agriculture. Soil, water, people, Government of Swaziland (GOS) economic policies and climate are all favorable to irrigation. The limiting factor for irrigation is water and without water storage (dams and reservoirs), Swaziland's full utilization of its available water for agriculture is limited. In fact, lack of water storage will limit Swaziland from full development of its water resources for agriculture and industry. Swaziland has abundant coal for coal-fired powerplants but coal-fired powerplants consume large quantities of water. Even in the wet season (September to March) there is a need for supplemental irrigation for good crop production in the highveld, middleveld and lowveld. The need for supplemental irrigation is greatest in the lowveld and smallest in highveld. In the dry season (April to August), irrigation is needed for all crops except those such as pineapple. The Corps of Engineers (1980) estimate that there are 243,605 ha (601,940 acres) of land with the potential for irrigation and only sufficient water for 93,066 ha (229,963 acres). The magnitude of this latter figure depends on cropping pattern, full-scale irrigation schemes (dry and wet season irrigation), water storage (dams), international agreements and industrial, power and domestic needs for water.

Water for irrigation will mostly come from surface flow. Either direct diversion of river run flows or storage. Groundwater is relatively unimportant. Studies to date indicate that Swaziland has very little groundwater for irrigation.

2. Need For Irrigation In Swaziland

A. Irrigation is needed to increase crop production by:

i. putting additional land under cultivation

ii. increase yields on present cultivated land

iii. double and triple cropping

B. Protection From Drought

Rainfall is extremely variable in Swaziland. Murdock (1969) gave the following:

i. In the lowveld there will be a crop failure in four out of five years for corn and one out of five years for cotton.

ii. In any given month, there is a serious deficiency in rainfall in one out of 10 years.

iii. Forty percent of the summers (October to March) will receive less than 25 inches of rain in all the lowveld, and 50% of the middleveld. Sixty percent of the summers will receive less than 25 inches in the lowveld (25 inches is needed for a reasonable crop of maize). Summers are the wet season with a mean annual precipitation (MAP) ranging from 40-90 inches in the highveld, 30-45 inches in the middleveld and 25-35 inches in the lowveld.

C. The population increase of 3.4% per year requires a substantial increase in food production to feed Swaziland's people. Rainfed crops will not be able to meet this need.

D. Swaziland depend on agriculture for 30% of its Gross Domestic Product (GDP).

E. Swaziland has an excellent potential for irrigation, but irrigation will require storage reservoirs.

F. Irrigation is an option in all 13 Rural Development Areas (RDA).

3. Water Considerations

A. Water will be the limiting quantity for irrigation.

i. Corps of Engineers Report gave the following: There are 243,605 ha (601,940 acres) with potential for irrigated agriculture. But available water for only 93,066 ha (229,863 acres). Presently, there are: 41,855 ha (103,422 acres) under irrigation.

ii. Using high water requirement crops such as sugarcane and rice would decrease the amount of irrigated acres. Low water require-

ment crops such as fruit trees would increase total irrigated area.

B. To get a dependable water supply for much additional irrigated acreages will require water storage reservoirs.

C. Water storage is needed for Swaziland to:

   i. obtain full utilization of its water

   ii. obtain integrated water resources development (power production, agriculture, domestic and industry)

D. Water will be needed for coal-fired electrical plants.

   i. Swaziland has large coal deposits.

   ii. Swaziland presently receives most of its power from Republic of South Africa (RSA) with considerable pressure on its balance of payment.

   iii. Power could go into a RSA, Lesotho and Mozambique network for maximum efficiency.

   iv. Coal-fired plants consume large quantities of water (approximately 20,000 m^3 per 1 megawatt year of electrical power).

E. The cost of developing irrigation in Swaziland will be large because the terrain will require either long canals or large pumping lifts from the rivers to the available land.

F. These considerations require the following:

   i. Careful planning by GOS of its water resource utilization and agricultural development.

   ii. Limit sugarcane production to present acres because of its high water requirement. Sugarcane has low production when it is measured by pounds of sugar per unit water or unit area and time.

   iii. Will need to utilize rainfed agriculture raising crops such as cotton, pineapple, sorghum, and maize as well as irrigation.

   iv. Rainfed and irrigated agriculture research and development will be needed if GOS is to meet its agricultural development goals.

   v. The potential to process and sell additional pineapple production. GOS should investigate smallholders growing of them as satellite to the present title deed land (TDL) farms.

G. Storage reservoirs require various studies to determine the quantity of water they should store. Some of these are:

i. A determination of how much over year storage of water is needed for protection from a long-term drought.

ii. The above determination, of course, requires a study of hydrology and meteorology records to determine the magnitude and frequency of droughts and a policy decision on the amount of risk from drought the GOS is willing to take.

iii. A study of the amount of storage space that should be allocated to sediment and the useful life of the reservoir. From observation of the watershed, I do not anticipate that sediment will be a problem for the larger storage reservoirs, but I do not like surprises! Also, watershed planning, protection and and observation is necessary to protect any costly storage reservoirs.

iv. There is the need to compile the available records of precipitation and stream flow. These records are needed for determining total available water, reservoir size, outlet and spillway size, flood protection, sediment storage, etc.

v. A determination of Swaziland's available water vis-a-vis The Republic of South Africa (RSA).

vi. The training of Swazi's in civil, agriculture and mechanical engineering, management, agriculture economics and electronics. Some subsets of these disciplines would be operations, hydraulics, hydrology, agronomy, financial analysis, horticulture, river mechanics, telemetry, system analysis, powerplant operation, lubricating, maintenance and maintenance management.

4. Swaziland's Advantages For Irrigation

A. Soils are of an excellent quality of irrigation. They have good infiltration (around 1 inch per hr) and waterholding capacity (2-3 inches per foot). The soils have good characteristics and structure for agricultural operations such as plowing and cultivation.

B. Water quality is excellent, less than 100 parts per million with no adverse chemicals. However, development of irrigated agriculture can increase the chemicals in the water and thus, water quality must be carefully monitored (return flow and evaporation from storage reservoir).

C. An energetic, intelligent, hard working people who love their land. Although they do not have a history of irrigation, they accept advice and want to learn. They readily accept new ideas, technology, seeds and fertilizers. Surprisingly, new farmers under-irrigate rather than over-irrigate.

D. A government that believes in free enterprise and a market oriented system. The government asks farmers to pay the costs of inputs such as seed, fertilizer, pumping costs, etc. In general, the price farmers

get for their products is not subject to government subsidies or control.

E. There are good maps of recent origin. There is a map of 1:250,000 scale completed in 1981 and 31 maps of 1:50,000 scales completed in the late 1970s available.

F. There are good hydrologic and meteorological records of long duration (up to 80 years) of streamflow, rainfall, temperature, pan evaporation, etc. There is the problem that the information is not compiled into a readily available usable form.

G. There is a good network of water discharge and rainfall measuring stations. There were 40 stream flow measuring station (stream gages) and about 80 meteorological stations. Unfortunately, 18 of the stream gages were destroyed by Cyclone Domoins in 1984.

H. Climate that is suitable for year round cropping. There is some frost in the highveld and middleveld but no hard freezing.

I. There are excellent large-scale irrigated farms in the title deed lands (TDL). Crops are sugarcane and citrus. Their sugarcane production is second only to Hawaii in the world. These farms use sprinkler, surface, buried pipeline with orchard valves and drip irrigation. The farms are professionally managed using irrigation agronomists and engineers. These farms serve as examples to the smallholders and their processing plants have provided technical advice and a market for satellite smallholder irrigation schemes.

J. The people and GOS have a history of paying their debts.

K. In general, salinity should not be a problem and many of the irrigation schemes will not need drainage. The water is low in dissolved solids, many of the soils are deep and free draining, slopes of the land are relatively steep (most farm land is 1 to 7%) and distances to natural watercourses are short. There are some shallow complex soils that will need drains. One of the TDL sugarcane farms had to install drains. In general, especially in the highveld and middleveld, rainfall is large enough to provide annual leaching. Because some soils need drainage standard procedures in design is to assume drainage is needed until soils and crop studies determine otherwise.

5. Irrigation Systems In Swaziland

A. Title Deed Land

The majority of the approximately 42,000 ha (103,780 acres) under irrigation is on Title Deed Lands (TDL). Only 2,400 acres is SNL. The TDL is largely owned by foreigners or companies and are engaged in large-scale production of sugarcane, citrus, cotton, pineapples and trees for pulp and lumber production. Pineapples are rainfed and grown in the Malkerns Valley. Also, in the Malkerns Valley is the Malkerns ditch which serves TDL, Malkerns Experiment Station and Swaziland Agriculture College. The TDL farmers use surface, sprinkler and buried pipeline with orchard valves and drip irrigation and their farms are efficient and well managed.

The Malkerns Valley served many TDL farmers who grow vegetables, cotton, maize, seed cane sugar for plantations. They have a water right to 100 cfs of flow from the Lusutfu River when flow is 200 cfs and half the river flow when flow is less than 200 cfs. In the dry season (April to August), flow delivery can be restricted. During the recent drought (1981-1984) flow in the river was as low as 34 cfs. Twenty (20) % of the flow (20 cfs) is owned by the Swazi Nation for SNL. Except for the water used by the Experiment Station (2 cfs) most of the SNL water is not used. There is water available for about 1,700 acres (689 ha) of SNL. As a result of the Cyclone in 1984, the canal has silted up and can only deliver 55 cfs and the canal would need cleaning and maintenance to serve any additional SNL. Cost for the water is only for operation and maintenance of the canal and was 400 Em ($200) per 1% (1 cfs) share.

B. Swaziland National Land

Irrigation on SNL is under four irrigation schemes. 1) Rural Development Area (RDA) Program; 2) Cooperative or Association of Farmers; 3) Private SNL farmer; and 4) Swaziland irrigation schemes. These are described further as follows:

1. RDA's cover all the SNL. There are 13 RDAs with 29 sub-areas. All the areas have potential for irrigation and in many the GOS has established irrigation projects serving 10-25 smallholders with farms of 1-3 ha. The GOS provided funding for design, construction and extension service to the farmers in the RDA schemes.

   All present and future RDA irrigation projects need help in design and implementation.

   Design help would be:

   a. training of staff
   b. development of computer assisted design methods

   Implementation help would be:

   a. baseline studies to establish data for economic analysis
   b. establish farm recordkeeping
   c. sociological and organizational help
   d. construction
   e. extension help in irrigated agriculture
   f. diagnostic analysis as an on-going process
   g. feedback to experiment station of problems for research
   h. credit
   i. marketing and transport

   A major problem on the present RDA irrigation projects is that the homesteads only crop during the dry season. The farmer returns to his original homestead to raise maize during the wet season. This is true even though using supplemental irrigation he could get larger yields farming his irrigated land when farm-

ing his rainfed lands. He can't farm both places because most of the time his original homestead (rainfed) is too far from his irrigated land. This problem needs study and methods devised to get year around irrigated agriculture.

Development of irrigation on the RDAs need a phased activity to determine: 1) current levels of irrigated crop production in the RDAs; 2) the potential role that irrigation can play in the economics of RDA development; and 3) conditions that limit economic RDA irrigation development.

l. Cooperatives and Association Irrigation Schemes

These irrigation schemes also occur in the RDAs but occur at the request of the farmer. A group of farmers form an association and request help from the government in the design and construction of an irrigation system. The farmers will pay for all or part of the scheme but will get help from the extension person in the area. In these schemes, because the land is the farmers original homestead, it is cropped year around. These irrigation schemes need the same technical assistance as described for the RDA's in the previous paragraphs. These types of schemes are better than the RDA irrigation program because it is farmer motivated. The problem is getting farmers motivated to request help.

1. Private Farmer Irrigation Schemes

Private farmers install irrigation on their homestead. In general, they ask the GOS for help in design and do the construction themselves. The GOS provides extension help but these areas are scattered over the RDSs and the extension worker may not be well trained in irrigation. With the limited manpower available for design in the MOAC, it is not advisable for the MOAC to design the system. MOAC should, however, keep review authority and provide extension service.

Large-Scale Swazi Irrigation Scheme

These are similar to the proposed Komati River Basin development. They will probably be designed by private consulting firms and financed by loans from World Bank or other lenders. They will not need TA in design but possibly oversight and review by MOAC or MONR. After construction and during implementation the development will need and should have help as outlined for RDAs. These units should be large enough to have a full-time extension staff of Swazis. This staff should be trained in management, ag engineering, irrigation agronomy, maintenance and irrigation.

6. Cropping System Research and Extension Project (CSREP)

The irrigation part of the cropping system project is active in the three types of smallholder irrigation on the SNL. That is, irrigation schemes as part of RDA, the cooperative/association and individual farmer. I visited the irrigation farming systems research being carried out on a RDA farm and cooperative/association farm in the northern area. Also, several reports dealing with the project were read (Baseline Report, King; Irrigation

Survey Information, Dunn (1982); Diagnostic Analysis Report, Dunn; Outline of Irrigation Course for Swaziland Agricultural College; and Evaluation Report of 1985).

7. Problems for Development of Swaziland Irrigation

A. There is a serious lack of educated and experienced Swazis in engineering, agronomy, economics, management, sociology, planning, etc. This is at the MS, BS and technician level. For example, there are only 2 or 3 Swazi civil and 2 or 3 agricultural engineers. The lack of managers results in any returning trainee being put upstairs.

B. The training capacity of the University of Swaziland can not meet the need. There is not an engineering college. The agricultural college graduates 20-30 B.Sc. each year. These graduates have a year of science at the College of Science and 3 years at the Ag College. The Ag College has five departments. They are Animal Productions and Health, Agricultural Economics and Extension Education, Crop Production, Home Economics and Land Use and Mechanics. It appears that the courses are rigorous enough thus the graduates can pursue an advanced degree. But because there are deficiencies in the curriculum in any subject it would probably take an extra year (3 years for M.Sc. instead of 2).

C. Farmers do not have irrigation farming experience. This may not be all that bad if an adequate well-trained extension force was available. Also, because of lack of experience, farmers are just as apt to adopt good practice as well as bad.

D. Subsistance Agriculture

Farmers, for reasons not well understood, are satisfied to grow only the food (maize) they need plus 10%. Although maize yield per acres has increased, total production has not. Some reasons proposed are 1) price of maize; 2) raise other crops on the release land; and 3) homestead social structure makes it difficult at times to determine who owns surplus.

E. There appears to be a lack of market, processing plants and transport for farm products. There is no formal market (middle man, etc.) for vegetables.

F. The price of maize is low.

G. There is a lack of credit or credit is tied to cattle because on SNL the farmers do not own the land.

H. There is a lack of economic and agronomic data on SNL farms. Need farm enterprise records.

I. There is a need for knowledge of farmer decision making process. What are his motivations? Priorities? Why does he make these decisions? What are the possibilities or advisability of change?

J. The available hydrologic and meteorological data are not in a usable form. Need to have the records reduced and placed into publications.

Rainfall and runoff records in daily, monthly and yearly amounts. The records should be reviewed for accuracy and compiled.

K. The 1984 Cyclone destroyed 18 out of the 40 stream flow measuring stations. These need to be replaced.

L. There is a need for trained technicians to continue the operation of the hydrologic and meteorological data collection network.

M. There are no sediment discharge records for Swaziland's streams. Sedimentation may not be a problem for planned storage schemes but the stations are needed to monitor erosion of the land. At least four stations are needed. Two on the Komati River, one on the Usutu River near Big Bend and one on the Nguavumz River.

Although there are reports that sediment is not a problem, the recent drought followed by the 1984 Cyclone may have changed that. I was informed that many Irish bridges have filled with 2 meters of sediment.

N. There is a potential problem if irrigated agriculture activities are split between the MOAC and MONR. It is extremely difficult to optimize crop production if water delivery is managed by one Ministry and on-farm irrigation and related crop production is in another.

O. There is a need for GOS to develop a national policy and a master plan on water resources development. A policy and a master plan are needed now before unguided events lock in a use and foreclose an alternative. The policy and master plan to take into consideration water available, negotiations with RSA and GOM, industrial, domestic and irrigated agriculture use, including consumptive use by coal-fired electrical generating plants. Also, the MOAC needs to develop a policy and master plan for water use by agriculture.

P. The division of the available water in Swaziland's rivers between RSA and GOM. Water development is currently being carried out in RSA that affect Swaziland's water and its development. A Joint Permanent Technical Committee (JPTC) was formed in 1979 between RSA and GOS to consider proposals for long-term development of the water resources. A JPTC was also formed with Mozambique. Swaziland is conducting its negotiations with RSA from a position of weakness in engineering and legal expertise and knowledge of its water and resources. To protect its water supply for future generations, Swaziland needs professional engineering and legal help to establish its negotiating position and in conducting negotiations. The western United States has a large number of engineers and legal experts as a result of its historic legal battles and international agreements.

Q. A problem may exist internally about the question of water rights for individuals, SNL Homesteader and industry. It appears that GOS has a procedure for obtaining a permit to use water. But how will water be allowed to permit holders during short supply. Is the right to use water raparian, appropriative or combination. Decisions are needed now before extensive development. Again, the western United States has expertise in these areas.

R. There is a lack of year round raising of crops on the RAD's irrigation schemes. The reason for this lack needs to be determined and year

round cropping developed. The nature of Swaziland's rainfall is such that even during the rainy season, crops lack water and yields are hurt. Supplemental irrigation during the rainy season is a must for good crop yields in Swaziland. Also, developing irrigation schemes is extremely costly and as such should be intensively cropped.

S. Presently irrigation, except downstream of two reservoirs, is river run. Storage will be needed if Swaziland is to fully utilize its water resources.

T. Small-scale irrigation development for smallholders diffuses scarce human and capital resources. These efforts should continue but major efforts should be on developing larger blocks of land further from major rivers. These large irrigation developments to be for smallholder farms but to be viable commercial operations that add to the GDP.

RECOMMENDATIONS

1. Increase the human resource base of technically qualified Swazis in the disciplines of management, engineering, agronomy, biology, social sciences, business and health services. All are needed for a successful economy and a viable and economically sound agriculture. Specific options of how to do this are given in the next major section.

2. Research and development to improve irrigated and rainfall agriculture technology must continue. The Cropping System Research and Extension Project (CSR) provides a good method for this and should continue.

3. Irrigated agriculture must be developed to the maximum extent that the available water resources allow.

4. The development of larger irrigation schemes on larger blocks of land (200 to 2,000 ha). These schemes will require water storage (dams) and ingenuity in how to develop economically viable smallholder irrigation. This will require expatriate consulting firms and donor loans. However, because these larger scale developments take time, the GOS should continue the development of small-scale irrigation schemes by RDA programs and associations/cooperatives. These small-scale irrigation developments will develop methods, irrigation farmers and provide on-the-job training of agricultural research and extension work.

5. The MOAC should develop policies, goals and objectives for its irrigation development in the RDAs. And, determine the amount of financial and technical help it will provide to irrigation development by RDAs and Association/Cooperatives. With limited resources (and resources are always limited) larger scale and the most economic viable development must be undertaken.

6. The market for agriculture projects and the infrastructure to support a market oriented agriculture should be developed. The primary road network is good but here is a need for transport, processing plants, markets, market information and credit. The private sector needs to be involved.

7. The SNL that can be irrigated from the Malkerns Canal should be developed. The SNL owns 20% (20 cfs) of the Malkerns Canal and there are at least 1,700 acres (689 ha) of prime land that could be irrigated. Possibly more

if sprinkler irrigation was used for land about the ditches. Possibly the TDL farmers in the area could farm it on a lease arrangement for a share of the crop until such time as SNL homesteads would take over.

8. Expert water resource engineering and legal help should be provided to Swaziland in its negotiation with RSA on its international water rights. There are many experienced engineers and lawyers in the western United States that CID/CSU or WMSII could provide.

9. The legal frame work for establishing and administration of water rights in Swaziland should be determined. This information will be needed in order to obtain financing for irrigation schemes. Again, CID/CSU or WMSII can provide help in this area.

10. The erosion (sheet, gulley and river) of Swaziland's land resources should be carefully monitored by the establishing of several (3 or 4) sediment measuring stations and annual review of the ground surface from air and satellite photos.

11. Existing large commercial TDL farms and canneries should take on smallholder farms as satellites. These satellite smallholder farms to farm in large enough blocks of land to be commercially viable. The TDL farms or the canneries to provide technical assistance on planting, cultivation, irrigation, harvesting, etc. There are successful examples of this which are described in the Appendix.

12. The data base on hydrology, meteorology and soils must be maintained and improved. This requires:

    A. The review and compilation of the existing hydrology and meteorologic records of stream flow, rainfall, pan evaporation, sunlight hours, etc.

    B. The replacement of the eighteen stream flow measuring stations lost in Cyclone Domoin.

    C. The calibration of the existing stream flow measuring stations.

    D. The establishing of four sediment measuring stations. Two on the Komati River and one each on the Usutu and Ngwavuma Rivers.

    E. Replace Murdocks soil survey map with one that describes soils using the U.S. Soil Taxonomy.

    In items "A-D" CID/CSU could provide help and AID's Science and Technology Bureau could help with item "E".

13. A study should be made of the magnitude and frequency of droughts. CID/CSU could provide help in this area.

14. Because sugarcane and rice have large water requirements and water is limited would recommend against growing them on any additional land.

TRAINING AND EDUCATION

1. Introduction

Swaziland's development of human resources should have two objectives: (1) to provide educated and trained professionals and technicians now to develop its resources and (2) the development of institutions and programs to educate its people to meet its future needs. Both its long-term and short-term educational needs will require institution building and the decision on what education will be provided in Swaziland and what will be obtained by sending Swazis abroad. For example, in the long-term is Swaziland going to educate its own medical doctors or provide a good science B.Sc. and train its medical doctors abroad. At this time, I would recommend the latter. I know two universities in the United States who started medical schools. These medical schools gobbled up so much of their resources that other programs suffered. Fortunately, one state university saw the light and dropped its medical school.

Swaziland's short-term needs can be met by a mix of shortcourses, short-term non-degree academic training and longer term academic degree training. Both non-degree and degree oriented academic training will require strengthening the University of Swaziland so that it produces a sufficient number of people with sufficient quality to take non-degree and degree academic training. The strengthening of the University of Swaziland should be designed and controlled by Swaziland to meet its long-term educational goals. Therefore, Swaziland needs to establish as soon as possible what its educational goals and objectives are. Once this is decided, then a long- and short-term plan for human resources development can be made. In the meantime, I would suggest the following for the MOAC and MONR.

A. Shortcourses

1. The development of shortcourses to teach agricultural and water resource development skills. These to be at the technician, sub-professional and professional level. These courses to be offered for one to four weeks. At first, the courses to be offered in Swaziland by expatriates but Swazi trainers would be trained to present the course. Present contractors should develop and are developing these courses. Also, WMSII has water management courses and could develop others. Gale Dunn's irrigation technology course is an example. Some other shortcourse subjects would be:

   a. river measurement and streamflow recordkeeping
   b. simply hydraulics
   c. tractor operation and maintenance
   d. management
   e. design of irrigation systems
   f. supervision skills
   g. land leveling
   h. surveying
   i. working with farmers
   j. using the personal computer

2. Academic Non-Degree Programs

The sending of MOAC and MONR staff for one or two semesters of academic training at selected United States's universities. This training to be in:

A. Civil Engineering - Structures, irrigation, surveying, water resource planning, transportation

B. Agricultural Engineering - Irrigation, machinery, farm construction

C. Economics

D. Agronomy - Soils, crops, irrigation

E. Entomology

F. Light construction and marketing - Management, construction supervision

G. Management and business - Recordkeeping, personal management, office management, finance

H. Sociology

I. Genetics

J. Marketing

3. Academic Degree Programs

Sending selected qualified staff to the United States for a B.Sc. or M.Sc. in the above listed subjects. At the present level of training of Swazis it would probably take two years to get a B.Sc. but exceptional Swazis could get a M.Sc. in three years.

4. To help accomplish the above, there should be a linkage of selected colleges in the University of Swaziland to a United States institution. This linkage to increase the number and quality of the graduates from the University of Swaziland and to increase the course offering. This latter must be done with care and under the guidance of a long-term plan for the development of the University.

First priority would be in strengthening basic science, mathematics, management and teacher education so that more Swazis could move immediately into the Swaziland economy or go for additional training.

Under this linkage U.S. instructors could come to Swaziland to teach courses and thus reach more students. If the course was videotaped and a Swazi instructor was involved, then the course could be presented more than once. In addition, a Swazi instructor could go to the United States to take advance training and teach classes.

B. CORNELL UNIVERSITY
REHABILITATION: A GAME SIMULATION FOR PARTICIPATION IN IRRIGATION DEVELOPMENT

During the past two quarters, several members of the Irrigation Studies Group at Cornell have been elaborating and refining a game simulation designed to heighten the awareness of the importance of farmer participation in determining the eventual success of a rehabilitation project or program. The target audience of THE REHAB GAME, as the simulation is titled, is irrigation agency staff charged with carrying out rehabilitation efforts in the field.

In 1981, as part of a series of Gal Oya Water Management Project activities and in association with colleagues in the Agrarian Research and Training Institute (ARTI) in Sri Lanka, Cornell University consultants prepared a game simulation of participation in irrigation system planning and design. The purpose of the game simulation was to sensitize irrigation officials and technical personnel to the need for and potential value of farmer participation in project planning as well as implementation. Those involved with the initial development of the game were Piyasena Ganewatte, D. Hammond Murray-Rust, Norman Uphoff, Edward Vander Velde, and Lakshman Wickramsinge.

About thirty persons, including irrigation engineers and administrators, participated in the initial trial of the game; most found it both engaging and instructive. At that time, possibilities for elaborating and generalizing the game were discussed, but there was no immediate followup. Subsequently, AID/Delhi expressed interest in developing this or another training device for use in India. In April, 1984, Vander Velde prepared a draft of the game simulation for review and comment.

In FY-85, the Water Management Synthesis II Project approved funding for the further elaboration of this game and its adaptation to computer assisted play. During the past six months, Professor Edward Vander Velde, a geographer from Aquinas College in Michigan, who has worked with irrigation in India, Pakistan, and Sri Lanka, Norman Uphoff, political scientist at Cornell, and Tammo Steenhuis, Agricultural Engineering, have been working with Robert Oaks, a computer programmer and graduate student in Agricultural Engineering to refine and focus the game. This interdisciplinary group has been working to broaden the applicability of the game from the Gal Oya setting in which it was initially developed. In addition, it is attempting to make THE REHAB GAME more self-contained so that it can be used in the absence of the game's creators.

The most recent draft version of the game simulates many of the information acquisition tasks and problems likely to be encountered in planning for and implementing rehabilitation of an existing irrigation system, but it also permits participants to choose from three approaches to acquiring necessary design data—consulting with farmers, rapid reconnaissance, and detailed survey. A more formal evaluation of the participants' design effort has also been added. The purpose of the game remains the same: to assist those involved in irrigation development to increase their understanding of the information needs and processes which are likely to affect the successful design and implementation of irrigation rehabilitation projects.

The draft version of the game was presented at the ARDO regional workshop in Los Banos, the Philippines, April 22-26, 1985. Four hours of the workshop were devoted to a trial of this version. Computer graphics and the partially completed text were demonstrated. Feedback from workshop participants was positive and included several useful suggestions for further improvements (e.g. to reduce the bias against engineering data, to increase the amount of detailed information to be provided to game participants to simplify the knowledge requirements for the gamemaster role, and to adapt the game to other irrigation environments).

In June, Vander Velde, Steenhuis, and Oaks presented the game with updated computer graphics at the weekly seminar of the Cornell Irrigation Studies Group. Further revisions were being made in response to suggestions from the group. In addition, Uphoff and Vander Velde plan to test a revised version of the game at the WMS-II Rehabilitation Workshop to be held at CSU in early September. Following additional testing—in particular, testing on an audience of irrigation agency staff, the population for which the game was designed—a final version (or versions) of The Rehab Game accompanied by manuals and software will be produced for wider distribution.

Plans for the further development of the game include (1) the production of slide sets linked to different stages of the game in order to deepen participants' understandings of the simulated irrigation environment, (2) preparation of modules that simulate irrigation system conditions and rehabilitation problems encountered in arid and semi-arid environments (e.g., Pakistan, Northern India) and in hill environments (e.g. Indonesia, Nepal), and (3) testing the game in one or two field locations—perhaps Pakistan, Egypt, a sub-Saharan African nation, or a second South Asia setting— and (4) preparation of a final version of the game with appropriate documentation for wide distribution.

C. UTAH STATE SPECIAL FOCUS:

SPECIAL FOCUS

IMPLICATIONS OF THE AFRICAN IRRIGATION OVERVIEW

The African Irrigation Overview has been an on going project for the purpose of analyzing central problems which impede irrigation development in sub-Sahara Africa. Although the report is not yet completed, the basic findings and implications for irrigation have been extracted from preliminary conclusions of the multidisciplinary team involved in the project. Based on the team's efforts, its principal conclusions are the following:

1. Virtually all expert observers recommend against expanding finance for irrigation by the mere addition of new projects. We concur that top priority must go to institutionalization and rehabilitation.

2. An initial analytic step which WMS II could provide is to clarify which kinds of activities contribute most directly towards deepening institutional capacity in the irrigation sector. Terms like "planning" and "extension" are often used loosely, without recognizing either AID or recipients knowing how these terms actually apply within irrigation.

3. AID should recognize that it will usually be a small donor in relation to irrigation. This suggests that to get maximum benefit from a wide spectrum of field activities AID should adopt a collaborative approach where many of the primary costs are borne by other donors.

4. U.S. expertise available to work on African irrigation is very thin, in part because of AID's small commitment in this area, but also because of language barriers (French, Arabic, Portuguese) and the predominance of the former colonial powers (France, England) in giving assistance. To change this situation will require a vigorous and planned effort, possibly by means of "tag-along" or rotating post-doctoral fellowship arrangements.

5. It should be recognized that the U.S. Government is supporting African irrigation through World Bank/IDA funding to field projects. To date, the Bank has rarely used U.S. expertise for evaluating its irrigation projects. However, the weak performance of these projects indicates there is much scope for improvement. A joint AID/Bank effort aimed at strengthening institutional support for irrigation ought to be considered.

6. AID already has underway several "farming systems' research" (FSR) projects in countries where irrigation is important, e.g., Sudan, Niger, and Tanzania. Because these are already operational, an irrigation "add on" component could be rapidly implemented. There is a strong case to insist that FSR projects pay more attention to irrigation.

7. Many African countries have established River Basin Authorities (RBAs) of one type or another. We have noted the RBAs are usually the only base for existing irrigation planning in a given country. AID should explore a "package" of modest support measures aimed at buttressing the institutional effectiveness of such agencies. Possible components might include:

- Training at the M.S. level (initially in the U.S. but with thesis done in the home environment), followed by in-country workshops.

- Africa or region-wide seminars to direct RBA attention to new concepts, procedures and resources (e.g., farmer participation, remote sensing).

- Devising simplified planning and monitoring procedures adapted to African conditions (rapid reconnaissance, etc.).

8. A major gap is the almost total absence of information on irrigation manpower on the African continent. A systematic approach to training for irrigation requires information on staff training needs, which is simply not available. Remedying this gap might be a suitable area for WMS II project involvement.

9. Another unexpected gap is in regard to irrigation economics, a key policy concern given the high costs of irrigation investment and the many complications arising from incorrect estimation of labor costs. Each REDSO office should have at least one irrigation economist, perhaps a rotating fellowship position to rapidly expand the number of those familiar with African irrigation economic.

10. AID's regionally-based REDSO offices would seem to afford a useful base for assignment of interns who would rapidly acquire a broad comparative experience. Such staff should have already completed a field assignment, M.S. or Ph.D. in an African rural setting. The REDSO framework allows maximum flexibility in arranging staff assignments, and spreads the load of support over several countries. We recommend a focused program to deepen the irrigation expertise located at the REDSO level.

11. Priority attention should be directed toward the choice of crops to be irrigated, and the question of competition for labor between irrigated and rainfed staple crops. It seems obvious that high-value market gardening depends upon low transport costs and a concentration of demand. It also seems that forage utilization is an important objective where farmers are involved with livestock. These are all agricultural economic considerations which must be adequately integrated into future irrigation planning.

12. Scheme management as presently found in Africa depends heavily on various internal routines--precedents, rules of thumb, and administrative procedures. While rarely documented outside the agency concerned, these have an enormous influence on farmers' productivity and commitment. Both in regard to improving participation and women's involvement, the adequacy of such institutional arrangements is critical. We suggest that dialogue and comparative research on these procedural, "O & M" aspects would be a suitable area for any special studies AID might fund.

13. Many observers have stressed that irrigation maintenance constitutes the weak link undermining the long run viability of African irrigation schemes. Rates of depreciation for equipment remain extremely high, while already constructed physical works rapidly deteriorate. Further investment in new projects, or, for that matter, in the mere physical

reconstruction of old ones, cannot be justified until a better understanding is reached on the causes of poor maintenance. This topic cries out for multidisciplinary analysis, and should receive high priority in future research.

14. One likely reason for poor maintenance is a failure of incentives in regard to women's participation in irrigated farming. The significant role of African women in many irrigation systems is not as yet matched by their control of resources or access to profits. In large part this is a consequence of the comparatively weak unification of household production as contrasted with Asia or Latin America. AID should explore procedural innovations which would increase women's leverage within the emerging systems for irrigated production. Some assistance might also be given to a small unit in FAO looking at women in African agriculture, perhaps by means of funding for a linked associate's position.

15. How to increase farmers' own involvement in African irrigation systems remains an unresolved need. It is clear that as presently being implemented, irrigation on Africa's larger schemes excludes farmers from almost all aspects of managerial control. As long as this tendency persists, irrigators will see themselves as tenants and will continue to resist making private contributions to facilitate scheme irrigation. A comparison between introduced systems and spontaneous or traditional ones might pinpoint how to generate greater farmer commitment. This topic is receiving priority attention from various European donors, and has been the focus of efforts by Harry Underhill in FAO over the past few years.

16. Detailed analysis of the skills farmers possess and need is not available for the various systems of African irrigation. A comparative documentation of "extension" as it actually occurs is essential before donors impose their own ideas, e.g., the World Bank's "T and V" system. Another gap is in regard to how to use irrigation as a drought relief measure. In Kenya, Ethiopia or the Sudan the incoming "farmers" may be destitute pastoralists with little experience of irrigated farming.

17. Greater involvement of the private sector remains an official U.S. government objective. In Africa it is complicated by the presence of outside minorities and the pronounced duality of the agricultural sector. Some possibilities for donor support include:

- A systematic effort to retrieve the substantial experience of private consultancy firms, which have been very active in the design of African irrigation schemes. Here there is a large literature found mainly in England and Holland not available within U.S. academic collections.

- Establishing better technical "backstopping" for NGO and PVO irrigation projects.

- Possible credit assistance to the small-scale "market garden" farmers oriented around purchase and maintenance of pumps. However, great caution must be exercised since such projects are quite risky.

18. The evident lack of feedback from operational systems into project design arises because of a deep split between civil engineers doing construction and external agronomists (often FAO provided) assisting crop production. In most African countries, irrigation engineering as a discipline does not yet exist. Donors should encourage any measure which facilitate the emergence of irrigation engineering as a unified field, combining aspects of design, construction and management.

19. AID/Washington needs to recognize that because of its few irrigation-related projects in East and Southern Africa, the usual "participant training" device for deepening in-country technical skills cannot be relied upon. If African countries are to send staff for training in the USA, they must do so under some other mechanism. We see this as an opportunity to shape an emerging professional discipline, but warn that as presently given much U.S. training is likely to be inappropriate to African conditions.

20. In regard to technology choice, this report has identified numerous problems. At a minimum, donors can avoid compounding managerial difficulties by introducing unsupportable "orphaned" equipment. They can also buttress in-country repair and servicing capacity, an objective AID has several times adopted (Senegal, Mali) but which appears exceedingly difficult to accomplish. Perhaps an exchange of experiences between countries and donors would help? More fundamentally, there are obvious gaps where present technologies are inadequate:

- An absence of low energy pumping systems which would be within reach of smallholders' financial capability.

- Development of systems combining full irrigation for one crop cycle and supplemental irrigation for the rainfed crop.

- A frequent failure to anticipate multiple uses (livestock, households, etc.) of irrigation water.

- A need for an exchange of ideas about animal traction equipment suited to lighter weight African cattle.

- Exchange of experience concerning working in heavey clay soils.

- Development of a means for applying supplemental irrigation to rainfed cereal crops during within-season droughts.

21. Irrigated production in Africa encounters severe difficulties related to soil exhaustion, nematode and pest build-up, and a proliferation of terrestrial and aquatic weeds. Because these are delayed impacts, their significance in depressing crop yields has probably been underestimated. We have no clear solutions, but note past U.S. assistance to the National Academy of Sciences for exchanges of technical information on such topics.

22. Another area of comparative U.S. advantage concerns support for agricultural applications of remote sensing (LANDSAT, etc.). Contrary to some U.S. opinion, a continuation of these activities drawing particularly upon U.S. weather monitoring capability is vital. (For example, such data was the best firm evidence that Africa's current drought was not primarily man-caused.) Cross-linkage of regional precipitation patterns to river-basin planning is a strategic necessity for the USA and any other donors concerned about African food availabilities. A missing element has been to focus on the "early warning" aspects, so that countries with installed irrigation capacity will have enough time to shift priority toward food grain production in the rainfall deficit years.

23. In general, environmental complications (especially those related to health) constitute a significant constraint upon African irrigation. Individaul countries may lack the technology and interest to engage in long-run environmental monitoring. As in the past, donor pressure has been the main reason for inclusion of this focus in project designs. The presence of UNEP in Nairobi, which has often sponsored useful work on energy and environmental aspects of African agriculture, offers a possible base for expanded attention to this aspect of African irrigation. There is also need to exchange information on public health costs associated with different types of irrigation technology.

24. This report would not have been feasible without access to the irrigation "network papers" provided by London's Overseas Development Institute (ODI). ODI is already in touch with many of Africa's irrigation practitioners, but the task has grown to unmanageable proportions beyond ODI's present resources. Since a substantial proportion of the passive membership in ODI's irrigation network are Americans, modest assistance from AID might be welcomed.

25. Finally, it is a regretable fact that political priorities often determine donor interests. For African irrigation, an irony we have pointed out is that several poor socialist countries have major irrigation potential and may control their neighbor's potential as well. This is certainly the case for Ethiopia and Guinea, and to a lesser extent also for Angola and Tanzania. It is not in the national interests of western donors to let short-run political considerations dictate where assistance will be given in African irrigation, neither now nor in the future. It would be in Africa's interest to insure that each western embassy is provided with a map on which the continent's major river drainages have been drawn to reinforce this elementary point.

III. STATUS OF PROGRAMMED ACTIVITIES

The activities of the WMS II originate from three sources: (1) Mission initiated technical assistance and training; (2) University initiated special studies and training programs; and (3) AID/Washington initiated activities. The following listed activities were requests received by the WMS II Project Management from the beginning of the project up to and including June 30, 1985. Activities are categorized according to lead university as well as country.

The terms listed below are used to indicate activity status:

Preliminary - denotes a request that requires further clarification (scope of work and/or dates are incomplete or are missing) before it can become a formal request.

Formal - denotes a request for which all major details have been clarified and formal addition to the Workplan has been requested through the Overall Administration Office.

Approved - denotes an activity that has been approved by the CPMT and AID/Washington and added to the Workplan through a request of the Overall Administration Office as of June 30, 1985.

Initiated - denotes an approved activity that has been initiated and is currently ongoing.

Finished - denotes an activity for which all technical responsibilities, including report writing, have been fulfilled.

Completed - denotes an activity for which all technical and fiscal responsibilities have been fulfilled as of June 30, 1985.

Pending - denotes a non-approved request for which addition to the Workplan has not been sought and/or approved even though clarification of major details has been obtained.

Postponed - denotes an approved activity to be carried out in the following fiscal year. Reasons for postponement may be lack of host country approval, inability to identify personnel, scheduling conflicts, etc. The budget of such an activity shall be removed from the current fiscal year Workplan and included in an appendix to the one in which the work is to be done and expenditures made. The monies shall not be reallocated and reapproval will not be necessary for one fiscal year.

Dropped - denotes a non-approved request dropped from further consideration.

Cancelled - denotes an approved, yet uninitiated activity deleted from the Workplan and dropped from further consideration in the near future.

Terminated - denotes an activity that has been initiated (expenditures charged against it), but then for some reason the decision is made to stop and further work. A new budget covering incurred expenses shall be submitted through the Overall Administration Office to AID/Washington and the status considered the same as completed.

The source of each activity is indicated by the following designations:

UNIV - University initiated

USAID - Mission initiated

AID/WASH - AID Washington initiated

Colorado State University Activities FY 83 (6-30-85)

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Bangladesh	TA-Curricula Dev. (BAU)	1-03-030-82	Completed	USAID
	TA-Consultant, Legal	1-03-029-82	Completed	USAID
	TA-Scope of Work	1-02-006-82	Completed	USAID
	T-DA Workshop	2-02-007-82	Completed	USAID
India	TT-Watercourse Hdbks.	2-13-025-82	Completed	USAID
	TA-Water Mgmt & Trng.	1-02-020-82a	Completed	USAID
	T-Meas. for Sys. Mgmt.	2-07-026-82	Completed	USAID
	TA-Evans Proj. Prep.	1-02-033-83	Completed	USAID
	TA-Clyma's TDY	1-02-035-83	Completed	USAID
	DA Workshop Planning	1-02-044-83	Completed	
	Development of Solutions	1-02-024-82	Completed	
Indonesia	TA-Oad's TDY	1-02-030-83	Completed	USAID
Pakistan	TA-WM (CWM) Meeting	1-02-029-83b	Completed	USAID
	TA-Clyma's TDY	1-02-031-83	Completed	USAID
Sri Lanka	T-DA Workshop	2-02-028-83	Completed	USAID
	WID-DA Workshop	2-02-034-83	Completed	
Worldwide	TT-Brochures;Newsltrs,Pub.	2-12-018-83	Completed	Univ
	TT-Survey&Str.for Trng.	2-09-019-83	Completed	Univ
	TT-Videotape Modules	2-03-021-83	Completed	Univ
	TT-Computer Applications	2-10-022-83	Completed	Univ
	T-Wkshop(Tech.& Soc.)	2-04-023-83	Completed	Univ
	SS-Comm. for Tech. Tran.	3-04-024-83	Completed	Univ
	SS-Irig. Systems Mgmt.	3-04-025-83	Completed	Univ
	TA-Water Resource Econ.	1-02-042-83	Completed	AID/Wash
	CSU Administration	0-02-998-83	Completed	

Colorado State University Activities FY 84 (6-30-85)

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Africa	TR--Africa Workshop	2-14-113-84	Completed	Univ.
Dominican Rep.	TA--Reconnaisance Team	1-02-110-84	Completed	
India	TA-Rajasthan MIP-Cad.	1-02-026-84	Cancelled	USAID
	TR-DA Workshop M.P.	2-02-031-84	Completed	USAID
	Curriculum Development	1-02-094-84	Completed	
Indonesia	TA-Long Term WM Spec.	1-01-008-84	Cancelled	USAID
	TR-DA Workshop	2-04-010-84	Terminated	USAID
Nepal	TR-DA Workshop Planning	2-02-003-84	Completed	USAID
Pakistan	TR-Sr. Off. Workshop	2-04-019-84	Initiated	USAID
	TA-Command Water Mgmt	1-02-114-84	Initiated	USAID
Sri Lanka	TR-DA Workshop	2-02-006-84	Cancelled	USAID
	TA-WM Central Support	1-02-022-84	Finished	USAID
	TA-Design Team	1-02-102-84	Initiated	USAID
	TA-Long-Term WM Spec.	1-01-109-84	Initiated	USAID
Worldwide	TR-Professional Visitors & Networking	2-11-039-84	Initiated	Univ.
	TR-DA Trainers Workshop	2-08-040-84	Initiated	Univ.
	TT-Instructor's Guide DA	2-13-042-84	Initiated	Univ.
	TT-Brochures, Newsletter, Pubs.	2-12-044-84	Initiated	Univ.
	SS-Interfacing Farm & Mgmt System	3-04-045-84	Terminated	Univ.
	TT-ICID Senior Off. Wkshop	2-04-048-84	Completed	USAID
	TT-Survey & Strategy	2-09-049-84	Initiated	Univ.
	TR-Workshop;Soc & Tech.	2-04-050-84	Completed	Univ.
	TT-Microcomputers	2-10-051-84	Initiated	Univ.
	CSU Administration	0-02-998-84	Completed	Univ.

Overall Activities FY 84 (6-30-85)

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Worldwide	Administration	0-01-999-84	Completed	Univ.

Colorado State University Activities FY 85 (6-30-85)

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Egypt	TA-Eval. of IMS	1-02-072-85	Formal	USAID
El Salvador	TA-PID Preparation	1-02-059-85	Initiated	USAID
India	TT-Dev. of Handbooks	2-13-027-85	Initiated	USAID
	TT-Technology Transfer	2-06-022-85	Formal	USAID
	TT-Training Materials	2-13-020-85	Formal	USAID
	TR-Training of Trainers	2-14-019-85	Formal	USAID
	TA-Priority Research	1-02-014-85	Formal	USAID
Indonesia	TA-Cost Recovery Study	1-02-074-85	Initiated	USAID
Nepal	TR-DA Workshop	2-02-031-85	Initiated	USAID
Pakistan	TR-Mgmt Off. Trng.-Planning	2-01-065-85	Initiated	USAID
	TA-Cur. Development	1-02-071-85	Initiated	USAID
Sri Lanka	SS-Landsat 85	3-04-038-85	Initiated	Univ.
	SS-Interfacing OFWM	3-04-036B85	Initiated	Univ.
	TA-Central Support-85	1-02-003-85	Initiated	USAID
Sri Lanka, Thailand, India	SS-On-Campus Support	3-04-037-85	Initiated	Univ.
Swaziland	TA-Irrig. Priorities	1-02-069-85	Finished	USAID
Worldwide	SS-Projected SS Expend.	3-04-058-85	Cancelled	Univ.
	TR-Seminar on System Rehab. Phase I	2-05-033-85	Initiated	Univ.
	TR-Seminar on System Rehab. Phase II	2-05-034-85	Formal	Univ.
	TR-Microcomputer Workshop	2-14-032-85	Initiated	Univ.
	SS-Interfacing OFWM Backstopping	3-04-036A85	Initiated	Univ.
	CSU Administration	0-02-998-85	Initiated	

CORNELL UNIVERSITY ACTIVITIES FY-84

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
India	SS-Community Kuhls in Himachal Pradesh	3-04-099-84	Cancelled	UNIV
Indonesia	TA-Small-Scale Irrigation and Management Project	1-02-011-84	Completed	USAID
Niger	SS-Small-Scale Irrigation in Niger, Preliminary	3-04-098-84	Completed	UNIV
	SS-Traditional and Developed Small-Scale Irrigation Study	3-04-111-84	Initiated	UNIV
Sri Lanka	TA-Farmer Organization Program	1-02-007-84	Completed	USAID
	SS-Impact of Physical and Operational Rehabilitation	3-04-097-84	Initiated	UNIV
Worldwide	TR-Main System Irrig.Task Force	2-06-077-84	Completed	AID/W
	TR-FAO/AID Expert: Indonesia	2-14-067-84	Completed	AID/W
	TT-Small-Scale Irrig.Task Force	2-14-065-84	Initiated	AID/W
	TT-Professional Visitors	2-11-068-84	Initiated	UNIV
	TT-Current Research Seminar "Planning"	2-14-075-84	Completed	UNIV
	SS-Small-Scale Completion	3-04-069-84	Initiated	UNIV
	SS-Analysis of Participation Completion (FY-83)	3-04-070-84	Initiated	UNIV
	SS-Management Intensities	3-04-096-84	Initiated	UNIV

CORNELL UNIVERSITY ACTIVITIES FY-85

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Haiti	Cayes Plain		Approved	USAID
India	TR-Farmer Organization Workshop	2-14-017-85	Cancelled	UNIV
Indonesia	TA-SSI Workshop	1-02-009-85	Initiated	USAID
Mauritania	TA-Peace Corps Assistance	1-02-061-85	Approved	USAID
Niger	SS-Traditional and Developed SSI	3-04-052-85	Initiated	UNIV
Pakistan	TR-Extension Training Recon.	2-06-063-85	Formal	USAID
Sri Lanka	TA-Socioeconomic Studies	1-02-004-85	Approved	USAID
Worldwide	TA-Recurrent Costs	1-02-062-85	Initiated	AID/W
	TR-Rehabilitation Game	2-13-048-85	Initiated	UNIV
	TR-Lessons Learned Workshop	2-14-049-85	Approved	UNIV
	TR-Current Research Seminar	2-14-050-85	Finished	UNIV
	SS-Indirect Investment Phase I	3-04-053-85	Finished	UNIV
	SS-Indirect Investment Phase II	3-04-054-85	Initiated	UNIV
	SS-Rural Employment	3-04-055-85	Initiated	UNIV
	SS-Management Intensities	3-04-056-85	Initiated	UNIV

Utah State University Activities

FY 83

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Africa	SS-Dev. of Social Parameters	3-04-057-83	Finished	UNIV
Dominican Republic	TA-Project PID	1-02-010-82	Completed	USAID
	TA-Project Paper (OFWM)	1-02-009-83	Completed	USAID
Ecuador	TT-Ecuavir Video	2-03-054-83	Initiated	UNIV/USAID
Haiti	TA-Irrigation Project Eval.	1-02-039-83	Completed	USAID
India	TA-Water Mgmt. & Training and Water Management CWM	1-02-020-82B) 1-02-029-83)	Completed	USAID
	TA-Olsen's TDY	1-02-037-83	Completed	USAID
	TA-Institutional Analysis	1-02-053-83	Finished	AID/WASH
Jordan	TA-Review of Curriculum	1-02-041-82	Completed	USAID
Mali	TA-OFWM Specialist	1-02-006-83	Completed	USAID
Pakistan	TA-Mayfield's TDY	1-02-040-83	Completed	USAID
Peru	TA-Special Study	1-04-027-82A	Finished	USAID
West Africa	SS-Small-Scale Irrigation	3-04-036-83	Completed	UNIV
Worldwide	TT-Start-up Workshop	2-14-055-83	Completed	UNIV
	TT-Short-term Nondegree	2-08-056-83	Completed	UNIV
	SS-On-Farm Irr. Sys. Selection	3-04-058-83	Completed	UNIV
	SS-Main Sys. Mgmt. & Rehab. and Action Research	3-04-059-83) 3-04-060-83)	Initiated	UNIV

Utah State University Activities

FY 84

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Africa	TA-African Irrigation Overview	1-02-108-84	Initiated	AID/WASH
Chile	TT-Conference	2-14-058-84	Completed	AID/WASH
Dominican Republic	TA-Weed Control Specialist	1-02-091-84	Finished	USAID
Ecuador	TT-Finishing Original Modules	2-03-054-84	Initiated	USAID
	TT-Instructional Manual	2-03-055-84	Cancelled	UNIV
Haiti	TA-Irrigation Sector Survey	1-04-017-84	Initiated	USAID
India	TA-Short Course	1-02-100-84	Finished	USAID
	TA-Maharashtra MIP	1-02-018-84	Finished	USAID
	SS-Irrig. Project Monitoring	3-04-020-84	Cancelled	UNIV
	TA-Maharashtra IT&M	1-01-021-84	Initiated	USAID
	TA-Soc/Tech Feas. Study	1-02-023-84	Approved	USAID
	TA-Madhya Pradesh MIP	1-01-025-84	Cancelled	USAID
	TT-Senior Officer's Workshop	2-04-053-84	Initiated	UNIV/USAID
	TA-Irr. Eval. & Strategy Review	1-02-103-84	Initiated	USAID
Jordan	TA-Irrigation Sector Survey	1-04-013-84	Finished	USAID
	TA-WM Specialist (TDY)	1-02-014-84	Initiated	USAID
	TT-On-Farm Water Management	2-01-015-84	Cancelled	USAID
Pakistan	TA-Irrigation Policies	1-02-101-84	Finished	USAID
	TA-Command Water Management	1-02-106-84	Finished	USAID
Peru	TA-Small & Med. Irri. Systems	1-02-035-84	Finished	USAID
	TA-Plan MERIS	1-01-112-84	Initiated	USAID
Senegal	TA-Bakel Irr. Per. Assist.	1-02-033-84	Approved	USAID
Swaziland	TA-Irri. System Monitoring	1-02-063-84	Pending	USAID
Tanzania	TA-Irrigation Study	1-02-082-84	Finished	USAID
Worldwide	TT-French Language Training	2-11-059-84	Initiated	UNIV
	TT-Irr. Sys. Mgmt. Task Force	2-14-060-84	Initiated	UNIV
	SS-Main Sys. Des. Mgmt., Rehab.	3-04-061-84	Initiated	UNIV
	SS-Selection of Irrig. Tech.	3-04-062-84	Completed	UNIV

Utah State University Activities

FY 85

COUNTRY	ACTIVITY	CODE	STATUS	SOURCE
Bolivia	TT-Small-Scale Course	2-14-010-85	Finished	USAID
	TT-On-Farm Water Mgmt. Course	2-14-011-85	Approved	USAID
Dominican Republic	TT-On-Farm Water Mgmt. Course	2-14-030-85	Cancelled	USAID
Chad	TA-Irrigated Agric. Assessment	1-02-073-85	Initiated	USAID
Egypt	TA-Water Use Project Evaluation	1-02-066-85	Finished	USAID
El Salvador	TA-Project Paper	1-02-077-85	Initiated	USAID
Honduras	TA-Irrigation Development	1-02-060-85	Finished	USAID
India	TA-Water Balance	1-02-023-85	Formal	USAID
	TA-Hydraulic Conductivity	1-02-024-85	Formal	USAID
	TA-Reservoir Operation	1-02-025-85	Deleted	USAID
	TA-University Curricula	1-02-013-85	Finished	USAID
	TT-Rapid Appraisal	2-14-016-85	Formal	USAID
	TT-Innovative Teaching	2-03-012-85	Formal	USAID
	TT-Main Systems Training	2-14-015-85	Deleted	USAID
	TT-Computer Assisted ISM	2-14-040-85	Deleted	USAID
	TT-Video Modules	2-14-075-85	Initiated	USAID
Jamaica	TA-Planning Activities	1-02-007-85	Approved	USAID
	TA-System Study	1-02-008-85	Approved	USAID
Jordan	TA-Advisory Service	1-02-028-85	Approved	USAID
Mauritania	TA-Plan of Action	1-02-076-85	Initiated	USAID
Morocco	TA-PID Development	1-02-002-85	Approved	USAID
Nepal	TA-Small- & Medium-Scale Irrig.	1-02-067-85	Finished	USAID
Sri Lanka	TA-Model Calibration	1-02-005-85	Initiated	USAID
Swaziland	TA-Irrigation Assistance	1-02-029-85	Approved	USAID
Worldwide	TT-Lessons Learned	2-14-039-85	Initiated	UNIV
	TT-French Language Training	2-11-041-85	Initiated	UNIV
	SS-Main Systems-Remote Sensing	3-04-042-85	Initiated	UNIV
Main Systems	SS-ISM Development	3-04-043A85	Initiated	UNIV
	SS-Thailand Case Study	3-04-043B85	Initiated	UNIV
	SS-Morocco Case Study	3-04-043C85	Initiated	UNIV
	SS-India Case Study	3-04-043D85	Deleted	UNIV
	SS-Interdisciplinary Workshop	3-04-043E85	Approved	UNIV

IV. ACTIVITIES

This section is a summary of the status of each activity under the WMSII Project. The review includes a synopsis of the purpose and status of each activity, the participants, and the time spent by each individual.

In order to clarify the project activities, this section has been divided into two sections, FY84 and FY85; FY84 and FY85 are divided into the following categories: Technical Assistance, Training and Technology, Special Studies and Administration.

A. FY84

A.1 Technical Assistance Activities

1. AFRICA - African Irrigation Overview

Code Number: 1-02-108-84

Status: Initiated Lead University: Utah State University

Summary of Work: On April 18-19, a presentation of the first and last chapters (the general conclusions and the implications for donors) was made in Washington, D.C. for AID, in combination with two other projects which have also been examining aspects of water management and land tenure in Africa. Attending on behalf of the Project in addition to Jack Keller and the PMT group were Jon Moris, Derrick Thom, Donald Humpal and Fred Weber. The presentation was well received.

In early June, the finalized comparative bibliography on irrigation in Africa, including country summaries and all the French literature sources, was completed. This will constitute Volume II of the overall report, and is now ready for printing.

Work on the remaining chapters of Volume I is now at an advanced stage, with the main sections on technical aspects complete and the socio-economic chapter well along. Chapters 1 and the final chapter are being revised to reflect critical comments received before and after the Washington presentation. Anticipated completion date is mid to late August.

Contact has been established with FAO through Peter Dielman in the Land and Water Division concerning joint participation in a planned FAO Conference for April of 1986. Moris will be traveling to Rome in late August to participate in the planning of the FAO review of African irrigation and to keep in close liaison with any WMS II follow-on activities.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Jon Moris	1.00 ppm	5.00 ppm	USU	Sociology
Derrick Thom	0.00 ppm	2.00 ppm	USU	History & Geog
Ed Sparling	0.00 ppm	0.25 ppm	CSU	Ag. Economics
T. Podmore	0.00 ppm	0.25 ppm	CSU	Soil Science
Mary Tiffen	0.00 ppm	1.00 ppm	Consultant	Social Science
Peter Stern	0.00 ppm	1.00 ppm	Consultant	Civil Engineering
Don Humpal	0.00 ppm	1.00 ppm	DAI	Agronomy
Linden Vincent	0.00 ppm	1.00 ppm	Consultant	Social Science
Fred Weber	0.00 ppm	1.00 ppm	Consultant	Forestry Engineer
Philippe Zgheib	0.00 gpm	3.00 gpm	USU	Civil Engineering
Janet Chambers	0.00 spm	1.50 spm	USU	Typing

2. INDIA - Irrigation Sector Evaluation and Strategy Review

Code Number: 1-02-103-84

Status: Initiated

Lead University: Utah State University

Summary of Work: The sector study writings have been completed and are now in the process of final typing and will then be printed (200 copies). The review comments provoked by the draft document presented last quarter have been addressed and the document has undergone considerable editing and revision. The six appendices have also been completed and 20 copies of each of them will be printed and sent upon request.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Jack Keller	0.00 ppm	2.04 ppm	USU	Irri. Engineering
Dean Peterson	0.00 ppm	2.00 ppm	Consultant	Irri. Engineering
Samuel Daines	0.00 ppm	3.50 ppm	SRD Research Group	Institutional
Walter Coward	0.00 ppm	0.75 ppm	Cornell	Sociology
Elisabeth Sims	0.00 ppm	1.00 ppm	UC/Berkeley	Sociology
Carl Gotsch	0.00 ppm	0.75 ppm	Consultant	Ag. Economics
J. Pawar	0.00 ppm	0.19 ppm	Consultant	Ag. Economics
M. Sawant	1.50 gpm	4.50 gpm	USU	Irri. Engineering
B. Mulik	1.50 gpm	4.50 gpm	USU	Irri. Engineering

3. INDIA - Maharastra Minor Irrigation Project

Code Number: 1-01-021-84

Status: Initiated Lead University: Utah State University

Summary of Work: As the India coordinator, Ted Olsen is finishing his tour of duty in India. Because of his arrangements for termininating his duties in that country, we have not been able to yet obtain from him a quraterly report.

Staffing:

PERSON	ACTIVITY TIME		AFFILIATION	SPECIALIZATION
	Quart.	Cum.		
Edwin C. Olsen	3.00 ppm	9.00 ppm	USU	Irrig. Engineering

4. PAKISTAN - Command Water Management Planning

Code Number: 1-02-114-84

Status: Initiated Lead University: Colorado State University

Summary of Work: This activity on Management Planning consists of Diagnostic Analysis (DA) and development of a management plan. Prior efforts had planned a DA study and efforts were engaged in adapting computer models and calibrating these models for development of a management plan in Pakistan. Subsequent decisions under Curriculum Development (Code No. 1-02-071-85) during April resulted in a decision to do a DA workshop and provide a one week workshop on developing a management plan. The subproject area was changed from the subproject area in the Sind to the Naybeg Subproject area in Punjab. The DA team (Haider, Clyma, Sritharan, Shinn, Shafique, Luebs and Warner) travelled to Pakistan to collect data for the management plan and prepare for the DA.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Mohammed Haider	0.75 ppm	6.00 ppm	CSU	Economics
Wayne Clyma	1.00 ppm	4.55 ppm	CSU	Agricultural Engr.
S. Sritharan	3.00 ppm	10.70 ppm	CSU	Civil Engr.
Ed Shinn	2.50 ppm	10.20 ppm	CSU	Sociology
M. Shafique	2.00 ppm	9.70 ppm	CSU	Agricultural Engr.
S. Karaki	0.00 ppm	0.80 ppm	CSU	Civil Engr.
Ralph Luebs	1.25 ppm	1.25 ppm	Consultant	Agronomy
J. Warner	0.58 ppm	0.91 ppm	CSU	Civil Engr.
Tom Sheng	0.00 ppm	1.75 ppm	CSU	Civil Engr.
Oguz Nayman	0.00 ppm	0.67 ppm	CSU	Tech. Journalism
Max Donkor	1.50 gpm	5.17 gpm	CSU	Agricultural Engr.
Support Staff	0.55 ppm	1.40 ppm	CSU	Support Staff

5. PERU - Plan MERIS

Code Number: 1-01-112-84

Status: Initiated Lead University: Utah State University

Summary of Work: Despite many problems, mostly administrative in nature, progress has been made in the Pilot Project of Plan MERIS in San Marcos. Field activities continued to be hampered by lack of an adequate revolving fund to cover day to day expenses and equipment. The field team is making progress with data collection and land preparation for planning, although acquisition of agricultural imputs such as seeds and fertilizers is behind schedule.

Due to pressure from the AID Mission, the Chief of Party has been removed. Also, the Field Team Leader has been relieved of his duties. Both of these actions were effective June 15, 1985. A search is being made for one person to assume the duties of both COP and Field Team Leader. A suitable candidate has been identified and hopefully will be approved by AID and GOP and will be in place no later than late July.

There have been some delays in acquisition and shipment of irrigation equipment due to heavy seasonal demands. It is anticipated that it will have to be done by some improvements of the traditional surface irrigation methods, namely contour furrows.

WMS II personnel on TDY to San Marcos included Jack Keller, PI; Kern Stutler, Campus Coordinator; David James, Agronomist; and Don Kidman, Field Agronomist who finished his TDY and returned to the United States in mid-April. They were able to assist in training and field work so that all anticipated research and demonstration could be carried out during the present cropping season. This is largely because of the extra effort of the Peruvian field team.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
R. Kern Stutler	1.25 ppm	2.75 ppm	USU	Irrig. Engineering
Bill Farnsworth	0.00 ppm	1.78 ppm	USU	Ag. Extension
David James	0.75 ppm	1.53 ppm	USU	Soil Science
Mark Lusk	0.00 ppm	1.00 ppm	USU	Sociology
Larry Bond	0.00 ppm	1.00 ppm	USU	Ag. Economics
Barbara Lynch	0.00 ppm	1.78 ppm	Cornell	Anthropology
Bruce Anderson	0.00 ppm	3.12 ppm	Consultant	Irrig. Engineering
Ivan Corbridge	2.50 ppm	7.97 ppm	Consultant	Ag. Economics
Mark Anderson	0.00 ppm	1.19 ppm	Consultant	Irrig. Engineering
Renato Rossi	2.00 ppm	7.00 ppm	Consultant	Irrig. Engineering
Don C. Kidman	0.00 ppm	1.50 ppm	Consultant	Agronomy
Luis Barrios	3.00 ppm	6.00 ppm	Consultant	Extension
Julio Guerra	3.00 ppm	6.00 ppm	Consultant	Administration
Jose Luis Villaran	3.00 ppm	6.00 ppm	Consultant	Sociology
Carlos Villanueva	3.00 ppm	6.00 ppm	Consultant	Ag. Economics
Carlos Nonone	3.00 ppm	6.00 ppm	Consultant	Agronomy

6. SRI LANKA - Long-Term WM Specialist

Code Number: 1-01-109-84

Status: Initiated Lead University: Colorado State University

Summary of Work: Larry Nelson continues to work with the Sri Lanka mission to lead interdisciplinary teams of Sri Lankans to gather data to understand the agricultural and water management problems facing the farmers, irrigation officials, and others. Data has been gathered during the Yala season by agricultural engineers, economists, agronomists and rural sociologists. Dr. Nelson was assisted under the central support activity by Mohammed Haider and Tom Sheng. They helped in specifying and working with counterparts in determining data needs.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Larry Nelson	3.00 ppm	15.00 ppm	CSU	Agronomy

7. SRI LANKA - Design Team

Code Number: 1-02-102-84

Status: Initiated Lead University: Colorado State University

Summary of Work: The final draft of the report on the project design paper for the Sri Lankan mission was sent last quarter, but we are waiting to hear if the mission has any comments.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Alan Early	0.00 ppm	3.00 ppm	CSU	Agricultural Engr.
Wayne Clyma	0.00 ppm	0.60 ppm	CSU	Agricultural Engr.
Jeff Brewer	0.00 ppm	2.00 ppm	Consultant	Social Scientist
R. McConnen	0.00 ppm	0.00 ppm	Consultant	Economics
G. V. Skogerboe	0.00 ppm	0.00 ppm	USU	Agricultural Engr.
Darlene Fowler	0.00 ppm	1.25 ppm	CSU	Tech. Journalism
Support Staff	0.08 ppm	2.09 ppm	CSU	Support Staff

A. FY84

A.2 Training and Technology Transfer Activities

1. PAKISTAN - CWM Officials Workshop

Code: 2-04-019-84

Status: Initiated Lead University: Colorado State University

Summary of Work: Under another activity, this workshop was redefined, a new plan developed and the activity scheduled for early fall. The plans for the activity now include primarily the tours of India and Sri Lanka.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Ramchand Oad	0.00 ppm	2.25 ppm	CSU	Agricultural Engr.
Mohammed Haider	0.00 ppm	0.50 ppm	CSU	Economics
Wayne Clyma	0.00 ppm	1.14 ppm	CSU	Agricultural Engr.
Robby Laitos	0.00 ppm	0.25 ppm	CSU	Sociology

2. WORLDWIDE - DA Trainers Workshop

Code Number: 2-08-040-84

Status: Initiated Lead University: Colorado State University

Summary of Work: A workshop to train those interested in water management training including future DA workshops is being planned for August 19-21. Robby Laitos is coordinating/directing the workshop to be held on the CSU campus.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Ramchand Oad	0.00 ppm	1.50 ppm	CSU	Agricultural Engr.
Robby Laitos	0.50 ppm	1.00 ppm	CSU	Sociology
Oguz Nayman	0.00 ppm	0.42 ppm	CSU	Tech. Journalism
Vicki Duneman	0.00 ppm	0.33 ppm	CSU	Tech. Journalism

3. WORLDWIDE - Survey of Training

Code Number: 2-09-049-84

Status: Formal Lead University: Colorado State University

Summary of Work: A training workshop to review present project training programs and to develop strategies for future programs was approved by AID/Washington. Plans are now being made for conducting the workshop in early fall.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Lynn Gibson	0.00 gpm	3.00 gpm	CSU	Economics
Al Madsen	0.00 ppm	1.31 ppm	CSU	Economics

4. WORLDWIDE - Microcomputers

Code Number: 2-10-051-84

Status: Initiated Lead University: Colorado State University

Summary of Work: Computer applications were developed and tested to assist trainees in DA workshops to analyze data and simplify report writing. Further testing of computer programs and the users' manual was done during the TDY assignment in Sri Lanka (May-June). The users' manual was refined and completed in draft form by Dr. Sheng.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Dave Molden	0.00 gpm	3.49 gpm	CSU	Civil Engr.
Tom Sheng	0.25 ppm	4.00 ppm	CSU	Civil Engr.
Dan Sunada	0.00 ppm	2.33 ppm	CSU	Civil Engr.
Mohammed Haider	0.00 ppm	0.50 ppm	CSU	Economics

5. WORLDWIDE - Professional Visitors & Networking

Code Number: 2-11-039-84

Status: Initiated Lead University: Colorado State University

Summary of Work: Several visitors came to CSU during this quarter including Mr. Nukool Thongtwee from Thailand and Mr. Nasri and Cheema from Pakistan.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Oguz Nayman	0.00 ppm	0.67 ppm	CSU	Tech. Journalism

6. WORLDWIDE - Brochures, Newsletters, Publications

Code Number: 2-12-044-84

Status: Initiated Lead University: Colorado State University

Summary of Work: Ms. Fowler made corrections in project brochure, worked on the format for the project newsletter, and took care of reprinting project publications.

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Darlene Fowler	2.30 ppm	6.93 ppm	CSU	Tech. Journalism

7. WORLDWIDE - Instructor's Guide for DA

Code Number: 2-13-042-84

Status: Initiated Lead University: Colorado State University

Summary of Work: No activity this quarter.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Larry Nelson	0.00 ppm	2.25 ppm	CSU	Agronomy
Robby Laitos	0.00 ppm	1.00 ppm	CSU	Sociologist
Ramchand Oad	0.00 ppm	0.88 ppm	CSU	Agricultural Engr.
Mohammed Haider	0.00 ppm	1.00 ppm	CSU	Economics

A. FY84

A.3 Special Studies

1. SRI LANKA Impact of Physical and Operational Rehabilitation on Equity of Water Distribution and Performance of Farmer Organizations

Code Number: 3-04-097-84

Status: Initiated Lead University: Cornell University

Summary of Work: This study assesses experience in the Left Bank/Gal Oya, Sri Lanka in shifting and sharing responsibilities for main system management, with a focus on activities such as measuring and monitoring water deliveries with farmer participation. Zolezzi has completed a draft final report which has been returned with comments.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Hammond Murray-Rust	0.0 ppm	1.0 ppm	Cornell	Irri. Engineering
Oscar Zolezzi	0.0 gsm	4.5 gsm	Cornell	Irri. Engineering

2. WORLDWIDE Comparative Analysis of Farmer Participation

Code Number: 3-04-070-84

Status: Initiated Lead University: Cornell University

Summary of Work: Work on a state-of-the-art paper continues, with publication planned in early 1985. Gerard Finnan is editing the final draft. The revised current draft will be published as a WMS-II report.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Norman Uphoff	0.0 ppm	3.0 ppm	Cornell	Political Science
Nancy St. Julien	0.0 ppm	10.0 gsm	Cornell	City & Regional Planning
Bryan Bruns	0.0 gsm	3.0 gsm	Cornell	Rural Sociology
Ruth Meinzen-Dick	0.0 gsm	5.0 gsm	Cornell	Rural Sociology
Gerard Finnan	0.25 gsm	0.25 gsm	Cornell	City & Regional Planning

3. WORLDWIDE Small-Scale Irrigation Systems Study Completion

Code Number: 3-04-069-84

Status: Initiated Lead University: Cornell University

Summary of Work: E. Walter Coward, Jr.'s paper, "Improving Policies and Programs for the Development of Small-Scale Irrigation Systems," was published in September 1984 as Water Management Synthesis Report Number 27. "Small-Scale Irrigation: An Examination of Critical Design Issues" (Wensley, Norman, Merrill and Walter) and Agency Capacities in Small-Scale Irrigation Development" (E.W. Coward, Jr. and Susan Turnquist) are being prepared for publication. "Community Participation and Local Organization for Small-Scale Irrigation" (Barbara D. Lynch) has been published as Water Management Synthesis Report Number 34.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
E.Walter Coward, Jr.	0.0 ppm	3.1 ppm	Cornell	Rural Sociology
Michael Walter	0.0 ppm	3.1 ppm	Cornell	Agri. Engineering
James Nickum	0.0 ppm	6.0 ppm	Cornell	Economics
Barbara D. Lynch	0.0 ppm	7.5 ppm	Cornell	Rural Sociology
Beth Rose	0.0 ppm	2.4 ppm	Cornell	Editing
Ray Norman	0.0 gsm	12.0 gsm	Cornell	Agri. Engineering
Susan Turnquist	0.0 gsm	12.0 gsm	Cornell	Rural Sociology
Luin Goldring	0.0 gsm	0.1 gsm	Cornell	Rural Sociology

4. WORLDWIDE - Interfacing Farm & Mgmt. Systems

Code Number: 3-04-045-84

Status: Terminated Lead University: Colorado State University

Summary of Work: Activity was terminated retroactive to September 30, 1984.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Mohammed Haider	0.00 p:	0.50 ppm	CSU	Economics
Robby Laitos	0.00 ppm	0.50 ppm	CSU	Sociology
Edwin Shinn	0.00 gpm	2.00 ppm	CSU	Sociology
John Wilkins-Wells	0.00 gpm	2.50 ppm	CSU	Sociology
Kanda Paranakian	0.00 gpm	4.50 ppm	CSU	Sociology
Dave Freeman	0.00 ppm	4.67 ppm	CSU	Sociology
Robert Young	0.00 ppm	2.00 ppm	CSU	Economics
Al Early	0.00 ppm	1.25 ppm	CSU	Ag. Engineering
Dennis Wendell	0.00 gpm	0.50 gpm	CSU	Sociology

A. FY84

A.6 Summary FY84

A.6 Summary FY84

A review of the activity categories of technical assistance, training and technology, and special studies shows the following profile relative to institutional status and specialization areas of persons employed in each activity. This summary does not include administrative activities.

TABLE I. Amount of Employment Time Relative to Organizational Affiliations

AFFILIATIONS:	QUARTERLY EMPLOYMENT TIME:
Colorado State University	11.21
Colorado State Graduate Students	1.50
Cornell University	.00
Cornell University Graduate Students	.25
Utah State University	6.00
Utah State Graduate Students	3.00
Independent Consultants	20.75

One important objective and activity of the WMSII project is that of increasing the quality and expanding the pool of expertise in water management. The universities are fulfilling this objective by involving professionals from other institutions in activities, employing persons who are not affiliated with any institutions, and by incorporating graduate students whenever appropriate.

The employment profile for the project activities of Utah State University Colorado State University, and Cornell University, is shown on Tables II, III, and IV. These figures do not include administrative activities.

TABLE II. Colorado State University Employment Profile

SOURCE OF PERSONNEL:	QUARTERLY EMPLOYMENT TIME:
Colorado State University	11.21
Colorado State Graduate Students	1.50
Independent Consultants	1.25

TABLE III. Cornell University Employment Profile

Cornell University	.00
Cornell Graduate Students	.25

TABLE IV. Utah State University Employment Profile

Utah State University	6.00
Utah State Graduate Students	3.00
Independent Consultants	19.50

B. FY85

B.1 Technical Assistance

1. CHAD - Irrigated Agricultural Assessment

Code Number: 1-02-073-85

Status: Initiated Lead University: Utah State University

Summary of Work: The seven Chad Irrigation Assessment Team members embarked on their mission in late June and will be returning in late July. An outstanding team has been assembled which represents both the physical and social sciences in a balanced way. The team incorporates worldwide expertise as indepth Sahalean experience and competency with the French language; each member of the team comes from a different institution. The team members are: Jack Keller, Irrigation Engineer and Team Leader; Milton Barnett, Rural Sociologist; Thomas Weaver, Agricultural Economist; Jean-Louis Balbo, Agricultural Engineer; Donald Humpal, Agronomist; Abraham Waldstein, Sociologist; Djime D. Adoum, Agronomist; and Madelise Blumenroeder, Foreign Language Translator.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Jack Keller	0.00 ppm	0.00 ppm	USU	Irri. Engineering
Milton Barnett	0.25 ppm	0.25 ppm	Cornell	Sociology
Thomas Weaver	0.25 ppm	0.25 ppm	Consultant	Ag. Economics
Donald Humpal	0.25 ppm	0.25 ppm	DAI	Agronomy
Abraham Waldstein	0.25 ppm	0.25 ppm	AID/Washington	Sociology
Jean-Louis Balbo	0.25 ppm	0.25 ppm	Consultant	Ag. Engineering
Djime D. Adoum	0.25 ppm	0.25 ppm	Consultant	Agronomy
Madelise Blumenroeder	0.00 ppm	0.00 ppm	Consultant	Translation

2. EL SALVADOR - Project Paper

Code Number: 1-02-077-85

Status: Initiated

Lead University: Utah State University

Summary of Work: A multidisciplinary group went to El Salvador to prepare a project paper for USAID/El Salvador and the Government of El Salvador. The original intent of the team was to prepare a public sector oriented activity. Upon arrival to the country the team was asked to reorient the study to a private sector irrigation project. Since the team agreed with the Mission's new approach, the irrigation activity was focused principally upon fruit and vegetable production for export through trickle, sprinkle and drip irrigation. Samuel Daines was the team leader and resource planner, Steve Brower was the management training extension expert, Carlton Infanger served as the agricultural economist, Wade Andrews served as the sociologist, Bruce Brower (Cornell) was the irrigation extension specialist, and George Hargreaves functioned as the irrigation engineer.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
George Hargreaves	1.25 ppm	1.25 ppm	USU	Irrig. Engineering
Samuel Daines	1.50 ppm	1.50 ppm	SRD Research Group	Resource Planning
Steven Brower	1.25 ppm	1.25 ppm	SRD Research Group	Mgmt. Tr. Exten.
Carlton Infanger	1.00 ppm	1.00 ppm	SRD Research Group	Ag. Economics
Wade Andrews	1.00 ppm	1.00 ppm	SRD Research Group	Sociology
Bruce Brower	1.00 ppm	1.00 ppm	SRD/Cornell	Irr. Extension

3. EL SALVADOR - PID Preparation

Code Number: 1-02-059-85

Status: Initiated Lead University: Colorado State University

Summary of work: No activity this quarter.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Mohan Junna	0.00 ppm	1.22 ppm	CSU	Agricultural Engr.
Darlene Fowler	0.00 ppm	0.65 ppm	CSU	Tech. Journalism
Richard Butler	0.00 ppm	1.00 ppm	Consultant	Social Scientist

4. INDONESIA - Cost Recovery Study

Code Number: 1-02-074-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Ramchand Oad went to Indonesia to participate with a consulting firm in a case study of indirect cost recovery. He analyzed and reported the relationship between the physical infrastructure, the operation system and farmers involvement. He examined links between water control and reliability, technical water use efficiency and equity in distribution.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Ramchand Oad	2.37 ppm	2.52 ppm	CSU	Agricultural Engr.

5. INDONESIA Small-Scale Irrigation Workshop and Other Technical Assistance

Code Number: 1-02-009-85

Status: Initiated Lead University: Cornell University

Summary of Work: This activity consists of a series of efforts in support of irrigation development in Indonesia including technical assistance in analysis of irrigation regulation and water disputes, engineering assistance to various small-scale irrigation projects, and a workshop for selected Indonesian government officials from West Java, NTB and NTT. Jeff Brewer has been compiling and editing the final report for this activity.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Loren Parks	0.0 ppm	1.0 ppm	University of California (Davis)	Economics
Ramchand Oad	0.0 ppm	1.0 ppm	CSU	Engineering
Andrew Keller	0.0 ppm	1.0 ppm	USU	Irri. Engineering
Jeff Brewer	0.25 ppm	1.25 ppm	CSU	Anthropology

6. MAURITANIA - PID Scope of Work

Code Number: 1-02-076-85

Status: Initiated Lead University: Utah State University

Summary of Work: A three-man team went to Mauritania to develop a scope of work for a project identification document for USAID/Mauritania. During the quarter the team arrived in Mauritania to start its work, but the team has not returned yet and therefore the work is still in progress. Derrick Thom is the team social scientist, Mark Lynham is the agricultural engineer and Donald Slack is the team agricultural economist.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Derrick Thom	0.50 ppm	0.50 ppm	USU	Social Geography
Donald Slack	0.50 ppm	0.50 ppm	U. of Arizona	Ag. Economics
Mark Lynham	0.50 ppm	0.50 ppm	U. of Arizona	Ag. Engineering

7. PAKISTAN - Curriculum Development

Code Number: 1-02-071-85

Status: Initiated Lead University: Colorado State University

Summary of Work: The team met with the USAID project manager and the Federal Coordinator and developed training programs in the areas of (1) Management Training; (2) Management Planning including Diagnostic Analysis and development of a management plan; (3) assistance to Subproject Management Offices in Baseline Data and Management Information Systems, (4) Extension Training, and (5) Command Water Management Officials Tour. These programs were reviewed by the Subproject Managers in a workshop at the beginning of the TDY and were again reviewed and revised at the end of the TDY. In addition, the team developed detailed scopes of work and budgets for each activity in the above categories. Dr. Shafique travelled to Pakistan and completed preliminary arrangements and initiated plans for the DA workshop.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Wayne Clyma	2.00 ppm	2.25 ppm	CSU	Agricultural Engr.
M. Shafique	1.00 ppm	1.00 ppm	CSU	Agricultural Engr.
Richard McConnen	1.00 ppm	1.00 ppm	MSU	Economics
Jeffery Brewer	1.00 ppm	1.00 ppm	Consultant	Anthropology

8. SRI LANKA - Model Calibration

Code Number: 1-02-005-85

Status: Initiated

Lead University: Utah State University

Summary of Work: Gaylord Skogerboe worked with Willem Vlotman and Bodawala Lekamlage Karaunatilaka in investigating control structures for discharge ratin that could be used in evaluating channel losses and improving the operation of the Left Bank Canal System of the Gal Oya Irrigation Project. All of this information will be incorporated into a steady-state computer model that has been developed by PRC/ECI Consultants to the AID-funded Water Manyement Project. Voltman completed a detailed work plan for the activity in June. This activity was initiated in the current period and will be completed in the next quarter.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Gaylord Skogerboe	0.75 ppm	0.75 ppm	USU	Irrig. Engineering
Willem Vlotman	1.00 ppm	1.00 ppm	USU	Irrig. Engineering

9. SRI LANKA Socioeconomics Studies for Rehabilitation

Code Number: 1-02-004-85

Status: Initiated

Lead University: Cornell University

Summary of Work: Norman Uphoff returned to Sri Lanka to review the Institutional Organizer/Farmer Organizer program in Ampare. He traveled to Galgamuwa (GITI) and returned to Ampare to participate in the training program for a new batch of Sinhala speaking IOs. In addition he consulted with mission and ARTI personnel in Colombo.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Norman Uphoff	1.0 ppm	1.0 ppm	Cornell	Political Science

10. WORLDWIDE Meeting Recurrent Costs of Irrigation Systems—A Systematic Assembly and Synthesis of What is Known

Code Number: 1-02-062-85

Status: Initiated Lead University: Cornell University

Summary of Work: This activity consists of a subcontract to the University of Minnesota to support the research of K.W. Easter and a graduate student on financing recurrent costs of irrigation programs in developing countries. The study will include a literature review, four or five case studies, and analysis and synthesis of findings. In addition, Coward and Uphoff have prepared a complementary paper entitled O&M Costs in Irrigation: Reappraising Government and Farmer Responsibilities and Rights. This paper considers strategies for enabling farmer organizations to assume control of O&M activities on large as well as small-scale systems. It was delivered by Uphoff at the ARDC workshop held April 22-26, Los Banos, the Philippines. The Minnesota report will summarize literature and experiences to suggest ways in which AID can reduce recurrent costs in its projects.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
K. William Easter	0.6 ppm	1.8 ppm	U. Minnesota	Agri. Economist
E.W. Coward, Jr.	.25 ppm	.50 ppm	Cornell	Rural Sociology
Norman Uphoff	.25 ppm	.50 ppm	Cornell	Political Science
Graduate Student	1.5 gsm	4.5 gsm	U. Minnesota	Agri. Economist

B. FY85

B.2 Training and Technology Transfer

1. INDIA - Video Modules

Code Number: 2-03-075-85

Status: Initiated

Lead University: Utah State University

Summary of Work: During the quarter a number of previously approved activities were reorganized into Video Modules for Main System Management in India. The activity is to provide six video programs documenting main system operations. During the quarter equipment was ordered and approximately 90 percent of the content formation was completed. The modules group met with Wynn Walker and his group and developed the content outlines for each of the six programs. In addition they worked with individual main system group members and developed storyboards relative to the outlines and scripts. Tom Cronkite is directing the non-engineering aspects of the activity including the development of the story-boarding; Bonnie Reid and Elaine Campanella have developed video content and Gary Merkley has been developing the engineering aspects of the main system modeling for the videos.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Tom Cronkite	1.00 ppm	1.00 ppm	USU	Instructional Developing
Bonnie Reid	1.00 ppm	1.00 ppm	USU	Instructional Dev. Spec.
Elaine Campanella	1.00 ppm	1.00 ppm	USU	Instructional Dev. Spec.
Kern Stutler	0.00 ppm	0.00 ppm	USU	Ag. Engineering
Gary Merkley	1.00 ppm	1.00 ppm	USU	Ag. Engineering

2. INDIA - Development Of Handbooks

Code Number: 2-13-027-85

Status: Initiated Lead University: Colorado State University

Summary of Work: No activity this quarter because India has not approved travel for Robinson.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
A. R. Robinson	0.00 ppm	0.62 ppm	Consultant	Agricultural Engr.
Ramchand Oad	0.00 ppm	1.10 ppm	CSU	Agricultural Engr.
Mel Skold	0.00 ppm	1.00 ppm	CSU	Economics
William Laitos	0.00 ppm	0.25 ppm	CSU	Sociologist
Darlene Fowler	0.00 ppm	1.50 ppm	CSU	Tech. Journalism

3. NEPAL - DA Workshop

Code Number: 2-02-031-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Robby Laitos prepared team TDY Report and revised draft of technical report.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
William Laitos	0.80 ppm	4.45 ppm	CSU	Sociology
Oguz Nayman	0.00 ppm	3.25 ppm	CSU	Tech. Journalism
Tom Sheng	0.00 ppm	2.50 ppm	CSU	Civil Engineer
Al Early	0.00 ppm	1.40 ppm	CSU	Agricultural Engr.
Duane Johnson	0.00 ppm	2.00 ppm	CSU	Agronomy

4. WORLDWIDE - Seminar on System Rehab. Phase I

Code Number: 2-05-033-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Alan Early with assistance from Robby Laitos continued work on the state-of-the-art rehabilitation paper. Final plans were made for a review workshop in September to review the draft and make suggestions for improvement.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Mohammed Haider	0.00 ppm	0.75 ppm	CSU	Economics
Mohan Reddy Junna	0.00 ppm	1.00 ppm	CSU	Agricultural Engr.
Alan Early	2.00 ppm	2.00 ppm	CSU	Agricultural Engr.
William Laitos	1.25 ppm	1.25 ppm	CSU	Sociologist

5. WORLDWIDE - Microcomputer Workshop

Code Number: 2-14-032-85

Status: Initiated Lead University: Colorado State University

Summary of Work: The workshop informational brochure was completed and printed to give missions/host countries information about the proposed workshop and to see if one of them would like to host it. Copies of this brochure have been distributed to mission/host countries. Several irrigation automation videotapes were shot on location in Arizona and California for preparation of a videotape for the workshop.

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
John Webb	1.25 ppm	1.25 ppm	Consultant	Tech. Journalism
Tom Sheng	0.25 ppm	0.25 ppm	CSU	Civil Engr.

6. WORLDWIDE - French Language Training

Code Number: 2-11-041-85

Status: Initiated

Lead University: Utah State University

Summary of Work: A graduate student tutored Wynn Walker and Bryant Smith in French language during the quarter. Jon Moris was not able to participate because of his heavy obligations to the African Irrigation Overview activity.

Staffing:

PERSON	ACTIVITY TIME		AFFILIATION	SPECIALIZATION
	Quart.	Cum.		
Jean Paul Favre	0.50 gpm	0.87 gpm	USU	Engineering

B. FY85

B.3 Special Studies

1. MOROCCO- Case Study

Code Number: 3-04-043C85

Status: Initiated Lead University: Utah State University

Summary of Work: A team went to Morocco to study institutional and irrigation factors which influenced irrigation system management. Ross Robson participated as an institutional expert to examine human resource development issues with regard to main system management. Andrew Keller and Wynn Walker examined irrigation factors and assisted Robson in calculating the level of training requirements for main system management. The trip began during the quarter but was not completed by the end of the quarter.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Wynn Walker	0.25 ppm	0.25 ppm	USU	Irrig. Engineering
Ross Robson	0.75 ppm	0.75 ppm	USU	Human Resources Mgmt.
Andrew Keller	0.75 gpm	0.75 gpm	USU	Graduate Student

2. NIGER Traditional and Developed Small-Scale Irrigation Study

Code Number: 3-04-052-85 (formerly 3-04-111-84)

Status: Initiated Lead University: Cornell University

Summary of Work: W. Ray Norman has established research sites at Moullela and Guidan-Magagi, two ONAHA perimteres in the Maggia Valley and at Koumassa, a traditional onion gardening site. Data collected include plot measurements and mapping, plant density counts, timing of furrow and basin wetting, infiltration rates, soil moisture monitoring. Norman has been interviewing farmers to gather data outside of the research sites with Nigerien assistants. In addition, at the request of AID/Niamey, Norman has consulted with other groups in Niger who have an interest in small-scale irrigation. The budget for this activity was revised to include trips for Tammo Steenhuis, Agricultural Engineering, and Milton Barnett, Rural Sociology, to consult with Norman in the field.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Ray Norman	3.0 gsm	12.5 gsm	Cornell	Agri. Engineering
Mike Walter	0.0 ppm	.75 ppm	Cornell, AID/Delhi	"
John Wells	0.0 gsm	3.5 gsm	Cornell	"

3. SRI LANKA - SS-Interfacing On-Farm Water Management

Code Number: 3-04-036B-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Haider was in Sri Lanka to assist Larry Nelson with counterpart training and economic data collection for Yala season. Tom Sheng and Mohan Reddy Junna were assisting in setting up data collection for on-farm and main system irrigation. Pat and John Wilkins-Wells began work at the Parakrama Samudra Scheme. They hired host country counterparts and began working with them to gather sociology data during Yala season.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Pat Wilkins-Wells	2.25 ppm	2.25 ppm	CSU	Sociology
John Wilkins-Wells	2.25 ppm	2.25 ppm	CSU	Sociology
Mohammed Haider	0.25 ppm	0.25 ppm	CSU	Economics
Tom Sheng	0.50 ppm	0.50 ppm	CSU	Civil Engineer

4. SRI LANKA - Landsat 85

Code Number: 3-04-038-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Tim Martin received computer data for the 4-tank site in Sri Lanka and prepared to go to Sri Lanka to gather ground-truth data for the Yala season.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Tim Martin	2.00 ppm	3.50 ppm	CSU	Agronomy

5. THAILAND - Case Study

Code Number: 3-04-043B85

Status: Initiated

Lead University: Utah State University

Summary of Work: Effort to develop general computer code for this irrigation systems analysis were continued. WMS staff and students involved were Dr. Wynn Walker, Mr. G.P. Merkley, Mr. A.A. Keller, Mr. W.F. Vlotman, and Mr. F.N. Gitchuki. Non-WMS personnel included Mr. R. Abdellaoui and Mr. F. Abdelwahab of Morocco, Dr. T.C. Hughes and Mr. J. Garcia of USU's Civil Engineering Department. The basic technical components have been completed and were refined and tested. For instance, the simulation codes are developed for unit command area water requirements and yield, the hydraulic regime of the main system, and the operational aspects of reservoir systems. Some basic components are still under development, namely the main system allocation codes.

During the April-June 1985 quarter, the USU team began integrating the software via three case studies: (1) the India Synthebad project which is also the basis of the computer application modules; (2) the Thailand Lam Nam Oon and Hui Aeng Projects; and (3) a core study involving another synthetic project patterned after a project in Central Utah which has been designed to test the software under a demand water allocation strategy. It is anticipated that these case studies will provide the best mechanics for developing the submodel interfaces and the user interface.

Staffing:

PERSON	ACTIVITY TIME		AFFILIATION	SPECIALIZATION
	Quart.	Cum.		
Wynn Walker	1.58 ppm	1.58 ppm	USU	Irrig. Engineering
Gary Merkley	2.00 ppm	2.00 ppm	USU	Irrig. Engineering
Trevor Hughes	1.25 ppm	1.25 ppm	USU	Civil Engineering
Kanching Kawsard	1.50 gpm	4.50 gpm	USU	Irrig. Engineering
Charoon Pajsoontorn	1.50 gpm	3.00 gpm	USU	Irrig. Engineering
Andrew Keller	1.25 gpm	1.25 gpm	USU	Irrig. Engineering
W.F. Vlotman	1.00 gpm	1.00 gpm	USU	Irrig. Engineering
F.N. Gitchuki	2.00 gpm	2.00 gpm	USU	Irrig. Engineering

6. WORLDWIDE Phase II: Comparative Analysis of Indirect Investment Strategies for Development of Small-Scale Irrigation Works

Code Number: 3-04-054-85

Status: Initiated Lead University: Cornell University

Summary of Work: Graduate assistants Wensley and Goldring have been revising a draft paper prepared on indirect investments in US Irrigation by the Soil Conservation Service, the Bureau of Reclamatation, the Army Corps of Engineers, and the states. This paper includes an extensive literature review, analysis of indirect investment strategies in the US, and their application to Third World situations. Plans are being made to select sites for field studies in Indonesia, Africa, and Andean South America.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
E. Walter Coward, Jr.	0.0 ppm	0.25 ppm	Cornell	Rural Sociology
Chris Wensley	3.0 gsm	5.0 gsm	Cornell	Agri. Engineering
Luin Goldring	2.0 gsm	4.0 gsm	Cornell	Rural Sociology

7. WORLDWIDE Rural Employment and Irrigation System Performance

Code Number: 3-04-055-85

Status: Initiated Lead University: Cornell University

Summary of Work: Graduate assistant Ruth Meinzen-Dick is completing a literature search and review of materials dealing with the relationships between employment and irrigation development. Not only will research literature be reviewed, but project evaluation documents and knowledgeable individuals will also be consulted.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Ruth Meinzen-Dick	3.0 gsm	9.0 gsm	Cornell	Rural Sociology
E. Walter Coward, Jr.	0.25 ppm	0.25 ppm	Cornell	Rural Sociology

8. WORLDWIDE - SS-Interfacing On-Farm Water Management, Backstopping

Code Number: 3-04-036A-85

Status: Initiated Lead University: Colorado State University

Summary of Work: Approval for John and Pat Wilkins-Wells to go to Sri Lanka was obtained from the GOSL and the mission. Mr. Wendell continued to do research on interfacing on farm water management to support the Sri Lanka effort. Mohan Reddy prepared materials for use in Sri Lanka, while Alan Early developed a Thailand proposal.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION AREA
Dennis Wendell	1.50 ppm	4.50 ppm	CSU	Sociology
Kanda Paranakian	0.00 ppm	1.50 ppm	CSU	Sociology
David M. Freeman	0.00 ppm	0.50 ppm	CSU	Sociology
John Wilkins-Wells	0.00 ppm	3.00 ppm	CSU	Sociology
Mohan Junna	0.75 ppm	0.75 ppm	CSU	Agricultural Engr.
Alan Early	0.25 ppm	0.25 ppm	CSU	Agricultural Engr.

9. WORLDWIDE - Rapid Irrigation Project Appraisal Using Remote Sensing Systems

Code Number: 3-04-042-85

Status: Initiated Lead University: Utah State University

Summary of Work: During this quarter, IRIS International, Inc. completed the unsupervised analysis of the July scene in both 1976 and 1980. Mrs. Amala Jayasakaran, a non-WMS collaborator with the project, traveled to the project and began collecting ground truth. This preliminary anaslysis is now under review by USU personnel.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Amala Jayasakaran	0.00 ypm	0.50 gpm	USU	Irrig. Engineering

10. WORLDWIDE Irrigation Systems Performance as Affected by Management Intensities

Code Number: 3-04-056-85 (formerly 3-04-096-84)

Status: Initiated Lead University: Cornell University

Summary of Work: Bob Yoder and Ed Martin have been writing draft chapters on the performance of farmer-managed irrigation in two small-scale systems with different supply constraints. He has been focusing on how management practices change in response to different water supply and demand conditions. He finds that access rights to water are very clearly defined and vary depending upon crop. He also finds that water for rice irrigation is very carefully managed so that proportional delivery very closely matches allocation or expected delivery. Valera has prepared a draft paper on his comparative assessment of three irrigation systmes in Central Luzon; Carol Ferguson is analyzing data from her research in the Philippines. Tammo Steenhuis and Randy Barker are supervising the graduate students' research.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Randolph Barker	0.25 ppm	3.0 ppm	Cornell	Agri. Economics
Edward Martin	3.0 gsm	13.5 gsm	Cornell	Agri. Economics
Robert Yoder	3.0 gsm	17.5 gsm	Cornell	Agri. Engineering
Fred Valera	0.0 gsm	9.0 gsm	Cornell	Agri. Engineering
Carol Ferguson	1.5 gsm	2.5 gsm	Cornell	Agri. Economics
Tammo Steenhuis	0.5 ppm	2.0 ppm	Cornell	Agri. Engineering

B. FY85

B.4 Administration

Cornell University Administration Code #0-02-996-85

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
E. Walter Coward, Jr.	0.25 ppm	0.75 ppm	Cornell	Rural Sociology
Barbara D. Lynch	3.0 ppm	7.0 ppm	Cornell	Rural Sociology
Fua M. Hazelman	3.0 ppm	9.0 ppm	Cornell	Secretarial
Beth Rose	0.1 ppm	2.5 ppm	Cornell	Editing
Betty Van Amburg	0.75 ppm	2.25 ppm	Cornell	Secretarial
Grace Saatman	1.5 ppm	4.5 ppm	Cornell	Accounts Coordinating
Debbie Ostrander	0.75 ppm	1.50 ppm	Cornell	Secretarial

WORLDWIDE - Administration

Code Number: 0-02-997-85

Status: Initiated Lead University: Utah State University

Summary of Work: A wide variety of activities were carried out during this quarter to support the general administration as well as specific subactivities of the Project. These included: (1) organization of technical assistance teams and arrangements for their travel; (2) intellectual conceptualization of work activities and new subprojects; (3) accounting services; and (4) the preparation of reports, correspondence, and financial statements for the Project.

A number of reports were prepared and distributed during the quarter, including trip reports for Peru Plan MERIS; Nepal Small- and Medium-Scale Irrigation; and India Curriculum Development. The WMS II quarterly report and CID mid-year report were also completed. Consulting agreements were prepared for Thomas Weaver, Jean-Louis Balbo, Madelise Blumenroeder, and Djime Adoum for the Chad activity. Subcontract agreements were prepared for DAI for the Chad activity, and SRD Research Group, Inc. for the El Salvador activity.

Travel arrangements including tickets, per diem advances, travel expense clearance, visas, etc. were made for Jack Keller, Kern Stutler and David James to Peru; Jack Keller to Paris; Derrick Thom, Donald Slack and Mark Lynham to Mauritania; Gaylord Skogerboe and William Vlotman to Sri Lanka; Jack Keller, Thomas Weaver, Donald Humpal, Abe Waldstein, Milton Barnett, Jean-Louis Balbo and Djime Adoum to Chad; Sam Daines, George Hargreaves, Steve Brower, Bruce Brower, Wade Andrews and Carlton Infanger to El Salvador; Tanya Olsen to India; and Ross Robson and Andrew Keller to Morocco. In-country travel included trips to Washington, D.C. for Jon Morris, Derrick Thom and Jack Keller; Wynn Walker and Bryant Smith to Minnesota; Jack Keller and Bryant Smith to Ithaca, New York; Donna Gossner to Salt Lake City, Utah; and JoAnn Biery and Jo Egelund to Murray, Utah.

Budget revisions were made for the Chad Irrigated Agricultural Assessment activity; the Mauritania Plan of Action activity; the African Irrigation Overview; the El Salvador Project Paper; the Moroccan Case Study; and the India Video Modules activity. General correspondence was prepared between USU and the other participating universities, CID, and the AID project management team.

Weekly WMS seminars were held which covered discussion of the following topics: Peru Plan MERIS Project; the Ecuavir Modules; AID/Washington (Asia Bureau); Analysis of Subsistence Choices Among Ache Indians in Paraguay; Colonial Legacy in Southeast Asia, Regional Economic Cooperation in Africa and Malawi; Small-Scale Projects in Rural Development; and the Nepal Project Paper.

Staffing:

PERSON	ACTIVITY TIME Quart.	Cum.	AFFILIATION	SPECIALIZATION
Professional:				
Jack Keller	1.00 ppm	2.75 ppm	USU	Irri. Engineering
Bryant Smith	3.00 ppm	9.00 ppm	USU	Institutional
Support Staff:				
JoAnn Biery	3.00 spm	9.00 spm	USU	Secretarial
Jo L. Egelund	1.50 spm	4.50 spm	USU	Accounting
Linda Fields	1.50 spm	4.50 spm	USU	Secretarial
Donna Gossner	1.50 spm	1.50 spm	USU	Secretarial
Karen Hammer	0.00 spm	2.64 spm	USU	Production Typing
Lorraine Walker	0.10 spm	0.76 spm	USU	Procurement
Graduate Students:				
N. Adams	0.00 gpm	0.50 gpm	USU	Irri. Engineering
D. Robinson	0.50 gpm	1.75 gpm	USU	Ag. Economics

B. FY85

B.5 Overall Administration--FY85

D. Administration

1. CSU Administration FY 85 0-02-998-85

NAME	QUARTERLY 4/1/85-6/30/85	CUMULATIVE 6/30/85
Armentrout, Janelle	1.35 ppm	4.05 ppm
Clyma, Wayne	0.00 ppm	1.27 ppm
Fowler, Darlene	0.00 ppm	1.00 ppm
Freeman, Dave	0.00 ppm	1.00 ppm
Kelly, Don	1.00 ppm	4.00 ppm
Lattimore, Dan	1.84 ppm	3.56 ppm
Lindburg, Mary	2.82 ppm	7.31 ppm
Madsen, Al	0.00 ppm	1.00 ppm
Meyer, Beverly	1.50 ppm	4.00 ppm
Podmore, Terry	1.33 ppm	1.33 ppm
Schmehl, W.	0.00 ppm	0.50 ppm
Sheng, Tom	0.00 ppm	1.00 ppm
Wunch, Sandra	1.43 ppm	4.78 ppm

E. Overall Administration FY 85 0-01-999-85

NAME	QUARTERLY 4/1/85-6/30/85	CUMULATIVE 6/30/85
Janelle Armentrout	0.45 ppm	1.35 ppm
Don Kelly	1.00 ppm	4.00 ppm
Beverly Meyer	1.00 ppm	4.00 ppm
Sandra Wunch	0.38 ppm	0.78 ppm

CSU PPM on Other Institution's Activities

Cornell-Indonesia Small Scale 1-02-011-84

Edward Sparling	0.00 ppm	1.24 ppm
George Radosevich	0.00 ppm	0.61 ppm
Ramchand Oad	0.00 ppm	1.50 ppm

Cornell-Indonesia Assessment Team 1-02-009-85

Jeffery Brewer	0.00 ppm	1.50 ppm
Ramchand Oad	0.00 ppm	2.20 ppm

CID-El Salvador 1-02-107-84

Dan Lattimore	0.00 ppm	1.00 ppm
Darlene Fowler	0.00 ppm	0.35 ppm

Utah State University-Africa 1-02-108-84

Edward Sparling	0.06 ppm	1.50 ppm
Terry Podmore	0.30 ppm	1.00 ppm

Utah State University-Nepal 1-02-067-85

Robby Laitos	0.00 ppm	1.35 ppm
Al Early	0.00 ppm	0.87 ppm

Cornell University-Current Research 2-14-050-85

Al Early	0.00 ppm	0.25 ppm

B. FY85

B.6 Summary FY85

B.6 Summary FY85

A review of the activity categories of technical assistance, training and technology, and special studies shows the following profile relative to institutional status and specialization areas of persons employed in each activity. This summary does not include administrative activities.

TABLE V. Amount of Employment Time Relative to Organizational Affiliations

AFFILIATIONS:	QUARTERLY EMPLOYMENT TIME:
Colorado State University	19.67
Cornell University	2.75
Cornell University Graduate Students	18.50
Utah State University	13.33
Utah State Graduate Students	8.50
Independent Consultants	3.00
University of Minnesota	.60
University of Minnesota Graduate Students	1.50
Montana State University	1.00
DAI	.25
AID/W	.25
SRD	4.75
SRD/Cornell	1.00
University of Arizona	1.00

One important objective and activity of the WMSII project is that of increasing the quality and expanding the pool of expertise in water management. The universities are fulfilling this objective by involving professionals from other institutions in activities, employing persons who are not affiliated with any institutions, and by incorporating graduate students whenever appropriate.

The employment profile for the project activities of Utah State University Colorado State University, and Cornell University, is shown on Tables VI, VII, and VIII. These figures do not include administrative activities.

TABLE VI. Colorado State University Employment Profile

SOURCE OF PERSONNEL:	QUARTERLY EMPLOYMENT TIME:
Colorado State University	19.42
Consultants	2.25
Montana State University	1.00

TABLE VII. Cornell University Employment Profile

Cornell University	2.50
Cornell Graduate Students	18.50
University of Minnesota	.60
University of Minnesota Graduate Students	1.50
Colorado State University	.25

TABLE VIII. Utah State University Employment Profile

Utah State University	13.33	AID/W	.25	DAI	.25
Utah State Graduate Students	8.50	SRD	4.75		
Consultants	.75	SRD/CU	1.00		
Cornell University	.25	UA	1.00		

V. FINISHED ACTIVITIES

The information contained in this section refers solely to finished activities. When activities appear in this section, the specific work has been finalized and reports have been distributed. After an activity has appeared in this section of the quarterly report, it will not be included again until a final tabulation of funding has been completed. At that time, it will appear as a completed activity in the financial section.

Country: India

Title of Activity: University Curriculum Development

Code Number of Activity: 1-02-013-85 Completion Date: 4/85

Lead University: Utah State University

Description of Activity: Dean Peterson, who was already on another assignment in India, undertook this activity with the help of Mr. M.N. Vankatesan. They recommended to the following universities an improved curriculum program for their agricultural engineering faculties: STI Tamil Nadu; STI Gujarat; M.S. University, Baroda; Sukhadia University, Udaipur; STI, Rajasthan; Anna University, Madras.

Staffing:

Personnel	Affiliation	Specialization
Dean F. Peterson	USU	Irrig. Engineering

Significant Findings and Results: (1) Curriculum development is not a one-time job, but an iterative one. Refinements, improvements and modifications to the curricula will be needed in the light of experience gained as their training program moves along. (2) While there is a general consensus on the contents of the training courses, there is a wide range in agroclimatic conditions and irrigation and agronomic practices among the States. Consideration should be given to these variations by the STIs in developing the detailed curricula and lesson plans. In the case of the universities, however, scope for such changes is limited. (3) Every effort should be made to ensure that STI training courses do not become overly academic. In the final analysis, the balance between classroom and field training will be determined by the trainer. It is agreed that during the intensive long-term course, the physical, biological and social science bases for the course material should be well understood by the trainees. The trainee also needs to understand the practical implications of the disciplinary concepts applied to irrigation management. (4) An examination of the suggested reference material for both the STIs and the universities shows that much of it may be outdated or heavily on the academic side. Much of it also does not seem to be applicable to Indian conditions. IRMIC, in collaboration with the STIs, should implement a literature search and review to identify the best available reference material in the field of irrigation management. This would also apply to the universities.

For the training program in irrigation management to be successful, the following recommendations are made: (1) There will be considerable variation in how the States proceed to reach the curricula goals agreed upon, particularly in the matter of timing and availability of personnel for training. From a practical angle, certain temporary adjustments will have to be made during the initial phase; however, States should immediately initiate the necessary actions to achieve early implementation in full of the recommended curricula and program. (2) Further, with regard to making personnel available for

training, States agencies should review their personnel policies and procedures and take all possible administrative steps to assign officers for training. If necessary, States should establish a training reserve whose personnel would be used to temporarily handle the duties of those posted for training. (3) State agencies should ensure that trainees are placed in jobs for which they are trained. Under present institutional arrangements, this may pose some immediate difficulties in some States. These will need to be corrected as suggested under item 9. (4) Agencies should take immediate steps to utilize the services of agricultural engineers and agronomists in integrated irrigation water management, particularly in command area development. (5) Social scientists and economists should be recruited for irrigation management training and posted to positions created within the irrigation, agricultural and command area development agencies at the divisional level or above. (6) Training in irrigation management should become a compulsory requirement for all personnel assigned to operation and management functions of irrigation systems. (7) State agencies must support the training programs in the universities by providing employment commitments for B. Tech, B. Eng. and B. Ag. graduates electing the irrigation management option and by sponsoring adequate numbers of officers for postgraduate training. (8) States should establish adequate incentives for persons posted to STIs for training. These should include additional increments and family and personal allowances to fully cover displacement costs. Incentives, including additional increments, should be provided for university postgraduates. (9) Lastly, most difficult, but also most critical, is the need to develop effective organizational and institutional arrangements for implementing comprehensive irrigation management. CADAs were formed for this purpose but with only marginal success, largely because the authority and resources necessary for the task were never committed. An alternative suggested arrangement to be considered is the establishment of an irrigation management cadre with responsibility for operation and management of the system from the main canal headgate to the farm. The absence of water management personnel to assist farmers at below-outlet levels will have to be corrected. The exact nature of the institutional arrangements will have to be worked out by the States with support from the Center.

Reports/Documents	Completion Date	Distribution
Trip Report, Curricula for Irrigation Management Training, Volume I and II	6/85	USAID/India Five State Universities

Country: Nepal

Title of Activity: Small-and Medium-Scale Irrigation

Code Number of Activity: 1-02-067-85 Completion Date: 4/85

Lead University: Utah State University

Description of Activity: The purpose of this activity was to design small- and medium-scale irrigation projects for a series of valleys in Nepal. A field trip of five days was made to various irrigation projects. Additionally, institutional initiatives were started with several irrigation departments.

Staffing:

Personnel	Affiliation	Specialization
Gaylord Skogerboe	USU	Irrig. Engineering
Alan C. Early	CSU	Wtr. Mgmt. Spec.
Robby Laitos	CSU	Sociology
Edward D. Martin	Consultant	Ag. Economics

Significant Findings and Results: On the basis of this project paper, AID will be funding approximately $10 million in small-scale irrigation. The team found that there was significant potential for extensive use of small-scale irrigation in the country. It was decided that a system management division should be created within the Department of Irrigation, Hydrology and Meteorology monitoring, evaluation and feedback; and (3) water user associations. Also, the team recommended the establishment of a quasi-governmental Nepal Irrigation Management Institute which would carry out applied irrigation studies and provide training programs for farmers. The functions created for these new entities was indicative of the central problems and concerns observed by the team.

Reports/Documents	Completion Date	Distribution
Trip Report, Irrigation Management Project	4/85	USAID/Nepal, CSU, CU, Govt./Nepal
Trip Report, Small- and Medium-Scale Irrigation	4/85	USAID/Nepal Govt./Nepal, CSU, CU.

Country: Swaziland

Title of Activity: Irrigation Priorities

Code Number of Activity: 1-02-069-85 Finished Date: June 30, 1985

Lead University: Colorado State University

Description of Activity: See CSU Special Focus section of this report.

Staffing:

Personnel	Affiliation	Specialization
E. V. Richardson	CSU	Civil Engineer

Significant Findings and Results: See CSU Special Focus section of this report.

Reports/Documents	Completion Date	Distribution
Irrigation Priorities/ Rapid Appraisal	June 30, 1985	JPMT and Swaziland mission

VI. COMMITTEES

None Reported this Quarter: 4/1/85 0 6/30/85

VII. ROSTER UPDATE

One contract required WMS II activity is the establishment of a human resource file or a professional roster of persons interested in water management work. The activity is part of the overall management unit of the WMS II Project.

In order to initiate the activity, a standard roster form was developed which would acquire relevant information in the areas of professional competence, education, work experience, availability for overseas assignments, language competence, geographic preferences, and other information. Approximately 400 forms were then sent through AID and the CID systems, as well as Colorado State University, Cornell University and Utah State University. In addition, approximately 100 forms were subsequently sent to persons who made inquiries about the project.

The acquired data were stored on the microcomputer data base system for general usage by the project. Thus, the data were recorded, filed, retrievable, and can be summarized. The computerized roster of water management specialists facilitates the identification and selection of professionals in agronomy, economics, engineering, sociology, Women in Development (WID), and other disciplines for WMS II assignments.

The roster has been used by DA coordinators for Bangladesh (1983), Sri Lanka (1982 and 1983), and India (1984) DA Workshops. In additon, the roster has been used to identify suitable professionals for short-term technical assistance activities overseas.

As of June 30, 1985, approximately 221 persons were listed on the roster. A total entry of 39 in agronomy, 38 in economics, 83 in engineering, and 61 in sociology and other disciplines.

Discipline: AGRONOMY

	NUMBER ROSTERED
Universities	
Bangladesh Agriculture Univ.	1
Colorado State University	8
Iowa State University	1
Metropolitan State Coll.	1
New Mexico State University	1
Oregon State University	4
University of Arizona	2
University of Idaho	1
University of Minn.	4
Government	2
Consulting Firm/Independent	14
Total Rostered	39

DIFFERENT TITLES

Agricultural Scientist - 1
Agronomist - 4
Assistant Plant Physiologist - 1
Assistant Professor - 1
Associate Professor - 2
Computer Advisor - 1
Consultant - 3
Director - 1
Ext. Specialist - 2
General Manager Agriculture - 1
GRA - 2
Head, Ag. & Ext. Educ. - 1
Professor & Director - 1
Professor & Head - 1
Professor - 8
Research Agronomist - 1
Research Associate - 1
Research Scientist - 1
Soil Scientist - 2
Senior Agronomist - 1
Team Leader - 1
No Title - 2

PRIMARY DISCIPLINES

Agricultural Education - 1
Agricultural Ext. Education - 1
Agricultural Science - 1
Agronomy - 6
Agronomy/Crop Production, Plant Breeding, Weed Control - 1
Agronomy/Plant Physiology - 1
Agronomy/Range Science - 1
Agronomy/Soil & Water Management - 1
Agronomy/Soils, Crops, Irrig. Ag. - 1
Crop Physiology - 1
Crop Production - 1
Crops/Soil Science - 1
Plant Nutrition - 1
Range Science - 1
Soils - 1
Soil Biochemistry - 1
Soil Management - 1
Soil Microbiology - 1
Soil Physics - 1
Soil/Physical Chemistry - 1
Soil Science - 9
Soil/Water Management - 1
Soil/Water Science - 1
Vegetable Crop Production - 2
Weed Science - 1

TERMINAL ACADEMIC DEGREE

Ph.D. - 34
M.S. - 4
B.S. - 1

Discipline: ECONOMICS

	NUMBER ROSTERED
Universities	
Cal. State Poly Univ.	1
Clemson University	1
Colorado State University	6
Colo. Water Resource Research Institute	1
Cornell University	1
Delhi University	1
Oregon State University	2
Penn State University	1
South Dakota State University	2
University of Arizona	1
University of Hawaii	2
University of Idaho	2
University of Minnesota	5
University of Wisconsin	1
University of Wyoming	2
Government	1
Consulting Firm/Independent	8
Total Rostered	38

DIFFERENT TITLES

Administrative Manager - 1
Agricultural Economist - 3
Assistant Professor - 2
Assistant Specialist - 1
Associate - 1
Associate Professor - 3
Consultant & Manager - 1
Consultant - 1
Doctoral Candidate - 1
Economist - 1
Ext. Water Resources Specialist - 1
GRA - 1
No title - 2
Professor - 14
Professor of Economics - 1
Research Assistant - 1

PRIMARY DISCIPLINES

Adult Education - 1
Agricultural & Resource Economics - 5
Agricultural Economics - 20
Agricultural Production Economics - 1
Business Administration/Legal Offices - 1
Economics - 1
Farm Management - 1
Farming Systems - 1
Regional Planning - 1
Resource Economics - 2
Socioeconomic Impact Analysis - 1
Urban & Regional Planning - 1
Water Resource Development - 1
Project Design/Evaluation - 1

Research Associate - 2
Research Officer - 1

TERMINAL ACADEMIC DEGREE

Ph.D. - 26
M.A. - 2
M.S. - 7
M.ED. - 1
On.D. - 1
B.S. - 1

Discipline: ENGINEERING

Universities	NUMBER ROSTERED
Auburn University	1
Bangladesh Agriculture Univ.	1
Colorado State Univ.	18
Cornell University	2
Indian Institute of Technolcgy	1
K.U. Leuven University	1
Louisiana State Univ.	1
Michigan State Univ.	1
Oregon State University	1
Rutgers University (Cook College)	1
Texas Tech University	1
Utah State University	1
Univ. of Moratuwa	1
University of Arizona	2
University of Arkansas	1
University of Idaho	6
University of Minn.	3
University of Texas	1
University of Wyoming	4
Washington State University	1
Consulting Firm/Independent	29
Government	5
Total Rostered	83

DIFFERENT TITLES

Agricultural Engineer - 2
Assistant Chief - 1
Assistant Professor - 8
Assistant Res. Prof. - 1
Assoc. Professor - 6
Budget Analyst - 1
Civil Engineer - 1
Consultant - 7
Consulting Engineer - 2
Director - 1
Extension Ag. Engr. - 1
Geotech. & Materials Engr. - 1
GRA - 3
Graduate Teaching Assistant - 1
Head, Hydrology - 1
Hydrologist - 1
Instructor - 1
Lecturer - 2
Ph.D. Student/Researcher II - 1
President - 1
Professor - 14
Prof. & Extension Engr. - 1
Professional Hydrologist - 1
Professor & Director - 1
Project Engineer - 1

PRIMARY DISCIPLINES

Ag. Eng./Irrigation & Drainage - 1
Agricultural & Irrig. Engr. - 2
Agricultural Engineer - 17
Civil & Ag. Engineer - 1
Civil Engineer - 6
Engineer - 1
Engineering Construction - 1
Engineering-Econ. Planning - 2
Environmental Engr. - 2
Geotechnical Engineering - 1
Geotech. & Materials Engr. - 1
Groundwater Hydrology - 1
Hydraulics & Water Resources - 4
Hydrology - 1
Hydrogeology - 1
Irrigation - 1
Irrigation and Drainage - 2
Irrigation Operations & Maint. - 1
Irrigation & Waste Resource Engr. - 1
Irrigation & Water Management - 3
Irrigation Engr. & Agri. Mgmt. - 1
Irrigation Engineer - 4
Irrigation Equipment - 1
Irrigation/Open Channel Flow - 1
Land & Water Mgmt. of Rainfed Ag. - 1

Project Manager - 2
Research Leader/Ag. Engr. - 1
Research Assistant - 3
Research Associate - 5
Research Associate/Lecturer - 1
Scientist - 1
Sr. Engineer - 1
Supervisor - 1
Trng. Res. & Investment Manager - 1
Vice President - 1
Water Resource Engineering - 1
No titles - 4

Mechanical Engineer - 1
On-Farm Water Management - 2
Plant Water Relations - 1
Project Mgmt., Chief of Operations - 1
Soil & Water Conservation - 3
Soil & Water Engineering - 2
Structural Evaluation & Design - 1
Water Management - 1
Water Quality Management - 1
Water Resources Development - 1
Water Resources Management - 2
Water Resources Planning - 1
Water Resources - 2
Water Resources/Hydrology - 2
Water Resource Planning, Development, and Management - 1
Water System Engineer - 1
Water Use & Management - 1
Watershed Management - 1

TERMINAL ACADEMIC DEGREE

Ph.D. - 41
M.S. - 26
M.E. - 2
B.S. - 14

Discipline: SOCIOLOGY AND OTHERS

	NUMBER ROSTERED
Universities	
Aquinas College	1
Brandeis Univ.	1
Cal St. Poly. University	1
California State University	1
Colorado State University	7
Cornell University	2
Dartmouth Medical School	1
Harvard University	1
Hunter College City Univ.-NY	1
Mass. Inst. Tech.	1
New Mexico State Univ.	1
Rural Dev. Academy Bangladesh	1
Staples Tech. Institute	1
The World Bank	1
University of Arizona	3
University of Cincinnati	1
University of Denver	1
University of Idaho	1
University of Minn.	8
University of Penn.	2
Utah Soil Conservation Commission	1
Washington State University	1
Yale University	1
Government	6
Consulting Firm/Independent	15
Total Rostered	61

DIFFERENT TITLES

Adjunct Professor - 1
Adjunct Assistant Professor - 1
Associate Professor - 7
Asscciate Professor/Anthropology - 1
Associate - 1
Asst. Professor - 3
Comm. Dev. Specialist - 1
Consultant - 2
Director - 1
Geologist - 1
GRA - 2
Graduate Res. Fellow - 1
GTA - 1
Hydrologist - 1
Instructor - 1
Investments Project Advisor - 1
No Title - 9
Ph.D student - 1
President - 1
Professor & Acting Director - 1
Professor - 9
Program Director - 1
Publications Editor - 1

PRIMARY DISCIPLINES

Administration - 1
Anthropology - 6
Anthropology/Rural Sociology - 2
Applied Anthropology - 1
Applied Social Science - 1
Area Studies - South Asia - 1
Communication & Social Psych. - 1
Community Dev./Organization - 1
Communications - 1
Cultural Anthropology - 1
Development Sociology - 4
Extension Education - 1
Farm Management - 1
Forestry & Remote Sensing - 1
Geography - 3
Geology - 1
Hydrology of Wildland Watersheds - 1
Hydrogeology - 1
Institutional Aspects of Water Management-Public Admin. - 1
Irrigation - 1
Irrigation/Agricultural - 1
Journalism - 2

Research Affiliate - 1
Research Associate - 5
Sr. Consult. Anthropologist - 1
Sr. Hydrologist - 1
Sociologist - 2
Social Survey Researcher - 1
Supervisor & Dist. Manager - 1

Limnology-Water Quality - 1
Mass Communication - 2
Political Science - 1
Range & Forest Watershed Mgmt. - 1
Resource Economics - 1
Silviculture - 1
Social Anthropology - 1
Social Policy Research - 1
Sociohydrology - 1
Sociologist - 6
Social Survey Research - 1
Social/Economic Anthropology - 1
Soil/Water Conservation - 1
Technical Journalism - 1
Third World Ag. Development - 1
Urban & Regional Planning - 1
Water Resources - 2
Watershed Management - 2
Water Resource Management - 1

TERMINAL ACADEMIC DEGREE

Ph.D. - 36	D. Ed - 1
M.S. - 10	B.S. - 3
M.A. - 6	B.A. - 3
M.Ed. - 1	

Not specified - 1

VIII. FINANCIAL REPORT

EXHIBIT A

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

QUARTERLY REPORT
FOR PERIOD ENDING JUNE 30, 1985

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	EXPENDITURES THROUGH MAR.31,85	EXPENDITURES CURRENT QUARTER	EXPENDITURES THROUGH JUN.30,85	BUDGET BALANCE
ADMINISTRATION:								
WORLDWIDE								
CU ADMINISTRATION	0-02-996-85	CU	INIT	$ 226,932	$ 74,517	$ 32,242	$ 106,759	$ 100,173
USU ADMINISTRATION	0-02-997-85	USU	INIT	233,126	100,050	52,399	152,449	80,677
CSU ADMINISTRATION	0-02-998-85	CSU	INIT	231,641	115,111	67,079	182,190	49,451
EPD ADMINISTRATION	0-01-999-85	EPD	INIT	191,810	92,387	51,099	143,486	48,324
CLOSED-OUT CU ACTIVITIES	VARIOUS	CU		0	(14,415)	90	(14,325)	14,325
CLOSED-OUT USU ACTIVITIES	VARIOUS	USU		0	(3,803)	(8)	(3,811)	3,811
CLOSED-OUT CSU ACTIVITIES	VARIOUS	CSU		0	(1,328)	0	(1,328)	1,328
CLOSED-OUT EDP ACTIVITIES	VARIOUS	EDP		0	0	0	0	0
TOTAL ADMINISTRATION				$ 863,509	$ 362,519	$ 202,901	$ 565,420	$ 298,089
TECHNICAL ASSISTANCE:								
AFRICA:								
IRRIGATION OVERVIEW	1-02-108-84	USU	INIT	$ 140,230	$ 123,063	$ 12,873	$ 135,936	$ 4,294
CHAD:								
IRRIGATED AGRIC. ASSESSMENT	1-02-073-85	USU	FORM	89,259	0	27,249	27,249	62,010
EGYPT:								
EGYPT WATER USE PROJ. EVAL.	1-02-066-85	USU	FORM	41,268	6,625	18,644	25,269	15,999
IMS EVALUATION TEAM	1-02-072-85	CSU		0	0	0	0	0
EL SALVADOR:								
PID PREPARATION	1-02-059-85	CSU	INIT	22,500	23,594	(990)	22,604	(104)
PP DEVELOPMENT	1-02-077-85	USU	APPR	164,814	0	78,238	78,238	86,576
HAITI:								
IRRIGATION SECTOR SURVEY	1-04-017-84	USU	INIT	50,658	41,117	(84)	41,033	9,625
HONDURAS:								
IRRIGATION DEVEL. PROJECT	1-02-060-85	USU	FORM	12,309	7,890	33	7,923	4,386
INDIA:								
MAHARASHTRA IRRIG. T & M	1-02-021-84	USU	INIT	415,000	238,837	118,003	356,840	58,160
MADYA PRADESH SOCIO-TECH	1-02-023-84	USU	APPR	174,989	17	0	17	174,972
MADYA PRADESH MINOR IRRIG.	1-01-025-84	USU	CANC	0	3,974	0	3,974	(3,974)
EVAL. & STRATEGY REVIEW	1-02-103-84	USU	INIT	209,716	157,912	50,777	208,689	1,027

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	/--EXPENDITURES--\ THROUGH MAR.31,85	CURRENT QUARTER	THROUGH JUN.30,85	BUDGET BALANCE
WATER BALANCE	1-02-023-85	USU	FORM	40,333	0	0	0	40,333
HYDRAULIC CONDUCTIVITY	1-02-024-85	USU	FORM	31,750	0	0	0	31,750
RESERVIOR OPERATION	1-02-025-85	USU	FORM	36,990	0	0	0	36,990
UNIVERSITY CURRICULA	1-02-013-85	USU	INIT	26,472	10,030	9,314	19,344	7,128
PRIORITY RESEARCH	1-02-014-85	CSU	FORM	113,877	0	0	0	113,877
INDONESIA:								
SSI WORKSHOP & TECH. ASST.	1-02-009-85	CU	INIT	200,658	54,793	1,730	56,523	144,135
COST RECOVERY	1-02-074-85	CSU	APPR	12,611	0	11,880	11,880	731
JAMAICA:								
PLANNING ACTIVITIES	1-02-007-85	USU	APPR	11,970	0	0	0	11,970
SYSTEMS STUDY	1-02-008-85	USU	APPR	24,822	0	0	0	24,822
JORDAN:								
ADVISORY SERVICES	1-02-028-85	USU	APPR	10,338	0	0	0	10,338
MAURITANIA:								
PEACE CORPS ASSISTANCE	1-02-061-85	CU	APPR	4,930	0	0	0	4,930
RIVER VALLEY-PLAN OF ACTION	1-02-076-85	USU	APPR	45,915	0	6,761	6,761	39,154
MOROCCO:								
PID DEVELOPMENT	1-02-002-85	USU	APPR	47,629	0	0	0	47,629
NEPAL:								
SM/MED SC. IRRIGATION	1-02-067-85	USU	INIT	89,481	19,801	46,529	66,330	23,151
PAKISTAN:								
COMMAND WATER MANAGEMENT	1-02-114-84	CSU	INIT	739,011	207,643	76,387	284,030	454,981
CURRICULUM DEVELOPMENT	1-02-071-85	CSU	INIT	74,443	5,261	48,511	53,772	20,671
PERU:								
PLAN MERIS	1-01-112-84	USU	INIT	642,215	180,543	191,909	372,452	269,763
SRI LANKA:								
DESIGN TEAM	1-02-102-84	CSU	INIT	172,800	121,698	1,956	123,654	48,346
LONG TERM WM SPECIALIST	1-01-109-84	CSU	INIT	233,313	99,159	17,767	116,926	116,387
CENTRAL SUPPORT	1-02-003-85	CSU	FORM	73,695	7	42,615	42,622	31,073
SOCIOECONOMIC STUDIES	1-02-004-85	CU	APPR	82,672	6,607	5,876	12,483	70,189
MODEL CALIBRATION	1-02-005-85	USU	APPR	37,600	0	10,884	10,884	26,716
SWAZILAND:								
IRRIGATION ASSISTANCE	1-02-029-85	USU	APPR	12,207	0	0	0	12,207
IRRIGATION PRIORITIES	1-02-069-85	CSU	APPR	25,843	0	17,542	17,542	8,301
WORLDWIDE:								
MEETING RECURRENT COSTS	1-02-062-85	CU	INIT	51,345	987	21,823	22,810	28,535
PEACE CORPS SUPPORT	1-02-078-85	CIO	APPR	15,331	0	0	0	15,331
SHORTCOURSE STAFF ASSIST.	1-02-070-85	CIO	APPR	14,590	0	5,495	5,495	9,095
TOTAL TECHNICAL ASSISTANCE				$4,192,784	$1,309,558	$ 821,722	$2,131,280	$2,061,504
TRAINING AND TECHNOLOGY TRANSFER:								
BOLIVIA:								

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	EXPENDITURES THROUGH MAR.31,85	EXPENDITURES CURRENT QUARTER	EXPENDITURES THROUGH JUN.30,85	BUDGET BALANCE
ON-FARM WATER MANAGEMENT	2-01-011-85	USU	APPR	$ 81,368	$ 0	$ 0	$ 0	$ 81,368
COURSE SSI - DESIGN	2-14-010-85	USU	FORM	41,333	15,847	709	16,556	24,777
DOMINICAN REPUBLIC:								
ON-FARM WATER MANAGEMENT	2-14-030-85	USU	CANC	9,909	0	0	0	9,909
EQUADOR:						0		0
FINISHING ORIG. TRNG. MOD.	2-03-054-84	USU	INIT	161,176	158,877	0	158,877	2,299
INDIA:								
SENIOR OFFICIALS WORKSHOP	2-04-053-84	USU	INIT	74,337	33,726	0	33,726	40,611
DEM/WORKSHOP OF COMPUTER	2-14-040-85	USU	INIT	57,471	0	0	0	57,471
TECHNOLOGY TRANSFER	2-06-022-85	CSU	FORM	164,971	0	0	0	164,971
DEVELOPMENT OF HANDBOOKS	2-13-027-85	CSU	INIT	79,956	20,277	9,565	29,842	50,114
INNOVATIVE TEACHING	2-03-012-85	USU	FORM	138,090	0	0	0	138,090
MAIN SYSTEMS TRAINING	2-14-015-85	USU	FORM	65,372	0	0	0	65,372
RAPID APPRASIAL	2-14-016-85	USU	CANC	75,853	0	0	0	75,853
FARMER ORGANIZATION	2-14-017-85	CU	FORM	81,141	0	0	0	81,141
TRAINING OF TRAINERS	2-14-019-85	CSU	FORM	37,594	0	0	0	37,594
TRAINING MATERIALS	2-13-020-85	CSU	FORM	435,210	0	0	0	435,210
VIDEO MODULES	2-03-075-85	USU	APPR	74,001	0	21	21	73,980
NEPAL:								
DA OF IRRIGATION SYSTEMS	2-02-031-85	CSU	INIT	126,479	99,350	22,655	122,005	4,474
PAKISTAN:								
SENIOR OFFICERS WORKSHOP	2-04-019-84	CSU	INIT	109,626	32,996	0	32,996	76,630
MANAGEMENT TRAINING	2-01-065-85	CSU	FORM	99,881	0	0	0	99,881
SRI LANKA:								
SEMINAR IRRIG. SYS. REHAB. I	2-05-033-85	CSU	INIT	53,030	8,244	19,506	27,750	25,280
DA WORKSHOP	2-02-006-85	CSU	?	64,620	0	0	0	64,620
WORLDWIDE:								
BROCHURES;NEWSLETTERS;PUBL.	2-12-044-84	CSU	INIT	39,976	25,941	7,431	33,372	6,604
DA TRAINERS WORKSHOP	2-08-040-84	CSU	INIT	29,736	13,532	2,808	16,340	13,396
INSTRUCTORS GUIDE DA WORK.	2-13-042-84	CSU	INIT	24,881	24,785	0	24,785	96
IRRIG SYSTEMS MGMT TASK FORCE	2-14-060-84	USU	INIT	44,284	9,505	0	9,505	34,779
MICROCOMPUTER APPLICATIONS	2-10-051-84	CSU	INIT	62,615	60,884	1,414	62,298	317
PROFESSIONAL VISITORS	2-11-039-84	CSU	INIT	10,284	7,575	331	7,906	2,378
PROFESSIONAL VISITORS	2-11-068-84	CU	INIT	9,673	1,429	456	1,885	7,788
SURVEY & STRAT. FOR TRAINING	2-09-049-84	CSU	INIT	27,378	13,914	0	13,914	13,464
TASK FORCE,ORGANIZATION SS	2-14-065-84	CU	INIT	20,741	7,685	0	7,685	13,056
LESSONS LEARNED ISM	2-14-039-85	USU	APPR	103,209	780	9,145	9,925	93,284
FRANCH LANGUAGE TRAINING	2-11-041-85	USU	INIT	10,650	605	374	979	9,671
REHABILITATION, GAME	2-13-048-85	CU	INIT	33,444	3,903	1,788	5,691	27,753
WORKSHOPS LESSONS LEARNED	2-14-049-85	CU	APPR	41,790	0	0	0	41,790
JOINT SEMINAR CURRENT	2-14-050-85	CU	FORM	94,372	44,984	15,760	60,744	33,628
MICRO COMPUTER WORKSHOP	2-14-032-85	CSU	INIT	59,972	1,094	7,772	8,866	51,106
TOTAL TRAINING AND TECHNOLOGY TRANSFER				$2,644,423	$ 585,933	$ 99,735	$ 685,668	$1,958,755

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	EXPENDITURES THROUGH MAR.31,85	EXPENDITURES CURRENT QUARTER	EXPENDITURES THROUGH JUN.30,85	BUDGET BALANCE
SPECIAL STUDIES:								
INDIA:								
MAIN SYSTEMS CASE STUDY	3-04-043D85	USU	INIT	$ 31,928	$ 0	$ 0	$ 0	$ 31,928
MOROCCO:								
CASE STUDIES	3-04-043C85	USU	APPR	29,433	0	27,006	27,006	2,427
NIGER:								
SMALL SCALE IRRIG. & WM	3-04-098-84	CU	FORM	5,508	6,185	(199)	5,986	(478)
TRAD. & DEV. SSI STUDY	3-04-052-85	CU	INIT	42,484	7,513	16,906	24,419	18,065
SRI LANKA:								
REHABILITATION	3-04-097-84	CU	INIT	26,492	18,796	0	18,796	7,696
INTERFACING OFWM - I	3-04-036A85	CSU	INIT	86,390	24,587	16,853	41,440	44,950
INTERFACING OFWM - II	3-04-036B85	CSU	INIT	130,907	0	17,719	17,719	113,188
LANDSAT 85-RAPID RECON.	3-04-038-85	CSU	INIT	34,442	4,582	16,539	21,121	13,321
THAILAND:								
CASE STUDY	3-04-043B85	USU	INIT	44,067	14,820	5,279	20,099	23,968
WORLDWIDE:								
COMPAR.ANALY.OF FARM.PARTIC.	3-04-046-83	CU	INIT	17,535	15,469	(17)	15,452	2,083
SMALL SCALE IRRIGATION	3-04-069-84	CU	INIT	23,404	49,096	196	49,292	(25,888)
RURAL EMPLOYMENT	3-04-055-85	CU	INIT	16,150	9,565	1,865	11,430	4,720
MANAGEMENT INTENSITIES	3-04-056-85	CU	INIT	69,615	27,678	9,750	37,428	32,187
RAPID IRRIG.PROJ.REMOTE SEN.	3-04-042-85	USU	INIT	73,710	54	20,064	20,118	53,592
ISM - DEVELOPMENT	3-04-043A85	USU	INIT	87,623	10,350	15,345	25,695	61,928
ISM - WORKSHOP	3-04-043E85	USU	INIT	27,848	0	0	0	27,848
PHASE I - COMP. ANALYSIS	3-04-053-85	CU	FORM	15,031	19,560	5,409	24,969	(9,939)
PHASE II - COMP. ANALYSIS	3-04-054-85	CU	INIT	97,099	0	0	0	97,099
TOTAL SPECIAL STUDIES				$ 859,666	$ 208,255	$ 152,715	$ 360,970	$ 498,696
TOTAL FISCAL YEAR 1985 ACTIVITIES				$8,560,382	$2,466,265	$1,277,073	$3,743,338	$4,817,044

SCHEDULE A-1

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30, 1985

CID / EPD OFFICE

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:									
ADMINISTRATION:									
EPD ADMINISTRATION									
0-01-999-85	$ 44,556.07	18,474.45	11,346.74	0.00	12,252.93	86,630.19	7,363.36	93,993.55	191,810..
TOTAL UNIVERSITY SUPPORT	$ 44,556.07	18,474.45	11,346.74	0.00	12,252.93	86,630.19	7,363.36	93,993.55	191,810..
TECHNICAL ASSISTANCE:									
INDIA:									
MAHA IRR. T&M PROJ.									
1-02-021-84	$ 0.00	1,487.50	0.00	0.00	0.00	1,487.50	147.26	1,634.76	USU
MADHYA PR.MINOR IRR.									
1-01-025-84	0.00	3,616.50	0.00	0.00	0.00	3,616.50	358.03	3,974.53	USU
PAKISTAN:									
CURRICLUM DEVELOPMENT									
1-02-071-85	0.00	4,856.89	31.26	0.00	0.00	4,888.15	483.93	5,372.08	CSU
SRI LANKA:									
DESIGN TEAM									
1-02-102-84	8,142.30	5,565.92	0.00	0.00	3,769.76	17,477.98	1,533.57	19,011.55	CSU
WORLDWIDE:									
MEETING RECUR. COSTS									
1-02-062-85	12,204.48	0.00	291.19	0.00	2,836.52	15,332.19	1,237.07	16,569.26	CU
FREEMAN'S SHORT COURSE									
1-02-070-85	5,000.00	0.00	0.00	0.00	0.00	5,000.00	495.00	5,495.00	14,590.0
PEACE CORPS SUPPORT									
1-02-078-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,331.0
TOTAL TECHNICAL ASSIST.	$ 25,346.78	15,526.81	322.45	0.00	6,606.28	47,802.32	4,254.86	52,057.18	29,921.0
TRAINING AND TECHNOLOGY TRANSFER:									

CID / EPD OFFICE

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
INDIA:										
SENIOR OFFICER WKSHP. 2-84-053-84	$	0.00	9,811.22	5,172.18	0.00	0.00	14,983.40	1,483.35	16,466.75	USU
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$	0.00	9,811.22	5,172.18	0.00	0.00	14,983.40	1,483.35	16,466.75	0.:
TOTAL F/Y 85 ACTIVITIES	$	69,902.85	43,812.48	16,841.37	0.00	18,359.21	149,415.91	13,101.57	162,517.48	221,731.:

SCHEDULE A-2

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

COLORADO STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:										
ADMINISTRATION:										
COLORADO STATE UNIV.										
0-02-998-85	$	92,928.61	6,139.12	25,686.60	0.00	44,671.17	169,425.50	12,764.96	182,190.46	231,641.1
EPD ADMINISTRATION										
0-01-999-85		31,672.25	181.48	1,938.11	0.00	12,165.85	45,956.89	3,534.95	49,491.84	CID
CLOSED-OUT ACTIVITIES:										
CSU ADMINISTRATION										
0-02-998-84		(577.37)	0.00	(333.29)	0.00	(327.84)	(1,238.50)	(90.16)	(1,328.66)	0.0
TOTAL UNIVERSITY SUPPORT	$	124,023.49	6,320.60	27,291.42	0.00	56,508.38	214,143.89	16,209.75	230,353.64	231,641.0
TECHNICAL ASSISTANCE:										
AFRICA:										
IRRIG. STRAT. PROG.										
1-02-108-84	$	9,296.76	868.01	3,322.07	0.00	4,855.25	18,342.09	1,335.20	19,677.29	USU
EGYPT:										
EVALUATION OF IMS										
1-02-072-85		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
EL SALVADOR:										
EL SALVADOR PID										
1-02-059-85		5,990.42	3,629.99	5,853.16	0.00	5,562.78	21,036.35	1,568.07	22,604.42	22,500.0
INDIA:										
PRIORITY RESEARCH										
1-02-014-85		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	113,877.0
INDONESIA:										
ASSESSMENT TEAM										
1-02-009-85		13,535.74	9,676.45	104.03	0.00	5,129.57	28,445.79	2,587.54	31,033.33	CU
COST RECOVERY										
1-02-074-85		4,619.85	3,426.59	45.00	0.00	2,912.91	11,004.35	875.47	11,879.82	12,611.0
NEPAL:										
SMALL & MED. IRRIG.										

COLORADO STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
1-02-067-85	14,052.33	6,889.16	137.21	0.00	4,679.09	25,757.79	2,314.39	28,072.18	USU
PAKISTAN:									
COMMAND WATER MGMT.									
1-02-114-84	156,624.72	27,195.16	13,732.39	2,997.75	63,145.39	263,695.41	20,334.32	284,029.73	739,011.
CURRICULUM DEVEL.									
1-02-071-85	14,988.37	8,261.70	523.94	0.00	8,558.65	32,332.66	2,606.31	34,938.97	74,443.
SRI LANKA:									
LONG TERM WATER MGMT.									
1-01-109-84	61,151.37	4,048.75	17,174.83	5,813.38	19,577.36	107,766.19	9,160.28	116,926.47	233,313.
DESIGN TEAM									
1-02-102-84	27,518.68	12,283.10	4,416.81	0.00	11,367.86	55,586.45	4,818.24	60,404.69	172,000.
CENTRAL SUPPORT									
1-02-003-85	22,230.83	8,897.16	60.18	0.00	9,084.12	39,272.29	3,349.82	42,622.11	73,695.
SWAZILAND									
IRRIGATION PRIORITIES									
1-02-069-85	8,507.25	3,403.00	0.00	0.00	4,287.69	16,197.94	1,343.70	17,541.64	25,843.
TOTAL TECHNICAL ASSIST.	$ 338,514.32	98,579.07	45,369.62	8,811.63	138,160.67	619,437.31	50,293.34	669,730.65	1,467,293.
TRAINING AND TECHNOLOGY TRANSFER:									
INDIA:									
TECHNOLOGY TRANS.									
2-06-022-85	$ 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	164,971.
TRAINING MATERIALS									
2-13-020-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	435,210.
DEVEL. OF HANDBOOKS									
2-13-027-85	18,106.93	2,468.40	96.26	0.00	7,123.50	27,795.09	2,046.49	29,841.58	79,956.
TRAINING OF TRAINERS									
2-14-019-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37,594.
NEPAL:									
DA OF IRRIG. SYST.									
2-02-031-85	53,265.04	21,872.44	15,023.20	0.00	22,160.01	112,320.69	9,684.38	122,005.07	126,479.
PAKISTAN:									
SENIOR OFFICERS WS.									
2-04-019-84	16,933.74	4,247.11	1,434.64	0.00	8,141.57	30,757.06	2,238.93	32,995.99	109,626.
MGMT. TRAINING									
2-01-065-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99,881.
SRI LANKA:									
DA WORKSHOP									
2-02-006-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64,620.
SEM.IRRIG.REHAB. I									
2-05-033-85	18,062.64	729.48	227.46	0.00	6,847.05	25,866.63	1,882.94	27,749.57	53,030.

COLORADO STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
WORLDWIDE:									
DA TRAINERS WS									
2-08-040-84	10,439.57	0.00	760.00	0.00	4,031.85	15,231.42	1,108.76	16,340.18	29,736.0
SURVEY & STRAT.									
2-09-049-84	9,073.65	0.00	606.40	0.00	3,276.01	12,956.06	958.32	13,914.38	27,378.0
COMPUTER APPLICATIONS									
2-10-051-84	30,950.44	129.00	10,746.90	2,311.60	14,018.84	58,156.78	4,140.81	62,297.59	62,615.0
PROFESSIONAL VISITORS									
2-11-039-84	2,670.27	2,639.59	109.04	0.00	1,950.81	7,369.71	536.47	7,906.18	10,284.0
BROCHURES, ETC.									
2-12-044-84	15,494.92	478.00	6,900.33	0.00	9,234.37	31,107.62	2,264.45	33,372.07	39,976.0
INSTR.GUIDE FOR WS									
2-13-042-84	16,013.03	0.00	950.00	0.00	6,106.69	23,069.72	1,715.08	24,784.80	24,881.0
SMALL SCALE T.F.									
2-14-065-84	0.00	496.03	0.00	0.00	178.57	674.60	49.11	723.71	CU
MICRO COMPUTER WS									
2-14-032-85	755.87	0.00	5,321.15	0.00	2,187.73	8,264.75	601.62	8,866.37	59,972.0
CURRENT RESEARCH									
2-14-050-85	1,219.77	2,036.98	0.00	0.00	716.28	3,972.13	345.16	4,317.29	CU
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 192,985.87	35,096.13	42,175.38	2,311.60	84,973.28	357,542.26	27,572.52	385,114.78	1,426,209.0
SPECIAL STUDIES:									
SRI LANKA:									
INT. ON-FARM WM I									
3-04-036A85	$ 24,612.80	0.00	4,793.44	0.00	9,122.90	38,529.14	2,911.22	41,440.36	86,390.0
INT. ON-FARM WM II									
3-04-036B85	8,292.32	4,397.52	398.61	0.00	3,206.93	16,295.38	1,424.01	17,719.39	130,907.0
LANDSAT 85									
3-04-038-85	8,592.29	2,272.04	4,292.47	0.00	4,463.98	19,620.78	1,500.52	21,121.30	34,442.0
TOTAL SPECIAL STUDIES	$ 41,497.41	6,669.56	9,484.52	0.00	16,793.81	74,445.30	5,835.75	80,281.05	251,739.0
TOTAL F/Y 85 ACTIVITIES	$ 697,023.09	136,665.36	124,320.94	11,123.23	296,436.14	1,265,568.76	99,911.36	1,365,480.12	3,376,882.0

SCHEDULE A-3

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

CORNELL UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:										
ADMINISTRATION:										
CORNELL UNIVERSITY										
0-02-996-85	$	51,378.99	4,190.38	8,492.70	0.00	36,322.60	100,384.67	6,342.14	106,726.81	206,932.
CLOSED-OUT ACTIVITIES:										
CU ADMINISTRATION										
0-02-996-84		(7,552.97)	(829.50)	(190.29)	0.00	(4,904.26)	(13,477.01)	(848.67)	(14,325.68)	0.
TOTAL UNIVERSITY SUPPORT	$	43,826.02	3,360.88	8,302.42	0.00	31,418.34	86,907.66	5,493.47	92,401.13	206,932.
TECHNICAL ASSISTANCE:										
INDIA:										
IRRIG.SECTOR EVAL.										
1-02-103-84	$	6,160.91	4,345.95	10.14	0.00	6,369.39	16,886.39	1,041.18	17,927.57	USU
INDONESIA:										
SM.SC.IRRIG WKSHP.										
1-02-009-85		1,086.38	0.00	10,080.43	0.00	2,601.87	13,768.68	1,105.51	14,874.19	200,658.
MAURITANIA:										
PEACE CORPS ASST.										
1-02-061-85		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,930.
PAKISTAN:										
CURRICULUM DEVEL.										
1-02-071-85		4,937.10	3,515.39	251.90	0.00	3,895.19	12,599.58	861.73	13,461.31	CSU
PERU:										
PLAN MERIS										
1-01-112-84		10,094.26	4,345.80	514.28	0.00	8,873.74	23,828.08	1,480.48	25,308.56	USU
SRILANKA:										
SOCIOECON. STUDIES										

CORNELL UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
1-02-004-85		0.00	6,845.15	155.00	0.00	4,789.69	11,789.84	693.01	12,482.85	82,672.
WORLDWIDE:										
RECURRENT COSTS										
1-02-062-85		329.67	2,773.13	0.00	0.00	2,281.80	5,884.60	356.68	6,241.28	51,345.
TOTAL TECHNICAL ASSIST.	$	23,108.32	21,825.42	11,011.75	0.00	28,811.68	84,757.17	5,538.59	90,295.76	339,605.
TRAINING AND TECHNOLOGY TRANSFER:										
INDIA:										
FARMER ORGAN.WKSHP.										
2-14-017-85	$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81,141.
WORLDWIDE:										
SM.SC.TASK FORCE										
2-12-065-84		2,240.46	590.50	820.26	0.00	1,760.60	5,411.82	361.47	5,773.29	20,741.
PROFES.VISITORS										
2-11-068-84		0.00	71.70	1,035.61	0.00	668.20	1,775.51	109.62	1,885.13	9,673.
REHAB.GAME SIMUL.										
2-13-048-85		2,363.57	0.00	1,293.58	0.00	1,671.89	5,329.04	362.06	5,691.10	33,444.
LESSONS LEARNED WKSHP.										
2-14-049-85		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41,790.
JOINT CUR.RES.SEM.										
2-14-050-85		4,400.18	4,805.72	18,979.92	0.00	9,843.78	38,029.60	2,790.40	40,820.00	94,372.
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$	9,004.21	5,467.92	22,129.37	0.00	13,944.47	50,545.97	3,623.55	54,169.52	281,161.
SPECIAL STUDIES:										
NIGER:										
SM.SC.IRRIG.& WM										
3-04-098-84	$	4,237.39	0.00	1.56	0.00	1,327.45	5,566.40	419.66	5,986.06	5,508.
TRAD.& MOD SM.SC.IRR										
3-04-052-85		8,691.13	2,573.50	7,524.85	0.00	3,769.13	22,558.61	1,860.16	24,418.77	42,484.
SRI LANKA:										
REHAB.& PARTICI.										
3-04-097-84		9,916.87	0.00	2,894.16	0.00	4,718.22	17,528.45	1,268.21	18,796.66	26,492.

CORNELL UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
WORLDWIDE:									
FARMER PARTIC.EXP.									
3-24-246-83	8,568.60	0.00	2,370.73	0.00	3,428.94	14,368.24	1,082.99	15,451.23	17,535.
SM.SC.COMPL.									
3-24-249-84	31,105.33	0.00	2,180.44	0.00	12,709.51	45,994.98	3,295.26	49,290.24	23,484.
COMP.ANAL.INDIR.INV.									
3-24-253-85	12,052.53	0.00	2,834.57	0.00	8,601.24	23,494.34	1,474.42	24,968.76	15,021.
PHASE II - COMP.ANAL.									
3-24-254-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97,899.
RURAL EMPLOY.& IRR.									
3-24-255-85	4,755.75	0.00	2,809.17	0.00	3,115.83	10,680.75	748.93	11,429.68	16,150.
MGMT. INTENSITIES									
3-24-256-85	22,837.51	0.00	339.19	0.00	11,956.86	35,133.56	2,294.49	37,428.05	69,615.
TOTAL SPECIAL STUDIES	$ 102,173.01	2,573.50	20,954.64	0.00	49,627.18	175,325.33	12,444.12	187,769.45	313,318.
TOTAL F/Y 85 ACTIVITIES	$ 178,108.56	33,227.72	62,398.13	0.00	123,801.67	397,536.13	27,099.73	424,635.86	1,141,016.

SCHEDULE A-4

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

UTAH STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:										
ADMINISTRATION:										
UTAH STATE UNIV.										
0-02-997-85	$	35,230.71	4,496.21	17,707.37	0.00	34,378.97	141,813.26	10,635.99	152,449.25	233,126.0
CLOSED-OUT ACTIVITIES:										
USU ADMINISTRATION										
0-02-997-84		(2,681.66)	0.00	0.94	0.00	(857.83)	(3,538.55)	(265.39)	(3,803.94)	0.0
MALI-OFWM SPECIALIST										
1-02-006-83		0.00	6.11	0.00	0.00	2.14	8.25	0.00	8.25	0.0
TOTAL UNIVERSITY SUPPORT	$	82,549.05	4,502.32	17,708.31	0.00	33,523.28	138,282.96	10,370.60	148,653.56	233,126.0
TECHNICAL ASSISTANCE:										
AFRICA:										
IRRIG. OVERVIEW										
1-02-108-84	$	34,151.17	11,553.36	36,161.14	0.00	26,197.01	108,062.68	8,196.14	116,258.82	140,230.0
CHAD:										
IRRIG. AGRIC.										
1-02-073-85		0.00	8,816.00	10,281.94	0.00	6,111.34	25,209.28	2,039.48	27,248.76	89,259.0
EGYPT:										
EWUP EVAL.										
1-02-066-85		0.00	0.00	17,602.85	0.00	5,632.91	23,235.76	2,033.00	25,268.76	41,268.0
EL SALVADOR:										
PROJECT PAPER										
1-02-077-85		0.00	9,198.02	45,284.00	0.00	17,434.25	71,916.27	6,321.98	78,238.25	164,814.0
HAITI:										
IRRIG.SECTOR SURVEY										
1-04-017-84		19,531.99	8,242.49	891.71	0.00	9,173.18	37,839.37	3,193.58	41,032.95	50,658.0

UTAH STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OSA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
HONDURAS:									
STRINGHAM									
1-02-060-85	3,280.19	2,210.79	52.05	0.00	1,773.77	7,316.80	606.65	7,923.45	12,309.
INDIA:									
SPCID-TECH.FEAS.STUDY									
1-02-023-84	0.00	0.00	12.50	0.00	4.00	16.50	1.24	17.74	174,989.
MAHARSHTRA IT&M									
1-01-021-84	86,815.37	117,296.72	37,728.16	10,563.04	77,385.68	329,778.97	25,426.27	355,205.24	415,000.
IRRIG.SECTOR EVAL.									
1-02-103-84	42,867.97	14,043.35	76,580.10	0.00	42,717.25	176,208.67	14,552.44	190,761.11	209,716.
UNIV.CURRICULA									
1-02-013-85	10,483.68	2,938.28	79.51	0.00	4,320.47	17,821.94	1,521.65	19,343.59	26,472.
WATER BALANCE									
1-02-023-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40,333.
HYDRAUL.CONDUCT.									
1-02-024-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31,750.
RESERVOIR OPER.									
1-02-025-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36,990.
INDONESIA:									
C.U.-ANDY KELLER									
1-02-009-85	1,640.00	5,755.54	59.94	0.00	2,385.75	9,841.23	774.99	10,616.22	CU
JAMAICA:									
PLAN ACTIVITY									
1-02-007-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11,970.
SYSTEM STUDY									
1-02-008-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24,822.
JORDAN:									
ADVISORY SERV.									
1-02-028-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10,338.
MAURITANIA:									
PLAN OF ACTION									
1-02-076-85	0.00	4,682.38	82.40	0.00	1,524.73	6,289.51	471.71	6,761.22	45,915.
MOROCCO:									
PID DEVELOPMENT									
1-02-002-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47,629.
NEPAL:									
SM/MED.SC.IRRIG.									
1-02-067-85	10,730.40	6,297.40	9,714.50	0.00	9,557.54	35,299.84	2,958.35	38,258.19	89,481.
PERU:									
PLAN MERIS									
1-01-112-84	41,693.11	35,484.66	162,828.17	5,128.30	76,801.90	321,936.14	25,206.96	347,143.10	642,215.

UTAH STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OSA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
SRI LANKA:									
DESIGN TEAM									
1-02-102-84	21,129.29	8,528.62	1,261.69	0.00	9,893.95	40,812.54	3,424.45	44,236.99	CSU
MODEL CALIB.									
1-02-005-85	2,000.00	5,482.00	156.23	0.00	2,444.23	10,082.46	801.18	10,883.64	37,600.0
SWAZILAND:									
IRRIG.ASSIST.									
1-02-029-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,287.0
TOTAL TECHNICAL ASSIST.	$ 274,322.16	240,519.61	398,776.89	15,691.34	292,357.96	1,221,667.96	97,530.87	1,319,198.03	2,355,965.0
TRAINING AND TECHNOLOGY TRANSFER:									
BOLIVIA:									
SM/SC.COURSE									
2-14-010-85	$ 5,987.56	348.21	5,180.35	0.00	3,685.16	15,201.28	1,354.22	16,555.50	41,333.0
ON-FARM WA.COURSE									
2-01-011-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81,368.0
DOMINICAN REPUBLIC:									
ON-FARM WA.MGMT.									
2-14-030-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,909.0
EQUADOR:									
FINISH.TRNG.MODULES									
2-03-054-84	105,567.16	1,664.83	4,731.94	0.00	35,828.46	147,792.39	11,084.43	158,876.82	161,176.0
INDIA:									
SENIOR OFFIC.WKSHP.									
2-04-053-84	0.00	2,185.82	9,863.70	0.00	3,855.85	15,905.37	1,353.48	17,258.85	74,337.0
INNOVATIVE TEACH.									
2-03-012-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	138,090.0
MAIN SYS. TRAIN.									
2-14-015-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65,372.0
RAPID APPRAISAL									
2-14-016-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75,853.0
COMPUTER ASSIST.ISM									
2-14-040-85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57,471.0
VIDEO MODULES									
2-03-075-85	0.00	0.00	15.08	0.00	4.83	19.91	1.49	21.40	74,001.0
WORLDWIDE:									
IRR.SYS.MGMT.TSK.FOR.									

UTAH STATE UNIVERSITY

FISCAL YEAR 1985
WORKPLAN ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
2-14-060-84 SSI TSK.FOR.-STUTLER	5,189.11	1,492.03	18.00	0.00	2,143.40	8,841.54	663.12	9,504.66	44,284.
2-14-065-84 LESSONS LEARNED	0.00	819.88	17.50	0.00	267.96	1,105.34	82.90	1,188.24	CU
2-14-039-85 FRENSH LANG. TRNG.	6,443.35	0.00	551.35	0.00	2,238.30	9,233.00	692.48	9,925.48	103,209.
2-11-041-85 CURRENT RESEARCH IRR.	672.00	0.00	18.16	0.00	220.85	911.01	68.33	979.34	10,650.
2-14-050-85	4,783.07	6,051.43	184.76	0.00	3,500.56	14,439.82	1,167.39	15,607.21	CU
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 128,[illegible]1.25	12,562.20	20,500.84	0.00	51,745.37	213,449.66	16,467.84	229,917.50	937,053.
SPECIAL STUDIES:									
WORLDWIDE:									
REMOTE SENS.SYS. 3-04-042-85	$ 0.00	38.18	14,139.73	0.00	4,536.93	18,714.84	1,403.61	20,118.45	73,710.
MAIN SYS..-ISM DEV. 3-04-043A85	16,587.90	941.68	578.53	0.00	5,794.60	23,902.71	1,792.70	25,695.41	87,623.
MAIN SYS..-THAILAND 3-04-043B85	2,245.70	1,025.00	10,893.33	0.00	4,532.49	18,696.52	1,402.24	20,098.76	44,067.
MAIN SYS..-MOROCCO 3-04-043C85	0.00	19,017.97	14.00	0.00	6,090.23	25,122.20	1,884.17	27,006.37	29,433.
MAIN SYS..-INDIA STDY. 3-04-043D85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31,928.
MAIN SYS..-ISM WKSHP. 3-04-043E85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27,848.
TOTAL SPECIAL STUDIES	$ 18,833.60	21,022.83	25,625.59	0.00	20,954.25	86,436.27	6,482.72	92,918.99	294,609.
TOTAL F/Y 85 ACTIVITIES	$ 504,346.06	278,606.96	462,611.63	15,691.34	398,580.86	1,659,836.85	130,851.23	1,790,688.08	3,820,753.

EXHIBIT B

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

QUARTERLY REPORT
FOR PERIOD ENDING JUNE 30, 1985

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	/--EXPENDITURES--\ THROUGH MAR.31,85	CURRENT QUARTER	THROUGH JUN.30,85	BUDGET BALANCE
ADMINISTRATION:								
WORLDWIDE:								
CSU ADMINISTRATION	0-02-998-83	CSU	COMP	$ 281,382	$ 281,317	$ 0	$ 281,317	$ 65
OVERALL ADMINISTRATION	0-01-999-83	EPD	COMP	145,937	145,778	0	145,778	159
TOTAL ADMINISTRATION				$ 427,319	$ 427,095	$ 0	$ 427,095	$ 224
TECHNICAL ASSISTANCE:								
BANGLADESH:								
WATER MANAGEMENT SYSTEMS	1-02-015-82	CU	COMP	$ 154,287	$ 106,859	$ 0	$ 106,859	$ 47,428
BAU COLLABORATION TEAM	1-03-030-82	CSU	COMP	84,243	66,957	0	66,957	17,286
WATER MGMT.SYS.PROJ.PAPER	1-02-072-84	CU	COMP	20,719	30,344	0	30,344	(9,625)
BURMA:								
WAKEMA PUMP SCHEME STUDY	1-02-036-84	CU	TERM	4,759	4,358	0	4,358	401
DOMINICAN REPUBLIC:								
WATER MANAGEMENT SPEC.	1-02-110-84	CSU	COMP	26,813	19,091	0	19,091	7,722
WEED CONTROL SPECIALIST	1-02-091-84	USU	FINI	3,354	3,117	0	3,117	237
EL SALVADOR:								
EVALUATION TEAM	1-02-107-84	CID	COMP	107,449	107,089	0	107,089	360
INDIA:								
WATER MANAGEMENT & TRAINING	1-02-020-82B	USU	COMP	22,802	24,025	0	24,025	(1,223)
DEVELOPMENT OF SOLUTIONS	1-02-024-82	CSU	COMP	63,936	61,219	0	61,219	2,717
HILL AREA LAND & WATER DEV	1-02-013-83	CU	COMP	140,949	43,003	0	43,003	97,946
DA WORKSHOP PLANNING	1-02-044-83	CSU	COMP	28,149	31,718	0	31,718	(3,569)
INSTITUTIONAL ANALYSIS	1-02-047-83	CID	COMP	32,647	21,498	0	21,498	11,149
INSTITUTIONAL ANALYSIS	1-02-053-83	USU	FINI	26,725	0	0	0	26,725
MAHARASHTRA MINOR IRRIG.	1-02-018-84	USU	FINI	171,970	161,087	0	161,087	10,883
HILL IRRIG.PROJ. PREP.II	1-02-074-84	CU	FINI	61,218	111,772	0	111,772	(50,554)
CURRICULUM DEVELOPMENT	1-02-094-84	CSU	COMP	10,682	10,991	0	10,991	(309)
SHORT COURSE	1-02-100-84	USU	FINI	84,388	75,987	139	76,126	8,262
INDONESIA:								
CAD'S TOY	1-02-030-83	CSU	COMP	14,408	16,205	0	16,205	(1,797)
SMALL SCALE IRRIG. & MGMT.	1-02-011-84	USU	INIT	54,468	151,781	(35)	151,746	(97,278)
JORDAN:								

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	/--EXPENDITURES--\ THROUGH MAR.31,85	CURRENT QUARTER	THROUGH JUN.30,85	BUDGET BALANCE
IRRIGATION SECTOR STUDY	1-04-013-84	USU	FINI	31,429	19,207	(31)	19,176	12,253
SR. ON FARM WM ADVISOR	1-02-014-84	USU	INIT	4,767	5,844	0	5,844	(1,077)
PAKISTAN:								
WM (CWM) MEETING	1-02-029-833	CSU	COMP	9,931	3,168	0	3,168	6,763
MAYFIELD'S TDY	1-02-040-83	USU	COMP	15,666	15,504	0	15,504	162
LONG-TERM STRATEGIES	1-02-101-84	USU	FINI	9,369	1,857	0	1,857	7,512
COMMAND AREA MANAGEMENT	1-02-106-84	USU	FINI	16,068	13,915	137	14,052	2,016
PERU:								
SPECIAL STUDY	1-04-027-82	USU	FINI	93,755	71,314	94	71,408	22,347
EXPANSION OF IRRIG. SYSTEMS	1-02-035-84	USU	FINI	53,681	60,029	0	60,029	(6,348)
SENEGAL:								
BAKEL SMALL IRRIG.PERIMETER	1-02-033-84	USU	APPR	56,681	0	0	0	56,681
SRI LANKA:								
FARMER ORGANIZATION PROG.	1-02-007-84	CU	FINI	64,466	63,646	0	63,646	820
WATER MGMT. CENTRAL SUPPORT	1-01-022-84	CSU	FINI	58,984	66,370	153	66,523	(7,539)
TANZANIA:								
TANZANIA IRRIG. STUDY	1-02-082-84	USU	FINI	12,567	11,760	(14)	11,746	821
WORLDWIDE:								
WATER RESOURCE ECON.	1-02-042-83	CSU	COMP	19,703	19,595	0	19,595	108
TOTAL TECHNICAL ASSISTANCE				$1,561,033	$1,399,310	$ 443	$1,399,753	$ 161,280

TRAINING AND TECHNOLOGY TRANSFER:

AFRICA:								
AFRICA WORKSHOP	2-14-113-84	CSU	FINI	$ 14,333	$ 14,213	$ 35	$ 14,248	$ 85
BANGLADESH:								
DA WORKSHOP	2-02-007-82	CSU	COMP	219,174	234,248	0	234,248	(15,074)
BOLIVIA:								
TARIJA SHORT COURSE	2-01-095-84	CU	FINI	64,995	5,232	(7)	5,225	59,770
EQUADOR:								
EQUIVAR VIDEO	2-03-054-83	USU	INIT	204,837	204,695	0	204,695	142
INDIA:								
SENIOR OFFICIALS	2-04-007-83	USU	TERM	1,054	1,054	0	1,054	0
WARERCOURSE HANDBOOKS	2-13-025-82	CSU	COMP	15,188	20,217	0	20,217	(5,029)
DA WORKSHOP MADYA PRADESH	2-02-031-84	CSU	FINI	135,470	140,404	0	140,404	(4,934)
DA WORKSHOP - WID	2-02-090-84	CID	FINI	21,980	5,530	0	5,530	16,450
INDONESIA:								
DA WORKSHOP	2-02-010-84	CSU	TERM	8,736	8,256	0	8,256	480
NEPAL:								
DA WORKSHOP PLANNING	2-02-003-84	CSU	FINI	21,842	22,767	(788)	21,979	(137)
PHILIPPINES:								
VIDEO PRODUCTION	2-03-049-83	CU	CANC	8,122	0	0	0	8,122
SRI LANKA:								
DA WORKSHOP	2-02-029-83	CSU	COMP	121,475	120,441	0	120,441	1,034
VIDEO PRODUCTION	2-03-048-83	CU	COMP	8,122	0	0	0	8,122
THAILAND:								
IMPROVING ALLOCATIONS	2-14-062-83	CID	COMP	44,250	44,221	0	44,221	29
WORLDWIDE:								

ACTIVITY	CODE	UNIV.	STATUS	APPROVED BUDGET	/--EXPENDITURES--\ THROUGH MAR.31,85	CURRENT QUARTER	THROUGH JUN.30,85	BUDGET BALANCE
SURVEY & STRAT. FOR TRAINING	2-09-019-83	CSU	COMP	34,267	33,441	0	33,441	826
INCREASING WM CAPABILITIES	2-11-020-83	O/ALL	INIT	57,569	50,202	0	50,202	7,367
VIDEOTAPE MODULES	2-03-021-83	CSU	COMP	90,755	90,747	0	90,747	8
COMPUTER APPLICATIONS	2-10-022-83	CSU	COMP	70,020	69,733	0	69,733	287
SHORT TERM NON-DEG.	2-08-056-83	USU	COMP	37,909	27,794	0	27,794	10,115
ICID CONFERENCE	2-04-048-84	CSU	COMP	20,678	20,239	0	20,239	439
FRENCH LANGUAGE TRAINING	2-11-059-84	USU	INIT	10,650	6,003	0	6,003	4,647
SMALL SCALE IRRIG. WORKS	2-14-064-84	CU	FINI	47,163	32,755	0	32,755	14,408
FARMER PARTICIPATION WKSP.	2-14-066-84	CU	FINI	36,193	24,225	357	24,582	11,611
AID/FAO EXPERT CONSUL WM	2-14-067-84	CU	FINI	9,288	12,780	0	12,780	(3,492)
PLANNING FOR SEMINAR	2-14-075-84	CU	FINI	9,889	6,736	0	6,736	3,153
MAIN SYSTEM MGMT.TASK FORCE	2-06-077-84	CU	FINI	7,557	1,087	0	1,087	6,470
FAO WORKSHOP PARTICIPANTS	2-14-078-84	CID	INIT	26,000	11,999	0	11,999	14,001
DA REVIEW	2-02-080-84	CID	CANC	0	15,012	(1,565)	13,447	(13,447)
INCREASING WM CAPABILITIES	2-11-081-84	O/ALL	INIT	20,847	16,244	0	16,244	4,603
TOTAL TRAINING AND TECHNOLOGY TRANSFER				$1,368,363	$1,240,275	$ (1,968)	$1,238,307	$ 130,056
SPECIAL STUDIES:								
AFRICA:								
DEV. OF SOCIAL PARAMETERS	3-04-057-83	USU	FINI	$ 67,039	$ 59,291	$ 0	$ 59,291	$ 7,748
NIGER:								
TRADITIONAL & DEV. SSI	3-04-111-84	CU	INIT	14,825	19,929	(2,086)	17,843	(3,018)
WORLDWIDE:								
COMMUNICATION OF TECH.TRANS.	3-04-024-83	CSU	COMP	52,793	52,760	0	52,760	23
IRRIG. SYSTEMS MGMT.	3-04-025-83	CSU	COMP	156,507	156,547	0	156,547	(40)
SMALL SCALE IRRIG.	3-04-045-83	CU	INIT	160,697	104,179	0	104,179	56,518
ON-FARM IRRIG. SYSTEMS SEL.	3-04-058-83	USU	INIT	47,146	18,358	0	18,358	28,788
MAIN SYSTEM MANAGEMENT	3-04-059-83	USU	INIT	146,905	108,818	0	108,818	38,087
MONITORING PROJECTS	3-04-061-83	USU	POST	18,350	0	0	0	18,350
DA EVALUATION	3-04-063-83	CID	COMP	7,163	0	0	0	7,163
DEVELOPMENT OF HANDBOOK	3- - -	USU	TERM	4,615	4,615	0	4,615	0
INTERFACING FARM & MGMT.	3-04-045-84	CSU	INIT	223,239	106,965	0	106,965	116,274
MAIN SYS.DESIGN, MGMT. REHAB.	3-04-061-84	USU	INIT	221,424	146,339	20,201	166,540	54,884
INTERDISP. IRRIG. SYS. SEL.	3-04-062-84	USU	INIT	62,430	34,562	0	34,562	27,868
MANAGEMENT INTENSITY	3-04-096-84	CU	INIT	77,238	64,659	(935)	63,724	13,514
TOTAL SPECIAL STUDIES				$1,260,361	$ 877,022	$ 17,180	$ 894,202	$ 366,159
TOTAL PRIOR YEARS ACTIVITIES				$4,617,076	$3,943,702	$ 15,655	$3,959,357	$ 657,719

SCHEDULE B-1

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

CID / EDP OFFICE

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:										
CLOSED-OUT ACTIVITIES:										
CID / EDP										
VARIOUS	$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL UNIVERSITY SUPPORT	$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TECHNICAL ASSISTANCE:										
BANGLADESH:										
WATER MGMT.SYST.										
1-02-015-82	$	0.00	0.00	9,640.98	0.00	0.00	9,640.98	954.46	10,595.44	10,595.44
WM SYS.PROJ.PAP.										
1-02-072-84		0.00	0.00	9,011.45	0.00	0.00	9,011.45	892.13	9,903.58	CU
EL SALVADOR:										
EVALUATION TEAM										
1-02-107-84A		0.00	0.00	89,888.00	0.00	0.00	89,888.00	9,827.19	99,715.19	107,449.00
INDIA:										
DEV.OF SOLUTIONS										
1-02-024-82		0.00	0.00	3,826.06	0.00	0.00	3,826.06	378.78	4,204.84	4,205.00
HILL AREA										
1-02-013-83		0.00	0.00	1,574.25	0.00	0.00	1,574.25	155.85	1,730.10	1,776.00
INSTITUTIONAL ANALYSIS										
1-02-047-83		0.00	3,353.84	12,608.28	0.00	3,705.68	19,667.80	1,830.39	21,498.19	32,647.00
MAHAR.MINOR IRR.PROJ.										
1-02-018-84		0.00	21,466.59	23,329.65	0.00	3,308.61	48,104.85	4,735.07	52,839.92	USU
HILL IRRIG. PROJ. II										
1-02-074-84		0.00	6,942.84	0.00	0.00	0.00	6,942.84	687.34	7,630.18	CU
SHORT COURSE										

CID / EDP OFFICE

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
1-02-100-84	0.00	7,161.21	0.00	0.00	0.00	7,161.21	708.96	7,870.17	USU
JORDON:									
IRRIG.SECTOR SURVEY									
1-04-013-84	0.00	0.00	7,500.00	0.00	0.00	7,500.00	742.50	8,242.50	USU
PAKISTAN:									
COMMAND WATER MGMT.									
1-02-106-84	0.00	2,608.95	0.00	0.00	0.00	2,608.95	258.29	2,867.24	USU
IRRIG. LONG TERM POL.									
1-02-101-84	0.00	749.48	0.00	0.00	0.00	749.48	74.20	823.68	USU
PERU:									
SPECIAL STUDY									
1-04-027-82	0.00	0.00	7,500.00	0.00	0.00	7,500.00	742.50	8,242.50	8,243.00
EXPAN.OF IRRIG.SYS.									
1-02-035-84	0.00	0.00	8,148.00	0.00	0.00	8,148.00	806.65	8,954.65	USU
SRI LANKA:									
WM CENTRAL SUPPORT									
1-01-022-84	0.00	3,540.00	0.00	0.00	0.00	3,540.00	350.46	3,890.46	CSU
TOTAL TECHNICAL ASSIST. $	0.00	45,822.91	173,026.67	0.00	7,014.29	225,863.87	23,144.76	249,008.63	164,915.44
TRAINING AND TECHNOLOGY TRANSFER:									
BANGLADESH:									
DA WORKSHOP									
2-02-007-82 $	0.00	0.00	29,435.70	0.00	0.00	29,435.70	2,914.13	32,349.83	32,086.00
INDIA:									
WATERCOURSE HANDBOOK									
2-13-025-82	0.00	2,530.23	0.00	0.00	0.00	2,530.23	250.49	2,780.72	CSU
DA WKSHP.MADYA PRAD.									
2-02-031-84	0.00	12,089.96	0.00	0.00	0.00	12,089.96	1,206.81	13,296.77	CSU
DA WKSHP WID									
2-02-090-84	0.00	2,005.82	0.00	0.00	0.00	2,005.82	198.58	2,204.40	21,980.00
THAILAND:									
IMPROV.ALLOC.									
2-14-062-83	0.00	34,909.11	552.56	0.00	5,248.33	40,710.00	3,518.71	44,228.71	44,250.00
WORLDWIDE:									
INCREASING WM CAP.									
2-11-081-84	0.00	2,011.38	0.00	0.00	0.00	2,011.38	199.13	2,210.51	CSU
FAO WKSHP.PARTICIP.									

CID / EDP OFFICE

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
2-14-078-84		0.00	10,918.67	0.00	0.00	0.00	10,918.67	1,080.95	11,999.62	26,000.00
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$	0.00	64,465.17	29,988.26	0.00	5,248.33	99,701.76	9,360.80	109,062.56	124,316.00
SPECIAL STUDIES:										
NIGER:										
TRAD.& DEV. SSI 3-04-111-84	$	0.00	0.00	0.00	5,797.27	0.00	5,797.27	0.00	5,797.27	CU
WORLDWIDE:										
DA EVALUATION 3-04-063-83		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,163.00
MAIN SYS.DES.,MGMT.REH. 3-04-061-84		0.00	0.00	1,043.25	0.00	0.00	1,043.25	103.25	1,146.50	USU
TOTAL SPECIAL STUDIES	$	0.00	0.00	1,043.25	5,797.27	0.00	6,840.52	103.25	6,943.77	7,163.00
TOTAL PRIOR YEAR ACTIV.	$	0.00	110,288.08	204,058.18	5,797.27	12,262.62	332,406.15	32,608.81	365,014.96	296,394.44

SCHEDULE B-2

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

COLORADO STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
UNIVERSITY SUPPORT ACTIVITIES:									
ADMINISTRATION:									
COLORADO STATE UNIV.									
0-01-998-83	$ 124,502.99	2,895.48	52,709.92	19,203.61	64,174.35	263,486.35	17,830.73	281,317.08	281,382.
CSU OVERALL ADM.									
0-01-999-83	78,403.94	6,173.33	13,267.36	2,963.60	35,224.06	136,032.29	9,746.10	145,778.39	145,937.
TOTAL UNIVERSITY SUPPORT	$ 202,906.93	9,068.81	65,977.28	22,167.21	99,398.41	399,518.64	27,576.83	427,095.47	427,319.
TECHNICAL ASSISTANCE:									
BANGLADESH:									
BAU COLLABORATION									
1-03-030-82	$ 20,928.39	10,207.73	9,208.20	0.00	12,600.29	52,944.61	4,188.10	57,132.71	74,418.
DOMINICAN REPUBLIC:									
WATER MGMT.SPEC.									
1-02-110-84	7,530.07	2,141.66	3,339.35	0.00	4,683.98	17,695.06	1,395.64	19,090.70	26,813..
EL SALVADOR:									
EVALUATION TEAM									
1-02-107-84	4,557.60	187.12	309.73	0.00	1,819.56	6,873.91	500.38	7,374.29	CID
INDIA:									
DA PLANNING									
1-02-044-83	17,523.03	4,001.85	158.30	0.00	7,805.94	29,489.12	2,229.49	31,718.61	28,149..
DEV. OF SOLUTIONS									
1-02-024-82	27,581.70	12,226.30	1,835.33	0.00	10,624.75	52,268.08	4,746.22	57,014.30	59,731..
EARLY TDY									
1-02-094-84	7,113.51	0.00	311.62	0.00	2,673.04	10,098.17	893.45	10,991.62	10,682..
INDONESIA:									
OAD TDY									

COLORADO STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OSA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
1-02-030-83	4,527.23	7,360.47	84.03	0.00	2,951.06	14,922.79	1,281.76	16,204.55	14,408.
SMALL SCALE IRR.									
1-02-011-84	13,698.00	15,736.94	482.10	0.00	10,036.43	39,953.47	3,215.64	43,169.11	CU
PAKISTAN:									
WM (CWM) MEETING									
1-02-029-833	2,143.48	0.00	0.00	0.00	771.66	2,915.14	253.05	3,168.19	9,931.
WORLDWIDE:									
WATER RESOURCE ECO.									
1-02-042-83	12,489.75	699.77	251.54	0.00	4,824.03	18,265.09	1,330.66	19,595.75	19,703.
WM CENTRAL SUPPORT									
1-01-022-84	23,689.53	21,203.02	1,750.81	148.08	10,809.62	57,601.06	5,032.12	62,633.18	58,984.
TOTAL TECHNICAL ASSIST.	$ 141,782.19	73,764.86	17,731.01	148.08	69,600.36	303,026.50	25,066.51	328,093.01	302,819.
TRAINING AND TECHNOLOGY TRANSFER:									
AFRICA:									
AFRICA									
2-14-113-84	$ 4,929.51	4,683.35	89.35	0.00	3,492.79	13,195.00	1,053.15	14,248.15	14,333.
BANGLADESH:									
DA WORKSHOP									
2-02-007-82	91,129.64	38,550.56	13,343.23	790.00	43,310.12	187,114.55	14,783.41	201,897.96	187,088..
INDIA:									
WATERCOURSE HAND									
2-13-025-82	9,254.38	2,524.92	56.50	0.00	4,260.89	16,096.69	1,340.12	17,436.81	15,188..
DA WORKSHOP									
2-02-031-84	61,870.98	23,774.16	7,200.22	0.00	24,326.58	117,171.94	9,934.91	127,106.85	135,470..
WID DA WORKSHOP									
2-02-090-84	0.00	783.30	1,572.06	0.00	737.97	3,093.33	233.18	3,326.51	CID
INDONESIA:									
DA WORKSHOP									
2-02-010-84	2,848.70	890.31	1,954.80	0.00	1,998.53	7,692.34	563.69	8,256.03	8,736..
NEPAL:									
DA WORKSHOP PLAN.									
2-02-003-84	6,963.39	6,839.28	1,566.13	0.00	5,059.49	20,428.29	1,551.12	21,979.41	21,842..
SRI LANKA:									
DA WORKSHOP									
2-02-028-83	41,876.78	32,538.65	11,444.43	0.00	25,736.14	111,596.00	8,845.04	120,441.04	121,475..
WORLDWIDE:									

COLORADO STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
SURVEY & STRAT. 2-09-019-83 VIDEOTAPE MODULES	21,376.93	749.34	1,031.35	0.00	7,991.12	31,148.74	2,292.60	33,441.34	34,267.
2-03-021-83 COMPUTER APPLICATIONS	33,483.33	17,850.43	13,524.80	0.00	19,229.91	84,088.47	6,658.67	90,747.14	90,755.
2-10-022-83 INCREASING WM CAP	33,735.65	454.56	7,589.23	9,474.64	14,342.93	65,597.01	4,136.16	69,733.17	70,020.
2-11-020-83 ICID CONFERENCE	4,211.39	8,101.62	2,867.00	0.00	4,878.00	20,058.01	1,547.90	21,605.91	29,857.
2-04-048-84 FARMER PART. WORK	13,416.43	0.00	456.05	0.00	4,994.10	18,866.58	1,373.38	20,239.96	20,678.
2-14-056-84 INCREASING WM CAP	0.00	1,943.50	0.00	0.00	699.63	2,643.13	192.41	2,835.54	CU
2-11-081-84	1,300.60	0.00	0.00	0.00	468.21	1,768.81	128.76	1,897.57	20,847.
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 326,388.71	139,683.98	62,695.15	10,264.64	161,526.41	700,558.89	54,634.50	755,193.39	770,556.
SPECIAL STUDIES:									
WORLDWIDE:									
COMM.FOR TECH.TRAN. 3-04-024-83	$ 34,812.52	594.50	754.90	0.00	13,018.29	49,180.21	3,580.03	52,760.24	52,783.
UTAH-MAIN SYS.MGMT. 3-04-059-83	10,005.78	0.00	0.00	0.00	3,602.08	13,607.86	1,180.56	14,788.42	14,716.
SMALL SCALE IRRIG. 3-04-045-838	0.00	2,341.00	0.00	0.00	843.00	3,184.00	231.76	3,415.76	3,416.
IRRIGATION SYSTEMS 3-04-025-83	99,136.32	7,207.94	1,019.12	0.00	38,393.09	145,756.47	10,790.19	156,546.65	156,507.
INTERFAC.FARM & MGMT. 3-04-045-84	60,555.77	10,090.42	3,165.32	0.00	25,845.91	99,657.42	7,307.34	106,964.76	223,239.
MAIN SYS. DESIGN 3-04-061-84	18,523.93	0.00	81.56	0.00	6,697.97	25,303.46	1,933.68	27,237.14	USU
TOTAL SPECIAL STUDIES	$ 223,034.32	20,233.86	5,020.90	0.00	88,400.34	336,689.42	25,023.55	361,712.97	450,661.
TOTAL PRIOR YEARS ACTIV.	$ 894,112.15	242,751.51	151,424.34	32,579.93	418,925.52	1,739,793.45	132,301.39	1,872,094.84	1,951,355.

SCHEDULE B-3

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

CORNELL UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
TECHNICAL ASSISTANCE:									
BANGLADESH:									
WATER SYS. PROJ.PAP.									
1-02-015-82	$ 27,521.15	22,515.17	12,156.38	1,695.00	26,218.92	90,106.62	6,157.08	96,263.70	143,692.0
BAU COLLAB.									
1-03-030-82	2,779.38	3,561.09	0.00	0.00	2,856.21	9,196.68	627.71	9,824.39	9,825.0
WM SYS.PROJ.PAPER									
1-02-072-84	11,966.29	0.00	1,364.46	545.00	5,244.81	19,120.56	1,319.74	20,440.30	20,719.0
BURMA:									
WAKEMA PUMP SCHEME									
1-02-036-84	2,914.48	0.00	0.96	0.00	1,154.56	4,070.00	288.63	4,358.63	4,759.0
INDIA:									
HILL IRRIGATION									
1-02-013-83	7,990.91	3,003.70	7,895.66	0.00	8,098.84	26,989.11	1,870.14	28,859.25	126,759.0
HILL IRRIG. II									
1-02-074-84	12,346.77	7,649.89	286.68	0.00	8,808.65	29,091.19	2,007.97	31,099.16	61,218.0
INDONESIA:									
SMALL SCALE O & M									
1-02-011-84	17,222.95	22,019.20	4,944.11	0.00	25,897.86	70,084.12	4,374.44	74,458.56	54,468.0
PERU:									
EXP.SM.& MED. IRR.SYS.									
1-02-035-84	1,260.09	1,239.02	1,582.73	0.00	1,904.21	5,986.05	404.10	6,390.15	USU
SRI LANKA:									
FARMER ORGANIZATION									
1-02-007-84	18,260.41	20,013.51	883.57	0.00	20,612.11	59,769.60	3,876.59	63,646.19	64,466.0
TOTAL TECHNICAL ASSIST.	$ 102,262.43	80,000.78	29,114.55	2,240.00	100,796.17	314,413.93	20,926.40	335,340.33	485,906.0
TRAINING AND TECHNOLOGY TRANSFER:									
BOLIVIA:									
TARIJA SHORT COURSE									
2-01-095-84	$ 0.00	0.00	65.52	0.00	44.95	110.47	6.49	116.96	64,955.0

CORNELL UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CIC G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
INDONESIA:									
FAO/AID EXP.CONSUL									
2-14-067-84	1,811.42	6,169.31	27.33	0.00	3,979.06	11,987.12	792.80	12,779.92	9,228..
PAKISTAN:									
CSU SUMMER WKSHP									
2-11-081-84	3,072.00	0.00	0.00	0.00	732.67	3,804.67	304.13	4,108.80	0/ALL
PHILIPPINES:									
VIDEO PRODUCTION									
2-03-049-83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,122..
SRI LANKA									
VIDEO PRODUCTION									
2-03-048-83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,122..
WORLDWIDE:									
SUMMER INTERNSHIP									
2-11-020-83	3,744.00	4,257.90	0.00	0.00	1,600.38	9,602.28	792.19	10,394.47	9,475..
SMALL SCALE WKSHP									
2-14-064-84	9,496.61	716.00	10,905.45	0.00	9,547.16	30,665.22	2,090.69	32,755.91	47,163..
PARTIC. WKSHP									
2-14-066-84	4,030.30	40.00	7,771.57	0.00	6,932.75	18,774.62	1,172.35	19,946.97	36,193..
CURR. RES. SEMINAR									
2-14-075-84	4,079.62	0.00	2.85	0.00	2,249.85	6,332.32	404.16	6,736.48	9,889..
MA.SYS.MGMT.TSK.FOR.									
2-14-077-84	0.00	609.00	0.00	0.00	417.78	1,026.78	60.29	1,087.07	7,557..
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 26,233.95	11,792.21	18,772.72	0.00	25,504.60	82,303.48	5,623.10	87,926.58	200,704..
SPECIAL STUDIES:									
NIGER:									
TRAD.& DEV.SM.SC.SYS.									
3-04-111-84	$ 3,547.71	3,133.52	2,528.85	0.00	1,925.36	11,134.64	911.72	12,046.36	14,825..
WORLDWIDE:									
SMALL SCALE									
3-04-045-83	45,919.41	15,661.62	4,347.33	0.00	28,307.56	94,235.92	6,526.91	100,762.83	157,281..
MANAGE. INTENSITY									
3-04-096-84	38,517.48	415.38	751.73	0.00	20,110.91	59,795.50	3,928.77	63,724.27	77,238..
TOTAL SPECIAL STUDIES	$ 87,984.60	19,210.52	7,627.11	0.00	50,343.83	165,166.06	11,367.40	176,533.46	249,344..
TOTAL PRIOR YEARS ACTIV.	$ 216,480.98	111,003.51	55,514.38	2,240.00	176,644.60	561,883.47	37,916.90	599,800.37	935,954..

SCHEDULE B-4

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

UTAH STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
TECHNICAL ASSISTANCE:									
DOMINICAN REPUBLIC:									
WEED CONTROL SPEC.									
1-02-091-84	$ 674.21	1,510.79	1.16	0.00	699.57	2,885.73	231.60	3,117.33	3,354.1
INDIA:									
HILL AREA LAND & W.									
1-02-013-83	0.00	841.39	7,726.17	0.00	2,998.65	11,566.21	848.18	12,414.39	12,414.3
WATER MGMT.TRAIN.									
1-02-025-828	0.00	4,121.07	12,459.50	0.00	5,803.20	22,383.77	1,641.49	24,025.26	22,802.3
INSTIT. ANALYSIS									
1-02-053-83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26,725.3
MAHARASHTRA MIP									
1-02-018-84	16,845.82	25,221.57	33,793.13	0.00	24,275.37	100,135.89	8,110.83	108,246.72	171,970.0
INDIA SHORT COURSE									
1-02-100-84	14,303.13	10,059.91	23,413.61	0.00	15,288.53	63,065.18	5,190.75	68,255.93	84,388.0
HILL AREA LND.& WA.									
1-02-074-84	5,315.28	14,750.81	30,945.25	0.00	16,323.63	67,334.97	5,707.97	73,042.94	CU
INDONESIA:									
SM.SC.IRRIG.& MGMT.									
1-02-011-84	7,487.45	15,634.52	827.55	0.00	7,663.85	31,613.37	2,504.14	34,117.51	CU
JORDAN:									
IRRIG.SECTOR SUR.									
1-04-013-84	6,344.74	981.57	388.21	0.00	2,440.49	10,067.01	866.47	10,933.48	31,429.0
ON-FARM WM SPEC.									
1-02-014-84	1,439.84	360.29	2,318.31	0.00	1,317.90	5,436.34	407.73	5,844.07	4,767.0
PAKISTAN:									
MAYFIELD									
1-02-040-83	0.00	4,987.20	5,606.00	0.00	3,707.62	14,300.82	1,203.73	15,504.55	15,666.0
LONG-TERM STRAT.									
1-02-101-84	0.00	0.00	728.25	0.00	233.04	961.29	72.10	1,033.39	9,369.0
COMMAND AREA MGMT.									

UTAH STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
1-02-106-84	0.00	1,723.55	6,062.50	0.00	2,491.54	10,277.59	907.23	11,184.82	16,068.1
PERU:									
SPECIAL STUDY									
1-04-027-82	31,541.30	6,290.89	6,272.66	0.00	14,083.80	58,188.65	4,976.06	63,164.71	85,512.1
EXPAN.OF IRR.SYS.									
1-02-035-84	0.00	10,585.54	20,602.80	0.00	9,980.27	41,168.61	3,516.67	44,685.28	53,681.1
SENEGAL:									
BAKEL IRR.PER.ASS'T.									
1-02-033-84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56,681.1
TANZANIA:									
IRRIG. STUDY									
1-02-082-84	2,879.68	279.61	5,082.58	0.00	2,637.40	10,879.27	866.53	11,745.80	12,567.8
TOTAL TECHNICAL ASSIST. $	86,831.45	97,348.71	156,139.68	0.00	109,944.86	450,264.70	37,051.48	487,316.18	607,393.1
TRAINING AND TECHNOLOGY TRANSFER:									
BOLIVIA:									
TARIJA SHORT COURSE									
2-01-095-84 $	1,487.98	2,046.78	46.93	0.00	1,146.14	4,727.83	380.80	5,108.63	CU
EQUADOR:									
EQUAVIR VIDEOS									
2-03-054-83	97,022.50	9,519.05	34,432.22	0.00	49,340.92	190,314.59	14,380.29	204,694.88	204,837.8
INDIA:									
SENIOR OFFICIALS									
2-04-007-83	0.00	0.00	727.50	0.00	254.63	982.13	72.02	1,054.15	1,054.1
WORLDWIDE:									
INCREASING WM CAP.									
2-11-020-83	6,683.20	5,706.36	86.08	0.00	4,366.47	16,842.11	1,360.04	18,202.15	18,237.0
SHORT TERM TRAIN.									
2-08-056-83	11,521.95	1,533.00	6,532.91	0.00	6,267.82	25,855.68	1,939.11	27,794.79	37,909.0
FRENCH LANG.TRAIN.									
2-11-059-84	3,211.00	0.00	1,019.67	0.00	1,353.81	5,584.48	418.84	6,003.32	10,650.0
PARTIC.WKSHP.									
2-14-066-84	0.00	1,268.00	0.00	0.00	405.76	1,673.76	125.53	1,799.29	CU
INCREASING WM CAP.									
2-11-081-84	0.00	5,573.10	83.65	0.00	1,810.16	7,466.91	560.02	8,026.93	EDP
DA REVIEW-BRAD PARLIN									
2-02-080-84	4,961.22	4,419.62	34.29	0.00	3,012.84	12,427.97	1,019.51	13,447.48	CID

UTAH STATE UNIVERSITY

PRIOR YEARS WORKPLAN ACTIVITIES
NOT CLOSED-OUT

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE	APPROVED ACTIVITY BUDGET
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 124,887.85	30,065.91	42,963.25	0.00	67,958.45	265,875.46	20,256.16	286,131.62	272,687.1
SPECIAL STUDIES:									
AFRICA:									
DEV.OF SOCIAL PARAM. 3-04-057-83	$ 24,650.34	13,577.81	2,735.73	0.00	14,337.36	55,301.24	3,989.82	59,291.06	67,039.0
WORLDWIDE:									
ON-FARM IRRIG.SYS. 3-04-058-83	12,475.53	372.50	90.78	0.00	4,139.88	17,078.69	1,280.78	18,359.47	47,146.0
DEV.OF HANDBOOKS 3- - -83	3,200.75	0.00	51.51	0.00	1,040.72	4,292.98	321.97	4,614.95	4,615.0
MAIN SYS. MGMT. 3-04-059-83	34,237.48	22,354.19	8,186.24	0.00	22,672.27	87,450.18	6,580.26	94,030.44	132,189.0
MONITOR PROJ. TECH. 3-04-061-83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,350.0
MAIN SYS.DES.MGMT. 3-04-061-84	70,870.94	5,001.41	21,397.31	130.50	31,126.29	128,526.45	9,629.70	138,156.15	221,424.0
SEL.OF IRRIG.TECH. 3-04-062-84	22,738.80	873.45	744.33	0.00	7,794.11	32,150.69	2,411.30	34,561.99	62,430.0
TOTAL SPECIAL STUDIES	$ 168,173.84	42,179.36	33,205.90	130.50	81,110.63	324,800.23	24,213.83	349,014.06	553,193.0
TOTAL PRIOR YEARS ACTIV.	$ 379,893.14	169,593.98	232,308.83	130.50	259,013.94	1,040,940.39	81,521.47	1,122,461.86	1,433,273.1

EXHIBIT C

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

QUARTERLY REPORT
FOR PERIOD ENDING JUNE 30, 1985

CLOSED-OUT ACTIVITIES

DESCRIPTION	CODE	UNIV	DATE CLOSED	APPROVED AMOUNT
ADMINISTRATION:				
EPD OFFICE	0-01-999-84	ALL	MAR.31,1985	$ 151,815
COLORADO ST. UNIV.	0-02-998-84	CSU	MAR.31,1985	238,396
CORNELL UNIV.	0-02-996-83	CU	MAR.31,1985	191,966
CORNELL UNIV.	0-02-996-84	CU	MAR.31,1985	201,968
UTAH ST. UNIV.	0-02-997-83	USU	MAR.31,1985	212,733
UTAH ST. UNIV.	0-02-997-84	USU	MAR.31,1985	228,956
TOTAL ADMINISTRATION				$ 1,225,834
TECHNICAL ASSISTANCE:				
BANGLADESH				
CONSULTANT, LEGAL	1-03-029-82	CSU	MAR.31,1985	$ 14,671
SCOPE OF WORK	1-02-006-82	CSU	MAR.31,1985	16,222
CHINA				
BELL'S STUDY TOUR	1-02-038-83	CID	MAR.31,1985	2,617
DOMINICAN REPUBLIC				
PROJECT PAPER (OFWM)	1-02-009-83	USU	MAR.31,1985	92,538
PROJECT PID	1-02-010-82	USU	MAR.31,1985	20,563
HAITI				
IRRIGATION PROJECT EVAL.	1-02-039-83	USU	MAR.31,1985	25,082
INDIA				
CLYMA'S TDY	1-02-035-83	CSU	MAR.31,1985	2,888
EVANS PROJECT PREPERATIONS	1-02-033-83	CSU	MAR.31,1985	12,580
OLSEN'S TDY	1-02-037-83	USU	MAR.31,1985	12,449
WATER MANAGEMENT & TRAINING	1-02-020-82A	CSU	MAR.31,1985	16,901
WM & TRAINING	1-02-014-83	CID	MAR.31,1985	23,713
JORDAN				
REVIEW OF CURRICULUM	1-02-041-82	USU	MAR.31,1985	9,911
MALI				
OFWM SPECIALIST	1-02-006-83	USU	MAR.31,1985	16,421
PAKISTAN:				

DESCRIPTION	CODE	UNIV	DATE CLOSED	APPROVED AMOUNT
CLYMA'S TOY	1-02-031-83	CSU	MAR.31,1985	8,164
SRI LANKA				
VARIOUS TOY'S	1-02-008-82	CU	MAR.31,1985	67,471
THAILAND				
EQUIPMENT ENGINEER	1-02-005-82	CID	MAR.31,1985	32,011
TOTAL TECHNICAL ASSISTANCE				$ 374,199
TRAINING AND TECHNOLOGY TRANSFER:				
INDIA				
MEASUREMENT FOR SYS. MGMT.	2-07-026-82	CSU	MAR.31,1985	$ 17,324
NEPAL				
SMALL SCALE SYSTEMS	2-14-050-83	CU	MAR.31,1985	41,554
SRI LANKA				
DA WORKSHOP - WID	2-02-034-83	CSU	MAR.31,1985	16,387
WORLDWIDE				
BROCHURES; NEWSLETTERS; PUB.	2-12-018-83	CSU	MAR.31,1985	8,422
FAO/AID WORKSHOP PLANNING	2-14-064-83	CU	MAR.31,1985	2,141
START-UP WORKSHOP	2-14-051-83	CU	MAR.31,1985	11,833
START-UP WORKSHOP	2-14-055-83	USU	MAR.31,1985	15,159
WORKSHOP (TECH. & SOC. ASP)	2-04-023-83	CSU	MAR.31,1985	43,743
CONFERENCE	2-14-058-84	USU	MAR.31,1985	5,408
INCREASING WM CAP. INTERN 1	2-11-037-84	CID	MAR.31,1985	6,367
WORKSHOP (TECH & SOC ASP)	2-04-050-84	CSU	MAR.31,1985	44,999
TOTAL TRAINING & TECHNOLOGY TRANSFER				$ 232,837
TOTAL CLOSED-OUT ACTIVITIES				$ 1,832,870

SCHEDULE C-1

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

CID / EDP OFFICE

CLOSED-OUT ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND DBA	TOTAL ACTIVITY EXPENSE
UNIVERSITY SUPPORT ACTIVITIES:									
ADMINISTRATION:									
CID EXECUTIVE OFFICE									
0-01-999-84	$	0.00	702.89	29.13	0.00	0.00	732.02	72.47	804.49
TOTAL UNIVERSITY SUPPORT	$	0.00	702.89	29.13	0.00	0.00	732.02	72.47	804.49
TECHNICAL ASSISTANCE:									
CHINA:									
BELL'S TOUR									
1-02-038-83	$	0.00	0.00	2,380.84	0.00	0.00	2,380.84	235.70	2,616.54
INDIA:									
WM & TRAINING									
1-02-014-83A		0.00	0.00	10,474.00	0.00	0.00	10,474.00	1,036.93	11,510.93
WM & TRAINING									
1-02-014-83B		0.00	0.00	11,100.00	0.00	0.00	11,100.00	1,098.90	12,198.90
OLSEN'S TOY									
1-02-037-83		0.00	0.00	98.00	0.00	0.00	98.00	9.70	107.70
THAILAND:									
EQUIPMENT ENG.									
1-02-005-82		0.00	0.00	29,128.10	0.00	0.00	29,128.10	2,883.68	32,011.78
TOTAL TECHNICAL ASSIST.	$	0.00	0.00	53,180.94	0.00	0.00	53,180.94	5,264.91	58,445.85
TRAINING AND TECHNOLOGY TRANSFER:									
INDIA:									
MEAS. FOR SYS. MGMT.									
2-07-026-82	$	0.00	0.00	3,986.88	0.00	0.00	3,986.88	394.70	4,381.58
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$	0.00	0.00	3,986.88	0.00	0.00	3,986.88	394.70	4,381.58
TOTAL CLOSED-OUT ACTIV.	$	0.00	702.89	57,196.95	0.00	0.00	57,899.84	5,732.08	63,631.92

SCHEDULE C-2

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

COLORADO STATE UNIVERSITY

CLOSED-OUT ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE
UNIVERSITY SUPPORT ACTIVITIES:									
ADMINISTRATION:									
COLORADO STATE UNIV.									
0-02-998-84	$	126,946.70	5,889.39	30,638.72	0.00	58,737.71	222,212.52	16,184.01	238,396.53
CSU OVERALL ADM.									
0-01-999-84		88,237.47	1,904.27	13,361.97	0.00	37,261.32	140,765.03	10,246.87	151,011.90
TOTAL UNIVERSITY SUPPORT	$	215,184.17	7,793.66	44,000.69	0.00	95,999.03	362,977.55	26,430.88	389,408.43
TECHNICAL ASSISTANCE:									
BANGLADESH:									
SCOPE OF WORK									
1-02-006-82	$	5,212.05	5,750.41	75.25	0.00	3,973.58	15,011.29	1,210.25	16,221.54
CONSULTANT LEGAL									
1-03-029-82		5,868.10	4,135.00	0.00	0.00	3,601.12	13,604.22	1,066.96	14,671.18
INDIA:									
WATER MGMT. & TRAIN.									
1-02-020-82A		5,415.10	6,073.40	0.00	0.00	4,135.86	15,624.36	1,276.74	16,901.10
PROJECT PREP-EVANS									
1-02-033-83		4,034.33	4,545.00	0.00	0.00	3,088.55	11,667.88	912.78	12,580.66
CLYMA TDY									
1-02-035-83		1,224.37	739.29	0.00	0.00	706.91	2,670.57	217.65	2,888.22
PAKISTAN:									
CLYMA TDY									
1-02-031-83		2,448.73	3,115.57	0.00	0.00	2,003.15	7,567.45	597.36	8,164.81
TOTAL TECHNICAL ASSIST.	$	24,202.68	24,358.67	75.25	0.00	17,509.17	66,145.77	5,281.74	71,427.51

COLORADO STATE UNIVERSITY

CLOSED-OUT ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE
TRAINING AND TECHNOLOGY TRANSFER:								
INDIA:								
MEASUREMENT SYS								
2-07-026-82	$ 4,856.07	4,804.55	39.20	0.00	2,133.96	11,833.78	1,108.39	12,942.17
SRI LANKA:								
WID-DA WORKSHOP								
2-02-034-83	6,290.47	5,691.75	20.49	0.00	3,133.46	15,136.17	1,251.05	16,387.22
WORLDWIDE:								
BROCHURES, ETC.								
2-12-018-83	4,921.11	0.00	851.43	0.00	2,078.12	7,850.66	571.48	8,422.14
TECH. & SOC.WKSP								
2-04-023-83	27,852.47	403.35	16,748.17	0.00	13,783.93	58,787.92	4,455.40	63,243.32
TECH. & SOC.WKSP.								
2-04-050-84	26,913.90	3,149.00	994.48	0.00	10,867.46	41,924.84	3,074.68	44,999.52
INC.WM CAP.INT. 1								
2-11-037-848	4,627.27	0.00	0.00	0.00	1,062.00	5,889.27	477.90	6,367.17
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 75,661.29	14,048.65	18,653.77	0.00	33,058.93	141,422.64	10,938.90	152,361.54
TOTAL CLOSDE-OUT ACTIV.	$ 315,048.14	46,200.98	62,729.71	0.00	146,567.13	570,545.96	42,651.52	613,197.48

SCHEDULE C-3

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

CORNELL UNIVERSITY

CLOSED-OUT ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE
UNIVERSITY SUPPORT ACTIVITIES:								
ADMINISTRATION:								
CORNELL UNIVERSITY 3-02-996-83	$ 92,115.52	6,625.08	26,375.55	0.00	54,463.47	179,579.62	12,386.50	191,966.12
CORNELL UNIVERSITY 0-02-996-84	97,800.64	7,196.69	20,034.63	3,359.00	61,199.53	189,590.49	12,378.16	201,968.65
TOTAL UNIVERSITY SUPPORT	$ 189,916.16	13,821.77	46,410.18	3,359.00	115,663.00	369,170.11	24,764.66	393,934.77
TECHNICAL ASSISTANCE:								
SRI LANKA:								
VARIOUS TDY'S 1-02-008-82	$ 18,858.13	16,876.12	6,865.62	0.00	20,654.21	63,254.08	4,217.39	67,471.47
TOTAL TECHNICAL ASSIST.	$ 18,858.13	16,876.12	6,865.62	0.00	20,654.21	63,254.08	4,217.39	67,471.47
TRAINING AND TECHNOLOGY TRANSFER:								
NEPAL:								
SM.SC. WKSHP. 2-14-050-83	$ 19,760.03	7,057.87	133.11	0.00	11,934.70	38,885.71	2,668.15	41,553.86
WORLDWIDE:								
START UP WORKSHOP 2-14-051-83	3,598.38	3,604.81	403.44	0.00	3,474.42	11,080.25	752.98	11,833.23
FAO WKSHP. PLAN 2-14-064-83	771.49	614.71	5.76	0.00	611.39	2,003.35	137.80	2,141.15
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$ 24,129.90	11,276.59	542.31	0.00	16,020.51	51,969.31	3,558.93	55,528.24
TOTAL CLOSED-OUT ACTIV.	$ 232,904.19	41,974.48	53,818.11	3,359.00	152,337.72	484,393.50	32,540.98	516,934.48

SCHEDULE C-4

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN 4127-C-00-2086-00)

EXPENDITURE REPORT
AS OF JUNE 30,1985

UTAH STATE UNIVERSITY

CLOSED-OUT ACTIVITIES

DESCRIPTION	SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE
UNIVERSITY SUPPORT ACTIVITIES:								
ADMINISTRATION:								
UTAH STATE UNIV.								
0-01-997-83	$ 100,394.73	11,304.90	11,017.66	34,916.00	42,951.05	200,584.34	12,149.01	212,733.35
UTAH STATE UNIV.								
0-02-997-84	121,251.36	7,293.96	32,805.53	0.00	51,632.27	212,983.12	15,973.73	228,956.85
TOTAL UNIVERSITY SUPPORT	$ 221,646.09	18,598.86	43,823.19	34,916.00	94,583.32	413,567.46	28,122.74	441,690.20
TECHNICAL ASSISTANCE:								
DOMINICAN REPUBLIC:								
PROJ.PAPER - OFWM								
1-02-009-83	$ 7,287.10	23,220.61	33,235.94	0.00	22,310.28	86,053.93	6,484.12	92,538.05
PROJECT PID								
1-02-010-82	4,495.75	4,513.69	5,108.00	0.00	4,941.10	19,058.54	1,504.57	20,563.11
HAITI:								
IRRIG.PROJ.EVAL.								
1-02-039-83	5,511.65	5,077.00	6,630.93	0.00	6,026.85	23,246.43	1,835.97	25,082.40
INDIA:								
OLSEN TDY								
1-02-037-83	7,964.49	247.00	174.23	0.00	2,935.00	11,320.72	1,019.83	12,340.55
JORDAN:								
CURR. DEVELOP.								
1-02-041-82	2,390.32	4,334.13	76.76	0.00	2,380.42	9,181.63	730.24	9,911.87
MALI:								
OFWM SPECIALIST								
1-02-006-83	6,086.40	4,845.93	322.57	0.00	3,939.22	15,194.12	1,227.25	16,421.37
TOTAL TECHNICAL ASSIST.	$ 33,735.71	42,238.36	45,548.43	0.00	42,532.87	164,055.37	12,801.98	176,857.35

UTAH STATE UNIVERSITY

CLOSED-OUT ACTIVITIES

DESCRIPTION		SALARIES & BENEFITS	TRAVEL & PER DIEM	OTHER DIRECT COSTS	EQUIPMENT	INDIRECT COSTS	TOTAL UNIVERSITY COSTS	CID G & A AND OBA	TOTAL ACTIVITY EXPENSE
TRAINING AND TECHNOLOGY TRANSFER:									
CHILE:									
CONFERENCE									
2-14-058-84	$	1,954.54	1,824.06	1.86	0.00	1,209.75	4,990.21	418.24	5,408.45
WORLDWIDE:									
START UP WORKSHOP									
2-14-055-83		5,970.53	4,490.59	0.88	0.00	3,661.70	14,123.70	1,035.74	15,159.44
TOTAL TRAINING AND TECHNOLOGY TRANSFER	$	7,925.07	6,314.65	2.74	0.00	4,871.45	19,113.91	1,453.98	20,567.89
TOTAL CLOSED-OUT ACTIV.	$	263,306.87	67,151.87	89,374.36	34,916.00	141,987.64	596,736.74	42,378.70	639,115.44

EXHIBIT D

CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

WATER MANAGEMENT SYNTHESIS II PROJECT
(AID/DAN-4127-C-00-2086-00)

FUNDS OBLIGATED

LISTING OF PIO/T NUMBERS AND AMOUNTS
(INCLUDES PROPOSED AMENDMENT #12)

AS OF: JULY 31, 1985

CONTRACT AMENDMENT	DATE	PIO/T NUMBER	SOURCE	AMOUNT OBLIGATED	TOTAL OBLIGATED TO DATE	UNOBLIGATED CONTRACT BALANCE	UNOBLIGATED PROJECT COMMITMENTS CORE	UNOBLIGATED PROJECT COMMITMENTS MISSIONS
PRIME	SEP.30,1982					$ 19,645,933	$ 14,345,933	$ 5,300,000
PRIME	SEP.30,1982	936-4127-3621409/413	CORE	$ 2,550,000	$ 2,550,000	17,095,933	11,795,933	5,300,000
#3	AUG.08,1983	936-4127-3631565	CORE	1,860,000				
		936-4127-3631566	CORE	300,000				
	AMEND. #3 TOTAL			2,160,000	4,710,000	14,935,933	9,635,933	5,300,000
#4	SEP.27,1983	498-0249-3-6431074	MISSION	63,000				
		517-0000-3-30019	MISSION	69,348				
		518-0012-3-30019	MISSION	127,960				
		521-0000.1-3-30124	MISSION	3,750				
		930-0100-3032208	MISSION	8,000				
		930-0400-3032209	MISSION	8,000				
	AMEND. #4 TOTAL			280,058	4,990,058	14,655,875	9,635,933	5,019,942
#5	FEB.01,1984	936-4127-3641136	CORE	1,856,000	6,846,058	12,799,875	7,779,933	5,019,942
#6	MAY.01,1984	518-0012-3-30019	MISSION	32,000				
		391-0467-3-30341	MISSION	9,369				
		386-0484-3-40007	MISSION	9,837				
		386-0481-3-30030	MISSION	16,335				
		391-0413-3-30314	MISSION	16,068				
		527-0166-3-40020	MISSION	25,000				
		383-057-3-30080	MISSION	200,000				
		386-0481-3-30015	MISSION	81,223				
		498-0249-3-40016	MISSION	37,082				
		391-0467-3-30336	MISSION	25,680				
		527-0166-3-40027	MISSION	15,000				
	AMEND. #6 TOTAL			467,514	7,313,572	12,332,361	7,779,933	4,552,428
#8	AUG.25,1985	519-0184-3-80053	MISSION	103,017				
		386-0481-3-4008	MISSION	418,000				
		498-0249-3-40025	MISSION	90,532				
		498-0249-3-40047	MISSION	30,000				
		498-0249-3-6441034	MISSION	35,000				
		936-4127-3641136A1	CORE	925,000				
		936-4127-3641136A2	CORE	20,493				

CONTRACT AMENDMENT	DATE	PIO/T NUMBER	SOURCE	AMOUNT OBLIGATED	TOTAL OBLIGATED TO DATE	UNOBLIGATED CONTRACT BALANCE	UNOBLIGATED PROJECT COMMITMENTS CORE	UNOBLIGATED PROJECT COMMITMENTS MISSIONS
		698-0507-2-6143502	MISSION	48,000				
		698-0507-2-6143601	MISSION	27,000				
		517-0000-3-40023	MISSION	1,050				
		527-0156-3-00130	MISSION	579,000				
		521-0000.1-3-40100	MISSION	9,000				
		521-0000.1-3-40099	MISSION	15,000				
		383-080-3-40032	MISSION	172,500				
		698-0507-3-6143602	MISSION	13,231				
	AMEND. #8 TOTAL			2,486,823	9,800,395	9,845,538	6,834,440	3,011,098
#9	SEP.24,1984	498-0249-3-6441034A2	MISSION	59,345	9,859,740	9,786,193	6,834,440	2,951,753
#11	APR.02,1985	383-0057-3-30080A2	MISSION	33,313				
		386-0484-3-50015	MISSION	25,405				
		522-0164-3-40179	MISSION	3,354				
		519-0177-3-50001	MISSION	22,500				
		936-4127.01-5361124	CORE	600,000				
		936-4127-5361126	CORE	1,300,000				
		263-0042-3-90639	MISSION	42,300				
	AMEND. #11 TOTAL			2,026,872	11,886,612	7,759,321	4,934,440	2,824,881
#12	UNSIGNED	391-0467-3-30438	MISSION	74,504				
		263-0132-3-10332/A1	MISSION	53,000				
		936-4127-5361126A1	CORE	1,000,000				
		519-0167-3-50067	MISSION	170,000				
		383-057-3-30080	MISSION	53,166				
		645-0212-3-30076	MISSION	6,863				
		625-0929-3-50049	MISSION	40,000				
		625-0929-3-50017A1	MISSION	88,500				
		391-0467-3-30414	MISSION	958,690				
		936-4127-5361126A2	CORE	400,000				
		936-4127-5361126A3	CORE	50,700				
	AMEND. #12 TOTAL			2,895,423	14,782,035	$ 4,863,898	$ 3,483,740	$ 1,380,158

SUMMARY OF OBLIGATED FUNDS - THROUGH AMENDMENT #11

CORE FUNDS OBLIGATED TO DATE	$10,862,193
MISSION FUNDS OBLIGATED TO DATE	3,919,842
TOTAL CONTRACT FUNDS OBLIGATED	$14,782,035