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QUARTERLY REPORT

July 1, 1981 to Sept. 30, 1981

EGYPT WATER USE AND MANAGEMENT PROJECT

Submitted by

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Cairo, Egypt

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Fort Collins, Colorado

Contract No.
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Project No. 263-017

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(EGYPT)

I. PROJECT STATUS IN EGYPT

A. Introduction:

Implementation of pilot programs and task group plans was the major focus of effort during the third quarter of 1981. Training activities included the completion of the on-farm water management short-course at Kafr El Sheikh, a tour of irrigation systems and research stations in the United States by trainees and senior officials from the Ministries of Irrigation and Agriculture, and participation by Egyptian staff in two water management shortcourses, one at San Diego, California and the other Logan, Utah.

Good progress was made on all pilot program and task group assignments during the quarter. The water users' association is becoming a viable organization for scheduling water on Meska #26 at Minia. It also is a tool for getting cooperation and coordination among the farmers for cleaning the Meska and maintaining its cross section. The sociologists continue to work with these farmers to improve the democratic procedures for managing the irrigation system on this canal.

Engineering and agronomy disciplines continue to measure water-yield responses to alternative irrigation interventions. This work, combined with benefit-cost analyses of the economists, is integrated into the work of eleven task groups and six specific pilot programs which are organized in such a way as to provide experience, data, analyses

.../...

and recommendations regarding major on-farm irrigation alternatives for Egypt.

Construction work is progressing on a raised concrete canal at Meska # 10 and a buried pipeline system for El-Hammami. Although both systems are somewhat behind schedule due to delays in procuring materials it is believed they will be completed in time for evaluation before completion of the project scheduled for June 30, 1983. Plans are well along for raising Abueha Canal and it is expected that contracts will be made in time for construction to take place during the winter closure in January 1982.

Task Group # 4, named "Irrigation Advisory Service, Farm Management and Planning", was divided into two task groups in order to facilitate the achievement of Project objectives. Since the task group, as originally organized, tended to be functioning as two groups, it was decided that administrative and coordinative procedures could be simplified by formally appointing two task groups. Task Group # 4 retained the title "Farm Management and Planning". Task Group # 11 becomes "Irrigation Advisory Service". Detailed objectives, accomplishments and plans for the two task groups are shown in the project plan book and in the detailed accounts of section I:E. of this report.

Procedures have been worked out and adopted for reviewing manuscripts which report data and analyses of project work. A TDY editor is joining the staff for six months starting Oct. 15 and it is expected the next two quarters will show substantial accomplishment with respect to publishing reports and distributing them widely in Egypt. To date 67 manuscripts have been prepared by Project staff. Fourty Six of these manuscripts were included in the mid-project report which was widely distributed. Eight Project technical papers have been prepared.

The following sections B through E report detailed accomplishments of pilot programs and task groups.

.../...

B. Mansouria:

The pilot programs of the Mansouria area are designed to improve water distribution to all farmers served by that particular delivery system. In addition to traditional systems, a pipeline & an elevated lined meska will provide water on a gravity feed basis. This will eliminate the water lifting requirement as well as provide a larger discharge of water for irrigation.

1) El Hammami Pipeline Pilot Program:

- a. The on-farm water management (OFWM) is proceeding satisfactorily on several sites. Field redesigns including larger basins than normally used by farmers are being evaluated. In addition, irrigation evaluations are being made of the farmer's traditional means of irrigation. A report regarding this continuing work should be forth coming in the next quarter.
- b. Construction of the pipeline has been slow due to lack of proper equipment. Contractors have now secured the proper equipment for building the pipeline stands and we expect significant progress in the next quarter.

Arrangements are being made with the contractor to install 64 outlets rather than 16 outlets called for in the construction drawings. These arrangements should be concluded in October.

- c. Sociologists and engineers have met with key farmers informing them of the pipeline plans. Numerous informal contacts are being made to keep farmers informed and answer their questions. Problems regarding irrigation during construction are being solved as they arise.
- d. Farm record data are being maintained on many sites in the area. Some of these sites are the same ones being used in the OFWM work. In addition, crop enterprise cost studies for hot peppers and egg-

.../...

plant intercropped with corn have been completed. Additional enterprise studies and cost benefit analyses of the pipeline will be conducted in the next quarter. Farm records will continue.

- e. Although the water budget for El Hammami will not be calculated for 1981, the water budget for 1980 will be developed further. Data pertinent to the water budget will continue to be collected in 1981. This will provide some base data for evaluation of the pipeline and also support data for the 1980 water budget.

2) Beni Magdoul Meska 10 Pilot Program:

- a. OFWM data have been collected on various crops in the area. It is expected that collection of similar data will continue hopefully with some sites using larger basin irrigation. A report will be submitted within the next quarter. In addition, we plan to install additional observation wells and measure daily discharge into meska # 10.
- b. Construction of meska # 10 was slowed down due to a cement shortage. This is now corrected and work is proceeding well. To complete, construction of the pumphouse, the lining of the walls with mortar, and full installation of the outlets must be accomplished. We expect this within the next quarter. The gates for the outlets have been acquired and will be tested in October.
- c. Sociologists are assisting in maintaining excellent farmer-EWUP relationships in the site. Contact is being maintained on a daily basis. A survey has been conducted documenting the farmers' current irrigation schedule.

.../...

d. Farm record data collection for numerous sites on meska #10 as well as on other farms in the area is being maintained. A cost benefit analysis has been done for the project. A farm management survey has been started on the meskas which will provide data for project evaluation. This survey will be completed in the next quarter. A crop enterprise cost study has been done for corn. Other crops will be done in the next quarter.

3) Special Studies:

- a. Data collection regarding large basin and long furrow irrigation of wheat and corn has been completed. In addition two varieties of wheat and corn were evaluated on several sites on meska # 6 at Beni Magdoul. Reports for both crops will be submitted in the next quarter. A Pilot study will be established to evaluate long basin irrigation on berseem on meska # 6. In addition two wheat varieties will be evaluated during the 1981-82 winter season.
- b. Water budget data are being collected in the Beni Magdoul Area. Full details and reports are submitted by the Water Budget Task Group.
- c. The cropping sequence study is continuing in both El Hammami and Beni Magdoul Areas.

4) Organizational Changes:

At a meeting with the Project Directors on August 23, The Mansouria Team reaffirmed the following staff assignments and responsibilities:

Team Leader	Dr. Mona El Kady
Team Leader Counterpart	Bill Braunworth
Assistant Team Leader	Wadie Mankarios
Manpower Coordinator (technicians, laborers, drivers)	Lotfy Nasr

.../...

Beni Magdoul Area Coordinator	Wadie Mankarios
El Hammami Area Coordinator	Samaika
Agronomy Coordinator	Samaika
Engineering Coordinator	Wadie Mankarios
Meska # 10 Pilot Program Coordinator	Tahoon
Other P. P. members	Lotfy
	Gamal
	Hammam
	Khalid
	Farouk
El Hammami Pipeline Pilot Program	
Coordinator	Tarif (in the absence of Naguib)
Other P. P. members	Naguib
	El Shinnawi
	Tarik
	Samaika
Wadie Budget Coordinator	Wadie Mankarios
Meska # 6 Special Studies Coordinator	Mahmoud
Crop Calendar Special Studies Co-ordinator	Sabah

Pilot program groups and discipline groups will meet once per week.
The whole team will meet once per month.

Pilot program groups and special studies groups will prepare a report of progress each month and submit it to the Team Leader.

Moheb Samaika will spend four days each week in the Main Office assisting with the general EWUP agronomy work.

Hammam left the Project and Khalid replaced him. Also Hanafi is expected to leave.

5) Training:

Moheb, Wadie, and Lotfy returned back from taking course work at Colorado State University to increase technical knowledge.

.../...

Naguib spent one month in water management training at Utah State University.

Tarif, Hanafi, and Mahmoud attended the K. S. training and the study tour during July and August.

El Shinnawy spent 5 weeks in economic training at Fort Collins.

All the team members who hope to participate in future training are studying English and preparing proposals for their study. El-Shinnawi and Gamal already submitted proposals.

6) Mansouria Staff, Sept. 30, 1981:

Professional

Dr. Mona El Kady	Team Leader	Bill Braunworth	Assistant Team Leader
Eng. Eldon Hanson	(one half time)	Moheb Samaika	Agronomist(one third time)
Wadie Fahim	Engineer	Lotfy Nasr	Economist
Shinnawy A. Atty	Economist	Mohamed Naguib	Sociology
Ahmed Tahoon	Agronomist	Sabah Mahmoud	Agronomist
Farouk Abdel Al	Sociologist	Hanafy Mahmoud	Engineer
Gamal Fawzy	Economist	Mahmoud Khedr	Agronomist
Khalid	Engineer	Tarik Abdel Rahman	Agronomist
Tarif Zeiton	Engineer	Ahmed Taha	Mech. Engineer

Non-Professional

Badry Mahmoud	S. Tech.	Hamdy El Said	S. Tech.
Ibrahim Hussein	S. Tech.	Gamal Ahmed	S. Tech.
Rokaya Abdel Mowla	Secretary	Ibrahim Abdou	S. Tech.
El Said Kamal	S. Tech.	Ibrahim Zakaria	S. Tech.
Moustafa Mahmoud	S. Tech.	Said Rezk	S. Tech.
Mohamed Abdel Hamid	S. Tech.	Adel Abdel Moneim	S. Tech.
El Said Hamed	S. Tech.	Ibrahim Abdel Fattah	S. Tech.
Mohamed Farrag	S. Tech.	Mohamed El Dash	S. Tech.
Mohamed Shaaban	J. Tech.	Esmat El Shimi	J. Tech.
Abdel Rahman Eid	J. Tech.	Abdel Rehim Mohamed	J. Tech.

Shawky El Awad	J. Tech Lab	Abdel Maaboud Ibrahim	J. Tech
Selim El Tantawy	J. Tech.	Farahat El Ashkar	J. Tech Lab
Fathy Aboul Nasr	J. Tech. Lab	Hamed Aly Tahoon	J. Tech Lab
Ahmed Ragab	J. Tech. Lab	El Shimi Ismail	J. Tech Lab

Drivers

Yehya Abdel Sallam	El Said Elwy
Rashad Abou Bakr	Abdel Mohsen Abdel Halim
Salah Sadek	Nagy Hassan

C. Kafr El Sheikh:

During the third quarter of 1981, work at the Kafr El Sheikh site was concentrated on the following:

- Completion of data analysis and formulation of reports on the results of on-farm pilot work on 5 farms for winter season, 1980-81.
- Continuation of on-farm pilot programs on 7 farms (Sakia units) for summer season 1981 (cocton, rice and corn).
- Activities of special studies such as the water budget and others.
- Planning for winter season 1981-82, i.e., the next two quarters.

1) Analysis and Reports:

Individual team members completed data analysis and wrote reports on the results of their work as part of the K. S. 1980- 81 winter season on-farm pilot program. These reports were edited and combined; a summary of all the work was written; the complete report was submitted to the Project Directors in mid-September, 1981. The major general conclusion of this work was that essentially the same good results were obtained for the "80 - 81" season as for the "79 - 80" field trials. This supports the validity of these practices to improve on-farm water management in the K.S. area. The following results, taken from the K.S. final report are measurements and results from the pilot program farms:

Total water lifted:	65cm
Total water applied:	51cm
Total water depleted:	46cm
Irrigation efficiency, E_i :	51%
Water application efficiency, E_a :	69%
On-farm conveyance efficiency, E_c :	74%
Irrigation time for season per feddan	1534 min
Yield of wheat grain (Sakha 8)	1.99 Ton/Fed
Yield of wheat straw (Sakha 8)	5.84 Ton/Fed.

The mean grain and straw yields (Sakha 8 variety) were 33% and 36% greater, respectively, than the mean grain and straw yields outside of the pilot program areas. In the 1979 -80 wheat field trials, grain yields were increased 42%, water lifted was reduced 34%, irrigation time was reduced 33%, irrigation efficiency was increased 60% (EWUP Staff Paper # 57). These are essentially the same results obtained this year.

On-farm conveyance losses were found to be excessive, ranging between 0.08 to 0.80 m³/100m/min. or up to 70% of the water lifted. Future on-farm improvements will concentrate on this problem area.

A report on the 1980 summer season cotton field trials was prepared and submitted for printing as an EWUP Staff paper. The major results: EWUP practices gave a mean 36% cotton fiber yield increase over the farmers' traditional methods. This was largely due to the land leveling and seed bed preparation. Water lifted and irrigation efficiencies were the same.

The on-farm pilot work for summer crops is going very well. Data analysis is up to date and the first picking of cotton is being measured. Corn harvest measurements have been made. Rice will be harvested in October. Once all data have been collected and analysed, a final report shall be prepared.

.../...

2) Special Studies Activities;

Routine work is being done for the K.S. water budget study. A farm machinery accessibility study was designed, implemented and completed this quarter. Results indicate only about 40% of all Abo Raia area to be readily accessible. Access to the remaining area is limited by poor roads, natural and man-made obstacles, crop pattern and layout.

Study of the water delivery system is being done. Of special interest is the coordination of the water rotation with the crop requirements. Crop water requirements are being determined on a seasonal basis.

3) Work Plans:

Weekly team meetings were held this quarter to discuss results of last winter season and to plan for the coming season. The K.S. pilot program accomplishments and plans for the future were discussed at a meeting in K. S. on Sept. 24, 1981 with main office staff. A work plan for the next season was agreed upon as follows:

- a. Completion of summer season 1981; data analysis; report formulation.
- b. Continue water budget study; continue delivery system/crop water requirements studies.
- c. Continue K. S. on-farm pilot program:
 - One new sakia unit in each of Hammad and Manshia pilot areas will be added. Complete measurements and close work with the farmers will be done as in the past.
 - At least one of the previous pilot farms in each area will be closely monitored for evaluation of EWUP practices and farmer ability to continue them.
 - Other previous pilot farms will receive attention from the team in the form of irrigation and agronomic advice.

- d. The meska cleaning program, similar in scope to the one of last season will be implemented this winter during the closure period also.
- e. Farmer opinion and reaction to the K.S. pilot practices will be surveyed in the pilot program areas at the close of summer season. Farmer's perceptions of their marwas will be surveyed in a questionnaire to be completed in October. This information will be used in designing on-farm conveyance improvements.

4) Training:

Eng. Amany El Kayal left Sep. 14, for 21 month peace fellowship study program at Utah State University.

Eng. Abdel Fattah Metawie participated in an Irrigation Training Course, Aug. 17 - Sept. 24, Utah State University.

Agronomist Ahmed Ismail participated in Summer Training in Kafr El Sheikh and tour in the U.S.. He remained at Colorado State University for long term training, Sept. 81 - May 82.

Economist Sobhi Elewa participated in Summer Training at Kafr-El-Sheikh and tour in the U.S.

Economist Ragy Darwish returned from nine months training in Italy.

5) Personnel Activities:

a. Kafr El Sheikh Team (as of 30 Sept 1981)

Team Leader: Eng. Kamal Ezz El Din

Ass't Team Leader: Eng. Thomas Ley

Hammad Pilot Group

Magdy Awad, Agronomist

Abdel Fattah Metawie, Engineer

Sobhi Elewa, Economist

Manshia Pilot Group

Mahmoud Said, Agronomist

Mohamed Meleha, Agronomist

Saad Hussein Zaki, Engineer

Ragy Darwish Economist

Ahmed El Attar, Sociologist

- b. Changes: 1) Eng. Kamal Ezz El Din was appointed as assistant' Team Leader
- 2) Eng. Saad El Zarka resigned from position of acting Team Leader
- 3) Eng. Ahmed Dardir resigned
- 6) Kafr El Sheikh Staff, Sept. 30, 1981

Professional

Kamal Ezz El Din	Team Leader	Tom Ley	Ass. T. Leader
Amany El Kayal	Engineer(leave)	Abdel Fattah Metawie	Engineer
Mahmoud Said	Agronomist	Mohamed Meleha	Agronomist
Magdy Awad	Agronomist	Ahmed Ismail	Agronomist
Sobhi Elewa	Economist	Ahmed El Attar	Sociologist

Nonprofessional

Abo El-Magd Shehab	S. Tech.	Moheb Abdel Samad	S. Tech
Mohamed Ahmed Badr	S. Tech.	Atef Khalaf Sayed	S. Tech.
Sayed Ahmed A'Hamid	S. Tech.	Mohamed Omar A'Magged	S. Tech.
Ramadan El- Orabi	S. Tech.	Hassan Mohamed El-Rafai	S. Tech.
Farag Bassiouni	S. Tech.	Mohamed Ahmed Abo Omar	S. Tech.

Drivers

Kamal Abo Omar	Youssef El-Sayed El-Yamany
Ahmed Abdel Hamid Ali	Abdel Hamid Attia Shaaban

D. El-Minya:

1) Meska 26 Pilot Program:

- a. The project team has been working with a farmer organization which was established for the purpose of scheduling the irrigation turns of the farmers. This work has been mostly talking with the meska leadership concerning how the scheduling of each on-period should be accomplished and overseeing the administration of that schedule. In addition to scheduling, the organization

which was established has been used for work on cleaning the meska, and it served as a means to implement a crop spraying program. Within the last month, efforts have been made to transfer the major responsibility of administering the meska irrigation from the project personnel to the farmers themselves.

- b. The water delivered to the meska was measured during each irrigation, by means of the sharp crested weir. The following information was obtained:
 - (a) Water used for irrigation in each reach.
 - (b) Average quantity of water used for irrigation per feddan.
 - (c) Average time used for irrigating one feddan.
- c. The water applied to the selected cotton and corn farms was measured during each irrigation and soil samples were taken before and after each irrigation to determine:
 - (a) The water stored in the root zone.
 - (b) The application efficiency.
 - (c) The water depleted during the interval between irrigations.
- d. Data were recorded from the seepage wells beside the meska to study the effect of seepage from the meska to the adjacent land.
- e. Zinc sulphate was sprayed two times to most of the cotton farms. The yields of the farms sprayed will be compared to those not sprayed.

2) Abueha Canal Pilot Program

- a. We held a meeting with the project directors to discuss the Abueha Canal design. We agreed to apply the system of continuous flow with flow control and rotation at the meska level.

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- b. The survey department began work to determine the legal boundary of the canal.
 - c. We began a field survey to determine the present layout and cross-section of the canal.
 - d. We decided in Minya staff meeting on Sep. 22, that Abueha Canal design will be finished before Oct. 15.
 - e. We made plans to raise the canal during the winter closure.
 - f. Initial work on the process of organizing farmers along the canal has begun.
- 3) Special Studies:
- a. We began collecting information about the farmers on meska 7 from the inlet until the belt.
 - b. The leadership of meska 7 has been identified and a meeting with them was conducted to obtain their cooperation with our work.
 - c. We initiated a major effort to level most of the area on meska 7 in the interval between harvesting of summer crops and planting winter crops.
 - d. The yield of the summer crops was estimated not only on the selected farms but also all over the area.
 - e. We discussed the work plan for organizing all of the farmers in the area before raising Abueha Canal.
 - f. Mr. Hanson performed an experiment to estimate seepage from Meska 7.
 - g. Routine data collection and analysis continued for the water budget (for details see monthly Abueha water budget reports).
- 4) Plans for the Next Quarter:
- a. Complete the transfer of administration of the irrigation scheduling to the farmers on meska 26. Work to establish a self-sufficient farmer organization which will also take the responsibility of maintaining and cleaning the meska.

Mr. Tim K. Gates

- Studying the alternative design of gravity distribution system, for Abueha Canal related to Ibrahemia Canal water level.
- Planning and evaluation of water budget.
- Evaluation of water management field trials.
- Help with preparation of staff reports and special reports.
- Design of meska 7.
- Survey of layout and cross-sections of Abueha Canal.

Mr. Hanson

- Land leveling.
- Seepage experiment.
- Share in design of gravity distribution system.
- Evaluation of water management field trials.

Mr. Ree

Share in design of gravity distribution system .

Dr. Keleg

Summer crops agronomy practices on meska 26 and 7.

Dr. Zanati

Analysis of the data for 1980/81 winter crops.

Dr. Tinsley

Preparation of staff paper on 80/81 winter crops.

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Mr. Farouk Abdel Al	Economic evaluation of 1980 winter crops
Mr. Gamal Ayad	Preparation of plan for farm management
David Martella	with farmers on meska 27 and meska 7.
Rex Rehnberg	
Dr. Sallam	Work to establish the local farmer
Dr. Layton	organizations.

6) Training:

Eng. Abdel Raouf	Water Management Conference, San Diego, Calif., July 18 - Aug 18, 1981.
Eng. Esmat Wafik	Academic Training in Fort Collins during fall semester 1981 and spring semester 1982 for a total of 9 months starting August 21.
Eng. Ahmed Abdel Nahim	Field trip in U.S. from July 28 to Aug. 17.
Agr. Salah Saleh	Field trip in U.S. from July 28 to August 17.
Eco. Elia Sorial	Academic Training in Ft. Collins during fall semester and spring semester.

7) El Minya Staff, Sept. 30, 1981

Professional

Eng. Abdel Raouf	Team Leader	Dr. Erwin Nielsen	Ass. T. Leader
Esmat Wafik	Engineer <u>1/</u>	Ahmed Abdel Nahim	Engineer
Mohamed Awad	Agronomist	Salah Saleh	Agronomist
Elia Sorial	Economist <u>1/</u>	Nabil Farag	Economist
Abdalla Saber	Sociologist		

1/ On long term training at CSU.

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Nonprofessional

Mohey El Din Yehia	S. Tech.	Bakhit Nozer	S. Tech
Nashaat Younes	S. Tech	Mahmoud Wfty Nooman	S. Tech
Imam Mahmoud Ebeid	J. Admin.		

Drivers

Khalaf Mohamed Khalaf
Farouk Hassan
Mohamed Mohamed Sayed Essawy

E. Task Groups:

1. On-farm Irrigation Task Group:

The activities of this task group pertain to objectives of increasing the water use efficiency on farms by:

Developing criteria to guide farmers in applying water with appropriate frequencies and amounts of water to favor good soil conditions and crop yields.

Minimizing excess water application to improve drainage conditions.

Helping farmers to organize in a mutual effort to improve their water management practices; and

Evaluating the benefit-cost ratio of changes in delivery systems of selected meskas.

Water Application

Activities have been continued to measure water applied to fields and stored in the soil at sites selected in previous periods to compare water application efficiencies in long runs with those measured in conventional small basins. Scheduling of irrigations with tensiometers installed in clay soils has not been successful due to erratic readings. The operating range of tensiometers in these soils is too limited to be of practical value.

Future Work Involving TDY Personnel

Development and use of turnouts (Robinson)

Evaluation of water quality for irrigation (Scott - in cooperation with task group 10 activities).

Evaluation and write-up of El Minya on-farm water management data collected by Esmat who is in U.S.A. (Wolfe).

Assistance in water measurement and evaluation of channel hydraulics with selected irrigation schedules (Ree).

Evaluation of soil moisture and water measurement data to identify source of errors where application efficiencies exceed 100 percent (Davis).

Study of aquifer properties of all three team areas to determine vertical and lateral groundwater flows (Ground Water Specialist).

Personnel Presently Assigned

Fahim, Hanson, Azza, Zanati, Sallam, Martella, Taher, Farouk, and Nadia.

2. Water Distribution Systems Task Group:

The activities of task group 2 pertain to increasing the conveyance efficiency of irrigation channels and to improving gravity flow conditions from canals and meskas to land during all levels of irrigation requirements throughout the seasons. This involves using elevated meskas or pressure pipelines to provide more irrigation head and having appropriate weed control measures and/or lining to minimize head loss and seepage during conveyance. Scheduling, rotation, continuous flow, etc. also influence channel size maintenance work, time opportunity for seepage, costs, and organizational problems with farmers. The evaluation of these variables for practical and economic solutions is the overall objective of this task group.

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Activities

Work has continued on meska 10 (Mansouria) after a stoppage due to a shortage of cement. The weir structure adjacent to the pump house was designed and the major part of the construction has been completed. Only minor work has been accomplished on the El-Hammami pipeline (Mansouria) pertaining to line junctions. Shortage of large size pipe has been attributed to the delay.

A computer program has been developed for re-designing the Abueha Canal to provide maximum available head for gravity flow to the land through elevated meska. It is expected that this program will provide all hydraulic design information needed by the project by mid-October.

A survey to define the location and profile of the Abueha Canal with respect to a reference baseline has been completed for 500 meters. The survey should be completed early in October.

Twenty-three 10-inch gates for meska 26 and one 24-inch gate for meska 7 (Minya) have been ordered.

A seepage test was accomplished on meska 7 (El Minya) with the following results:

Date	Time	Average elev. of water surface m	Approx. depth of water in meska m	Ave. width at water surface m	Seepage per 1000 meters in liter/sec
9/28/81	1112	40.704	0.5	2.155	12.8 ^{1/}
	1140	40.695	↓	2.1435	6.7
	1212	40.687	to	2.139	5.3
	1312	40.679	↓	2.123	4.7
	1412	40.644	V	2.061	2.0

9/29/81	0812				
		40.612	0.4	2.013	1.3
	0837				

1/ Slight loss of water occurred in three over flows of the bank about one centimeter deep for approximately five minutes before being repaired.

Sociological

The program for informing farmers about meska 10 is completed and construction on the meska is occurring now. We are again documenting the work with the farmers during this construction phase.

Informing farmers about El Hammami pipeline was done on 30 May 81. Direct discussions with all the farmers has still yet to be accomplished.

Farmer organization for El Hammami pipeline has not been completed yet and will not proceed any further until final plans for the pipeline itself have been approved and completed.

It was noticed that the meskas in Kafr El Sheikh are generally less weedy than in either Mansouria or Minya. The reason could be that these meskas are also more tree lined and thus shady. This leads to possible consideration of shading to improve weed control maintenance. This could be done either with a tree line along one bank or trellis structure over the canal. Trellises with vine crops such as beans and squash have been used over canals in Vietnam and other Asian intensive agricultural systems.

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Plans for the Future

The proposed time table for the Abueha Canal project is as follows:

<u>Activities</u>	<u>Date:</u>
Present, discuss, and refine design	1-15 October
Prepare design drawings and estimate schedule for construction	10 October-15 November
Prepare specifications for construction and assemble with work plans	15 October
Identify materials needed from U.S. and order	1 November
Tender plans and specifications for bids:	
Advertise	15 - 30 November
Receive bids	1 - 15 December
Negotiate contract	15 - December
Begin construction	1 January

Meska 10 (Mansouria) is scheduled to have turnouts installed, bridge-crossings built, a smooth plaster finish placed on the channel and weir structure, and a pump installed.

Work on the El-Hammami pipeline will be accelerated for completion scheduled within six months.

Seepage tests are planned for the original meska 10 and the El-Hammami Canal to help evaluate the benefits of the new meska 10 and the pipeline.

Personnel Presently Assigned

Fahim, Hanson, Gates, Gamal, Tinsley, Layton

3. Farmer Organization Task Group:

The following report will detail the responsibilities, activities, and administration of Task Group 3: Farmer Organization. To begin with, the objectives of the task group will be presented which will then be

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followed by the activities pursued by the task group members. finally, the plans for the future, including personnel, will be explained.

Objectives

- To define the purpose and nature of a farmer organization.

What must be accomplished through this objective is that an understanding must be developed in terms of what the project means by a farmer organization. Parameters involving tasks, procedures, structure, integration with other aspects of the farmer community and government, etc. must be delineated in order to determine what is to be considered when developing various types of farmer organization for particular purposes.

- To examine the existing organizational capabilities of the farmers.

In order to begin to develop strategies for organizing farmers, it is wise to understand the existing social arrangements which already exist from some type of organizational pattern within the community. Formal organizational efforts can be greatly facilitated if they are developed in harmony with existing patterns of leadership, authority, purpose, interaction, etc. What is to be done in accomplishing this objective is to describe existing patterns of organization by which the farmers pursue various agricultural/irrigation activities.

- To develop and analyze strategies for the implementation of specific farmer organizations.

Through the various pilot projects, different types of farmer organizations will be established. Strategies as to how these organizations are related and sustained will be documented as they are planned.

- To analyze the procedures and administrative structure encompassing the farmer organizations at the specific field sites.

.../...

After each organization is established, the processes at work to institutionalize that organization will be documented as they develop overtime. The processes which will be examined are included in the general categories of procedures followed in theory, structure of the organization with other institutional entities; i.e. EWUP the MOI, etc.

Tasks Completed

The tasks of Task Group 3 involve three major forms of activity: (1) actual development and sustaining of various farm organizations, (2) the documentation of this process, and (3) the documentation of the existing situation of which the organization is part.

Developing and Sustaining Farmer Organization:

Actual operations by EWUP concerning the organization of farmers.

Minya - Meska 26

- Developed a Farmer Organization for scheduling water.
- This past quarter saw EWUP work to sustain the organization by developing an understanding by the farmers about the method of scheduling.
- Beginning to have EWUP disengage from actual operation of Meska 26. Need to develop self-sufficiency in organization. Activities to attain such self-sufficiency introduced this quarter.
- Used the organization to introduce a zinc spraying program.

Minya - Abueha Canal

- Initiated the development of a farmer organization on Meska 7 in order to begin work on raising that meska in October. This included the identification of the leadership structure and the scheduling of an initial meeting with the farmers concerning EWUP's work plan.

.../...

- Initial data gathering tasks on Meskas 11, and 27 for beginning of establishment of farmer organizations.

Mansouria - Meska 10

- Continual contact with the farmers concerning information about the new meska.
- Negotiated types and placement of bridges on the meska between the farmers and the project.

Mansouria - Hammami

- Identification of leadership in the area
- Leadership meeting on 30 May explaining the pipeline. Need to still discuss the pipeline with all the farmers.

Kafr El Sheikh

- Organized farmers for cleaning Om Sen, Manshia, and Hamed Canals.
- Working with farmers on Om Sen Canal concerning the work for the water budget.
- Contacted the farmers whom the project is working with for the on-farm work, including sakia scheduling.

Documentation of Farmer Organization Work:

The documentation of Farmer Organizational work will follow the six major procedural steps in organizing farmers: (1) identifying the local leadership, (2) contacting that leadership, (3) contacting the farmers, (4) establishing the organization, (5) sustaining the organizations, (6) evaluating the organization. All documentation will result from interviews and observation studies.

.../...

- (1) Leadership studies (complete for Meska 10, Hammami (Mansouria); Meska 26, Meska 7(Minya); Om Sen canal, Hamed Canal, Manshia canal (KES).
- (2) Contacting leadership (same as 1)
- (3) Contacting farmers (same as 1)
- (4) Establishing the organization
 - Creating the structure of the organization (complete Meska 26, Om Sen, Hamed, Manshia).
 - Naming the personnel for the organization (complete Meska 26, Om Sen, Hamed , Manshia).
 - Establishing working procedures for the organization (complete Meska 26, Om Sen, Hamed, Manshia).
- (5) Sustaining the organizations
 - EWUP interaction (in process for all areas). Documenting how EWUP works with the farmers in the particular organizations.
 - Disengagement of EWUP (in process for Meska 26). Documenting how EWUP relinquishes administration of Meska 26 scheduling to the farmers and its results.
- (6) Evaluating the organization (to be accomplished in future)
 - Achieving its stated goals.
 - Performance under the existing structure
 - Performance under the existing procedures.

Documentation of the Existing Situation:

Efforts for this topic are focused on looking at how the farmers presently work together for particular practices and how other organizations (i.e. the Cooperative and MOI) affect the farmers' activities.

Minya

- Completion of tenure map for Abueha Canal

Mansouria

- Completion of tenure map for Meska 10 and Hammami Area.
- Completing the scheduling pattern of irrigation for Meska 10

Kaf El Sheikh

- Completion of tenure map for Om Sen, Hamed, and Manshia areas
- Completion of scheduling pattern of irrigation for Om Sen.
- Initial study on the cooperative as an institutional support mechanism for our work in organizing farmers.

Tasks Being Worked on Now and Future Plans

The tasks being worked on now and for the next quarter will follow the past quarter's work. Present organizations established will be studied as to how they are sustained and evaluated; while other organizations which need to be established will be created. Again, documentation of these organizational efforts from the outline previously presented will be of top priority.

Developing and Sustaining Farmer Organization:

Minya:

- Work to make Meska 26 organization more functional.
- Work on developing farmer organizations on all meskas in Abueha
- Work on establishing a canal wide organization.

Mansouria

- Work to make Meska 10 scheduling a viable program through farmer cooperation.
- Work to develop farmer organization for the Hammami pipeline.

Kafr El Sheikh

- Continue organizational efforts for cleaning and maintaining Om Sen, Hamed, and Manshia Canals for the next closure period.

- Initiate sakia unit scheduling program
- Work to establish Om Sen Canal cooperation for scheduling of water (depends on KES team plans)
- Manshia "Lake" Renovation work (depends on KES team plans).

Documentation of Farmer Organization work

- Work on completing the outline points for establishing farmer organizations.

Documentation of Existing Situation

- Establish program to obtain data on criteria necessary for the establishment and the sustaining of farmer organizations. (Exact topics of reserach to be explained next quarter).

Administration

The names of the personnel presently assigned to Task Group 3 are as follows:

Mohamed Sallam - Coordinator
Jim Layton
Farouk Abdel Al
Eldon Hanson

There has been one TDY person who has worked for this task group during the past quarter, Dr. Frank Santopolo; but there will be no such personnel assigned for next quarter.

4. Farm Management and Planning Task Group:

Progress Work for Past Quarter

- Continue to develop a system for farm records with the selected farmers to evaluate the alternative farming systems on Egyptian farms.

.../...

- Use the evaluation work done by other tasks and pilot studies as basis for comparing the effectiveness of alternative methods of water conservation as a means of releasing water from old lands for other uses.
- Completed farm record analysis for the year 1978 - 1979, Project Paper No. 8.
- Completed farm record analysis for the year 1979/1980, proposed staff paper.
- Conducted pre-feasibility study for El Hammari Canal, staff paper # 51.
- Conducted pre-feasibility study for Meska 10, proposed staff paper.
- Conducted pre-feasibility study for Meska 26 at Abueha Canal, Staff paper # 64.
- Working on Abueha Canal alternatives.
- Working on Meska 7 at Abueha Site.
- Working on baseline data for Mansouria Site.
- Working on baseline data for Abueha Site.

Plans for Next Quarter

- Work on economics evaluation for Meska 7.
- Work on baseline data for Abueha, El Mansouria, and Abu-Raia Sites.
- Work on farm record summary and analysis for the year 1980/1981.
- Work on developing alternative irrigation schedules and sequencing from the evaluation of farm record data.

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Names of Personnel Presently Assigned

Farouk, Tinsley, Sallam, Fahim, Martella

5. Water Budget Task Group:

Activities & Progress this Quarter

Monitored and assisted with routine data collection at each of the project sites (for details, see monthly water budget reports to Team Leaders).

Completed data analysis and prepared a first draft report for the Beni Magdoul water budget, 1980.

Completed analysis of inflow data and continued work on remaining data for Abueha water budget, 1980.

Prepared monthly water budget reports for Abueha, Om Sen, El-Hammami and Beni Magdoul.

Obtained much of the missing weather station data for 1979 through 1981 as requested in memo ENG/057-81.

Completed training in the U.S. for M. Helal.

Began intensive effort to improve 1979 and 1980 water budgets for El Hammami in order to provide good baseline information for evaluating the effect of the El-Hammami pipeline.

Plans for Next Quarter

Continue to monitor and improve data collection at each of the project sites.

Complete report for initial distribution 1980 water budgets for Abueha and Beni Magdoul.

Work on analysis of Om Sen water budget data for August 1979 to May 1980.

Begin intensive analytical work on all 1981 data.

Begin intensive studies to improve estimates of horizontal and vertical groundwater flows in each of the project sites.

Work on analysis of 1930 water budget data for El Hammami.

Submit an order for additional weather station equipment.

Suggested Modification Including Additional Resources Needed for Implementing Long Range Plans

As was discussed in the June report for El Hammami, recent problems with data collection and coordination, along with the upcoming pipeline construction, led to the decision to abandon the 1981 water budget for El Hammami. Plans are now being implemented for collecting additional data in the area to enhance the 1979 and 1980 water budgets. Hopefully, this will provide us with reliable water budget data for documenting conditions in the area before installation of the pipeline. These data will be valuable for later evaluations of the pipeline's impact on water use and management in the area.

Water budget data collection in Abueha area will be discontinued early in 1982 in order to construct the new gravity distribution system. After the system has been installed and is operating, data collection will resume.

A major effort needs to be made to better describe the groundwater component of the water budgets for each site. More work needs to be done to determine aquifer properties and the nature and extent of groundwater flows. Substantial TDY assistance will be needed to complete this work.

Names and Contribution of Professional Staff During this Quarter

Main Office Staff:

M. Helal (in U.S. for training, 6 June - 15 August) -
engineering, computer programming, management.

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Azza Nasr (in U.S. for training 20 August, 1981 - May, 1982) -
computer programming

T.K. Gates - engineering, Management

Field Staff:

Esmat Ahmed (in U.S. for training, 20 August, 1981 - May 1982),
Ahmed Abdel Nahim - water budget coordination, Abueha.

Wadie Fahim - water budget coordination, Mansouria.

Ahmed Dardir (left project in July), Abdel Fattah Metawie - Water
budget coordination, Om Sen.

TDY

W.O. Ree (arrived 2 September) - engineering

Personnel Presently Assigned

Helal, Gates, Azza

6. Land Leveling Task Group:

The major objective of this task group is to collect and analyze data to evaluate the extent that land leveling increases crop yields and water application efficiencies, and reduce costs for labor, water and tillage operations.

Most of the current activities for this task group pertain to the growing of crops on land leveled previously which include the measurement of water applied and moisture stored in the root zone, measurement of crop yields and measurement of operational costs.

A review of all EWUP work and reports to date is being done to assemble and summarize the accomplishments. The third-quarter report for Kafr-El-Sheikh contains information that cotton fiber yield has increased 36 percent by EWUP practices in comparison to traditional methods. This was largely due to land leveling and seedbed preparation.

.../...

A chart summarizing overall benefits in the project has been partially completed. It shows that at Kafr El Sheikh there has been an appreciable reduction of equipment operation time and cost per feddan on levelled land with long basins and furrows as compared to requirements in smaller basins.

In the next quarter it is expected that approximately fifty-three feddans will be levelled; thirty at El Minya, three at Mansouria, and twenty at Kafr El Sheikh.

Personnel Presently Assigned

Bayoumi, Hanson, Zanati, Gamal, and Sallam

7. Soil Fertility Task Group:

The objectives of the task group are:

- Obtain information on the present levels of plant nutrients in farmers fields located in the EWUP study areas.
- Study the feasibility of soil testing for fertilizer recommendation and use the obtained data for designing the soil sampling procedures for Egypt.

Project soil fertility data have been submitted to the computer lab at Fort Collins for processing while on TDY assignment in Fort Collins in the period from June 3rd-July 3rd. The data obtained deal with macro and micronutrient status in soil and also the farm site distribution in all the EWUP pilot areas. The data are tabulated under the following headings:

- Background
- Cropping System
- Farm Size Distribution
- Materials & Methods
- Macronutrient Status in Soils
- Micronutrient Status in Soils
- Sampling Plan and Intensity
- Conclusions

This was done separately for every EWUP location. Then Dr. Richardson proposed to have those reports combined into one report titled "Soil Fertility in Three Project Areas, Kafr-El-Sheikh, Mansouria, and El Minya". The editorial work will be done by P. Soltanpour and this expected to be finished by Sep. 15, 1981. Then this report will be sent to the following people with a one-month deadline for review:

1. Dr. Serry
2. Project P & C Committee
3. Senior Staff Personnel in Cairo
4. EWUP Advisory Committee
5. USAID

Upon the return of the comments Dr. Soltanpour and Dr. Zanati will make a final draft which will then be typed and printed as project paper.

Personnel Presently Assigned

Zanati, Tinsley, Taher

8. Soil Characterization Task Group:

Activities and Progress During this Quarter:

Reviewing and discussing the available data.

Visiting the project areas and discussing the needed plans for implementation.

Visiting with other task group coordinators to arrange for future plans of implementation, especially task groups 1 and 2.

Supervising and carrying out some field sampling and investigations for some special studies, i.e. root distribution.

Dr. Taher attended a professional development workshop on the management overview for water and agricultural programs (July 20 to Aug. 12, 1981, San Diego, Calif , U.S.A.

Activities and plans of the T.G. were discussed with Heil in Fort Collins during Taher's visit from August 15 to 18, 1981.

Plans for Next Quarter

Completing the analysis of the data collected.

Visiting project areas to follow the progress of the task group's plans.

Visiting with other task group coordinators for the discussion and planning of the related activities.

Personnel Presently Assigned

Taher, Tinsley, Fa'nim, Zanati, Helal, Bayoumi

9. Pest Management Task Group:

Objectives and Purposes

Integrated Pest Control Program for the three sites (Mansouria, Kafr El Sheikh, and El Minya).

Studies on the effect of irrigation on pest management of the most important pests infesting major crops of the three sites. This will be of vital value to the work of Task Group #1; "On Farm Irrigation" and Task Group # 2; "Water Distribution System".

Accomplishments To Date

The following work has been achieved:

Biological control of pests available (utilizing Parasites and Predators): *Aegistimus swirskii* for white fly control.

Cultural, mechanical and physical control.

Non-traditional methods of pest control (utilizing sex attractants).

Chemical control of pests surveyed in previous studies.

- Revision of pests attacking major crops in Mansouria, Kaf El Sheikh and El Minya areas.

.../...

- Revision of recommendations given to the farmers in Staff Papers #3 (Corn Insects), #4 (Rice Insects), #5 (Major Field Crop Insects and Their Control), #22 (Survey of Pests Infesting Mansouria Vegetables and crops, Beni Magdoul and El Hammami Areas & Their control), and #35 (Agricultural Pests and Their Control: General Aspects).
- Determination of the economic threshold of the most important pests invading crops of the three sites.
- Instructing the farmers in the three sites to spray with new wide spectrum pesticides to facilitate the farmers task.
- Showing the farmers in the three sites results of pest control and its effect on increasing the yield.

Trials for cultivating tolerant varieties to infestation by pests.

School for pest control:

- This has been started by showing slides in the projector and symptoms of infestation to Mansouria staff. This was found necessary before collecting the farmers and arranging meetings with them. Extension staff will help in this activity.

Studies on the Effect of Irrigation on Pest Management of the Most Important Pests Infesting Major Crops of the Three Sites:

This work has been done on the cotton leafworm (Spodoptera littoralis); the most serious pest infesting all crops in the three sites.

- Effect of soil moisture contents on pupal duration and moth longevity of the cotton leafworm (spodoptera littoralis).

Effective of Soil Moisture Contents on Pupal Duration and Moth Longevity of the Cotton Leafworm (Spodoptera littoralis):

Field observations, especially under berseem, showed that the full-grown larvae preferred to build their cocoons for pupation in ridges or elevated areas which were comparatively dry. Laboratory experiments were carried out to investigate the role of soil moisture content on the pupal duration as well as on the rate of moth emergence.

The pupal duration as well as the percentage of moth emergence were both, more or less, influenced by the percentage of soil moisture, provided that all other environmental factors were similar. The male pupal period was somewhat longer than that of the female one (Table 1). The former ranged from 15 - 11 days while the latter, from 15 - 9 days. Pupal duration means differed slightly by the increase of soil humidity. Soil moisture content showed slight effect on pupal period prolongation. The percentage of moth emergence was also affected by soil moisture content. Although, the sundried soil (1.5%) seemed to be more suitable for pupal stage, it proved to be the least proper habitat for moth emergence. Only 76% of the pupae in the sundried soil emerged into moths. Ten percent soil moisture seemed to be the most suitable in this respect (Table 1).

Table 1: Effect of Soil Moisture Content on the Duration of the Pupal Stage and Rate of Moth Emergence.

Soil Moisture Content	Duration of pupal stage in days							% rate of emergence	
	Males			Females					
	Max.	Min.	Mean	Max	Min	Mean			
1.5% sundried									
Soil	13	11	12.0	+ 0.15	12	11	11.65	+ 0.1	76
10%	13	11	12.45	+ 0.14	13	11	11.86	+ 0.13	94
20%	15	11	12.46	+ 0.19	13	11	11.88	+ 0.15	82
30%	13	11	12.4	+ 0.13	15	9	12.2	+ 0.25	82

Mean Temp. 26.3°C

Mean R. H. 61.85%

Experiments were replicated by the same technique but under lower temperature and somewhat higher relative humidity. Results given in (Table 2) indicated that low temperature seemed to prolong the pupal duration in both sexes while the high relative humidity accompanied by the same soil moisture content exerted but only a slight effect.

By lowering the mean temperature to 18.4°C (Table 2) the pupal stage duration was approximately twice as long as it was under a mean temperature of 26.3°C, although the soil moisture conditions and the relative humidity were nearly constant (Tables 1 and 2). The percentage of moth emergence did not differ at both 18.4°C and 26.3°C under a soil moisture content of 10% and 20 percent. The lowest percentage of moth emergence was under a mean temperature of 18.4°C when the soil moisture content was 30% (Table 2). In general, the duration of the female pupa was shorter than that of the male in all treatments.

Table 2: Effect of Soil Moisture Content on the Duration of the Pupal Stage and Rate of Moth Emergence.

Soil Moisture Content	Duration of pupal stage in days						% of moth emergence
	Males			Females			
	Max.	Min.	Mean	Max	Min	Mean	
1.5% sundried							
Soil	23	19	21.3 \pm 0.29	23	17	20.96 \pm 0.28	84
10%	24	21	22.66 \pm 0.17	23	19	21.8 \pm 0.3	94
20%	25	20	22.7 \pm 0.3	25	20	21.8 \pm 0.24	82
30%	24	20	22.2 \pm 0.23	23	20	21.28 \pm 0.29	69
Mean Temp. 18.4°C			Mean R. H. 65.2%				

Personnel Presently Assigned

Elwy, Tinsley, Layton, Gamal, Kelog

10. Conjunctive Use of Water Task Group:

Objectives

Assemble water quality data obtained from Kafr El Sheikh, Mansouria and El Minya of canal water, drainage water, and irrigation well water.

Classify the drainage and well waters for their suitability for conjunctive use.

Activities

Copies of water quality data available to the teams have been submitted to the main office for use by Dr Verne Scott who is scheduled to arrive Oct. 19.

Dr. Taher provided information that his organization has considerable data on water quality in the three major areas of EWUP. He will have the data available for Dr. Scott.

Future work will be accomplished according to recommendations by Dr. Scott.

Personnel Presently Assigned

Keleg, Hanson and Taha

11. Irrigation Advisory Service Task Group:

The Irrigation Advisory Service has focused on two major areas of analysis in order to examine the existing situation in terms of establishing such a service. First, there is the need to document how EWUP presents its different pilot programs to the farmers with the purpose of describing how a possible prototype to an IAS may actually perform. Next, and examination of the organizational environment into which the IAS must implement its objectives needs to be delineated. From these two areas of analysis, the objectives of the task group have been created and the work activities have been designed.

Objectives

Make explicit provisions for providing the technical advice and assistance to farmers and farm organizations served by the pilot studies which will at least:

- Provide technical advice and assistance to the individual farmer on irrigation practices and systems by cooperating with the existing extension service, village cooperative, and farmer organization.
- Provide technical advice and assistance to the farmer organizations, which will be needed if the farmer organizations are to be successful, on expected water requirement, irrigation scheduling, maintenance of meskas and drains, etc.
- Establish the responsibility for specifying the nature of and the person responsible for providing the technical assistance for each pilot study.

Develop criteria and procedures for establishing a country wide IAS.

- To define what should be the purpose and parameters of an IAS.
- To delineate how an IAS is to be organized in terms of its personnel, administrative structure, procedures and programs.
- To examine how the IAS is to be integrated into the existing institutional structure; i.e. what role will this service play in terms of other organizations.
- To examine the preparatory and training aspects of the staff members for this advisory service.

Tasks Completed

Activity was pursued with both major objectives this past quarter

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based on a modification of the original task group statement of plans. EWUP has now been viewed as a prototype to an IAS. How EWUP has worked with the farmers has been documented in terms of examining the following dimensions describing the implementation of the pilot project work.

- The objectives of the pilot project.
- The procedure by which EWUP introduced the pilot project to the farmers and how EWUP continued the pilot project with the farmers.
- How the EWUP team was organized as it worked with the farmers.
- The farmers' perspective of how each pilot project was implemented.
- The results of the work by EWUP in terms of how the farmers respond to what has been introduced.

Each pilot project has been initially examined in terms of the above dimensions.

Work on the second major objective has been initiated through the results of a TDY report by Dr. Ed Knop concerning the different aspects of an IAS organization which should be examined. The major parameters of an IAS which will serve as a basis for analyzing the organizational component include the process of extending innovative practices to the farmers and an institutional assessment of the organizational network encompassing an IAS. From this report, specific work tasks will be identified and implemented in order to develop an understanding of the organizational nature of an IAS. Studies which are designed to analyze the role of the cooperative with an IAS are now being performed.

Tasks Being Worked on Now and Future Plans

The tasks being worked on now and for the next quarter will be an

.../...

extension of last quarter's work. Documentation of how EWUP implements its pilot projects will continue with the emphasis on interaction with the farmers. Specific organizational criteria for an IAS will be delineated next quarter and a program of study will be initiated. The Kafr El Sheikh site is planning to design an extension program for disseminating its on-farm work and this exercise will serve as a key for further analyzing how an extension program may be instituted in the area.

Administration:

The IAS component of Task Group # 4 will separate from the farm management component beginning 1 Oct. 81. Work plans and schedules will be designed based on the objectives presented in this report. The new task group members include:

Mohamed Sallam - Coordinator

Jim Layton

Abdel Hamid Fahim

Moheb Samaika

Ahmed Taher

Gamal Ayad

F. Main Office:

The technical work of the main office is done through eleven task groups. The work is performed by 26 professional staff members with TDY assistance as indicated below. They are supported by 35 administrative assistants, secretaries, janitors, laborers and drivers.

During the past quarter Moheb Samaika was assigned to work four days each week in the main office assisting with general agronomy work from each of EWUP's three field sites. The other two days of each week will continue to be devoted to the Mansouria site. Dave Martella was added to the staff July 1 as economist replacing Gene Quenemoen who became Project technical Director. Dr. Mohamed Salah joined the Project 2 days each week as senior agronomist.

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Dr. Zanati spent six weeks at CSU working with Dr. Parvis Soltanpour on soil fertility analysis and reports.

Dr. Hassan Wahby traveled to CSU to confer with the Policy and Coordinating Committee on publications procedures and other matters. He also visited manufacturers of irrigation equipment in Colorado and California.

TDY assistance requested next two quarters:

Name

A. R. Robinson (engineer)	2 mo.	Develop Gates for irrigation canals
Verne Scott (engineer)	1 mo.	Prepare conjunctive use report
Royal Brooks (engineer)	1 mo.	Write PI report for Minya
John Wolfe (engineer)	3 mo.	Analysis of Minya field data
W. O. Ree (engineer)	3 mo.	Analysis of water budget data
Sterling Davis (engineer)	2 mo.	Improve OFWM data and analysis
Rex Rehnberg (economist)	3 mo.	Continuation of last quarter
Dick McCommen (economist)	2 mo.	Develop Baseline data for K.S.
Melvin D. Skold (economics)	1 mo.	Analysis of farm records
Parvis Soltanpour (agronomist)	1 mo.	Complete soil fertility work
Robert Heil (agronomist)	1 mo.	Develop soil water mgmnt recommendations.
E. V. Richardson (campus coordinator)	1 mo.	Project Management
D. Lattimore (Tech. Journalism)	1 mo.	Develop brochures, film on project
Wayne Clyma (engineer)	1 week	review on-farm irrigation studies
Elisabeth Sherman (tech. Editor)		Edit reports
J. M. Meiman (Asso. Vice President Research)	2 weeks	Review project activities
Ed Kirdar (engineer SRP)	2 weeks	initiate professional exchange
Al Risinger (Operations, SRP)	2 weeks	" " "
Sterling Davis (engineer)	1 mo.	Advise on irrigation efficiency measurements.

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The following is a complete list of personnel assigned to the main office as of October 1, 1981:

Hassan Wahby	Project Director
Gene Quenemoen	Technical Project Director
Farouk Abdel Al	Economics Discipline Leader
Dave Martella	Senior Economist
Gamal Ayad	Senior Economist
Mohamed Zanati (33% time)	Agronomy Discipline Leader
Richard Tinsley	Agronomy Discipline Counterpart
Anwar Keleg (33% time)	Senior Agronomist
Mohamed Salah (33% time)	Senior Agronomist
Moheb Samaika (66% time)	Senior Agronomist
Abdel Hamid Fahim	Engineering Discipline Leader
Eldon Hanson	Engineering Discipline Counterpart
Mohamed Sallam	Sociology Discipline Leader
James Layton	Sociology Discipline Counterpart
Mohamed Helal	Computer Engineer
Azza Nasr <u>1/</u>	Computer Engineer
Tim Gates	Water Budget Engineer
Ahmed Bayoumi	Farm Mechanization Engineer
Bishara Ishac	Senior Engineer - Motor Pool
Nadia Wahby	Senior Engineer- Water Requirements
Abdel Atti Allam	Engineer - Water Requirements
Wadie Ragy	Engineer- Water Requirements
Mohamed Nabil Naguib	Engineer - Water Requirements
Farida Abdel Meguid	Engineer - Water Requirements
Ahmed Taher	Senior Agronomist
Elwy Attalla	Senior Agronomist
Mohamed Ahmed Salem	Senior Administrative - Personnel

1/ In training at CSU for 9 months.

.../...

Mohamed Said El Shater	Senior Administrative - Expeditor
Salah El Din Salem	Junior Administrative - Secretary
Sayed Sakr	Junior Administrative - Storekeeper
Zeinab Abdel Ghany	Junior Administrative - Inventory
Ekhlas Abdel Ghaffar	Junior Administrative - Secretary
Magda Yassin Mahmoud	Junior Administrative - Telephone
Ashgan Abdel Zaher	Junior Administrative - Photo Copier
Magda Mohamed Mosselhi	Junior Administrative - Secretary
Bamba Shaarawi Aly	Junior Administrative - Phot Copier
Maher Attalah	Junior Technician - Mechanical Work
Abdel Naby Youssef	Technician - Mechanical, Motor Pool
Ahmed Soliman Abdallah	Technician - Mechanical, Motor Pool
Ahmed Ibrahim	Junior Administrative - Motor Pool
Said El Said Elwi	Junior Administrative - Motor Pool
El Araby Mansour Shaine	Junior Technician - Electrician
Imam Sayed Wahba	Technician
Osman Shaker	Junior Administrative
Chaaban Mohamed Abdou	Telephone Operator
Boushra Beniamin	Senior Administrative - Accountant
Ahlam Abdel Rahman	Junior Administrative - Accountant
Taha Moustafa	Engineer - Water Laboratory
Ikram Mohamed	Engineer - Water Laboratory
Ahmed Ghanem	Technician - Water Laboratory
Susan Abou Shady	Junior Administrative - Library
Abdalla Gad	Technician - Motor Pool
Ahmed	Guard - Motor Pool
Saad Mansour	Management Assistant - Main Office
Hamdi Ahmed Hamdi	Translator - Main Office
Safinaz Sadek Taher	Secretary - Main Office
Jihan Sadek Abdel Nour	Secretary - Main Office

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Mona Farouk Morsi	Secretary - Main Office
Nagwa Mohamed Ali Mazen	Public Relations & Administrative
Nawal Abdallah Ahmed	Accountant - Main Office
Moustafa Ibrahim Mahran	Electrician - Motor Pool

G. Training:

The field trip for the on-farm water management short course was conducted in July - August for twenty five regular trainees and seven senior officials from the Ministry of Agriculture and the Ministry of Irrigation.

A complete training report, including the evaluation and recommendations, are included as appendix A.

During the past quarter the following people received training other than the OFWM short course mentioned above and reported in Appendix A.

Farouk Abdel Al	5 weeks	Farm Management	CSU
Shinnawi Abdel Ati El-Shinnawi	5 weeks	" "	
Mohamed Helal	8 weeks	Computer Training	
Abdel Raouf	4 weeks	Irrigation mgnt	AWR
Ahmed Taher	"	" "	"
Mohamed Naguib	"	" "	USU
Abdel Fattah Metawie	"	" "	"

Four trainees were sent to CSU for two semesters of training in their respective fields of expertise. They departed in August.

Miss Azza Nasr	Engineer(computers)	Main Office
Elia Sorial	Economist	Minya
Esmat	Engineer	Minya
Ismail	Agronomist	Kafr El Sheikh

H. Publications:

The following papers and drafts were prepared during the past quarter. Copies are available on request from the EWUP office in Cairo.

- Project Papers:

Farm record summary & analysis for study cases at Abu-Raia & Mansouria sites 1978/1979.

by:

Farouk Abdel Al & Melvin D. Skold, July

- Drafts

Farm Record Summary

Farouk Abdel Al, et. al

Oct. 4) Printed but not yet distributed for review.

Feasibility Study for Meska #10

Farouk Abdel Al, et. al

Distributed for review Oct. 1.

Corn Trials at Mansouria

Bill Braunworth, et. al

Distributed for review Oct. 1

Alternative Approaches in Extension & Rural Development Work

Mohamed Sallam, et. al

Distributed for review Sept. 12

Root Penetration Study

Dick Tinsley, at. al.

Distributed for review Sep. 21

Staff paper 68 The livestock enterprize on survey farms
in Abu-Raia, Kafr-El-Sheikh: Selected implications for
water distribution and management. By Forrest Walters in the
Appendix.

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II. BACKSTOPPING

A. Planning and Coordinating Committee:

In its work the P & C Committee meets weekly to review together past, present and future activities of the Project. The Committee members are Dr. W. Schmehl, Agronomy; Dr. W. Clyma, Agricultural Engineering; Dr. M. Skold, Economics; Dr. D. Sunada, Irrigation Engineering; and, E. V. Richardson Project Coordinator.

Dr. Hassan Wahby, Project Director worked with the P & C Committee July 27 and 28. They developed procedures for review of project reports, reviewed campus activities and project progress.

Each P & C member served as advisor for the students from the Project taking course work in the States.

Committee members reviewed project work plans and reports, selected TDYs and backstopped their field team discipline counterparts.

Drs. Wahby and Richardson prepared a summary report on recommendations for irrigation system improvement requested by H.E. Eng. Samaha, Minister of Irrigation.

Calibration of the farm turnouts developed by Dr. Mona El Kady and A. R. Robinson started this quarter. Graduate students Rashwan Ibrahim and Henry Horsey are conducting the study. The model was constructed and data on the nonsubmerged case has been collected and analyzed. The outlet has a linear log relation. Mr. A. R. Robinson spent three days reviewing the work. Next quarter the submerged case will be investigated. The final product will be a fully calibrated farm turnout to measure and control on-farm water delivery.

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Water management effectiveness in controlling salinity and water logging study. A computer program has been developed that evaluates on-farm water management of an existing field situation to control salinity and water logging. The program compares water management to alternate economic optimum open or closed drain systems for that area. For an incremented series of increasingly restrictive requirements, the program determines a minimum cost drain layout, sizes the drains, determines the effects of that system on the crop root zone environment, and estimates the expected yields or benefits for the system. The optimal system is then chosen as the one which results in the maximum derived net benefits. Both open and closed relief field drains can be investigated.

The primary purpose of the program is to provide a tool which a designer can use to evaluate the economic benefits of installing drains in a field or area. However, with little or no modification, the program could also be used to evaluate alternative irrigation schedules, possibly in conjunction with a drainage system, examine long term patterns in root zone or groundwater salinity levels, check the accuracy of field data values, compare the additional economic value of further field testing or sampling with its associated cost, or determine in general when one type of drain system (open or closed) is preferable to the other. An additional purpose that the program could serve is to provide a guide for the types of field data which should be collected for an economic analysis of a proposed drain system.

Omnia El Hakim continued her Ph.D. Studies on the design of border irrigation systems. She has completed the development of fundamental equations describing border irrigation using dimensional analysis.

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B. Training:

1. On-Farm Water Management Short Course.

The On-Farm Water Management short course was given this quarter in Egypt. A summary report of the course is in the appendix. A final report is being reviewed and will be submitted next quarter.

2. Field Trip:

The field trip to visit irrigation systems and related research in the Western United States was conducted this quarter. A summary report of this field trip is in the appendix.

3. Participate Training:

The four trainees taking course work at CSU - Wadie Fahim, Engineer; Lotfy Nasr, Economist; Moheb Semaika, Agronomist; and Abdallah Saber Aly, Sociologist - completed their course work and returned to the Project.

Four new trainees started their courses this period at CSU. They are Miss Azza, Engineer (computer specialist); Elia Sorial, Economist; Esmat, Engineer; Ismail, Agronomist.

4. Salt River Project (SRP) Exchange:

Dr. Richardson working with Ed Kirdar, Don Weesner, Reid Triples, Karl Able, Al Risinger and others revised the exchange agreement, outlined the exchange program work plans and planned the trip by S.R.P personnel to Cairo to finalize the program this quarter. The proposed agreement and exchange program work plan are in the appendix.

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5. Special Training:

The P & C Committee and project staff planned and arranged for various special training programs for project and MOI personnel. These were:

Economists Farouk Abdel Al and Shinnawi Abdel Atti, Farm Management at CSU.

Mohamed Helal, Engineer, Computer Programming at CSU.

Abdel Raouf, Engineer and Ahmed Taher, Agronomist, Irrigation Management at San Diego, Ca., AWR.

Abdel Fattah Metawie, Engineer and Mohamed Naguib, Sociologist, Irrigation Management at Logan, Utah by USU. Report on course in appendix.

Abdel Fattah Metawie, Engineer, is taking a course on ground-water hydrology from CSU via video tape.

C. TDYs:

The following people spent the quarter in Egypt TDY:

Mr. Mohamed Haider, Research Associate Economics, (May 17, 1981 - July 10, 1981), help conduct the on-farm water management training course.

Mr. Forrest Izuno, Research Associate Engineering (May 19, 1981 - July 20, 1981), help conduct the on-farm water management training course.

Mr. Jeff Jacobsen, Research Associate Agronomy (May 19, 1981 - July 18, 1981), help conduct the on-farm water management training course.

Dr. Rex Rehnberg, Economist (June 18, 1981 - January 1, 1982), review economic staff papers to determine suitability as project technical papers and make recommendations.

Dr. Frank Santopolo, Sociologist (June 28, 1981 - August 1, 1981), to help establish an evaluation research design to be used to measure the effectiveness of establishing and sustaining a farmer organization and the implementation of an on-farm irrigation advisory service.

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Dr. Forrest Walters, Economist (August 3, 1981 - September 1, 1981) to make a benefit cost analysis of replacing animal power in irrigation.

Dr. Donald Lybecker, Economist (July 9, 1981 - August 15, 1981), to work with the farm record system in terms of revision, developing appropriate efficiency ratios and encouraging summation and analysis of farm records by junior economists.

The following people spent the quarter in Fort Collins TDY

Mohamed El Zanati (6/4/81 - 7/22/81) to work with Dr. Soltanpour on Soil Fertility Report.

Farouk Abdel Al and Shinnawi Abdel Atti (6/4/81 - 7/22/81, 6/4/81 - 7/20/81) to work on Farm Record Summary and Analysis for Study Cases at Abueha, Mansouria and Abu Raia Sites and to attend Effective Livestock Crop Management for Small Farms Conference held at CSU.

Mohamed Helal (6/4/81 - 8/27/81) to train on computer and adapt Dr. Sunada's groundwater program to EWUP computer.

Abdel Raouf and Ahmed Taher (7/19/81 - 8/19/81, 7/19/81) to discuss project activities with campus personnel after attending the Management Overview for Water Agricultural Programs in San Diego which Jack Farmer gives.

Hassan Wahby (7/26/81 - 8/6/81) to meet with P & C to develop procedures to review project reports, review pipeline design, prepare recommendations on irrigation improvement to Ministry of Irrigation and visit irrigation system manufacturing companies in Nebraska.

Abdel Fattah Metawie and Mohamed Naguib (8/14/81 - 9/23/81) to discuss project activities with campus personnel after attending irrigation course in Utah on farm water management.

D. Equipment:

Purchase & shipment of equipment for the El Hammami pipeline proceeded as planned. Testing of the pumps for the pipeline were monitored and

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changes in the impellers were requested so that the pumps would meet specification. The finalized proofed pump performance curves and brief report on pump specification was prepared. The control and monitoring system for the pumping plants was constructed.

Miscellaneous equipment and replacement parts were purchased as requested by the field.

E. Work Plans:

Major emphasis will be placed on backstopping Cairo on the pilot projects, task group studies and review of staff papers. Calibration of the new turnouts will be done in the hydraulics laboratory. Research will continue of basin irrigation, evaluation of drainage systems, water management alternatives, and conjunctive use of ground and surface water.

Mr. Ed Kirdar and Al Risinger, Salt River Project will go to Cairo to finalize the exchange program. Other potential TDYs are given in Section III.

Special studies will be conducted for the four Egyptian project persons taking courses at CSU. Their performance in their studies will be monitored.

Equipment for El Hammami, Meska 10, and Abueha Canal will be procured as requested as will other equipment and parts.

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Project papers will be reviewed.

Potential replacements for the field staff will be identified in case any of the field staff decline to stay on. There are five field staff whose tours end in the spring of 1982. These are Drs. Tinsley, Quenemoen, Layton, Mr. Ley, and Mr. Braunworth. All but Mr. Ley have indicated they will stay on.

III. PERSONNEL

A. Field Team

Dave Martella, Economist, joined the field team in July.

B. TDYs

W.O. Ree, Engineer

A.R. Robinson, Engineer

Dan Lattimore, Technical Journalism

Wayne Clyma, Engineer

Elizabeth Sherman, Technical Editor

Verne Scott, Engineer

Mel Skold, Economist

E.V. Richardson, Engineer

Richard McConnen, Economist

Bob Heil, Agronomist

Parviz Soltanpour, Agronomist

Jim Meiman, Associate Vice President for Research and Director of
International Programs

Ed Kirdar, Engineer Salt River Project

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Al Risinger, Operations Coordinator Salt River Project

Rex Rehnberg, Economist

Sterling Davis, Ag. Engineer

Royal Brooks, Ag. Engineer

John Wolfe, Ag. Engineer

APPENDIX

1. Summary Report of 1981 On-Farm Water Management Training Course.
2. Report on 1981 Field Trip to Observe Irrigation Practices in Southwestern United States.
3. Staff Paper No. 68. The Livestock Enterprise on Survey Farms in Abu Raia, Kafr El Sheikh: Selected Implications for Water Distribution and Management.
4. Salt River Project - Ministry of Irrigation - Professional Employee Exchange Program - Draft Agreement.
5. Exchange Program Work Plan.
6. Report on Farm Water Management Training Course at Utah State University.