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SUMMARY REPORT
of
1981 ON-FARM WATER MANAGEMENT
TRAINING COURSE

A Report of Activities
Kafr El Sheikh, Egypt

May 23 - July 1

Prepared by
EWUP Training Staff

Introduction

The Egypt Water Use and Management project conducted its annual training program in Kafr El Sheikh from May 23 to July 1, 1981. This year's program continued the thrust of developing a training program for evaluating on-farm water management systems which eventually will be administered and taught by Egyptian personnel totally. A final report has been prepared giving the details of the organization, operation and achievements of the program.

Objectives of the Training Program

The goal of the EWUP summer training program is to introduce to selected Egyptian professionals a specific procedure for analyzing on-farm water management practices. This procedure incorporates two major themes: (1) an action-oriented research process, and (2) an interdisciplinary approach for pursuing this research process. Based on the integration of these two themes, this training program is set up to present and to demonstrate how various on-farm water management practices may be studied for the purpose of analyzing the system and determining improvement possibilities.

In examining specific on-farm water management practices, the process used in the training program consists of three phases: (1) a base survey phase, (2) possible solution phase, and (3) an implementation phase. The first phase consists of performing a base survey for the farm system in order to obtain a general understanding of how that farm system operates in terms of water management. From this first phase, certain aspects of the farm system may be seen as being more problematic in terms of establishing a more effective system. These initially identified problems then become the focus of a more detailed study in phase two - the possible solution phase. If the results of the detailed study show that improvements could be made, the third phase begins with the examination of how such changes may be implemented. This phase considers the needs for changes, the possible advantages and costs, and what actions would be required for implementation. The training program is organized to demonstrate how each of these phases may be performed within the context of the on-farm water management study area. Emerging out of this research process is the demonstration that the on-farm practices must be studied by more than one discipline in order to obtain a complete understanding of the operation of the farm system. Four disciplines are included in the training program: agronomy, economics, engineering and sociology. The emphasis of the training program is to provide specific "hands-on" discipline expertise for working in on-farm water management and at the same time, develop a greater sensitivity to complementary contributions of the other disciplines. The activities in the training program are designed to enhance both the discipline expertise and the ability of the separate disciplines to work together as a team focusing on a particular problem involved in on-farm water management.

Primary Objectives

- To have the trainees understand the action-oriented research process in terms of on-farm water management.
- To have the trainees apply that research process in an actual problem situation under field conditions.
- To improve the discipline expertise of the trainees in terms of on-farm water management.
- To establish an understanding by the trainees of the contributions of the other disciplines.
- To develop the means by which the trainees can work as an interdisciplinary team focusing on the problems and improvement of irrigated farm systems.

Transfer to Egyptian Involvement

A major step in the training process is to transfer the administration and teaching of the course from an American staff to an Egyptian staff. This year's program is the fourth EWUP summer course and has served as a unique component of this transfer process in that Egyptians were trainers for the first time. The American commitment was cut in half from last year, the course was administered by an Egyptian, and involved Egyptian trainers who were responsible for many lectures and overseeing the field work. Based on this year's experience, the next training program (1982) is scheduled to consist of an Egyptian training staff with only one or two Americans present to oversee the operation of the program thus completing the transfer process.

Preparation for the Training Program

Initial work for this year's training program began on November 20, 1980 between the American and Egyptian administrative leaders. The initial organization work was mainly in the form of written communication between Cairo and Fort Collins, and it was not until January 1981 when the two leaders met with each other and the Project Directors that preparations began in earnest. A work plan was established to prepare for this year's program. This plan included the activities to be accomplished, the responsibility of various individuals to accomplish each activity, the deadline to complete each activity, and the procedure for communicating what has been accomplished. The plan covered five major areas of concern: personnel, accommodations, material/equipment, orientation and the U.S. study tour.

The Trainees

This year, for the first time, most of the trainees were not working with EWUP. The engineers are Ministry of Irrigation personnel who are working in various parts of the country. While all of the

agronomists were EWUP personnel, the economists and sociologists worked for the Ministry of Agriculture. The trainees ranged from very senior professionals to recent university graduates (listing of staff and trainees attached).

Accommodations

Finding personal accommodations for everyone in Kafr El Sheikh was impossible. During the training period, the school dormitories as well as the government facilities were full. The limited hotel space in Kafr El Sheikh was also occupied and there were no private residences which could house the training group. As a result, the trainers obtained two flats in Kafr El Sheikh for their purposes, and the trainees stayed at the Arafat Hotel in Tanta.

The training accommodations included a training office and field sites upon which the field work was centered. EWUP used the Kafr El Sheikh training building which it used in 1980 and the farm sites selected were in the surrounding area. An area of fourteen field sites were originally chosen from which the trainers later selected three sites to be used (one for each trainee team). This selection of sites was performed by all the disciplines based on an interdisciplinary consensus of criteria.

Material/Equipment

This includes laboratory equipment, office supplies and equipment, vehicles and materials for trainees and trainers. The training office has attached to it a laboratory stocked with the field and laboratory equipment. Office supplies include an electric typewriter, xerox copier, files, papers, pens, pencils, chalk, fans, a video tape system (including monitor, playback unit, camera, battery pack, and tape), an overhead projector, and slide projector. Vehicles were used to transport trainers and trainees from their respective housing units to the training office and to the field, and back again.

Orientation(Training Staff)

The orientation for the training program focuses on one major purpose: to prepare the trainers to accomplish their assignments. This year, two orientations were proceeding simultaneously; one in Fort Collins and one in Cairo, with weekly correspondence communicating what has been accomplished being sent between the two locations. While this situation existed this year because of various circumstances, it is not a recommended practice. Much was lost in terms of substantive and procedural matters and the development into a well functioning training team was delayed. The orientation included a series of meetings held once per week for about nine weeks. Each meeting time was a minimum of two hours. Topics which were covered included the scheduling of events, the format for the training program, the discipline activities, the interdiscipline activities, and the evaluation process. Discussion of these substantive and procedural matters not only helped the trainers to be better prepared for the program, but it also allowed

the trainers to develop a team-like synergism which only evolves through directed participation in program review and development.

U.S. Study Tour

The final part of this training program is a study tour of the U.S. for the trainees. Plans for the tour, such as the schedule, contacting sites to be visited and arranging transportation began early in the year at Fort Collins. The trainees were told that in order for them to go, they must cooperate during the Kafr El Sheikh session and must meet minimum standards established by the trainers. Administrative matters which had to be completed for each trainee included: obtaining a passport, taking an English exam, taking a medical exam, fill out U.S. AID training forms, obtain visas, arrange for plane tickets, and obtain GOE clearance for the trainees to leave the country.

Trainee Evaluations

An important aspect to any program is the evaluation of how that program meets its objectives. The EWUP training staff prepared two major evaluation techniques to measure the effectiveness of the program. Evaluating the trainees was achieved by using written examinations. The trainees were given two examinations; a pre-training diagnostic and post-training final examination. For both, there was a discipline oriented section and a cross-disciplinary oriented section.

Agronomy Discipline Exams

The objectives of the agronomy discipline exam are as follows:

1. To test the agronomy trainees understanding of some of the basic ideas in agronomy.
2. To guide the trainers in the designing of the lectures.
3. To evaluate the effectiveness of the lectures.
4. To evaluate the agronomy trainees discipline progress.

The agronomy discipline exam contained five sections. The sections are: soil physical properties, soil chemical properties, water, crops, and problems. The exam had a two hour time limit. The initial and final discipline exams were similar in content. This was done so that the progress of the trainees could be evaluated.

The range of the initial discipline exam was 17-81% with a mean of 49%. The range of the final discipline exam was 83-95% with a mean of 89%. The trainees initially showed a lack of cohesiveness in their understanding of agronomy. By the end of the training program, the agronomy trainees were all brought up to satisfactory level. The lectures were effective in transmitting information to the trainees.

Agronomy Interdisciplinary Exam

The objectives of the agronomy interdisciplinary exam are as follows:

1. To test the economic, engineering and sociology trainees knowledge of an agronomist's role in the research process.
2. To evaluate the effectiveness of the interdisciplinary lectures and the agronomic fieldwork in transmitting agronomic ideas to the trainees.
3. To evaluate the progress of the trainees.

All of the other disciplines showed a good understanding of the agronomy discipline. The trainees showed improvement in their understanding of the agronomy discipline at the end of the training program. The average score for the exam at the beginning of the program was 78%. The average score for the final exam was 93%.

Economics Examinations

The result of the pre-exams indicated a model knowledge level of economic trainees in economic theory and analytical techniques. The average score of trainees was 53%. The result of the post training exams indicated significant increase in the knowledge of economic trainees in economic theory and analytical techniques had been achieved during the training program. The post training score average was 78%.

Economics Cross Discipline Exam

The result of the pre-exams indicated a modest level of knowledge in economics and the role of economics in on-farm water management research. The average score was 43%. The post training exams indicated a significant increase in the knowledge of the other disciplines in economics as well as in understanding the role of economics in on-farm water management research. The average score was 74.2%, which means about a 31.8% increase in their knowledge of economics and its role in on-farm water management research.

Engineering Examinations

The Engineers showed good improvement between the two exams. The diagnostic examination average scores was 49.2%. The post training examination average score was 83.1%. This represents a rise of 33.9 percentage points or a 68.5% improvement.

Engineering Cross Discipline

The agronomists, sociologists, and economists were evaluated by the engineering trainers through the trainee's performance on pre and post training examinations. The exam was comprised of two questions. One dealt with the trainees knowledge of specific activities performed by engineers. The second was an open ended question which tested whether or not the trainee understood how his discipline and engineers could interact. Scores rose from an average of 75% to an average of

93% between the pre and post training examinations.

Trainee Evaluation of the Training Program

The trainees were given the opportunity to evaluate the training program. This evaluation asked for an assessment of each of the training phases, the introductory week, the examination procedure, and the administrative aspect of the program.

THE INTRODUCTORY WEEK:

Regarding the introductory week lectures, the general consensus is that they were good. They help in understanding the interdisciplinary aspect of the work and some of the trainees specifically commented on their value in showing what other disciplines do. Some of the engineers commented favorably on the team meeting format lectures as being valuable.

BASE SURVEY PHASE:

Again the trainees generally like the lectures given in this phase. Major points of concern were for more lectures in methodology (Agronomy) and more lectures to clarify the purpose of this phase. Some specific comments on what was appreciated by the trainees focused on the lectures in picking a problem, how to write a report, and the exercise in constructing a base survey questionnaire for the farmers. A comment was made about increasing the number of lectures but decreasing the time of each lecture. A specific comment from the engineers was to have more agronomy and economy lectures.

POSSIBLE SOLUTION PHASE:

The lectures that were presented were seen by the trainees as satisfactory. Specific comments were given for identifying a problem and stating a hypothesis. More explanation is needed for these two conditions. Also, more lectures were asked for concerning the methods of applying solutions to problems.

ADMINISTRATION:

There are a few central concerns expressed by the trainees pertaining to the administration of the program. One major concern is the time factor. Many trainees would like to have the training program extended (2-3 months) with the work days reduced. One time period which was suggested was from 0700-1400 while another was from 0700-1200, 1700-2000. Another major concern was the housing facilities. Many people want the trainees and trainers to stay together close to the training center to be able to read, study, and converse about the aspects of the program. An English course should be given prior to the program and the training manual should be given to the trainees well before the program commences. Phases II and III should be lengthened and more time on the farm should be allowed in all phases. Outside professional from the different departments should be asked to give lectures on the study areas. Problems studied should be of national importance. Visits to the EWUP Project sites would be helpful.

TRAINING TEAMS

DAY	TEAM 1	TEAM 2	TEAM 3
SUN	ENG	ECON	AGRON
MON	SOC	ENG	ECON
TUES	AGRON	SOC	ENG
WED	ECON	AGRON	SOC

Disciplines

ENG: Engineering

SOC: Sociology

AGRON: Agronomy

ECON: Economics

(Note: Team leadership rotated each day with the relevant discipline member leading the team through a base survey exercise)

Summer Training Program, 1981Team # 1

1. Agr. Ahmed Sayed Ismail
2. Agr. Hanafy Mahmoud Hanafy
3. Econ. Abdel Sattar Shineshan
4. Eng. Ebdel Razek Ismail Hashim
5. Eng. El-Quaqua Mossad Megahed
6. Eng. El-Sayed Mohamed Ahmed Hassan
7. Eng. Mohamed Salama El-Shafee
8. Eng. Wadie Ragy Kelada
9. Soc. Saber El-Sabbagh

Team # 2

1. Agr. Mahmoud Khedr Afifi
2. Econ. Ahmed Mohamed El-Shater
3. Eng. Ahmed Abdel Naiem Abdel Ghany
4. Eng. Esam Menoufy Mohamed El-Saved
5. Eng. Fathi Aly Solieman
6. Eng. Kadry Ahmed Osman
7. Eng. Mostafa Abdel Ghany Sakr
8. Soc. Ahmed Gamal El-Din

Team # 3

1. Agr. Salah Saleh Abdel Samie
2. Econ. Sobhi Ahmed Elewa
3. Eng. Adel Mohamed El-Kholy
4. Eng. Mohamed Abdel Moniem El-Etefi
5. Eng. Mohamed Shebl Abdel Aziz
6. Eng. Saad Shehata
7. Eng. Tarief Fahmy Abdel Rahman
8. Soc. Mohsen Bahgat Mohamed

EWUP TRAINING CENTER
KAFR EL-SHEIKH

Summer Training Program, 1981

List of Trainers

Training Director:	Dr. Mohamed Sallam	EWUP/Cairo
Training Coordinator:	Dr. David J. Redgrave	EWUP/CSU
Trainers:		
Agronomy:	Mr. Moheib Semaika	EWUP/Mansouria
	Mr. Jeff Jacobsen	EWUP/CSU
Economics:	Mr. Mohammed Haider	EWUP/CSU
	Mr. Lotfy Nasr	EWUP/ Mansouria
Engineering:	Mr. Abdel Fattah Metawie	EWUP/Kafr El Sheikh
	Mr. Forrest Izuno	EWUP/CSU
Sociology	Mr. Mohamed Naguib	EWUP/ Mansouria
	Dr. Jim Layton	EWUP/Cairo
Staff Development Specialist:	Mr. Gale Dunn	EWUP/CSU

EWUP TRAINING CENTER
KAFR EL-SHEIKH

Summer Training Program, 1981

List of Trainees

1.	Agr. Ahmed Sayed Ismail	EWUP - Kafr El-Sheikh
2.	Agr. Hanafy Mahmoud Hanafy	EWUP - Mansouria
3.	Agr. Mahmoud Khedr Afifi	EWUP - Mansouria
4.	Agr. Salah Saleh Abdel Samie	EWUP - El-Minya
5.	Econ. Abdel Sattar Shineshan	M.O.A. - Agr. Economics Institute
6.	Econ. Ahmed Mohamed El-Shater	M.O.A. - Agr. Economics Institute
7.	Econ. Sobhi Ahmed Elewa	EWUP - Kafr El-Sheikh
8.	Eng. Abdel Razek Ismail Hashim	M.O.I. - Aswan
9.	Eng. Adel Mohamed El-Kholy	M.O.I. - Gharbia
10.	Eng. Ahmed Abdel Naiem Abdel Ghany	EWUP - El Minya
11.	Eng. El-Quaqua Mossad Megahed	M.O.I. - Gharbia
12.	Eng. El-Sayed Mohamed Ahmed Hassan	M.O.I. - Giza
13.	Eng. Essam Menoufy Mohamed El-Sayed	M.O.I. - Quena
14.	Eng. Fathi Aly Solieman	M.O.I. - El-Minya
15.	Eng. Kadry Ahmed Osman	M.O.I. - Giza
16.	Eng. Mohamed Abdel Moniem El-Etefi	M.O.I. - Quena
17.	Eng. Mohamed Salama El-Shafee	M.O.I. - Kafr El-Sheikh
18.	Eng. Mohamed Shebl Abdel Aziz	M.O.I. - Gharbia
19.	Eng. Mostafa Abdel Ghany Sakr	M.O.I. - Gharbia
20.	Eng. Saad Shehata Abdel Al	M.O.I. - El-Minya
21.	Eng. Tarief Fahmy Abdel Rahman	EWUP - Mansouria
22.	Eng. Wadie Ragy Kelada	EWUP - Institute
23.	Soc. Ahmed Gamal El-Din	M.O.A. - Agr. Extension and Rural Development Research Institute
24.	Soc. Mohsen Bahgat Mohamed	
25.	Soc. Saber El-Sabbagh	

EWUP TRAINING PROGRAM
SUMMARY FORMAT

PHASE I. Introduction and Base Survey

Part A: Introduction to the Program/Discipline and Cross
Discipline Lectures

1. Introduction to the training program
2. Discipline exams
3. Cross discipline exams
4. Introductory discipline lectures
 - agronomy
 - economics
 - engineering
 - sociology
5. Lecture on base survey - all disciplines
6. Trainees assignment into interdisciplinary teams
7. Visit field study sites by team
8. Lecture on team work
9. Lecture on meeting format
10. Lecture on base survey - by discipline
11. Team planning for base survey
12. Team scheduling of activities for conducting base survey

Part B: Base Survey

1. Team meeting and planning
2. Equipment pick up by team
3. Conduct base survey by team in chosen field sites
4. Review, tabulation, and interpretation of the base survey data

Note: Each team conducted a base survey for a particular discipline on a single day. Since there were four disciplines (engineering, agronomy, economics, and sociology) involved a total of four days were allocated to base survey.

5. Writing base survey report by team
6. Oral presentation of base survey report by team

Note: The base survey data collected by each team in four disciplines areas were linked together for a preliminary interdisciplinary study of physical and socio-economic dimensions of the farming system.

PHASE II. Problem Identification

1. Introduction to Phase II
2. Lectures on question development and formation of hypothesis
3. Lecture and discussion on teams work in Phase II
4. Lectures by discipline
5. Problem delineation by team
6. Formation of hypothesis by team
7. Team Planning for data collection and test of hypothesis

Note: A set of problems was identified by each team following an interdisciplinary study of the farming systems. A single problem that satisfied a set of predetermined criteria was selected by each team for detailed investigation. Each team formed a hypothesis to be tested and developed a set of questions, procedures and a time table for data collection.

8. Team planning
9. Equipment pick up
10. Data collection - field work
11. Team discussion session with discipline trainers
12. Team review of day's data collection activity
13. Preliminary data analysis by discipline and by team
14. Lectures as required for data collection and analysis

Note: Each day during this phase of program commenced with a planning meeting by each team. The teams planned the detailed daily activity based on the overall data collection plan that was developed earlier. Following the meeting each team submitted their list for acquisition of the equipment required for data collection.

Each team was accompanied by two trainers who were selected on the basis of the type of data to be collected by the team and the areas of expertise of the trainers.

Data collection involved: (1) collection of data about the physical system such as soil salinity, water salinity, water table, infiltration rate; (2) learning about farmers practices such as method of irrigation, measurement of the volume of water applied; (3) farmers interview regarding their production practices, level of input utilization, output produced, farmers perception of problem under investigation and others. The data collected

was guided by the set of questions that were formed at the beginning of this phase. Answers to these questions provided the necessary data for test of the team's hypothesis.

15. Data analysis
16. Report writing
17. Oral presentation by team

PHASE III. Search for Solution and Implementation

1. Introduction to Phase III
2. Lectures on methodology of evaluating alternative solutions
3. Lectures on concept and methodology of implementation
4. Evaluation of alternative solutions by team
5. Development of an implementation procedure for the solution selected by the team
6. Teams meeting with the farmers
7. Team report
8. Team oral presentation
9. Final exams

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION	
24	SUN	7:00-9:30	Greetings - Trainers & Trainees (formal introduction + social time)	All	Redgrave/ Sallam	Training Office	
		9:30-11:30	Discipline exams	By disc.	Redgrave/ Sallam/ Kamal	Training Office	
		11:30-12:30	Lunch				
		12:30-1:30	Cross Discipline exam	All	Redgrave	Training Office	
		1:30-2:00	Break				
		2:00-4:00	Introduction to the training program Part I	All	Redgrave	Training Office	
25	MON	7:30-9:15	Introduction to the training program Part II	All	Redgrave	Training Office	
		9:15-9:45					
		10:00-11:00	Agronomy	All	Semeika	Training Office	
		12:00-1:00	Economics	All	Haider	Training Office	
		1:15-2:15	Engineering	All	Metawie	Training Office	
2:45-3:45	Sociology	All	Naguib/ Layton	Training Office			
26	TUES	7:30-8:30	Sociology	All	Naguib/Layton	Training Office	
		8:45-9:45	Engineering	All	Izuno	Training Office	
		10:00-11:00	Economics	All	Lotfy/Haider	Training Office	
		12:00-1:00	Agronomy	All	Semeika/Jeff	Training Office	
		1:15-2:15	Base Survey Lectures	SURVEYING	By disc.	All	Training Office
		2:45-3:45					
27	WED	7:00-8:00	Team Assignments	All	Sallam	Training Office	
		8:00-10:00	Visit Sakias by teams	All	All	Field	
		11:00-12:00	Lunch				
		12:00-1:00	Teamwork lecture	All		Training Office	
		1:15-2:15	Meeting Format	All		Training Office	
		2:45-3:45	Disc. Lectures (Base Survey)		By disc.	All	Training Office

1981 EWUP SUMMER TRAINING PROGRAM

WEEK NO. 1 (Continued)

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
28	THURS	7:30-3:00 3:00-4:00	Team Planning for Surveys Team Scheduling Activities	By Teams By Teams	A11 A11	Training Office Training Office
29	FRI		HOLIDAY			
30	SAT		HOLIDAY			

1981 EWUP SUMMER TRAINING PROGRAM

WEEK NO. 2

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
May 31	SUN	7:00-7:30	Organization - cross check activities	All by teams		Training Office
		7:30-8:00	Review day's activities			Field and Training Office
		8:00-4:00	Pick up equipment Conduct Base Survey by Teams/analyze data			Field and Training Office
June 1	MON	7:00-7:30	Organization - cross check activities	All by teams		Training Office
		7:30-4:00	Review day's activities Base Survey by Teams/analyze data			Field and Training Office
2	TUES	7:00-7:30	Organization - Review day's activities	All by teams		Training Office
		7:30-4:00	Base Survey by Teams/analyze data			Field and Training Office
3	WED	7:00-7:30	Organization - Review day's activities	All by teams		Training Office
		7:30-4:00	Base Survey by Teams/analyze data			Field and Training Office
4	THURS	7:00-7:30	Organization	All	Any Trainer	Training Office
		7:30-11:00	Put together written and oral report by teams	All	All	
		12:00-4:00	Oral Presentations by Teams 45 mins. each w/15 min. breaks 30 min. presentations/15 min. question/answer period	By teams	All	Training Office
5	FRI		HOLIDAY			
6	SAT		HOLIDAY			

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
7	SUN	7:30-8:30	Introduction to Phase II	All	Redgrave	Training Office
		8:45-9:45	Question Development Made Easy/ Developing a good Hypothesis	All	Redgrave	Training Office
		10:00-11:00	Team Work in Phase II	All	Redgrave	Training Office
		12:00-1:00	Discipline Lectures	By Disc.	All	Training Office
		1:15-2:15	Discipline Lectures	By Disc.	All	Training Office
		2:45-3:45	Discipline Lectures	By Disc.	All	Training Office
8	MON	7:30-8:30				
		8:45-9:45				
		10:00-11:00	Discipline Lectures			
		12:00-1:00				
		1:15-2:15				
2:45-3:45						
9	TUES	7:30-11:00	Teams form hypothesis	By teams	All	Training Office
		11:00-12:00	Lunch (extra time for teams that need it)			
		12:00-2:00	Team Planning for Phase II	By teams	All	Training Office
		2:00-4:00	Team Leaders meet to coordinate activities	Team Leaders	All	Training Office
10	WED	7:30-8:00	Team Coordination meeting/Equipment pickup	By teams	All	Training Office
		8:00-4:00	Field Work, Discussion sessions with disc. trainers, Team meetings, disc. lectures as needed.	By teams	All	Training Office
11	THURS		Same as WED.			
12	FRI		HOLIDAY			
13	SAT		HOLIDAY			

1981 EWUP SUMMER TRAINING PROGRAM

WEEK NO. 4

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
14	SUN					
15	MON					
16	TUES					
17	WED					
18	THURS		Team Work (Discussion of past two weeks activities)			
19	FRI		HOLIDAY			
20	SAT		HOLIDAY			

1981 EWUP SUMMER TRAINING PROGRAM

WEEK NO. 5

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
21	SUN	7:30-4:00	Finish writing reports	All	All	Training Office
22	MON	7:30-11:00	Finish reports/prepare for presentations	By teams	All	Training Office
		12:00-4:00	Oral presentations 60 mins. 30 min.=Team report 15 min.=Evaluation by trainers 15 min.=Break between reports	By teams	All	Training Office
23	TUES	7:30-8:30	Concept of Implementation/Plan of Action + reports & exams	All	Redgrave	Training Office
		8:45-9:45	Team Work in Phase III	All	Redgrave	Training Office
		10:00-11:00	Examples of poor planning in Implementation Phases	All	Izuno	Training Office
		12:00-4:00	Interdiscipline Lectures 45 min. lectures, 15 min. breaks	All	All	Training Office
24	WED		Team Meetings			
25	THURS		Team Meetings			
26	FRI		HOLIDAY			
27	SAT		HOLIDAY			

DATE	DAY	TIMES	ACTIVITY	TRAINEES	STAFF	LOCATION
28	SUN	7:30-9:30	Post-training exams	By Disc.	A11	Training Office
		9:30-10:30	Break			
		10:30-4:00	Team Meetings	By Teams	A11	Training Office
29	MON	7:30-4:00	Finish Final Report - Turn in Report	By Teams		Training Office
30	TUES	7:30-8:30	Report Presentations: Preparation time for team giving presentations			
		8:45-9:45	Presentation #1			
		10:00-11:00	Presentation #2			
		12:00-1:00	Presentation #3			
		1:15-2:15	Presentation #4			
2:15-4:00	Teams touch up reports/submit					
1	WED		Graduation Day	A11	A11	Training Office

Egypt Water Use and Management Project

Report

1981 Field Trip

to

Observe Irrigation Practices

in

Southwestern United States

J. D. Redgrave
Training Coordinator

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OFFICE MEMO

TO: E. V. Richardson
FROM: D. J. Redgrave *D.J.R.*
SUBJECT: Evaluation of 1981 EWUP Study Tour of
Irrigation in the southwestern United States
REMARKS:

Date October 12, 1981

The 1981 study tour took place from July 28 to August 19, 1981 for a total period of 22 days. The study sites and activities were similar to those of previous years.

The tour itinerary is attached and the following list will give an outline of the major activities at each stop.

1. Washington, D.C.
Rest stop and free day for site seeing.
2. Fort Collins, Colorado
Tour orientation and organization. Visits to C.S.U. departments and individual visits with faculty. Introduction to irrigation and agriculture in the western U.S.
3. Grand Junction, Colorado
Agricultural, water management and water quality (salt control) research and development. Begin study of irrigation management of the Colorado River System.
4. Page, Arizona
Tour of multi-purpose dam and reservoir facilities. Overview of Colorado River Development Project. Allocation of water for multiple purposes.
5. Phoenix, Arizona
 - A. Salt River Project - tour of facilities and study of operation of a well organized demand type irrigation project. Organization of water allocation and delivery from ditch riders at farm level to flow control from the rain reservoir. Total efficient utilization of scarce water supplies and multiple use allocations and coordination.
 - B. U.S.D.A. Water Conservation Lab - study of the activities and operation of the many research projects conducted by the laboratory. Irrigation timing, water recycling (municipal to agricultural) and reclamation, water flow measurement, salt control, level basin irrigation research.

DJ

6. Yuma, Arizona

A. Welton-Mohawk Project - Irrigation water management and salt control, ground water pumping and irrigation management integration for water table and water quality control. Farmer demand system with project irrigation scheduling service. Level basin in commercial applications:

B. Hillander "C" Farming Company - Private new lands development with sandy soils and high potential E.T. Rates. Efficient use of available water. Conversion from flood/furrow irrigation to sprinkler and drip systems. Farmer application of research to decrease use of water (approx. 50% reduction).

7. San Diego, California

A. Small scale vegetable growers in an urban development area. Use of municipal water supplies for irrigation. High crop yields under intensive management or marginal soils.

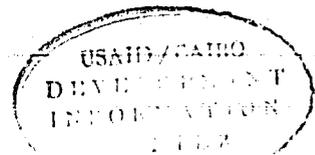
B. Steep land irrigation for tree crops using drip irrigation. Utilization of climatic zones with very rocky ground, steep slopes, and marginal soils. Irrigation technology allowing expansion of crop production into new areas.

8. U.S.D.A. Salinity Lab - Tour of facilities and research activities of the major salinity research station in the U.S. Discussions with staff about research activities, organization, results and applications.

At the end of the tour, the participants were asked to provide an evaluation. Much of this was written in Arabic and translated.

The general consensus was that the tour is very valuable. The activities at the study sites provided the trainees with fresh insight into the field of irrigation water management and gave them many new ideas that might have applicability in Egypt. Level basin irrigation, lined canals, farmer demand systems and the organization to operate the system, irrigation scheduling by evaporation pans and soil moisture measurements, water recycling, and water table control by ground water pumping and irrigation management were the items that received particular praise. New ideas and techniques of water control (main system), water measurement, salt control, and irrigation of marginal lands were also cited as important.

Another consideration is also important. The attitude of the trainees changed considerably during the tour. Their prior contact with American specialists was in an advisory role under Egyptian conditions. The advice of project people now has new credibility after the participants have seen accomplishments in the United States. This was not specifically mentioned, but is a quite obvious occurrence and should have important implications for EWUP project activities.



E. V. Richardson
October 12, 1981
Page 3

The only negative comments were that the time was too short. Perhaps the tour can be expanded in time, or more time can be spent at fewer stops. The overall recommendation is that the study tour remain an integral part of the training program. It is a vital part of the training activities and provides great benefit to the participants and to project activities.

DJR:cb

enclosure

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Participants U.S. Field Trip
1981

Senior Officials

Eng. <u>Atia Omar Atia</u>	Under Secretary of State for Ministry of Irrigation, Assuit
Eng. <u>Fathy Abdel Halim</u>	Under Secretary of State for Ministry of Irrigation, El Minya
Eng. <u>Salah El Din Hassan</u>	Under Secretary of State for Ministry of Irrigation, Beni Suef & Fayoum
Dr. <u>Baligh Shindi Zikri</u>	Director, Soil and Water Research Institute
Dr. <u>Elwy A. R. Atalla</u>	Director, Plant Protection Research Institute
Eng. <u>Mohamed A. M. El Zeftawy</u>	Director General of Irrigation, Gharbia
Eng. <u>Mohamed Mahmoud El Malkh</u>	Irrigation Inspector, NOI, Cairo

Participants Egypt Water Use and Management Project
Water Management Short Course

Agr. Ahmed Tahoon	EWUP - Mansouria
Agr. Ahmed Sayed Ismail	EWUP - Kafr El Sheikh
Agr. Hanafy Mahmoud Hanafy	EWUP - Mansouria
Agr. Mahmoud Khedr Afifi	EWUP - Mansouria
Agr. Salah Saleh Abdel Samie	EWUP - El Minya
Econ. Abdel Sattar Shineshan	M.O.A. - Agr. Economics Institute
Econ. Ahmed Mohamed El-Shater	M.O.A. - Agr. Economics Institute
Econ. Sobhi Ahmed Elewa	EWUP - Kafr El Sheikh
Eng. Abdel Razek Ismail Hashim	M.O.I. - Aswan
Eng. Adel Mohamed El-Kholy	M.O.I. - Gharbia
Eng. Ahmed Abdel Naiem Abdel Ghany	EWUP - El Minya
Eng. El Quaqua Mossad Megahed	M.O.I. - Gharbia
Eng. El Sayed Mohamed Ahmed Hassan	M.O.I. - Giza
Eng. Essam Menoufy Mohamed El-Sayed	M.O.I. - Quena
Eng. Fathi Aly Solieman	M.O.I. - El Minya
Eng. Kadry Ahmed Osman	M.O.I. - Giza
Eng. Mohamed Abdel Moniem El-Etefi	M.O.I. - Quena
Eng. Mohamed Salama El-Shafee	M.O.I. - Kafr El Sheikh
Eng. Mohamed Shebl Abdel Aziz	M.O.I. - Gharbia
Eng. Mostafa Abdel Ghany Sakr	M.O.I. - Gharbia
Eng. Saad Shehata Abdel Al	M.O.I. - El Minya
Eng. Tarief Fahmy Abdel Rahman	EWUP - Mansouria
Eng. Wadie Ragy Kelada	EWUP - Institute
Soc. Ahmed Gamal El-Din	M.O.A. - Agr. Extension and Rural Development Research Institute
Soc. Mohsen Bahgat Mohamed	
Soc. Saber El-Sabbagh	

Study Tour 22 Days

<u>Day</u>	<u>Travel</u>	<u>Accom.</u>	<u>Activity</u>
July 28 Tue.	Cairo - D.C.	Washington, D.C.	
29 Wed.		Washington, D.C.	Tour of D.C.
30 Thu.	D.C. - Ft. C	Fort Collins	Free Day
31 Fri.		Fort Collins CO	B.O.R. - Denver - Farms
Aug 1 Sat.		Fort Collins	Big T - Rocky Mountain
2 Sun.	Ft. C-G. Junc	Grand Junction	Stop in Vail
3 Mon.		Grand Junction	Grand Junction Area
4 Tue.	G.J.-Page	Page AZ	
5 Wed.	Page-Phoenix	Phoenix	Tour Glen Canyon Dam
6 Thu.		Phoenix	Salt River Project
7 Fri.		Phoenix	U.S.D.A. Water Cons. Lab
8 Sat.		Phoenix	Free Day
9 Sun.	Phoenix-Yuma	Yuma	Afternoon Free
10 Mon.		Yuma	Wilton/Mohawk
11 Tue.	Yuma-San Diego	San Diego	Level Basin
12 Wed.		San Diego	Veg. Crops
13 Thu	S.D.-Riverside	Riverside	Steep Lands Irrigation
14 Fri.		Riverside	U.S.D.A. Salinity Lab
15 Sat.		Riverside	Disneyland
16 Sun.		Riverside	Free Day
17 Mon.	Los Angeles	(Paris/Rome/New York)	
18 Tue	Cairo		
19 Wed.			

I am fond of all the project and all farms I visit in our tour. All of them show me the power and progress of U. S. A. I am more admired with GLEN CANYON DAM and power plant construction which was built 1955-1966. It is a great project to control the river water for irrigation and for electricity power. More cultivated land depends on the dam which irrigates by different kinds of irrigation. I am also admired of Salt River project and the different constructions on the river for sedimentation and for decreasing salinity of water and more crops depend on this project. I am fond of all farms I visited using sprinkler irrigation and drip irrigation. The better farm I visit is (Irvine family, farm) which I visit on 8/14/81. The drip irrigation of surface of mountain for avocado trees and the vegetables farms and different kinds of trees. The pipes of drip irrigation are more durable and the system is very good. For I glad that I am one of those who comes this over and I hope the continuity of this tour to make a large base for Engineers and Agronomists in U.S.A. and Egypt for civilization in progress.

By the Name of the God

Introduction:

The tour started July 27, 1981 and ended August 17, 1981 and we will be in Cairo August 18, 1981. Stops were in Washington, D. C., Fort Collins, Grand Junction, Page, Phoenix, Yuma, San Diego, Riverside.

The Important things in the tour:

It can be summarized in visiting different irrigation projects which is very important for the Egyptian side to use this technology in Egypt.

A. Salt River Project

The irrigation system in this project is exactly the same system used in Egypt which is almost surface irrigation except.

Using the computer for controlling the amount of water in the canal and watching the emergency case like flood or shortage of water in some places which can solve the problem immediately and the high technology system for operation and maintenance of canal and using lining canal give good management and use of water.

B. U.S.D.A. Salinity Lab

This is the research center for salinity and they did excellent work in this field which were very interested to me, e. g., they studied the possibility for using salt water in irrigation, they used fresh water and sea water 1:1 ratio.

They also studied the sandy soil for special crops which will be good for solving the world problem in this field.

This trip gave me a good feeling the Egyptian engineers and scientists can do a good job for Egypt if they learn from the American people.

Notes:

1. The time was short for each place we visited.

nb

2. I suggest that the tour must be divided into subgroups in the places of interest, e.g., dams, project and research centers.

Thanks for everybody

God Help Us to Serve Our Country

Engineer Mohamed El Zeftayee

Tanta Egypt

Eng. Fathi Aly Soliman

We gained much education benefits from our visit to U.S.A. The most benefits visits are:

1. Canyon Dam - We took a wide idea about how to store water and how the electric power station works by turbines.

2. Salt River Project - We took a wide idea about the successful arrangement of work in this project which gave us a good idea about the recent technology in operating and distribution irrigation water to canals automatic and how the best control electronic in every big or small things concerning everything especially levels of water elevations of water until the day in every canal and the requirements of irrigation water at each field and every position on the canal. This is a very good example for successful project, we took a big benefit from it.

3. The Visit of the Dam at the Boundary Between U.S.A. and the Mexico which organize the division of irrigation water between the two countries also how to regulate the percentage of saline delivered from U.S.A. to Mexico.

4. Steep Lands Irrigation - This project gave us a new idea about drip irrigation and how to make the irrigation water be filtered to prevent any strage and dirty things gors to the cultivated lands by irrigation water, i. e., filtering and cleaning irrigation water before giving it to the farm. Also we took a wide idea about the high stand mechanism of how drip irrigation works since the irrigation water from its source until delivering irrigation water to the plant in sufficient quantities.

5. Irvine Ranch - We took a good idea about the best management of a big cultivated area and the different benefits from this project: yield, civilization, recent mechanism in irrigation and in cultivate the land and collecting the yields.

6. U.S.D.A. Salinity Lab - We took a broad idea about how to make different experiments in lab to decide the effect of saline water on the yield at different percentage. We also took a good idea about the suitable irrigation. Water the plant needs which do not effect in increasing the percentage of saline in soil. Sorry if I cannot able to explain what I mean exactly.

A Report On
EWUP Summer 81 Tour

Good Observations

The automatic control in irrigation works, beginning from dams to turnouts to the fields.

Applying canal lining for all irrigation channels.

Making use of every drop of water, in such a way that no water goes to the sea.

This is in addition to preparing to receive excessive amounts of runoff resulting from severe storms.

Using the falling water from dams more than one time in generating electricity by means of lifting it again to the reservoir during the period of low load.

Making use of artificial lakes D.S. dams in fishing and recreation.

The reuse of sewage water in irrigation.

The large proprietes which enable using machinery in agricultural operations.

The lazer leveling of the lands, in order to increase the uniformity of water distribution and irrigation water application efficiency .

Adopting drip irrigation because of the shortage in irrigation water available and also in sloping areas.

Using automatic controllers in drip irrigation scheduling.

Experiments done on using saline water in irrigation.

The decrease of food all over the world is a main problem that makes many countries began to deal with U.S.A is one of these countries. As plants, agriculture water are principles of food then a special program is made between U.S.A Fort Collins, Colorado University and Egyptian EWUP to make something in this field. A principal phase in this program is the scientific tour for some special peoples to U.S.A. It was a sufficient one to see many projects and special farms and dams and irrigation barrages.

The different between some styles in managing and dealing with many problems in U.S.A. gave us a good idea for trying the better, e.g.:

1. Salt River Project

- a. How it is controlled
- b. Combining the directors of project with those who are using water or electric
- c. Reusing and controlling every drop of water

2. The Up-To-Date Ways of Irrigation

- a. Drip irrigation in many places and how it is used in different levels
- b. Furrow irrigation by using some kind of pipes
- c. Sprinkler irrigation and how operating the system

3. Meeting and Dealing with America

This was a very important one although the language was difficult somewhat but I think that it is a very good chance especially with engineers and scientific news.

At the end there are some points to try to make the better:

1. The time spend in bus from place to place.
2. The time of visiting to be in early morning.
3. Required more especially for places to know more.

At last many thanks for Colorado University and U.S.A. and we hope to make more contact with Egypt and Egyptians.

EWUP Summer 81

Evaluation of Tour Contacts

Agr. Research Center - Grand Junction

It is very useful visit, but it's period is not enough. The farms of modern surface irrigation - Grand Junction. It is very important and useful to us, but it must repeat five times in several farms at several conditions.

Salt River Project - Phoenix

We visited canals, dams and computer of control center. But it is very useful to us if we understood the computer's idea before visiting it.

U.S.D.A. Water Conservation - Phoenix

The usefulness of this visit is limited, because we saw some pictures of experiments without seeing the results in the commercial farms.

Welton Mohawk Project - Yuma

It is useful visit, but we was needed to some one more satisfied to explain the experiments and the methods of irrigation.

Irrigation District Farm: Yuma

It is very useful visit to us.

Steep Land Irrigation - San Diego

It is useful and necessary to know this method of irrigation.

Irvine Ranch Farm - Riverside

It is useful, but the previous visit to steep land irrigation was enough, because this method of irrigation is not used and will not be used in Egypt for its more expensive.

U.S.D.A. Salinity Lab - Riverside

It is very useful visit. Then i can brief my recommendation in some following points:

1. The period of this tour is not enough, and must be double.
2. Visiting more states to see the methods of irrigation.
3. Visiting more farms which use modern surface irrigation.
4. Visiting more research centers.
5. More staying in Colorado University especially Agronomy, Economics, Engineering and Sociology sections and visiting the library to hold some important books.

Then I thank everyone help in this tour and thank very much the tops of EWUP in Egypt and U.S.A.

Economist Ahmed M. El Shater
Agricultural Economic Research Institute
Ministry of Agriculture, Cairo

Report About How Important This Tour to
People Who are Specialist in Agriculture Field

No doubt that this kinds of visits are very useful to us because of the lectures and projects in the program in different field. It is essentially for engineers to see the improvement of irrigation systems and crops in other countries like U.S.A. which is useful to us to increase food and fibers in our country.

The important projects that we can use the same techniques in our country is:

1. Salt River Project

About this project: It is multi objectives project, it started in 1902 under the federal government of U.S.A. It covers 250,000 acres what is useful to us in this project? Is the high technology control of water and the way of watching the amount of water coming to the valley. The purposes of this project are:

1. Controlling and distributing the water in the canals. It is very good idea to make a training program for the Egyptian engineers in this project.

2. Project for controlling salinity in Colorado river. These kinds of project are very interesting especially the Mohawk Welton project which reduces the salinity in the water from Mexican government share. No doubt this project gives us the idea to start making project to increase the quality of river mile.

The Third Important Project is the Different Irrigation Systems:

During the tour we saw different types of irrigation systems, e. g., drip irrigation, sprinkler irrigation and the new system called cable gation system which works mainly for complete control for the water which is suitable

for the salty land or for the land where there is shortage in water.
Finally this the important things which were interested to me without
ignoring the other important subjects in the trip.

No Name

My Comments on the Tour of Developing
the Irrigation Systems in U.S.A.

My suggestion to Egypt and U.S.A. to cooperate and adopt the following projects.

1. Project for solving salinity problems in Egypt.
2. Project like Salt River Project by considering the way for selling water and services to the farmer. Also I suggest to send the Egyptian engineer to this project in training program to use these people in adapting the system in Egypt. This project can be used in the new land.

I believe this trip was very useful for the Egyptians to see the irrigation system in U.S.A. I hope this program will continue.

No Name

Report for the period from 7/28 to 8/18/81

This report concentrates on the useful points:

1. The applied of different types of irrigation systems, e. g., surface irrigation, drip irrigation, sprinkler irrigation and the way of selecting the system according to kind of soil and source of water and crop.
2. Taken in consideration in selecting the irrigation system the salinity problem.
3. Using of computer to determine irrigation period and required amount of water.
4. The distribution of water by using the computer to give the required amount of water in canals at the proper time.

No Name

Comment on the Engineers Tour to
U. S. A. in the period from 7/29 - 8/17/81

I hope that this kind of visit continues periodically to U. S. A.
for the following reasons:

1. Improve experience of engineers who work in the places in increasing the application efficiency of water.
2. To see and study in the field the drip and sprinkler irrigation systems which are used widely in U. S. A.

Points of Interest in the Tour:

1. Salt River Project but the time for visiting this project was not enough.
2. U. S. D. A. Salinity Lab is the most important project we saw in the tour especially their works studying the crops that can grow in salt water.

Points I Do Not Like in the Tour:

1. The program was full and hard for short time and everyday.
2. We did not get the chance to see the places of interest for the foreign people in each city we saw.
3. The repeated visit to one system of irrigation in the drip irrigation system I think once is enough.
4. For long trip like this the bus is not good.

No Name

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Report About Advantage And
Disadvantage of the Tour in U. S. A.

A. Advantage

1. I enjoyed the way that the American used in distributing the water by using the computer. Also I am interested by the central of opening the gates in the small canals and the management of giving the required amount of water to farmer in the time needs the water.

2. The using of sprinkler irrigation for different crops which is a good system for saving water and good for using groundwater.

3. It if a good job to use drip irrigation especially in big areas which have not sufficient water is a good irrigation system for increasing crops by using the groundwater.

4. The private sector in U. S. A. is a good example for using big farms which can help for using advanced equipment and give good management which we need in Egypt.

B. Disadvantage

To use bus in this trip is very hard. By using airplane in this trip can save much time which can be used in visiting many places.

Name Engineer M. El Malch

No doubt to see new high technological techniques in irrigation field give us new information which we need now in developing our system in Egypt. No doubt we need to see these things in U.S.A. because we are going to use these methods in the new land.

I am proud by the power plant in canyon dam especially the automatic control for the plant.

The Salt Lake Project is very interesting project especially the way of managing the water in the courses and in the main canals. It is good example for water use and management which we need in our system in Egypt.

This project is a good example for increasing food and fibers which is a good solution to our problem in Egypt.

No doubt comprehensive program in the tour has some difficulties as example:

1. Using the bus in this tour for a long distance is very hard It is better to use flight.

2. We hope the tour ends in Fort Collins to discuss together with the people whom in charge in preparing this tour to exchange the ideas.

3. We prefer to have longer time in each place to study these interesting things.

I am interesting by the drip irrigation whatever I saw it before in France (Paris). Thanks God,

Evaluation to the Use and Management of
Water Tour

CSU extension in Grand Junction:

We saw the different experiments on crops and seeds which are useful to U.S. but the time was not enough.

Corn Parent Fields in Grand Junction:

We saw the corn parents fields also we saw the lining canals in this area which was useful to us we hope more of these kinds of tours.

Salt River Project:

We saw the great job in this project which was very important to us but we hope before the tour starts we can study the theory of the project at C.S.U.

U.S.D.A. Water Conservation Lab:

To a certain limit we get some knowledge in this station but we hope if we can know what about the application of the studies in the application field.

Drip Irrigation in Yuma:

We got good knowledge in this part of our tour especially in using center pivot system in alfalfa and drip irrigation for trees by using groundwater.

Irvine Ranch:

It was interesting to use drip irrigation in raising avocate but to repeat this system in the tour is not useful especially this system in not used in Egypt. It was enough to see it once.

Suggestions

1. Increase the time of the tour.
2. Increase the number of research centers.
3. Extend the time in Fort Collins to see C.S.U. and to have the chance to visit the different departments in C.S.U. and to have the chance to buy some books from the bookstore.
4. Increase the visits of surface irrigation places.
5. Visit more states in U.S.A.
6. We need much fun in the tour program.

Finally thanks to everybody joined us in this tour Egyptian and American.

Economist Ahmed El Shater

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Elkholy Abdel Moh

8/14/81

1. The visit to Colorado State University was very interesting to make sure with the American and Egyptian relations.
2. Good welcome for all the trainers so that make all of us happy in the period of Ramadan month and feast day.
3. The Salt River Project is a very wonderful project because of the distribution of water through lined canals and the electronic control of gates that makes the project successful one that helps Engineers in giving the required water for each land quickly and in fixed time.
4. Feasibility of irrigation project such as making dams and reservoirs along Colorado River to utilize water.
5. Drip irrigation is a good system to save water and to give uniform distribution for fertilizers.
6. Riverside lab of salinity shows us a good information to utilize the drainage water mixing with irrigation water for some selected crops.

At the end of the trip we salute all the staff of American and Egyptian trainees that give us more information to help us in our different places especially Dr. Redgrave, Dr. Yack Moseley, Dr. Sallam and all of the American people.

Report

Submitted for the training tour in U.S.A. for period from 7/28 to 8/17/81, no doubt that the things we saw in this trip is a wonderful and the trip had a good things which I concentrated here as following.

1. The useful lesson in this trip is that they use each drop of water we can say no waste water. This system forces us to study our system and redetermine and evaluate our calculations in this field for our lovely Egypt.
2. The most attraction system in this trip was the drip irrigation system, which makes us to think deeply in our water from the Nile which is the valuable thing that Egypt has.
3. Sure we had got a good experiences in cultivating the irregular high elevation land.

No Name

Report on the Tour

CSU Research Station in Grand Junction

We had a good chance to learn in this station the crops factors from quick look and from the explanation for this factors. We also saw the different type of irrigation system used in this station. It was interesting to see the corn parents field.

Salt River Project

We studied and knew how they used the computer in this project in controlling the irrigation periods and required amount of water.

The Irrigation Systems in Yuma

We saw the dams and the power stations and the drip irrigation system.

Salinity Lab

We saw and taught to much about the activities of this lab in different fields, e.g. the different experiments and crops, decreasing salinity in irrigation water.

We got the chance to see the drip irrigation. The time was very short for this trip.

Suggestions

Increase the time for this trip. Whatever it was a great tour to see the American technology in this field.

Sociologist Saber El Sabagh

By the Name of God

Really it is useful to all engineers in Ministry of Irrigation to visit U.S. A.

It was very important to see different project in our field like the projects on Colorado River especially in Grand Canyon the power plant. Also the Salt River Project was very interesting to us especially the control system used in this project.

In the field of water use and management we saw different systems especially surface irrigation, sprinkler irrigation and drip irrigation which is used for fruits.

In other side I enjoyed very much design land.

No Name

Salt River Project - Ministry of Irrigation

Professional Employee Exchange

Program

Sponsored by

U.S. Agency for International Development

Executed by

Consortium for International Development

Through the

Egypt Water Use and Management Project

Approve



SOE Ministry of Irrigation

U.S. Agency for International
Development

Salt River Project

Consortium for International
Development

Letter of Agreement Between MOI/GOE

SRP and USAID

A. General

For some time the Ministry of Irrigation (MOI/GOE) through the Egyptian Water Use and Management Project (EWUP), the Salt River Project (SRP) and the United States Agency for International Development (USAID) have been in communication with each other through the training program of the EWUP project. During the first training tour to the SRP in the fall of 1977 Salt River Project management had indicated an interest in passing on some of the management and water scheduling techniques they had developed over the past seventy five years to MOI/Egypt. It is proposed here that an understanding between the parties concerned be signed and that the initial exchange be initiated in 1982. This exchange program will be for a two year period to coincide with the CID contract completion.

The purpose of the exchange program is to increase the capability of Ministry of Irrigation Staff to schedule irrigations according to crop needs, to manage the delivery of water to the farmer, to maintain the irrigation delivery system and to gain an understanding of American surface irrigation techniques, farmer organizations and management.

Salt River Project is a self governing and unique organization in Central Arizona. The Project is composed of two separate organizations, the Water User's Association, which operates and maintains the irrigation facilities, and the Power District, which operates and maintains the electrical generating, transmission and distribution facilities. The Project is an electric and water utility, and municipality, a non-profit

project organization, a cooperative association and Federal Reclamation Project. Its purpose is to serve approximately 250,000 acres (foddans) with dependable water supply for agriculture, municipal and industrial use and electric energy for Central Arizona.

B. Exchange Program

It is agreed that 16 staff from the MOI will be sent to Arizona to work in the SRP and 8 staff members from the Salt River Project will be sent to Egypt to work in the MOI over a two-year period. The first exchange will be two staff from the MOI and two staff from the SRP. The tour of duty in each country will be about eight weeks. The tour for the Egyptians will start with an orientation at the EWUP project in Fort Collins, Colorado then six weeks working in the SRP in Phoenix, Arizona and one week to briefly study specific irrigation equipment, suppliers, districts or related facilities in Arizona and southern California. The Egypt tour for the Americans will start with an orientation program at Ft. Collins, Colorado, a visit to the EWUP project in Cairo then six weeks working in the MOI in Egypt and one week to briefly study specific irrigation areas in upper, middle and lower Egypt.

C. Criteria for Selection of Exchangees

1. For selection of MOI exchangees:

- (a) Persons working at the operational level of water distribution and maintenance in the Irrigation Directorate will be given highest priority.
- (b) They should exhibit a fair level of English language proficiency (Min. of 70 on Aligu or TOFFEL)
- (c) Capable and willing to work on-the-job with SRP personnel in the office and field.

2. For selection of SRP exchangees:

- (a) Highly skilled in a particular area, such as, water scheduling, canal maintenance, water operation and management, telemetering, communications, etc.
- (b) Capable and willing to work on-the-job with MOI personnel in the office and field.

D. Termination of Exchange Person

Any exchangee, either SRP or MOI, may be terminated or program reduced for cause by the host institution. Any person and his institution will be informed of the reasons for program termination or reduction.

E. Travel and Transportation

International and interstate transportation will be furnished through the EWUP project from funds provided from this project according to USAID regulations.

Local transportation during official duty will be furnished by the respective host agency. Official travel to areas which require transportation will be furnished or reimbursed by EWUP. However, private transportation is the responsibility of individual participants.

F. Per Diem

Per diem will be paid by EWUP according to USAID government regulations. These regulations will be furnished to both parties.

G. Salaries

MOI/GOE and SRP are to pay salaries of their own personnel and maintain them on job status as though they were working full time.

H. Insurance

The MOI employees will be covered under AID's health and accident coverage (HAC). EWUP will enroll the exchangees and pay for the cost.

SRP Employees

SRP employees will maintain their own health and accident insurance.

I. The Designated Coordinator/Contact Person

The following are the designated coordinator/contact persons:

SRP	Mr. Reid Teeples	Telex 668-443	A. Tel. 602-273-5371
MOI	Dr. M. Abu Zeid	Telex 94014 EXWAPUN	Tel. 760474
USAID Cairo	Mr. Niel Dimick	Telex 93773	Tel. 28219,774 666 Ex. (423,206)
EWUP Cairo	Dr. G. Quenemoen	Telex 93773	Tel. 759674
EWUP Fort Collins	Dr. E. V. Richardson	TWX 910-930-9000	Tel. 303-491-8655

J. General Provisions and AID Regulations

All participants are governed by the General Provisions of EWUP contract, AID regulations and Standard Government Travel Regulation as they relate to accountability, travel, use of medical facilities, U.S. Embassy facilities, etc.

K. Orientation

Up to one week of orientation will be provided to the MOI personnel in Egypt and to SRP personnel in Fort Collins prior to departure.

L. Termination of Program

This exchange program can be terminated by any one of the four parties (CID, USAID, SRP, MOI) by giving 30 days notice.

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*EXCHANGE
PROGRAM*

SRP

MOI/GOE

USAID

Salt River Project
WATER ← POWER

DRAFT
OCTOBER 1981

1

PREFACE

The purpose of this program is to present Salt River Project's perception for implementing the Exchange Program concept and its Agreement between the Ministry of Irrigation of Egypt (MOI/GOE) and the Salt River Project (SRP) of Arizona under the auspices of the United States Agency for International Development (USAID). This document is intended to be used as reference material for planning, and for use by the participants during the Exchange Program. This is an introductory outline, and is not intended to be a complete text.

We, at Salt River Project, certainly recognize the value of water in a semi-arid region, and also appreciate the complexity of water and power operations. We look to this program as a new era of cooperation between MOI/GOE, USAID and SRP.

The purpose of the Exchange Program is not financial reward to Salt River Project, (there will be none), but the satisfaction of sharing our experiences and know-how with America's good friend, Egypt. Hopefully this program will produce new opportunities and challenges in water management and operation concepts, as well as long-lasting understanding and friendship between Egyptians and Salt River Project personnel.

Our goal is to acquaint selected personnel from Egypt in the administration, and operation and maintenance of a modern irrigation system during a six-week period at the Salt River Project so that specific action programs can be implemented by the MOI of Egypt. Our motto will be "Keep it Simple - Stick to the Basics." This will give the participants an understanding of the basic requirements to modernize existing irrigation systems, as well as to construct and operate new irrigation systems.

The objective of every participant should be clearly defined and the realistic goal should be set to achieve that objective during the exchange program.

Every participant will be given an opportunity at the end of the program to share comments and experiences on the Program so improvements can be made.

Finally, I personally welcome and look forward to meeting every participant of this Exchange Program.



Reid Teeples
Associate General Manager-Water

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SALT RIVER PROJECT PARTICIPANTS

The following SRP personnel are listed to acknowledge their efforts in the preparation and development of the Exchange Program at SRP.

Karl Abel	President
Jack Pfister	General Manager
Reid Teeples	Associate General Manager - Water
Don Weesner	Assistant General Manager - Water
Don Womack	Executive Engineer
Ed Kirdar	Supervisor - Special Studies
Don Davis	Management Specialist
Al Risinger	Operations Coordinator

EIGHT WEEK SCHEDULE
IN UNITED STATES

1st Week:

Orientation - Colorado State University, EWUP
Fort Collins, Colorado

2nd and 3rd Week:

Orientation - Salt River Project, Phoenix, Arizona

All Egyptians will be given an extensive orientation to acquaint them with the overall purpose and functions of the Water Group at the Salt River Project. Interrelationships between Engineering, Operations and Construction and Maintenance functions will be reviewed prior to beginning specialized program.

4th, 5th, 6th and 7th Week

Specialized work programs will be offered in Water Operation, Water Construction and Maintenance, or a combined program in Water Operation and Water Construction and Maintenance.

8th Week:

Colorado State University to coordinate tour of other Irrigation Projects in Southwest United States.

ORIENTATION PROGRAM AT SRP

For All Egyptian Participants

Subject: Orientation to SRP

Duration: Two Weeks

Objective: Obtain an understanding of SRP management, function, and operations.

First Week

Description

1st Day

Special Studies
Orientation to SRP
Review SRP Table of Organization
Overview of Management's Responsibilities
Meet with Management
Review Total Program

2nd & 3rd Day

Water Operations
Overview of Water Operations, Field
Offices, facilities and communications

4th & 5th Day

Civil Engineering
Overview of irrigation
Design of pipeline slipform,
headgates, weirs and radial gates

Second Week

1st & 2nd Day

Water Construction and Maintenance
Overview of maintenance of
canals, laterals and pumps.

3rd & 4th Day

Water Resource and Services
Overview of accounting, collecting,
customer service and watershed.

5th Day

Special Studies
Overview of special studies,
evaluation of training to date and
final selection of program to be
followed for remainder of training.

SPECIALIZED WORK PROGRAM #1

Subject: Water Operations

Duration: Four Weeks

Objective: Obtain understanding of Water Operations Mission and Functions at SRP including Water Measurement, Scheduling, Accounting, automatic gate controls, pump operations and other related Irrigation management procedures.

First Week

1st & 2nd Day Hydrology - water measurement procedures in all types of water measurement including estimating.

3rd, 4th & 5th Days Western Irrigation - Superintendent to explain Table of Organization, water delivery areas, mission & function of Northside Distribtuion.

1/2 day with Chief Clerk to review accounting procedures, direct entry, and daily audit procedures - 1/2 day with Zanjero water scheduling - ride with Zanjero on area scheduled - measure gates, pump operation, trouble calls, etc.

Second Week

1st Day Southside Irrigation - ride with Superintendent

2nd, 3rd, 4th Days Ride with each Watermaster, area audits, maintenance problems, construction problems, water orders

5th Day Ride with Zanjero, observe pump operation, gate measurement, trouble calls, and scheduling process

Third Week

- 1st Day Superintendent of ADC - explain Table of Organization, mission and function of Transmission & Communication Sections, Supervisory Control System Operation
- 2nd Day Tour Horseshoe Dam and Bartlett Dam
- 1/2 of 3rd Day Tour to Granite Reef Dam, Arizona and South Canals, Low Head Hydrogeneration Unit.
- 1/2 of 3rd Day Tour Valley supervisory control sites - explain in detail, maintenance problems, etc.
- 4th Day Ride with gate operator - maintenance patrol of system
- 5th Day In ADC with Watermaster - explain console operation, scheduling and pump operation

Fourth Week

- 1st & 2nd Day Agriculture Division - Irrigation management procedures, soil analysis, etc.
- 3rd & 4th Days Reserve for special emphasis in desired area
- 5th Day Special Studies - Final day wrap-up and evaluation

SPECIALIZED WORK PROGRAM #2

Subject: Water Construction and Maintenance

Duration: Four Weeks

Objective: Obtain understanding of Water Construction and Maintenance Mission and Functions at SRP, including budget restraints, Weed control on land, and in water, Equipment used, Construction and Maintenance practices and other related management procedures.

First Week

1st Day

Manager Water C&M.

Review mission and function in depth.

- (a) O&M Budget.
- (b) Key indicators used for management.
- (c) Storm control responsibilities.
- (d) Normal activities of manager.

2nd & 3rd days

Superintendent Southside or Western.

Review mission and functions in depth.

- (a) Division budget.
- (b) Key indicators used for management.
- (c) Storm control activities.
- (d) Personnel requirements and job classifications.
- (e) Normal activities of superintendent.

4th & 5th Days

Weed Control Supervisor.

Review aquatic and terrestrial weed control program in depth.

- (a) Visit field locations where weed problems are evident and results of previous maintenance can be seen.
- (b) Provide mock acrolein setup if none actually being used.
- (c) Review all Chemicals used - method of application.
- (d) Observe mower in operation.
- (e) Normal activities.

Second Week

1st thru 5th days Maintenance Foreman. Southside or Western

Review in depth of Maintenance Programs.

- (a) Budget constraints.
- (b) Daily, monthly, quarterly reports used.
- (c) Crew make up.
- (d) Equipment available.
- (e) Trouble crew duties.
- (f) Repair crew duties.
- (g) Construction crew duties.
- (h) Trash truck.
- (i) Lateral and canal cleaning.
 - (1) Purpose
 - (2) . How we determine need (Inspection, Water Master, Users, Flooding, etc.)
 - (3) Equipment used - limitations and advantages of each.

- (4) Observe all equipment used
(preferably when in use).

Third Week

- 1st Day Canal structure maintenance.
Groundwater/Bldg.
- 2nd Day Weed Spray crew one day or weed spray crew
1/2 day Acrolein Demossing Crew 1/2 day.
Southside or Western
- (a) Mix chemicals.
 - (b) Observe spray truck.
 - (c) Daily reports - explain and make out.
 - (d) Set up and monitor acrolein demossing.
- 3rd Day Repair crew. Southside or Western.
- 4th Day Construction crew. Southside or Western.
- 5th Day Trouble crew. Southside or Western. Choose
area for special emphasis during last week.

Fourth Week

- 1st thru 4th Day Reserved for special emphasis in desired area
of Water C&M
- 5th Day Special Studies - Final day wrap-up and
evaluation

SPECIALIZED WORK PROGRAM #3

Subject: Combination Water Operation and Water Construction and Maintenance

Duration: Four Weeks

Objective: Obtain understanding of Water Operations and Water Construction and Maintenance mission and functions at SRP. Program will combine main features of Work Programs 1 and 2.

First Week

1st Day Hydrology - water measurement training - all types including estimating.

2nd, 3rd & 4th Days Western Irrigation - 1/2 day with Superintendent. Cover Table of Organization, mission & function Northside Irrigation - 1/2 day with watermaster area audits, construction problems, water orders.

1/2 day, with Chief Clerk - office procedures, accounting, audits, direct entry, etc., - 1/2 day with zanjero - scheduling

one day with zanjero on area which he observed being scheuled. Emphasis on gate operation, measurement, pump operation and trouble calls

5th Day Southside Irrigation - ride with Superintendent

Second Week

1st & 2nd Days Ride with watermaster, - explain area audits, maintenance problems, encroachment, water orders, etc.

3rd Day Superintendent - ADC - explain Table of Organization, mission & function of Transmission and Communications Sections - supervisory control system.

4th Day Field tour - Stewart Mountain Dam, Granite Reef Dam, Arizona & South Canals, Low Head Hydro Unit, supervisory sites, etc.

5th Day

ADC with watermaster - explain console operation, scheduling, pump operation, etc.

Third Week

1/2 1st Day

Manager Water C&M.

Review mission and function in depth.

- (a) O&M Budget.
- (b) Key indicators used for management.
- (c) Storm control responsibilities.
- (d) Normal activities of manager.

1/2 1st Day
& 2nd Day

Superintendent Southside or Western.

Review mission and functions in depth.

- (a) Division budget.
- (b) Key indicators used for management.
- (c) Storm control activities.
- (d) Personnel requirements and job classifications.
- (e) Normal activities of superintendent.

3rd Day

Weed Control Supervisor.

Review aquatic and terrestrial weed control program in depth.

- (a) Visit field locations where weed problems are evident and results of previous maintenance can be seen.
- (b) Provide mock acrolein setup if none actually being used.
- (c) Review all Chemicals used - method of application.
- (d) Observe mower in operation.
- (e) Normal activities.

4th Day

Spray area one day or spray area 1/2 day
Aerolein Crew 1/2 day.

- (a) Mix chemicals.
- (b) Ride spray truck - operate spray.
- (c) Daily reports - explain and make out.
- (d) Set up and monitor acrolein demossing.

5th Day

Trouble crew 1/2 day canal structure
maintenance 1/2 day.

Fourth Week

1st, 2nd
& 3rd Days

Maintenance Foreman.

Review in depth of Maintenance Programs.

- (a) Budget constraints.
- (b) Daily, monthly, quarterly reports used.
- (c) Crew make up.
- (d) Equipment available.
- (e) Trouble crew duties.
- (f) Repair crew duties.
- (g) Construction crew duties.
- (h) Trash truck.
- (i) Lateral and canal cleaning.
 - (1) Purpose.
 - (2) How we determine need (Inspection, Water Master, Users, Flooding, etc.)
 - (3) Equipment used - limitations and advantages of each.
 - (4) Observe all equipment used (preferably when in use).

4th Day

Repair crew.

5th Day

Special Studies - Final day wrap-up and evaluation.

GENERAL INFORMATION
FOR
EGYPTIAN PROGRAM PARTICIPANTS

WORK HOURS & DAYS

Normal SRP work days are Monday through Friday. The office work hours are from 8:30 a.m. to 5:00 p.m. The field work usually starts and ends one or two hours earlier than the office work hours.

TRANSPORTATION

Each host department of SRP will be responsible for transportation between SRP offices and Egyptian participants' hotel during the work days.

PERA

(Project Employee Recreation Association)

Egyptian participant will be given the opportunity to use SRP recreation facilities at PERA Club during the Exchange Program. The PERA Club, located about 2 miles from the main office of SRP, is a fine complex with athletic, recreation, tennis, picnic and hobby facilities for SRP employees and guests.

HOSTING & LODGING

Every Egyptian participant will be treated as an honored guest at SRP. Every reasonable effort will be made to make the program a success. Hopefully lasting friendships will be established.

A luncheon meal on the first day of the program will be paid by SRP. During the rest of the time every participant is responsible for his/her meal.

CONCERNING THE SALT RIVER PROJECT .

Salt River Project, named for the major river that supplies water to the Phoenix metropolitan area, is a self-governing and unique organization in Central Arizona. The Project is comprised of two organizations - the Salt River Valley Water Users Association (the Association) and the Salt River Project Agricultural Improvement and Power District (the District).

The Association is a private Arizona corporation. The Association administers water rights of the Project's 250,000 acre (feddan) area and operates and maintains the irrigation transmission system which carries water to agricultural, municipal, industrial and residential users.

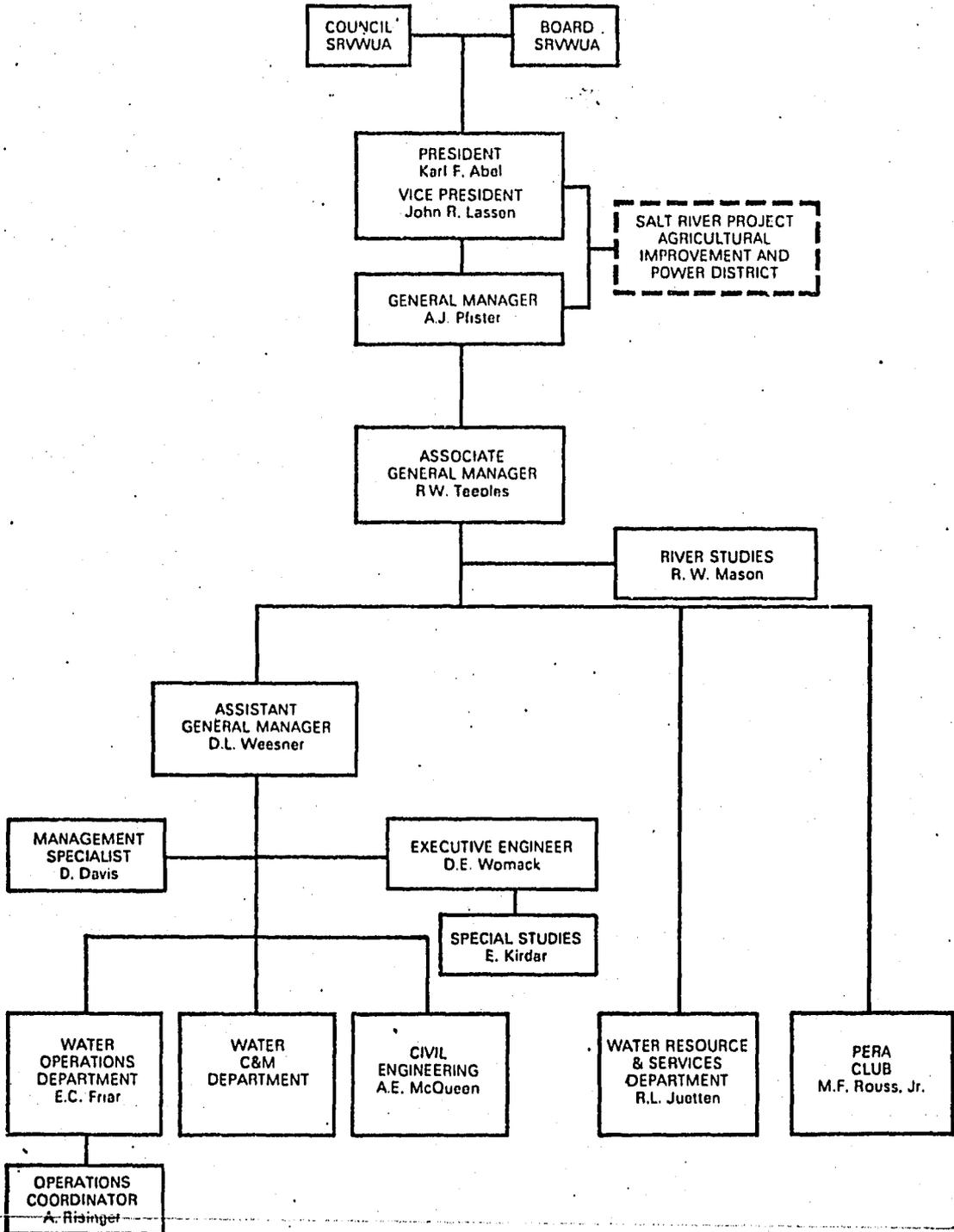
The District, a political subdivision of Arizona, operates under contracts with the United States of America and provides electricity to residential, commercial, industrial and agricultural power users in 2,900 square miles (7511 square kilometers).

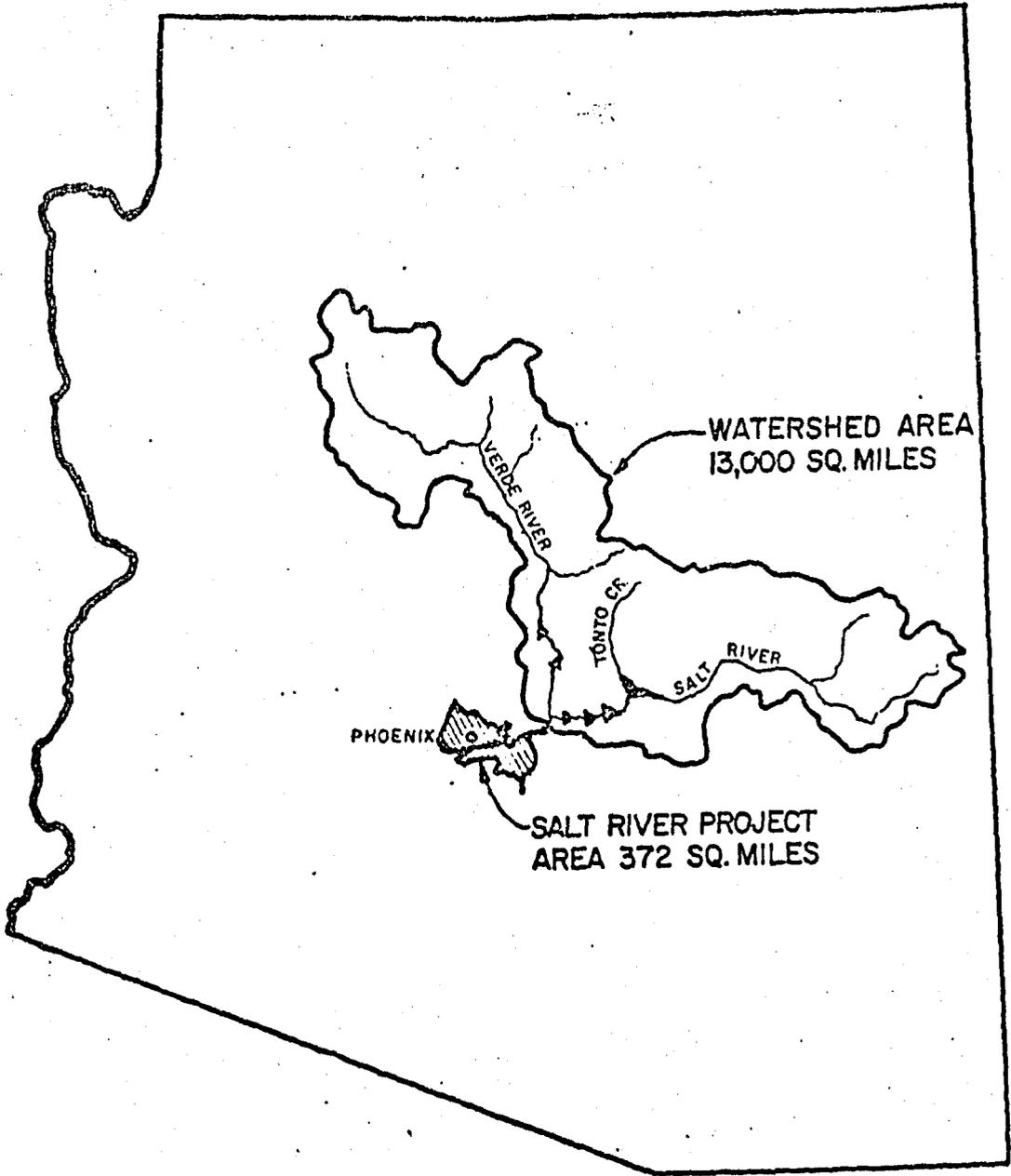
The Salt River Project provides annually an average 1.2 million acre-feet (1.48 cubic kilometers) of water for irrigation, municipal and industrial uses. About 76% of the Project's total annual water supply comes from its multi-purpose reservoir system, while the remaining 24% is produced from its 255 deepwell pumps. The reservoir system is composed of six dams, with a total storage capacity of 2.07 million acre feet (2.55 cubic kilometers). The six lakes are the major source of water and provide recreation for thousands of Arizonans.

The Salt River Project is the nation's oldest and most successful multi-purpose reclamation development. Income from the sale of the electricity is used to reduce the cost of water. Low-cost water and power have, in turn, made the Salt River Valley one of the most productive agricultural areas in the nation, and have enabled the spectacular economic development of this once desert valley.

The Salt River Project has been recognized throughout the world as a leader in irrigation practices and power development. Approximately 250 foreign visitors, including many leaders, visit the Project every year. The Project is willing to share its experience in the irrigation water and power generation fields with other countries.

SRP WATER GROUP ORGANIZATION CHART





Map showing the Salt and Verde Rivers and the Tonto Creek basins that supply water for the Salt River Project, Arizona

Report
On Farm Water
Management Training Program

Utah State University
August 17 - September 18, 1981

M. Naguib, Sociologist
Abdel Fattah Metawie, Engineer

I. Purpose of the Training:

1. Increasing knowledge and skills of our trainers staff in the aspect of on-farm water management.
2. Practical preparation for the training staff for future training programs in Egypt.
3. Studying other similar training programs held in other United States of America universities to know how do they operate -- procedure and content.
4. Improving skills, experience of the role of project field team members.
5. Making evaluation and recommendations for future training programs in Egypt.

II. Description of the Program:

1. Procedure

The program was divided into class lectures starting:

8:30 a.m. to 12:00 noon

1:30 p.m. to 5:00 p.m.

and once a week evening lectures, 8:00 p.m. to 10:00 p.m. includes tea and coffee breaks, using some slides and projector. The practical part of the program was held in Utah State University labs and experiment stations, also some field trips to watch irrigation systems and methods, also land leveling operations by soil conservation service.

Housing for trainees was near to the lecture classes. Thirteen trainees attended. Six trainees were from Sri Lanka, two from Bangladesh, one from Iraq, one from Srialion and one from Giana (Latin America).

2. Contents:

Program following

III. Staff Activities in Program

- Attending class lectures day time and night
- Flumes (different kinds) weir's installation also using tensiometers and gravimetric methods to determine soil moisture content theoretically and practically in experimental stations.
- Making simple and full evaluation for furrow and sprinkling irrigation systems. Also in experimental station.
- Working some home problems and assignments.
- Studying the calculator HP 34C programs and its usage for field and water measurement formula.
- Visiting different irrigation systems and methods around the state also some dams and water stations

IV. Evaluation:

Compared with other training programs we've attended "on farm water management" in CSU and in Egypt we came up with the following:

1. Lectures time was enough to cover the materials theoretically but field time was not enough and there were no farmer input or involvement only even farmers visit once.
2. Evening lectures were excellently given by old experienced retired and nonretired profficers who had been working in many third world countries before as team members or consultants, telling enormous amount of valuable information, knowledge and experience on farm water managemen:
 - Sufficient and rich number of slides on different irrigation systems and methods and its technique in some countries with enough explaining and information.

V. Recommendation:

1. Having some evening lectures in EWUP training is given by experienced people and profficers from Ministry of Ag and Irrigation or the project directors and staff.
2. Making field trips to ag and irrigation experiment stations such as El Tahrir and El Salhia to see how do irrigation systems and methods operate.
3. Showing enough number of the project slides and achievement in Egypt training.