Manpower Development & Training Plan
Publication # 8
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N A R P

NATIONAL AGRICULTURAL RESEARCH PROJECT

National Agricultural Research Project

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NATIONAL AGRICULTURAL RESEARCH PROJECT

NARP

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AND LAND RECLAMATION (MOA)
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UNITED STATES AGENCY FOR
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MANPOWER DEVELOPMENT AND TRAINING PLAN

by

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We would like to express our appreciation to the Training Working Group which developed and wrote this Manpower Development and Training Plan. They worked with the Directors of the Research Institutes, Laboratories and Departments to asses the training needs in their area. In determining the training, the Training Working Group compiled the needs and set the training priorities according to the research strategies of both the Ministry of Agriculture and Land Reclamation and the Agricultural Research Center, Government of Egypt and USAID regulations and the NARP budget. The Manpower Development and Training Plan was written to serve as a Plan for the life of the Project and has been approved by USAID.

The Training Working Group was composed of the following members:

Dr. Ahmed Sahrigi,Chairman; Dr. Adel Abu El Naga, Eng. El-Sayed Fahim; Dr. Essam Gheith; Eng. Atef Abdel Halim; Dr. Yeldez Ishak; Dr. George Stino; and Ms. Coleen Brown

We need also to mention the contribution made by the late Eng. Ibrahim Ghattas in the efforts that he made to the Training Work Group.

Dr. A. Momtaz
NARP Director General

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Chief of Party

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SUMMARY

The effective implementation and execution of NARP will require changes in the operational thrust of the agricultural research system especially in research management, technical research execution, research support and on the farmers level. These activities require careful planning, integration and implementation of manpower development and training programs. The NARP Manpower Development and Training Plan describes the planned integration and implementation of future development and training activities which will be conducted and funded under this project.

The Plan describes the background, process, objective, summarizes projected MOA/ARC agricultural strategies, ARC training list, training procedures and evaluation.

A summary of the components follows:

I. The Background establishes the need and gives the backgound for training in the NARP.

II. The Manpower Development and Training Objective identifies the principal objective which is to provide flexible training opportunites for qualified Egyptian agricultural managers, scientists, research staff, and support staff from the public and private sector.

III. The Manpower Development and Training Process shows that staff training must be consistent with projected strategies and plans of agricultural programs. When projected staff levels are compared to the present staff this identifies the gap and determines the types, level of training and methods of training that must be implemented to meet future needs.

Section A. Projected Agriculture Research Strategies and Needs, contains the summaries of the MOA/ARC present and projected activities.

Section B. Training Needs, summarizes the current staff at ARC, the ARC Activities, and the training needs for the different disciplines.

Section C. Training Plans, describes the components and the process in which the committee compiled the Training Activities. The complete list of out-of-country training is in this section while the list of the in-country activities is contained in Appendix E.

Section D. Training Implementation states that the implementation will be conducted by the Manpower Development and Training Unit.

Section E. Training Evaluation states that all stages of the Process will include evaluation and monitoring.

NARP MANPOWER DEVELOPMENT AND TRAINING PLAN

The NARP Manpower Development and Training Plan describes the planned integration and implementation of future development and training activities which will be conducted under NARP. This plan will be used to help organize the human and financial resources within the Egyptian agricultural community more efficiently and economically. The organization of the Plan is as follows:

I. Background

II. NARP Manpower Development and Training Objective

III. Manpower Development and Training Process

- A. Projected Agriculture Research Strategies and Needs
- B. Training Needs
- C. Training Plan
- D. Training Implementation
- E. Evaluation

I. BACKGROUND

A. NARP

The National Agricultural Research Project (NARP) USAID Project No. 263-0152 was established in September 1985. This is a cooperative agreement between the Government of Egypt's Ministry of Agriculture and Land Reclamation (GOE/MOA) and the United States Agency for International Development (USAID). NARP will assist in improving the capability of the Egyptian agricultural research community to generate and transfer improved agricultural technologies to Egyptian farmers.

The effective implementation and execution of NARP will require changes in the operational thrust of the agricultural research system especially in the research management, technical research execution, and research technology transfer to the farmers level. These changes require careful planning, integration and implementation of manpower development and training activities .

Manpower development and training activities within NARP will provide flexible development and training opportunities for individuals and groups. These opportunities will be available to staff and conducted by private and public sector organizations which have experience and interest in agricultural research and transfer of technology to farmers involved in agricultural production.

B. Agriculture and Technology in Egypt

Egypt is facing many challenges in agriculture. Food and feed production needs to be increased to minimize the gap between consumption and production. The consumption of major food commodities significantly exceeds domestic supply due to increased per capita consumption as well as a rapid increase in population. Although Egypt has good natural resources - fertile land, an adequate supply of water and a stable climate, the productive land area is limited. Part of the solution in meeting the future food requirements lies in increasing crop yields and changing cropping patterns to intensify the use of both land and labor. Previous research projects in Egypt have shown that yields can be significantly increased when new technological practices are implemented on farmer's fields. In those projects, ARC staff conducted basic research, as well as research verification and demonstration trials on farmers' fields in order to test and transfer new agronomic practices and technologies.

Agricultural programs which are concerned with developing means to increase food and feed production must:

- Develop new basic research;
- Explore emerging technologies;
- Adapt technologies developed elsewhere for use in Egypt; and,
- Utilize suitable technology that has been developed in Egypt but not implemented on farmer's fields.

Improvement is needed in the following areas but not limited to:

- Nitrogen fixation by plants;
- Genetic engineering for plants and animals;
- Agrometeorology;
- Propagation of plants by tissue culture;
- Innovative procedures in animal and plant production;
- Integrated pest management;
- Advanced chemical analytical procedures;
- Protected plant culture; and,
- Aquaculture.

Methodology must be developed which will utilize computers in staff and research management systems and in integration analyses of data sets for modeling systems. New prototype machinery needs to be adapted or developed for conditions found in Egypt.

C. NARP Manpower Development and Training

Manpower development and training in the agriculture sector is critical. Egypt's future will depend on having highly organized programs with trained managers, scientists and technicians who can develop and implement improved technology . Technological constraints in Egyptian agriculture is greater and more sophisticated than those operating in most other developing countries. Relatively high levels of productivity have already been achieved in Egypt.

At the present time younger, inexperienced researchers may benefit from training outside of Egypt. Many staff have been trained in Egyptian universities where there are different levels in the quality of the laboratories. In many universities there is heavy student enrollment in relation to the numbers of faculty and laboratories available. Some of the laboratories need state-of-the-art research equipment especially in the Egyptian Provincial Universities outside Metropolitan Cairo and Alexandria.. This was documented in a study by H.M. Ali, et. al., 1985[1] where an assessment was conducted on scientific manpower, research infrastructure, research funding and current research work. (For summary see Appendix A)

The staff need hands on, practical training in their disciplines which may require training outside of Egypt in U.S. universities, international research centers, or third country institutions that are known to provide the latest in technology in the specified fields. This will expand on the current knowledge being provided by local Universities by exposing the individual to new technology and systems of research. Egyptian researchers will be able to develop collaborative relationships with scientists in other countries who are working on similar activities.

Better coordination and management of research is also needed between and among the agriculturally oriented agencies to avoid duplication of efforts. The agencies and institutions which affect agricultural programs, research and training are listed below:

- Ministry of Agriculture;
- Agriculture Research Center;
- Fifteen Egyptian Universities with faculties of agriculture;
- National Research Centre;
- Desert Research Institute;
- National Academy of Scientific Research and Technology;
- Ministry of Irrigation Water Research Center; and,
- Private sector which conducts research.

II. NARP MANPOWER DEVELOPMENT AND TRAINING OBJECTIVE

The principal objective is to provide flexible training opportunities for qualified Egyptian agricultural managers, scientists, research staff, and support staff from the public and private sector. The opportunities will center on basic, strategic, applied or adaptive research methods and techniques and management systems development. Individuals and groups of individuals will obtain:

[1] Ali, H.M., et al., "An Assessment Report of the Agricultural Research Environment: The Case of Egyptian Provincial Universities", Cairo, Egypt, 1985

- New knowledge or skills;
- Supplemental training; and,
- Training which will restructure their present research methods and techniques.

In addition to strengthening their managerial and technical capacities, the personnel trained by the Project may also be involved in formulation of development policies, the transfer of appropriate technology to other researchers and farmers or development of the indigenous private sector.

It is the GOE/MOA's intention that all management and research training provided by NARP will be specifically related to fields of study necessary for the improvement and development of Egypt's agricultural sector.

Training will be provided in the form of PhD, MSc, postdoctoral, short term, observational and invitational tours, and in country programs. The areas of priorities are listed below but not limited to:

- Research planning;
- Research management;
- Research techniques and methods;
- Information systems management;
- Data collection/analysis;
- Seed technology; and,
- Agricultural mechanization.

On Farm Trial staff will work with individuals and groups of farmers to conduct on-farm research The staff will involve farmers to test research and teach them to use new technology and new strategies of farming.

III. MANPOWER DEVELOPMENT AND TRAINING PROCESS

People are one of the main components of the agricultural research system. Staff must be skilled in management to develop and organize the human, physical, financial and other resources important in the sound development of the agricultural system.

Manpower development and training in NARP will be coordinated by a Manpower Development and Training Unit. This Unit consists of the Training Committee, the Consortium for International Development Advisor, and assigned staff. The Training Committee will participate in management of the training component and will act as advisors to the NARP Director General. Staff assigned to the Unit will implement the program and should become an integral part of the system. The staff will be trained to organize and implement such areas as English training, trainee selection, in-country training, reporting and evaluation of programs.

Manpower development concerns analyzing, developing and implementing overall procedures for the general growth of the individual and/or the organization. Conditions concerning organizational structure, management practices, training opportunities, promotion criteria, hiring and termination

procedures and evaluation of staff will be important items considered in order to improve and ensure a productive, capable staff in the agricultural research system.

While manpower development will concentrate on the overall growth of the organization, training will focus on the individual's learning that will help staff in their present or future job in the MOA to achieve effective and efficient agricultural research generation and transfer in Egypt.

As pictured in Figure 1, The Manpower Development and Training Process will be used to implement the specific steps needed to achieve the goal of having a cadre of trained scientists and support staff within the agricultural system. This will be the basis in which to plan, manage and implement needed technology for improved and increased food and feed production.

A. Projected Agriculture Research Strategies and Needs

Projected program goals, objectives and activities have been summarized from the MOA strategies and ARC Plans. These strategies and plans help project the priorities in agriculture and were considered in formulating the plans for manpower development and training.

1. Ministry of Agriculture

A report by Minister of Agriculture and Land Reclamation, Dr. Youssef Wally, "Strategy of Agricultural Development in the Eighties"[2] outlines recommendations for formulating agricultural development objectives and policies in Egypt. Some of the important strategies which relate to the setting of priorities in training are as follows:

- Maximization of net agricultural national product requires directing agricultural resources toward producing products that conform with the principles of specialization and comparative advantage. It calls for measures of policies which increase the productivity of land, labor, capital and organizational aspects of production. It requires the adoption of optimum cropping and land use patterns, and appropriate technological progress in agriculture;

- Future agricultural policy should amend food priorities as related to food security and adjust agricultural development policy in a complementary manner. Highest priority should be given to food commodities required by the vast majority of the population, especially those primarily consumed by low income groups. Thus, greater priority should be given to cereals and pulses than to meat. Dairy products should also be emphasized over red meat;

2. Wally, Youssef. "Strategy of Agricultural Developemnt in the Eighties." Report printed by the Ministry of Agriculture and Land Reclamation, Cairo Egypt, March 1982.

CURRENT STAFF
PROGRAM GOALS AND OBJECTIVES
TRAINING NEEDS ASSESSMENT
TRAINING PLANS
TRAINING
CADRE OF TRAINED SCIENTISTS AND SUPPORT STAFF
GAP
THE TRAINING AND MANPOWER DEVELOPMENT PROCESS

- Future policies must emphasize the interests of small farmers;

- Effective linkages must be made between farmers and research centers so that the efficiency of agricultural production is enhanced and the net national agricultural product is increased as soon as possible;

- Conservation and maintenance of land productivity will require an integrated set of programs centering around rational uses of irrigation water, additional fertilizer and appropriate cropping patterns;

- Yields of maize and rice should be boosted to satisfy domestic consumption requirements, as well as sufficient surplus of rice to allow for export. Yields of pulses should be increased to levels which will allow maintenance of existing rates of self-sufficiency for poultry, of dairy and fish production;

- Increase yields of different crops, particularly when available research confirms the likelihood of achievement (such as maize and rice). The Ministry will use all appropriate means and programs including improved seeds, adjusting rates of fertilization, and providing pesticides and chemicals for pest control;

- Plans will be made to adopt a long-term policy for transfer of biological technology on a broad scale for field and horticultural crops. This will emphasize certified seeds, high yielding varieties, fertilization practices, pest control and/or post-harvest treatments. It will involve transfer of advanced biological technology for livestock, including high yielding breeds, improved nutrition and effective use of crop by-products and green fodders;

- Modern breeding measures will be adopted to achieve an improved productivity of a domestic breed. Livestock should be freed from draft so that more resources can be devoted to production of meat and milk. Technical as well as socio-economic studies will be carried out to provide the basis for a well-formulated policy in this respect. Various sources of energy and substitutes for draft animals will be investigated. Extension and veterinary services for the Livestock Sector will be improved and expanded, especially with respect to personnel, equipment, vaccines and drugs;

- In mechanization, promotion will be made to use and arrange the availability of appropriate machinery, equipment and tools to increase the efficiency of both human and animal energy in a manner consistent with economic and social conditions in Egypt. Research centers and engineering companies will be encouraged to design and produce machines that represent appropriate mechanical technology for Egypt;

- Long-term strategies must improve human resources to be integrated with Egypt's education policy. Pragmatic educational training policies should be adopted to enhance the performance

and develop personal abilities of the agricultural labor force. The MOA, its agencies and those of other ministries should be used for these purposes; and

- Training should be given to Egyptian officials responsible for the planning, management and implementation of agricultural policy. Special attention should be given to the training and briefing of research staffs to promote technological advancement for agriculture. Greater research, improved extension education, and improved management of institutions and policies are crucial for on going and long-run development of Egyptian agriculture.

2. Agricultural Research Center (ARC)

The Agricultural Research Center is the principal body authorized to conduct applied research to maximize production. The Center contains 14 Research Institutes, 3 Laboratories, 1 Administrative Unit, Breeder Seeds on State Farms Unit, and an On-Farm Trials Department (for detailed list see appendix C). There are also 31 research stations within the organization.

ARC develops plans every five years which contain the priority activities to be implemented. The research plan is correlated to the agricultural development plan on the national level. The last five year plan emphasized increasing production in the following: cotton and fibers, wheat and barley, maize and guinea corn, rice, oil seeds and onions, sugar crops, legumes and feeds, fruits, vegetables, ornamental, medicinal and aromatic plants, milk, poultry and fish.

A priority was put on increasing production especially for export in vegetables, fruits and flowers.

New techniques to achieve production lies in designing and managing:

- Effective integrated agricultural research and management;
- Improved cropping methods;
- Effective systems of reaching the small farmers at the village level by integrating research and extension;
- Systems for production and marketing of seeds selected from field and orchard crops; and,
- Effective mechanization adapted to Egyptian conditions.

In early 1987 the NARP Director General requested all Research Units to develop a list of research activities that are needed by agronomic zone. This list has been completed and it contains 948 research activities related to constraints, institutes, crops,

MOA has instituted agricultural technical and management training centers throughout Egypt. The facilities managed by the Central Administration for Administrative Development (CAAD) are given in a detailed list in Appendix B.

commodities, strategies, and disciplines. These activities have been separated into agronomic zones. At this time, the institutes and laboratories are defining the priorities of the research activities. This list will be used as a guide to help determine future priorities in training. It can provide guidance to the type of knowledge and skills that will be needed by staff.

B. Training Needs

An essential part of the manpower development and training process is to analyze the needs of the individuals within the organization and the needs of the organization. A systems approach to further assess the needs will be implemented to achieve better planning and results in NARP. In January 1987 the beginning assessment was implemented to:

1. Use the MOA Plans and the ARC Five Year Plans and Activity Plans as the basis of the priorities of research activities of the agricultural system;

2. Develop interaction between the Manpower Development and Training Unit, the Research Unit Directors and MOA/ARC staff to define the perceived needs for training in relation to future needs; and,

3. Create a dialogue to help set priorities according to types and levels of training to be implemented;

An inventory of current human and physical resources within the ARC involved analyzing the following to show the relationships between:

1. Current numbers of ARC staff, their level of training, positions, birthdate, date of appointment and placement within research units; and,.

2. Perceived manpower and training needs of the Research Units for the coming 6 years.

The inventories contain data from personnel records, questionnaires from Research Unit Directors and reports from the MOA/ARC.

Agricultural Research Center Personnel Inventory

The ARC has the authority to conduct agricultural research and extension in Egypt. A summary made from the personnel files showed the number of staff, date of appointment, educational level, and position within the research units. Of the approximate 2500 scientists he following gives a breakdown according to jobs, degrees and age categories:

The percent of staff according to organizational rank are as follows (For detailed list see Appendix D).

Professor	11%
Associate Professor	11%
Researcher	28%
Associate Researcher	39%
Assistant Researcher	11%

The percent of staff according to degree are as follows:

Ph.D.	50%
M.Sc.	39%
B.Sc.	11%

The percent of staff according to age are as follows:

Over 50 years of age	17%
40 - 49 years old	42%
30 - 39 years old	40%
25 - 29 years old	1%

Within ARC, approximately 26,000 employees in addition to the scientists work in 22 research units and 31 research stations in the following categories.

Professionals with degrees:

Agronomists	4,630
Veterinarians	899
Engineers	192
Sociologists	25
Librarians	24
Lawyers	87
Statisticians	4
Social Science	104
Accountants	490
Management	407

Non-Professionals, Technicians:

Agriculture	2,224
Engineering	574
Laboratory	19

Skilled Laborers:

Mechanical & Workshops	1,014
Agriculture	1,694
Transportation	1,236
Construction	298

Clerks	3,750
Unskilled Laborers	9,083

PERCEIVED TRAINING NEEDS BY ARC RESEARCH UNIT DIRECTORS

The NARP Training Committee requested the Research Unit Directors to submit their lists for academic, post-doctoral, short term, and in country training. As stated above the training requested was to be put into priority and determined from their analysis between the present staff in relation to the future needs of the research unit and the MOA/ARC. These lists were compiled by the committee. At this time the Committee members met with the Unit Directors and asked for the justification of the lists submitted. After this the lists of trainees submitted were evaluated according to the priorities of the MOA/ARC, and available budget. The lists as compiled by the committee is summarized as follows (Specific field of training and justification is given in Section IIIC for the PhD and postdoctoral training. The in-country training is outlined in Appendix E.

Research Unit	PhD	Postdoctoral
Field Crops Institute	11	25
Cotton-Fiber Institute	3	8
Sugar Institute	5	10
Horticulture Institute	8	20
Animal Production Institute	6	12
Animal Health Institute	3	8
Veterinary Serum and Vaccine Institute	1	4
Animal Reproduction Institute	2	8
Soils and Water Institute	5	20
Plant Pathology Institute	2	16
Plant Protection Institute	2	18
Agricultural Mechanization Institute	9	4
Agricultural Economics Institute	3	10
Extension and Rural Development Institute.	3	4
Central Agricultural Pesticides Laboratory	2	4
Central Laboratory for Food and Feed	2	4
Central Laboratory for Agricultural Statistics	2	2
Central Organization for Seeds		6
On-Farm Trials Department	4	5
Research Stations		5
Administrative Unit		3
Center for Agricultural Management. Development	3	2
Aquaculture		-
Information Systems		2
TOTAL	77	200

Short term training opportunities will be available for approximately 200 staff from the above institutes, departments and laboratories. A yearly plan will determine the number and kinds of opportunities available for each short term training, observational trip and invitational tour. Approximately 80 of the staff will participate in the short term training and 120 staff will be scheduled for observational trips and invitational tours.

In country Training will be planned yearly and approximately 58 different kinds of training has been targeted which will total about 50,000 opportunities for people to receive in country training. However in the 50,000 total some people may receive training more than one time. (Specific plans are given in Appendix E.)

PERCEIVED TRAINING NEEDS BY RESEARCH STUDIES PROGRAM

The Research Studies Program will involve grants to Egyptian universities and private sector research groups in Egypt. It is designed to augment the ARC research program especially in adaptive research within agronomic zones that are close to the institution. Training will be needed especially at the postdoctoral level and in short term and observational travel to enhance the flow of information and data on relevant applied research. Linkages need to be developed between Egyptian University staff and United States Universities, international agricultural research centers and private sector companies.

The Egyptian Universities will offer proposals in January 1988. Specific training needs are not available at this time but it is estimated that the following will be needed:

Type of Training	Number of Trainees
Postdoctoral Training	20 - 100
Short Term Training	5 - 20
Observational Travel	80 - 250

FUTURE NEEDS EVALUATION

The present evaluation of needs will continue throughout the project. The Manpower Development and Training Unit will work with the directors of the research units and the CID Technical Assistance Team to further define the specific training needs of the agricultural system according to the following steps:

1. Individuals will be nominated and specific training plans will be designed according to the priorities of the ARC Plan and the needs of the Research Units;

2. Update current staff information by adding information about the institution where current staff obtained their degree, thesis topic, additional training in last two years, and professional papers published. Forms which have been developed for this purpose are contained in Appendix F;

3. Continue to clarify the training requested by individuals within the organization to implement an effective training program;

4. Provide opportunities for staff who have participated in training to provide feed-back on the value of training in relation to their needs and to the jobs in which they are assigned;

5. Establish a basis for creating, implementing and evaluating manpower development and training opportunities; and,

6. Document the changes according to needs and improvements in manpower development and planning in the agriculture system as training opportunities are provided.

The initial staff data and training plans have been compiled on computers and will be continuously revised and updated in response to new developments within NARP.

C. Manpower Development and Training Plans

Manpower development and training opportunities must be varied and diverse in order to obtain an effective and efficient cadre of researchers.

The objective of the manpower development and training plan is to establish and describe an overall plan of action for MOA/ARC personnel and private sector individuals. This plan outlines future actions, the projected number of people to be trained, methods and levels of training under NARP, selection criteria for participants, and specific objectives of training.

A Manpower Development and Training Unit comprised of a NARP Training Committee assisted by staff and the CID Manpower Development and Training Advisor will plan, develop and implement activities designed to upgrade the agricultural research community as well as to monitor and evaluate the system.

In Manpower Development the activities implemented will:

1. Evaluate present manpower development and training system, develop and implement improved procedures within the MOA/ARC system;

2. Design and implement a personnel management system with skills inventories and on going needs evaluations;

3. Implement and coordinate training plans and procedures; and,

4. Provide liaison in training between USAID, international research centers, U.S. universities or other agencies concerned with training.

In Training, activities will be developed and implemented to help MOA/ARC

agricultural staff and individuals in the private sector:

1. Acquire new knowledge, skills or attitudes in research and management areas that are relevant to research priorities associated with agricultural production and technological development in Egypt;

2. Acquire new information and experience that is necessary to restructure skills needed for research, management, research laboratory techniques, research field operations, maintenance and other research support activities;

3. Obtain hands-on experience in research activities that will improve job performance;

4. Obtain information and knowledge that will upgrade staff professionalism and interest;

5. Develop cooperation with other staff or provide liaison with other organizations;

6. Present research results of findings; and,

7. Increase the efficiency of the research and research support services in the public and private sector offered to the farmer.

The specific learning objectives for each trainee or groups of trainees will be developed according to the needs of the individual and the organization in a *Training Implementation Plan* (TIP) which will contain:

1. Type of training needed;

2 Length of time allocated for training;

3. Level of knowledge, skill and attitudes to be learned;

4. Preferred site for training; and,

5. Ultimate job title and work to be performed when training is completed.

The training plan includes a description of the various components, description of proposed training, charts of the planned training activities and budgets.

DESCRIPTION OF COMPONENTS

1. Research and Management Training

Agricultural research is a complex task and can be classified in many ways but the terminology will be used as suggested in the Second Review of Consultative Group on International Agricultural Research (CGIAR). When referring to research in this document the following definitions apply.

- Basic research is designed to generate new understanding.
- Strategic research is designed for the solution of specific research problems.
- Applied research is designed to create new technology.
- Adaptive research is designed to adjust technology to the specific needs of a particular set of environmental conditions.

Management skills are needed by executive level, middle level and supervisory level managers to help in increased productivity of the people within the agricultural research system. People need managerial skills training in such areas as planning, leadership, decision making, group dynamics, organizational development, motivation, listening and time management. A more detailed management development strategy is shown in Appendix G.

2. Levels of Staff to be trained

Categories of staff to be trained are:

- Policy makers --High level government officials who help develop and implement policy for the agricultural sector;
- Administrators--Director or deputy directors and heads of departments or section;
- Research professor--Promotion to this level is possible upon approved by a committee after a person has been an Associate Professor for at least five years;
- Associate professor--A Researcher with a Ph.D. who has been with the ARC at least five years and has upon approval of a committee been promoted;
- Researcher--Individual with a new Ph.D. degree;
- Associate researcher--Individual with a M.Sc. degree;
- Assistant researcher--Individual with a B.Sc. degree with a score of very good in the University;
- Subject Matter Specialist--Experienced research worker who trains village extension workers in agricultural production and

demonstration methods;

- Support Staff--Staff who are part of the system with degrees but they function as agronomists, veterinarians, accountants, lawyers, statisticians, engineers, management, and other support;
- Technicians--Staff who have intermediate technical degrees but work with staff in agriculture, engineering, and laboratories;
- Skilled Laborers--Skilled staff without degrees who work in the workshops, agriculture, transportation and construction;
- Clerks--Staff who work in typing, filing and clerical duties;
- Unskilled laborers--People who work in the fields, building maintenance and cleaning, research stations, etc;
- Private Sector Companies or Individuals--Companies or individuals who provide services to the agricultural sector or farmers such as seed technology or mechanization. They can participate in training or be contracted to provide training services; and,
- Farmers--Individuals or groups of farmers who receive instruction through the On-Farm Trials program concerning technical packages, agricultural strategies or general agricultural problems.

3. Fields of Training

The participants will be trained in the following fields, but not limited to:

Agricultural Administration and Management
Farming Systems
Genetic Engineering
Sugar Crops Physiology and Technology
Animal Health, Production and Reproduction
Soil and Water Management
Agricultural Economics
Food and Dairy Microbiology and Technology
Biological Evaluation of Feed
Financial Administration
Information Systems Management
Field Crops Breeding, Physiology Production and Management
Fiber Crops Technology
Horticulture Science and Protected Culture
Agricultural Mechanization
Integrated Crop Protection and Pest Management
Seed Technology
Aquaculture
Extension Education

4. Types of Training

The training will focus on the following types:

a. PhD Academic Training

Associate researchers or assistant researchers will obtain Ph.D. degrees at U.S. Universities, Egyptian Universities or third country institutions in those areas which are of priority in the GOE/MOA NARP Master Training Plan (MTP). The trainee's formal classwork and research work will be performed according to one of the following alternatives.

- Type 1

Formal classwork will be conducted in Egypt at an Egyptian University. The research work will be performed completely or partially outside of Egypt. After performing the classwork, the trainee will travel to an institution outside of Egypt for up to 2 years to conduct research, analyze data and to complete the dissertation according to the "channel system" or the trainee may choose to use a lesser amount of time outside of Egypt and return to Egypt to complete the research, analyze data and complete the dissertation.. An advisor will be appointed in Egypt, a supervisor outside of Egypt, to help the trainee complete the requirements for a degree. The degree will be awarded from the Egyptian University.

- Type 2

Formal classwork will be conducted for up to 24 months outside of Egypt at a U.S. University or third country institution. The research work will be conducted in Egypt. The research will be coordinated with an Egyptian institution which will also provide a research supervisor and a research site. The degree will be awarded from the training institution outside of Egypt.

- Type 3

Formal classwork and research will be conducted outside of Egypt for a duration of up to 4 years, and contain education and training related to agricultural problems in Egypt. The area of study will focus on new or special technology which may not be possible for either the academic study or research work to be conducted in Egyptian institutions.

b. MSc Degree

Masters degrees will be allowed in limited instances for a period of up to 24 months in the United States or third countries. These opportunities will be allowed only when the MSc is a terminal degree or the training is not provided at the PhD level. In both instances the training can only be justified if the training is not available in Egypt.

c. Postdoctoral Study

Administrators, senior researchers or researchers in various levels of management responsibilities will study long term (more than 3 months but not more than one calendar year) in postdoctoral study programs at U .S. Universities or governmental agencies, international research centers and third country training centers or in private industry. They will acquire new knowledge or skills, supplemental or updated new technical hands on training in high priority research areas.

d. Short-term Training,,Out-of-Country (less than 6 months)

- Type 1

Trainees will be provided short-term training at U.S. Universities, governmental or private agencies; international agricultural research centers or third country institutions. This management or research training will be designed for up to six months for all organizational levels, whether managers, researchers, scientists or technicians. They will receive practical, hands-on training based on needed knowledge, skills or attitudes necessary to improve job performance.

- Type 2

Observational tours and invitational travel will be allowed for senior-administrators and scientists to travel to other countries for short periods of time. The travel will be provided for staff to visit facilities or attend conferences, seminars, and workshops to learn a process, method or system which will help the individual acquire new ideas, attitudes, and skills.

e. Short term training, in country

Participants from all levels of the agricultural research system, private sector or farm community will participate in formal and non-formal training. This will be provided in short courses workshops, seminars, meetings and individual contact. Services can be contracted from individuals or organizations

within Egypt or the U.S. (U.S. Universities, USDA and private industry sector); international agricultural research centers, or Third Country Institutions.

5. Category of Training

Training will be categorized according to:

a. English training

English testing and training will be instituted for participants to improve their English skills necessary for academic or short term training in the U.S. English training will also be provided for staff to improve their skills for on-the-job performance for research and management within Egypt.

b. Management training

This training will be provided to executive , middle, and supervisory level managers to help them better organize and develop methods to utilize the human., financial and physical resources within the agricultural system.

c. Academic training

This type of training is provided to doctoral and postdoctoral participants. The knowledge and skills acquired by an individual will be used in his/her future job but perhaps not utilized immediately but is needed for continuity of research activities after the life of the project.

d. Technical training

This will be practical, hand-on-training for all levels of staff in the form of short term, postdoctoral and in country training that can be utilized right away to improve a participant's job performance

PLANNED TRAINING ACTIVITIES

1. Selection of training opportunities

As stated before in Section B the Training Committee sent questionnaires to the Research Units asking them to describe the academic, postdoctoral, short term and in country training that was needed. Each research unit based on future research requirements over the next 5-10 years requested training considering the strategies of the MOA/ARC. They were also asked

to describe the fields of training and to justify their needs. Members of the Committee then compiled the lists and further refined them by correspondence or by direct contact with the Directors. The final lists were determined by the Committee according to availability of funds and overall priorities of the GOE/MOA/ARC.

2. Overall Justification for Out of Country Training

Academic training is needed especially when staff lack knowledge about new technology or when staff at the researcher level need training to replace senior level staff. Sometimes a shortage of staff occurs in the different disciplines because senior level staff are retiring or working in other countries. In several instances the institutes have been recently established and staff need to be trained. It is also necessary to broaden the experience of staff in different disciplines if a majority of the staff have been trained only in Egypt.

As outlined previously the academic training plan calls for Type 1 and Type 2 training which is a combination of study and research inside and outside Egypt. Type 1 is structured so that the trainee can obtain classwork at an Egyptian University but conduct the research work at a site outside of Egypt which is well noted for the specific type of research which relates to the trainee's plan. Type 2 allows the trainee to strengthen and broaden academic knowledge already gained in previous studies in Egypt by attending classwork outside of Egypt. The research work will be conducted at a scientific site in Egypt and aimed at important problems within Egyptian agriculture.

These two types are innovative because it broadens the trainees knowledge while it develops international linkages, cooperation and collaboration between Egyptian institutions and:

a. Universities and organizations in developed countries such as the United States;

b. International agricultural research centers (IARC'S);

c. Third world countries with similar development problems such as India and Philippines; and

d. Third world country research programs where there is a similarity between the two environments.

In some cases both the academic and research work will be conducted outside Egypt when there is a shortage in new disciplines or disciplines not adequately covered in Egypt.

In the needs assessment, the research units requested post-doctoral training (academic-nondegree work) because:

a. Senior level scientists need to update knowledge about research innovations and be acquainted with modern technology which can be adapted to Egyptian environments;

b. Junior level researchers need to obtain more experience in using modern techniques to initiate research programs in Egypt that has relevance in applied technology. This will develop opportunities for new leaders in specific disciplines;

c. Staff will be used to train other scientists when they return to Egypt and since they will learn about and use new technology their ideas will be helpful and needed in acquiring new and needed up to date equipment; and,

d. Training in fields i.e. socio-economics, information dissemination and research management will have a direct impact on appropriate use of available resources that will help MOA in policy decisions and actions which are appropriate to the prevailing environment to increase income from agriculture.

Short term technical training is especially needed when staff need to up-date their knowledge in specific areas, learn how to operate or use special kinds of equipment. Since technology is increasing at a rapid rate it is also necessary for scientists to interact with others to exchange information or view certain experiments that are in progress in other countries.

Attendance at international conferences, workshops and seminars will help staff contribute and expand technology transfer when they can share knowledge with other scientific leaders about major topics of concern. Meeting with other staff from international research centers will help develop and encourage similar activities in Egypt.

3. Training Activities; PhD and postdoctoral

a. The charts for the academic training - PhD gives the following information:

INS- Name of Research Unit (Institute, Department or Laboratory)

1. Field Crops Institute
2. Fiber Crops Institute
3. Sugar Institute
4. Horticulture Institute
5 Animal Production Institute
6. Animal Health Institute

7. Veterinary Serum & Vaccine Institute
8. Animal Reproduction Institute
9. Soils and Water Institute
10. Plant Pathology Institute
11. Plant Protection Institute
12. Agricultural Mechanization Institute
13. Agricultural Economics Institute
14. Extension and Rural Development
15. Central Agriculture Pesticides Laboratory
16. Central Laboratory for Food and Feed
17. Central Laboratory for Agricultural Statistics
18. Central Organization for Seeds
19. Breeder Seeds "State Farm"
20. On-Farm Trials Department
21. Research Stations (31)
22. Administrative Unit
23. Library and Information Services
24. Center for Agricultural Management Development

NO - Number of the each training opportunity in the Research Unit.

Field of Study and Major Emphasis -The area of emphasis which is desired for the trainee. The department where the trainee enrolls and the degree will depend on the university selected for training.

Type - Designates the type of training

Justification - States the need for the training

b. Postdoctoral training charts give the following:

INS - Research Unit numbers as above

- Number of trainees

Field of Training - Area of needed training

4. In-country Training Plans

The In country Training Plan shows the field of training activities, and number of estimated training opportunities for the next five years in Appendix E.

ACADEMIC TRAINING - PHD DEGREES

INS.	NO	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
1	1	Rice breeding- disease resistance	Genetics major, pathology minor with reference to blast disease	1 / 2	New breeding technology, philosophy and literature for blast disease resistance.
1	2	Legume breeding-disease resistance	Genetics major, pathology minor with reference to soybeans	1 / 2	Foliar and soil borne pathogen control
1	3	Crop breeding under stress condition	Genetics, physiology, pathology and biometrics with reference to wheat, barley, forage and oil crops	1 / 2	New methodology for evaluating physiological effects on plants and genetic control
1	4	Oil crops-breeding	Genetics major, biometrics minor with reference to sunflower	1 / 2	New methods and technology of breeding and product use.
1	5	Corn breeding-disease resistance	Genetics major, pathology minor with reference to late wilt	1 / 2	New methods and technology of breeding and product use.
1	6	Wheat breeding-disease resistance	Genetics major, pathology minor with reference to rusts	1 / 2	New philosophy of wheat breeding for resistance.
1	7	Forage breeding	Genetics major, biometrics minor with reference to sorghum and millets	1 / 2	New philosophy of forage breeding for resistance.
					In the following training, there is a lack of the speciality and training in Egypt. Staff need:
1	8	Genetic Engineering	Field crops major with reference to biochemistry, biotechnology, tissue culture, etc.	3	New methodology and application in this field
1	9	Seed Technology	Seed physiology and pests	3	Pest control by chemicals and physiological methods.
1	10	Farming Systems	Crop rotation systems, management, production, plant physiology and agriculture economics	3	Socio-economic study of agricultural systems
1	11	Germplasm storage - maintenance	Plant genetic resources. Plant genetics major, botany minor with training in plant physiology and taxonomy	3	Cataloging, storing, treating and dispersement of seed.
2	1	Breeding-cotton improvement	- Incorporating earliness in G. barbadense while maintaing yield and quality - Disease resistance in G. barbadense especially damping-off and Fusarium wilt - Insect resistance utilizing physiological plant characters as suppressants	1 / 2	Lack of Institute staff trained in this field

ACADEMIC TRAINING - PHD DEGREES

INS.	NO	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
2	2	Fiber crop physiology	- Utilizing plant growth regulators in production and picking of G. barbadense cotton	1/2	Insufficient institute staff in this speciality
2	3	Fiber technology	- Value of cotton fiber structure in improving yarn properties of G. barbadense - Response of cotton fibers to mercerization - Study of mechanical properties of cotton fibers and yarn	1/2	Insufficient number of staff in this field
3	1	Breeding-sugar crops	Breeding for high sucrose and syrup	1/2	New methods and philosophy of breeding for high sugar production
3	2	Agronomy-Sugar crops	Improvement of sugar crops production	1/2	Cultural parctices and new approaches to production
3	3	Physiology and technolo of sugar crops	Physiology of flowering, technology and analysis for syrup and sugar content	1/2	End-product usage of food and feed products.
3	4	Pathology - sugar crops	Sugar crop diseases	1/2	New philosophy and knowledge of diseases of sugar crops.
3	5	Sugar crop protection	Sugar crops borers and biological control	1/2	Chemical and biological control methods for sugar crop pests.
4	1	Genetic engineering	Biotechnological manipulation of genetic material and application.	3	Scientific pesonnel in this horticultural field is needed This discipline is lacking in the Egyptian Universities
4	2	Plasticulture of horti-culture crops	Breeding vegetable hybrids for production in green houses	1/2	Scientists need specialized integrated knowledge to initiate new high producing & quality hybrids
4	3	Plasticulture of horti-culture crops	Means of controlling - atmosphere, temperature, humidity, soil condition, etc.in a semi-arid environment	3	Scientific personnel specialized in micro-climatic control are not found. They are needed for planning efficient production of plants in protected cultivation with minimal requirements of energy
4	4	Post harvest biology	Post harvest treatment of horticultural commodities	1/2	Staff lack knowledge in new theoretical aspects related to fruit biology related to extending the shelf life of horticultural commodities and reducing the post-harvest losses of fruits.
4	5	Fruit breeding	Fruit tree breeding improvement: Citrus, grapes, mango, dates, banana, apples, etc.	1/2	Lack of staff to fulfill national plans for the improvement of fruit crops by breeding. Staff needed to guide various breeding programs.

ACADEMIC TRAINING - PHD DEGREES

INS.	NO	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
4	6	Plant taxonomy	Basic research in study of plant flora and related aspects	1 / 2	Staff needed in plant taxonomy to initiate and guide programs of studying Egyptian flora and endogenous plants
4	7	Seed propagation	Vegetable seed certification and propagation technology	3	Need to strengthen staff in theory of seed viability, certification and testing. Adequate program not available in Egypt.
4	8	Germplasm maintenance and storage	Plant genetic resources: Collection, purification, description and technology of preservation	3	Staff needed for national program for purification and maintenance of horticultural germplasm. Staff
5	1	Genetic engineering	Biotechnological manipulation of genetic materials for application in animal breeding	3	Lack of staff in this speciality
5	2	Farming systems	Inter and intra species livestock production systems as a part of an integrated farming system	3	Lack of staff in this speciality
5	3	Breeding - small ruminants	Genetic improvement of sheep and goats for efficient production under subtropical condition.	1 / 2	Insufficient institute staff in this area
5	4	Breeding - large ruminants	Genetic improvement of dairy animals for gigher milk production under subtropical condition	1 / 2	Insufficient institute staff in this area
5	5	Rumen fermentation	Effect of micro-organisms on digestion and metabolism in the in the rumen	1 / 2	Insufficient institute staff in this area
5	6	Breeding - Poultry	Genetic improvement of poultry with emphasis on resistance to diseases under sub tropical conditions	1 / 2	Lack of trained institute staff in this area
6	1	Animal diseases	Immuno stimulant and immuno supressive effects of veterinary drugs	1 / 2	Lack of trained staff
6	2	Poultry diseases	Inheritant maternal immunity against infectious poultry diseases	1 / 2	Lack of trained staff in natural genetical immunity as basis for hybridization
6	3	Fish diseases	Immunization against aeromonsis	1 / 2	Lack of speciality
7	1	Diagnostic product research	Diagnostic research on anitgens and vaccine for cattle	3	Lack of speciality in this area
8	1	Artificial insemination	Diagnosis of semen born diseases	1 / 2	Insufficient trained staff in this area
8	2	Embryo transfer	Recent techniques in embryo transfer , surgical and nonsurgical	3	Lack of speciality in the institute

ACADEMIC TRAINING - PHD DEGREES

INS.	NO.	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
9	1	Biological nitrogen fixation	Biological nitrogen fixation by rhizobia: Emphasis on molecular structure, genetic engineering, mass production and host response and specificity	1/2	Strenghten existing staff at the researchers level to replace retiring staff.
9	2	Soil fertility and plant nutrition	Requirements of plants for microelements, translocation of elements in plants, deficiency problems and methods of curing, critical levels of nutrients in plants and soils, soil testing and leaf analysis, soluble fertilizers for foliar application	1/2	Strenghten existing staff at the researchers level to replace retiring staff.
9	3	Modern irrigation technology	- New systems of modern irrigation: Drip, sprinklers, micro irrigation and capillary tubes - Mathematical models for water management and use	1/2	Strenghten existing staff at the researchers level to replace retiring staff.
9	4	Sodic Soil Amelioration	- Field studies on soil reclamation to determine most effective placement of amendments in terms of soil location and time - Application of saline water in reclamation	1/2	Strenghten existing staff at the researchers level to replace retiring staff.
9	5	Renewable Energy	- Biomethanation of crop residues to produce energy and organic manure and/or soil conditioners. - Alcohol fermentation for production of liquid fuel from crop residues and low value crops	1/2	Lack of speciality exists in this area
10	1	Nematode disease complex	- Study of the taxonomy of nematodes - Nematode virus transmission	1/2	Lack of staff in this area
10	2	Microbial pesticides (biocontrol)	- Exploration of biotic agents for disease control - Cultural practices in the activity of biocontrol agents - Pesticide effect on the activity with bioagent - Integration of biocontrol with chemical control	1/2	Lack of knowledge exists in this area in the institute Biological control will reduce need for pesticides (chemicals)
11	1	Biological control	Mass rearing parasites and predators: 1. Culture and nutrition of entomophagous insects and their hosts 2. Insectary facilities & equipment for mass rearing of entomaophagous insects 3. Mass production programs 4. Methods of colonization, recovery and evaluation	1/2	Progam will have environmental impact by minimizing use of chemicals. Need to ungrade existiing staff to repiace retiring staff.
11	2	Microbial pesticides	Use of Bacillus thuringiensis through an IPM program	1/2	Lack of speciality in this area.

ACADEMIC TRAINING - PHD DEGREES

INS.	NO.	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
12	1	Renewable energy	Appropriate uses of energy resources suitable for agricultural mechanization in developing countries: Solar, wind, water, biogas, etc.	3	Mechanization Institute is only three years old. Research staff need to be trained in the different areas of research to create a diverse staff. Staff need training in types of machines that are newly adapted or can be adapted to this country. There needs to be expertise in design and development in the institute. The major goals are to develop local manufacturing of agricultural machinery and equipment. Emphasis has been built around the research discipline in the institute.
12	2	Agricultural mechanization system evaluation	Economic and socio economics of different agricultural mechanization management systems evaluation for certain strategic crops	1/2	
12	3	Mechanical power	Design and development of machinery components suitable for agricultural mechanization.	1/2	
12	4	Farm machinery	Design and development of types of farm machinery for harvesting systems	1/2	
12	5	Agro-industrial mechanization evaluation	Evaluation of development of agro-industrial sytems and its impact on Egyptian Economy	1/2	
12	6	Agricultural mechanizati - post harvest	Mechanization of handling, transportation, grading, packing and storage of certain export crops	3	When training is specified in type 3, it is because these fields are not adequately taught in Egypt.
12	7	Machinery prototype development	Prototype development and design to increase yields and save labor	3	
12	8	Machinery testing	Procedures and methods to test equipment and machinery under changing environmental conditions	3	
12	9	Agricultural Process Engineering	Drying, storage and processing of major domestic food crops from engineering point of view		
13	1	Systems evaluation	Evaluation of agricultural projects		
13	2	Agricultural Marketing	- Improving domestic marketing of agricultural crops - Marketing of animal products - Developing of marketing infrstructures	1/2 1/2	Institute lacks staff trained in this field. Need qualifed specialists to lead research to improve marketing structure and performance of the marketing system. Marketing is a strategic element because loeses in kind and quality are encountered in different channels.
13	3	Pricing policy Implementation	Policies of cropping patterns	1/2	Institute lacks staff trained in this field.

ACADEMIC TRAINING - PHD DEGREES

INS.	NO	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
14	1	Family management and nutrition	Home economics subjects with empahsis on nutrition information, education and development of rural women	1/2	In this Institute staff need new training in management of technology transfer. They must learn the new methods and systems of discerning needs, collection and dissemination of new technology to the farmer and transfer of farmer knowledge back to the researcher.
14	2	Rural community organization	Rural development, structure, leadership and organization	1/2	
14	3	Technology transfer	Extension education and programming	1/2	
15	1	Pesticide resistance	Monitoring and determining pesticide residues in various biological media	1/2	Lack of institute trained staff in this area: Resistance phenomenon is the most biological limitation for successful pest control. Efforts must be directed towards delaying the occurence of resistance. Need staff able to identify biochemical defense mechanisms in resistant strains.
15	2	Pesticide residue amelioration	Study of new control means for minimizing resistance in cotton bollworm to insecticides.	1/2	Lack of institute trained staff in this area: Need a residue analyst trained to determine the persistence of pesticide residues in different crops and recomend the safety periods (pre-harvest intervals) from application to harvest time.
16	1	Biological evaluation of feed	Production of non-traditional protein concentrates for chick feed including biological evaluation of the products	1/2	This laboratory is a newly established laboratory and staff are not currently available. One of its functions is to analyze protein and feedstuff for certification of imported feed. Local feed must be certified.
16	2	Food microbiology	Production of single cell protein using farm waste and verifying the safety of food	1/2	
17	1	Applied Statistics in Agricultural Production	- Method of statistical experimentation - Data collection and analysis of results - Experimental design for crop production	1/2	Lack of trained staff in this area
17	2	Applied Statistics in Crop Breeding	- Method of statistical experimentation - Data collection and analysis of results - Experimental design for crop breeding - Statistics in population genetics.	1/2	Lack of trained staff in this area

ACADEMIC TRAINING - PHD DEGREES

INS.	NO	FIELD OF STUDY	MAJOR EMPHASIS	TYPE	JUSTIFICATION
20	1	Horticulture	Horticulture major, extension minor with emphasis on on-farm research/extension interdisciplinary approach	1/2	There is a lack of trained staff in developing and using the interdisciplinary approach to technology transfer. On-farm trials are critical in providing farmers with new information and providing feedback to researchers.
20	2	Animal production	Animal production major, extension minor with emphasis on on-farm research/extension interdisciplinary approach	1/2	
20	3	Extension	Extension major with emphasis on rural and community orginization and development	1/2	
20	4	Agricultural economics	Agricultural economics major, rural sociology minor	1/2	
24	1	Public Administration	Organizational Development	1/2	Management training and development activities are important elements of NARP but there is lack of trained staff in this area. Trained staff are needed
24	2	Public Administration	Training and resource development	3	
24	3	Public Administration	Financial analysis and organizational planning	1/2	

POSTDOCTORAL TRAINING

INSTITUTE	# TRAINEES	FIELD OF STUDY
1	5	Agronomy
1	5	Cereal Breeding
1	1	Cereal Technology
1	1	Crop Management
1	1	Fiber Crops Production
1	1	Field Crops Physiology
1	1	Forage Production
1	1	Metereological Studies
1	1	Oil Crops Production
1	1	Onion Breeding
1	1	Rice Production
1	3	Stress Breeding
1	2	Stress Physiology
1	1	Breeding for Insect Resistance
2	1	Fiber Crops Breeding
2	1	Fiber Crops Physiology
2	1	Fiber Crops Technology
2	1	Fiber Crops Maintenance and Seed Production
2	1	Fiber Crops Agronomy
2	1	Fiber Crops Cotton Germplasm
2	1	Fiber Crops Mechanical Picking
2	1	Fiber Crops Ginning and Seed Processing
3	1	Sugar Cane Breeding
3	1	Sugar Beet Agronomy and Production
3	1	Technology and Processing Syrup of Sweet Sorghum
3	1	Sugar Cane Agronomy and Production
3	1	Sugar Beet Breeding
3	1	Sweet Sorghum Breeding'
3	1	Sugar Cane Diseases
3	1	Pathology and Entomology of Sugar Beets
3	1	Physiology of Flowering of Sugar Cane and Seed Setting
3	1	Physiology of Flowering of Sugar Beets
4	1	Banana Agronomy
4	1	Modern Technology of Aromatic Plants & Extraction of Oil
4	1	New Methods of Fertilization & Propagation in Citrus
4	1	Post Harvest Physiology of Fruits & Vegetables
4	1	Utilization of By-Products & Wastes of Fruits & Vegetables
4	1	Meat and Fish Processing
4	1	Plasticulture of Horticulture Crops
4	1	Storage & Packaging
4	1	Propagation Technique of Deciduous Fruits
4	1	Fruits under Stress Condition
4	1	Agronomy of Mango Trees
4	1	Agronomy of Palm Date Trees
4	1	Integrated Pest Management in Fruit Trees
4	1	Vegetable Seed Production
4	1	New Technology of Oils and Fats
4	1	New Technology of Food Preservation

POSTDOCTORAL TRAINING

INSTITUTE	# TRAINEES	FIELD OF STUDY
4	1	Indoor Plants Production
4	1	New Systems for Training Grape Vines
4	1	Wind Breaks and Shelterbelts
4	1	Post Harvest and Handling of Ornamental Plants
5	1	Computer Programming Analysis in Relation to Animal Breeding
5	1	Dairy Technology
5	1	Poultry Feed Technology in Formation of Least Cost Rations
5	1	Dairy Chemistry
5	1	Dairy Husbandry in Large & Small Units
5	1	Sheep and Goat Production Under Intensive Systems
5	1	Poultry Husbandry
5	1	Feed Lot Operations & Complete Rations in Cattle Feeding
5	1	Rabbit Husbandry
5	1	Dairy Microbiology
5	1	Integrated Farm Management
5	1	Physiological Adaptation of Animals to Hot & Dry Conditions
6	1	Deficiency and Metabolic Diseases
6	1	Food Control
6	1	Mycotic Diseases
6	1	Pathology of Bovine Diseases
6	1	Serological Diagnosis of Blood Parasites
6	1	Diagnosis of Animal Virus Diseases
6	1	Diagnosis of Anaerobic Bacterial Sheep & Goat Diseases
6	1	Diagnosis of Viral Poultry Diseases
7	1	Preparation and Evaluation of Tissue Culture Sheep Pox Vaccine
7	1	Prep. & Eval. of Infectious Bronchitis, Gamboro and Infectious Laryngotrachetis Vaccines for Poultry
7	1	Monocolonal Antibodies in Detecting Immune Response Against Colostridi Infections
7	1	Diagnosis of Pit Animal Viral Diseases and Preparation of Vaccines
8	1	Processing of Frozen Semen, Sire Selection and Progency Evaluation
8	1	Embryo Transfer Technology in Cattle, Buffalo, Horse, Sheep & Goat
8	1	Modern Laboratory Techniques to Diagnose Bacterial Reproductive Disease with Special Emphasis on Fluorescent Antibody Technique and ELISA
8	1	Field and Laboratory Diagnosis of Viral Diseases Causing Abortion and Reproduction Disorders
8	1	Field and Laboratory Studies in Raising Udder Health and Calf Disease Co
8	1	Estimation of Sex Hormones in farm Animals with Special Emphasis on Radio-Immuno-Assay ans ELISA
8	1	Processing of Veterinary Biological Products in Relation ro Reproduction
8	1	Field and Laboratory Studies in Raising Calf Health and Calf Disease Cont
9	1	Field Drainage
9	2	Plant Nutrition
9	2	Remote Sensing and its Use in Agriculture
9	1	Plant - Salt Tolerance
9	1	Sand Dune Movement and Fixation
9	2	Biological N2-Fixation, Symbiotic and Non-Symbiotic
9	1	Soil Conditioners

POSTDOCTORAL TRAINING

INSTITUTE	# TRAINEES	FIELD OF STUDY
9	1	Agro-climatology
9	2	Computer Models for Water Movement in Soil
9	2	Computer Models for Ion Movements in Soil
9	1	Control of Insects by Micro-organisms
9	1	Biogas Technology
9	2	Biological N2-Fixation - Genetic Engineering
9	1	Soil and Plant Polution with Pesticides, Fertilizers, etc.
9	1	Soil Conservation
9	1	Water Harvesting
9	1	Irrigation Techniques: Sprinkler, Drip, etc.
9	1	Plant Tissue Test as a Tool for Plant Requirements to Nutrients
9	1	Soil Mechanics in Relation to Crop Production
10	1	Disease Forecast for Rice Blast
10	1	Disease Forecast for Potato Blight
10	1	Disease Forecast for Rusts
10	2	Disease Forecast for Fruit Disease
10	1	Disease Loss Assessment
10	1	IPM Programs
10	1	Rapid Detection of Plant Pathogens in the Field (Virus, Nematodes)
10	1	Modern Methods for Production of Virus-Free Material
10	1	Post-Harvest Pathology (Modified Atmosphere, Mycotoxins)
10	2	Fruit Diseases (Citrus, Grapes, Pears)
10	1	Oil Crops (Sesame, Sunflower, Peanuts, Flax)
10	1	Cucurbit Diseases
10	1	Soil-borne Diseases
10	1	Fungal Taxonomy and Fungal Collection
11	1	Crop Loss Assessments Due to Major Economic Pests
11	1	Integrated Pest Management
11	1	Insect Sex Attractants
11	1	Forecasting Insect Infestation
11	1	Insect Microbial Control
11	1	Weed Survey and Control
11	1	Rodents Ecology and Control
11	1	Termites Ecology and Control
1	1	Aerial Spraying Technique
1	1	Insect Rearing Methods
11	1	Rearing Parasites and Predators
11	1	Insect Transmiting Virus
11	1	Insect Taxonomy
11	1	Agroclimatology and Insect Infestation
11	1	Wood Borers Control
11	1	Experimental Designs for Testing Pesticides
11	1	Population Dynamic Studies
11	1	Horticulture Pests
12	1	Machinery Adaptation
12	1	Machinery Testing
12	1	Mechanization Systems
12	1	Irrigation Technology

POSTDOCTORAL TRAINING

NSTITUTE	# TRAINEES	FIELD OF STUDY
13	1	Assessment of Sampling Techniques
13	1	Economics of Protected Agriculture
13	1	Feasibility Studies
13	1	Land Economics
13	1	Price Analysis
13	1	International Marketing
13	1	Resources of Production Economics
13	1	Means of Mobilizing Local Resources for Improving Rural Welfare
13	1	Monitoring of Agricultural Projects
13	1	Improving the Current System of Census Statistics
14	1	Socio Cultural Aspects of Environmental Pollution in Rural Communities
14	1	Diffusion, Adoption, Rejection and Planning for Agricultural Innovations
14	1	Organization and Management of Agricultural Extension Systems
14	1	Communications and Media Strategies for Agriculture and Rural Dev.
15	1	Integrated Pest Management (IPM)
15	1	Toxicology
16	1	Biological Evaluation of Toxicity in Food and Feed
16	1	Processing of Soybean for Food and Feed
16	1	Production of Single Cell Proteins for Poultry Feed
16	1	Food Microbiology
17	1	Design and Statistical Analysis
17	1	Computer System Training
19	1	P;lanning and Statistics of Seed Production
19	1	Seed Diseases
19	1	Seed Testing
19	1	Seed Processing
19	1	Seed Quality Control
19	1	Seed Production and Marketing
20	1	Farming Systems Approach to Researach and Extension for Small Farms
20	1	Management of Agricultural Research
20	1	Designing & Managing Integrated Agricultural & Rural Development Progra
20	1	Communication and Management Skills for Re-entry and Introducing Chanc
20	1	Integration of Women in Agricultural and Rural Development Programs
21	1	Germplasm Storage
21	1	Germplasm Storage
21	1	Germplasm Storage
21	1	Germplasm Storage
21	1	Germplasm Storage
22	1	Management
22	1	Accounting
22	1	Financial Administration
23	1	Information Transfer, Information Science and Technology
23	1	Computer & Information Science; Database and Network Systems Analysi
24	1	Public Administration, Training & Human Resource Development
24	1	Public Admnistration, Organizational Development

D. Training Implementation

Initially after NARP was approved trainees from previous projects were given approval to continue their academic training to complete their Ph.D. and Masters degrees under NARP funding. Thirty four trainees are currently in U.S. Universities in the aquaculture, field crops and mechanization areas.

English testing and training was started for staff at American University in Cairo and Alexandria in October, 1986 and will continue throughout the Project to prepare trainees for out of country training and to upgrade their english skills for professional improvement.

The NARP Manpower Development and Training Unit which is comprised of the Training Committee, assigned MOA staff and the Manpower Development and Training Advisor have compiled the necessary information included in this Master Training Plan. This Manpower Development and Training Unit will continue the steps necessary to implement the Plan.

Implementation procedures for out of country and in country training are outlined in Appendix H.

E. Training Evaluation

Evaluation and monitoring of the manpower development and training of staff is a necessary management tool to help provide feedback information on the progress of the participants and to describe accomplishments within the organization. All stages of the Process must include evaluation and monitoring. It is important to continue to evaluate the needs of the individual and organization to establish priorities of the program. Records must be kept according to the numbers of participants being trained, their progress, and their evaluation of whether the program was timely and helped them in their work. The activities must be evaluated according to the efficiency, effectiveness and impact on the program.

Annual plans and reports must be made to describe the progress that is being made according to the plans, pin-point changes that are needed, identify the forthcoming activities and allocate resources.

Specific reports to USAID and GOE are contained in the Appendix H in the training implementation.

APPENDIX A

SUMMARY
OF
ASSESSMENT REPORT
THE AGRICULTURAL RESEARCH ENVIRONMENT
THE CASE OF EGYPTIAN PROVINCIAL UNIVERSITIES

BY

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SUPPORTED BY

THE INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (CANADA)

CAIRO

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CONSTRAINTS AND OPPORTUNITIES[1]

The growth of university enrollment in Egypt has been the subject of intense public debate for decades. The heavy student enrollment at present is the result of a conscious policy decision on the part of the government. While as with any policy, the open admissions policy may some day be changed, there is no likelihood that it will be soon. Consequently, the system will continue to be strained in all resource bases for the forseeable future. In the effort to continue to expand the quantity of education, there is little reason to assume significant potential to increase the quality of the system as a whole. Nor is there likely to be resource availability for major expansions of the universities into other than the teaching function.

The staff of faculties of agriculture in Egyptian provincial universities were historically largely trained abroad. This is changing, and a considerable number of faculty members are now the product of undergraduate and graduate education in Egypt. It was suggested that very high priority should be given to broaden the educational experience of these professors through training abroad.

The capital investment necessary to increase the productivity of students and faculty is not adequate. Libraries, books, photocopying facilities, laboratory facilities, teaching aids and the other facilities that are requred for modern university productivity are in short supply. Moreover, the utilization of existing equipment is low for lack of strong administrative systems for equipment maintenance.

These factors have been the cause and effect at the same time of the scientific isolation or inadequate performance of those universities. It is manifested in the publication dates of references in research publications which are often five years or more behind those of U.S. or European colleagues. It shows in outdated lecture notes and curricula in the University faculties. It seems inescapable that is shows in the technologies that are studied and transferred through the University to the general society.

The students too find increasing difficulties in the process of learning. This is illustrated by the lack of adequate on-campus housing and having in most cases, to work in addition to carrying a heavy scholastic burden.

It must be acknowledged that the data concerning on-going research in the provincial faculties revealed a high degree of duplication and hence the need to establish proper information and communication systems.

1. Pages 108 & 109

TABLE 47: The status of laboratory equipment in nine provincial facilities of agriculture

Departments	Facilities								
	As	Fa	Ma	Me	Mf	Za	Ks	Ms	Sc
Agric. Chem	B	-	B	B+	-	-	B	B	-
Agric. Econ.	C	C	C	C	C	C	C	C	C
Ext. & Rural Dev.	-	-	C	-	-	-	-	-	-
Agronomy	B	C	C	C	C	B+	B+	C	B
Animal Sci.	B+	C	B	B	B	B	C	C	B
Dairy Sci.	B+	C	B	B	B	B	C	C	B
Food Tech.	B+	B	B+	B	B	B	C	C	B
Genetics	B+	-	B	C	C	B	C	C	-
Horticulture	B	B-	C	B+	C	B+	B	B-	B
Phytopathology	B+	-	-	-	B	-	B	-	-
Plant Protection	B	B-	C	B	C	-	B	B+	B
Soil Science	B	B-	B+	B+	B	B	B+	B+	B
Microbiology -	B-	B	B	-	-	-	-	-	
Botany	-	-	B+	B+	B+	B	B	C	C
Mechanization	-	-	A	-	-	-	-	-	-

As = Assiut
Fa = Fayoum
Ma = Mansoura
Me = Menya
Mf = Menufiya
Za = Zagazig
Ks = Kafr El-Sheikh
Ms = Moushtohor
Sc = Suez Canal

* The assessed facilities were ranked as A to express well equipped, B to express moderately equipped having B- or B+ within the same rank and C to express under equipped facilities.

APPENDIX B

MINISTRY OF AGRICULTURE

AGRICULTURAL TRAINING CENTERS AND FACILITIES

Appendix B

MINISTRY OF AGRICULTURE
AGRICULTURAL TRAINING CENTERS AND FACILITIES

Center	Activity	Governorates	Directors' Name	Liaison Officers	Capacity
Sakha Training Center	Multi-purpose	Damietta - Gharbiya Beheira - Dakahliya Alexandria - Marsa Matrouh Kafr El-Sheikh	Eng. Sameeh Osman Abdel Ghaffar	Mr. Ahmed Zahraan Mr. Mohamed Hussein	(100) Full Board
Sids Training Center	Multi-purpose	Minia - Fayoum - Beni-Suef	Eng. Mohamed Sami Kandil	Mr. Sayed Al-Showehy Mr. Sayed Gharib	(150) Full Board
Agricultural Management Development Center	Management & Administrative Affairs	All Governorates	Eng. Atef Abdel Halim	Mr. Ibrahim Youssuf Sidky	(53) Full Board
Ismailia Training Center	Multi-purpose	Ismailia - Suez - Port Said - Red Sea - North Sinai - South Sinai	Eng. Sayed Mohamed Aly	Mr. Mohamed Hassan Salim Mrs. Nabila Al-Tonsy	(30) Full Board
Marriut	Multi-purpose & Rural Development	Beheira - Alexandria - Marsa Matrouh	Mr. Mahmoud El-Mahdi		(150) Trainees (75) Full Board
Belbeis Training Center	Multi-purpose	Sharkiya - Menoufia - Kalubiya	Eng. Abdel Aziz Al-Kashif	Mr. Fathy Al-Azhary Mrs. Samira Victor	(60) Full Board
Mansoura	Farm Machinery Training Center	All Governorates	Eng. Nabil Helmy		(75) Full Board
Shandaweel Training Center	Multi-purpose	Assiut - Sohag - Quena - Luxor - Aswan - New Valley	Eng. Moneir Selim Wassif	Mr. Mohamed A. Khedr Mrs. Zeinab Hussein A. Abdullah	(65) Full Board
The Egyptian International Center for Agriculture	Multi-purpose	All Governorates	Direct supervision of the Central Administration for Adm. Develop.	Mr. Magdi M. Abdel Samad	Accommodates in Cairo at contracted hotels
Beni Suef	Craftsman	Beni Suef - Menia - Fayoum	Mrs. Samia Khalil		(150) Trainees (30) Full Board
Horticulture Training Center	Horticulture	All Governorates	Eng. Hassan El-Rashidi	Mr. Ahmed Zahraan	(48) Full Board (60) Under Completion

(Cont'd)

Center	Activity	Governorates	Directors' Name	Liaison Officers	Capacity
El Marg	Craftsman	Kalubiya - Sharkiya - Ismailia - Cairo	Mrs. Samira Khalil		(160) Trainees No accomdations
Central Training Center	Multi-purpose	A. Cairo B. Giza	Eng. Mohamed Hassan	Mrs. Ferial H. Makhlof Mr. Hossam Abdel Razik Mr. Mohamed Amin Amir	Non-residential (Lecture rooms & training aids provided with facilties)

APPENDIX C

LIST OF RESEARCH UNITS

Code Number	Name of Research Unit
01	Field Crops Institute
02	Cotton Institute
03	Sugar Institute
04	Horticulture Institute
05	Animal Production Institute
06	Animal Health Institute
07	Veterinary Serum & Vaccine Institute
08	Animal Reproduction Institute
09	Soils and Water Institute
10	Plant Pathology Institute
11	Plant Protection Institute
12	Agricultural Mechinization Institute
13	Agricultural Economics Institute
14	Extension and Rural Development
15	Central Agriculture Pesticides Laboratory
16	Central Laboratory for Food and Feed
17	Central Laboratory for Agricultural Statistics
18	Central Organization for Seeds
19	Breeder Seeds "State Farm"
20	On-Farm Trials Department
21	Research Stations (31)
22	Administrative Unit
23	Library and Information Services
24	Center for Management Development

ARC - PROFESSIONAL RESEARCH STAFF BY ORGANIZATIONAL UNIT AND RANK

Organizational Unit	Rank					Total Professional Staff
	Professor	Associate Professor	Researcher	Associate Researcher	Assistant Researcher	
Center Direction						
Director	1					1
Deputy Director	2					2
Other Professional Staff	0					0
Total	3	0	0	0	0	3
Field Crops Research Institute						
Director	1					1
Deputy Director	2					2
Other Professional Staff	46	24	89	89	25	273
Total	49	24	89	89	25	276
Plant Protection Research Inst						
Director	1					1
Deputy Director	1					1
Other Professional Staff	19	37	109	165	36	366
Total	21	37	109	165	36	368
Cotton Research Institute						
Director	1					1
Deputy Director	2					2
Other Professional Staff	21	31	46	53	8	159
Total	24	31	46	53	8	162
Plant Pathology Research Inst.						
Director	1					1
Deputy Director	2					2
Other Professional Staff	21	32	68	71	23	215
Total	24	32	68	71	23	218
Horticulture Research Institute						
Director	1					1
Deputy Director	3					3
Other Professional Staff	25	31	98	154	34	342
Total	29	31	98	154	34	346
Agricultural Economics Institut						
Director	1					1
Deputy Director	2					2
Other Professional Staff	2	9	23	78	24	136
Total	5	9	23	78	24	139
Extension Research Institute						
Director	1					1
Deputy Director	1					1
Other Professional Staff	0	1	10	23	14	48
Total	2	1	10	23	14	50

ARC - PROFESSIONAL RESEARCH STAFF BY ORGANIZATIONAL UNIT AND RANK

Organizational Unit	Rank					Total Professional Staff
	Professor	Associate Professor	Researcher	Associate Researcher	Assistant Researcher	
Serum and Vaccines Research						
Director	1					1
Deputy Director	2					2
Other Professional Staff	14	6	25	17	10	72
Total	17	6	25	17	10	75
Soils and Water Research Inst						
Director	1					1
Deputy Director	2					2
Other Professional Staff	39	51	101	134	40	365
Total	42	51	101	134	40	368
Animal Health Research						
Director	1					1
Deputy Director	2					2
Other Professional Staff	15	20	59	60	25	179
Total	18	20	59	60	25	182
Sugar Crops Research Institute						
Director	1					1
Deputy Director	1					1
Other Professional Staff	6	4	5	18	6	39
Total	8	4	5	18	6	41
Central Pesticides Laboratory						
Director	1					1
Deputy Director	1					1
Other Professional Staff	7	13	29	28	4	81
Total	9	13	29	28	4	83
Animal Reproduction Research						
Director	1					1
Deputy Director	1					1
Other Professional Staff	3	3	7	9	6	29
Total	5	4	7	9	6	31
Agricultural Mechanization Inst						
Director	1					1
Deputy Director	1					1
Other Professional Staff				4	16	20
Total	2	0	0	4	16	22
Animal Production Institute						
Director	1					1
Deputy Director	2					2
Other Professional Staff	14	13	58	75	21	181
Total	17	13	58	75	21	184

ARC - PROFESSIONAL RESEARCH STAFF BY ORGANIZATIONAL UNIT AND RANK

Organizational Unit	Rank					Total Professional Staff
	Professor	Associate Professor	Researcher	Associate Researcher	Assistant Researcher	
Central Lab for Food & Feed						
Director	1					1
Deputy Director						0
Other Professional Staff	1					1
Total	2	0	0	0	0	2
Central Statistics Laboratory						
Director	1					1
Deputy Director	1					1
Other Professional Staff	0		0	22	10	40
Total	2	0	0	22	10	42
Grand Total	279	276	735	1,000	302	2,592

*Seconded by Ain Shams University
Prepared January, 1987

Appendix E.

IN-COUNTRY FIVE YEAR TRAINING PLANS AS REQUESTED BY RESEARCH UNITS

Appendix E contains the estimated training that has been requested by the various institutes, departments and laboratories. The information on the following charts gives the number of the training and field of training requested by each institute. The numbers of the research units are as follows:

1. Field Crops Institute
2. Fiber Crops Institute
3. Sugar Institute
4. Horticulture Institute
5. Animal Production Institute
6. Animal Health Institute
7. Veterinary Serum & Vaccine Institute
8. Animal Reproduction Institute
9. Soils and Water Institute
10. Plan Pathology Institute
11. Plant Protection Institute
12. Agricultural Mechanization Institute
13. Agricultural Economics Institute
14. Extension and Rural Development
15. Central Agriculture Pesticides Laboratory
16. Central Laboratory for Food and Feed
17. Central Laboratory for Agricultural Statistics
18. Central Organization for Seeds
19. Breeder Seeds "State Farm"
20. On-Farm Trials Department
21. Research Stations (31)
22. Administrative Unit
23. Library and Information Services
24. Center for Agricultural Management Development
25. Non-ARC

Appendix E

IN-COUNTRY FIVE YEAR TRAINING PLANS

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Executive Management	36	25	5	35	15	15	8	10	20	17	15	3	3	2	1	1	3	3		25	8	35	10		
2	Advanced Management	68	30	5	30	15	10	2	5	20	16	44	3	5	2	1		4	10		50	20	100	30		
3	Financial Mgmt for Researchers	68	30	5	30	15	10	2	5	20	16	44	3	5	2	1		4	10		50	20		30		
4	Mgmt - Project Cycling	68	30	5	30	15	10	2	5	20	16	44	3	5	2	1		4	10		50	20		30		
5	Organization Management	68	30	5	30	15	10	2	5	20	16	44	3	15	2	1		4	10		50	20		30		
6	Basic Management	140	80	10	100	40	30	74	10	40	46	63	8	15	10	3		8	20		150	2	100	40		
7	New Employee Orientation	33	60		30		30		100		15	75	25		50											2500
8	Feasibility & Proj Eval. Studies	66	30	6	150	50	35		10	20	30	55	5	12	5							6				
9	Research Planning	57	30	6	150	30	30	15	10	20	20	55	5	10	10						30	6				
10	Research Management	91	25	6	300	30	15	20	20	20	20	55	30	20	20						30	10				
11	Research Design	100	30	8	300	50	10	19	20	60	40	44	20	20	20			5			30	10				
12	Experimental Design & Plan	151	40	24	270	100	40	40	40	120	60	145	80	30				10			30	60				
13	Research Lab Training (Gen)	65			30	20	30	2		10	16	20	5			2						15				
14	Research Lab Train-Specialized	75	30		30	20	30	1		10	16	37	5				10					15				
15	Equip. Repair for Lab. Tech.	59	16		10	5	10			5		12	5									15			5	
16	Computer Usage- Beginning	35	10		100	40	20	9	10	60	5	3	120	25	25	8	2		25			155	50	100	15	
17	Computer Usage - Advanced	35	10		100	40	20	9	10	60	5	3	120	20	15	3	2		25			155		100	15	
18	Computer-Word Processing	30	10	2	50	20	10	4	5	50	3	50	5	5	5	1	1	5	20		10	30	50	100		
19	Computer-Software	30	10	2	50	20	10	4	5	50	3	50	5	5	5	1	1	5	10		10	30		100		
20	Computer Analysis and Data Systems Design	71	2		100	40	10	9	10		5	10	120	20	5	3	2	-	5			35	5	100	15	
21	Computer Modeling				5							10														
22	Microcomputer & Telecommunication	10	5	1	20	10	5	2	4	20	1	20	5	5	5	1	1	5			5	30		100		
23	Computer Equip-Basic Maint.																							50		
24	Typing-English & Arabic	34	12		30	10	20		10	10	6	50	15	20	8	-	-	-	5			20	100		10	
25	English Language Training-Adv	86	25		50	50	25	12	10	35	10	100	60	15	35	3			45		50	10	50	100	5	
26	English Language Training-Int	172	50		100	100	50	24	15	70	20	200	120	30	75	3			90		100	20	100	200	5	
27	English Language Training-Bed	172	50		100	100	50	24	15	70	20	200	120	30	75	3			90		100	20		200	5	
28	Learning Literature Review	172	50		100	100	50	24	15	70	20	200	120	30	75	3			30		100	20		200	5	
29	English-Technical Reading Int.	172	50		100	100	50	24	15	70	20	200	120	30	75	3			30		100	20	5	200	5	
30	English-Technical Writing Adv.	172	50		100	100	50	24	15	70	20	200	120	30	75	3			30		100	20	5	100	5	
31	English Translation																							100		

IN-COUNTRY FIVE YEAR TRAINING PLANS

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
32	Reading and Writing Arabic	48					50			20	100															
33	French Language Training				5					60																
34	Library (O & M) Procedures	12	2		5	2	30		10	3	2	5	5	3	2		1					15		200	3	
35	Accounting	13	6		20	5	20		20	5	3	30	10	6	3		2						300		4	
36	Basic Financial Management	14	6		20	5	10		10	5	3	15	5	2	3		2					10	300		3	
37	Purchasing & Inventory-Bas.	21	7		20	5	30		10	5	2	15	5	3	6		1					20	200		4	
38	Purchasing & Inventory-Adv.	21	2		20	5	30		20	5	2	15	5	1	4		1					20	100		4	
39	Personnel Management-Basic	21	10		20	5	20		10	5	5	30	10	3	5		1					20	300		4	
40	Personnel Management-Adv.																						300			
41	Secretarial	28	5		20	10	20		5	5	3	30	15	5	4		2					20	200		5	
42	Filing	44	2		20	10	10		10	5	2	10	3	2	4		1					20	100		8	
43	Financial Management-Salaries	21	6		10	10	10		10	5	2	5	5	2	5		1					20			5	
44	Mechanical - Advanced	11	2		1		5			20		3	375									15				
45	Mechanical - Middle	11	2		1		5			20		3	150													
46	Mechanical - Beginning	18	2		1		5			20		3	150													
47	Welding	10	2				2					1	245													
48	Carpentry											10										155				
49	Water Well Pump (O&M)	8			6					5			525									10				
50	Farm Machinery (O & M)	30			20							5	525									15				
51	Combine (O & M)	12											375									10				
52	Canal Dredging Mach. (O & M)	11					2						525									5				
53	Laser Leveling Equip. (O & M)	2											375									5				
54	Metal Lathes (O & M)	8	2		2		1					1	125		1											
55	Operation of Rice Planting Machines	150											675													
56	Operation of Farm Machinery	20											525													
57	Driver Training (Cars)	55			5		5		10	10	10	6	50		4											
58	General Statistics													10								20				
59	Sampling Statistics													8								20				
60	General Extension	520										220			500											
61	Subject Matter Specialist	120	3		10	100						450			500	2										
62	General Veterinary Extension						20																			
63	Specialized Vet. Extension						10																			

IN-COUNTRY FIVE YEAR TRAINING PLANS

Appendix E.

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
64	Technical Tr.-Animal Breeding						10																			
65	Agri. By-Products Treatment					30																				
66	Artificial Insemination					50																				
67	Milking Machines (O&M)					20																				
68	Water Fowl Prod. & Mgmt					20																				
69	Rabbit Breeding & Production					50																				
70	Dairy Quality Control					50																				
71	Milk By-Products Production					50																				
72	Industrialisation of Dairy Tech.					50																				
73	Lamb Production Intensification					50																				
74	Sheep & Goat Production					50																				
75	Sheep & Goat Nutrition Mgmt.					30																				
76	Use of Isotopes					5																				
77	Hormonal Analysis					5																				
78	Climatology					10																				
79	Sheep & Goat Physiology & Reproduction					10																				
80	Statistical Analyses-Animal Breeding					30																				
81	Animal Feed Technology					5																				
82	Bacteriology Equipment (M&R)	2																								
83	Electric Balances (M&R)	2																								
84	Ginning Equipment (M&R)	4																								
85	Weaving Machines	6																								
86	Sugar Cane Breeding		12																							
87	Sugar Beet Breeding		12																							
88	Sweet Corn Breeding		12																							
89	Sugar Cane Production	-	15	-																						
90	Beet Production		15																							
91	Sweet Corn Production		15																							
92	Quality Testing for Sugar Cane		15																							
93	Quality Testing for Sugar Beet		10																							
94	Quality Testing for Sweet Corn		10																							

IN-COUNTRY FIVE YEAR TRAINING PLANS

Appendix E.

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
95	Sugar Cane Diseases			12																						
96	Sugar Beet Diseases			12																						
97	Sugar Cane Pests			12																						
98	Sugar Beet Pests			12																						
99	Flowering of Sugar Crops & Growth Control			12																						
100	Intensification & Intercropping			15																						
101	Econ. of Sugar Industrialization			16																						
102	New Systems of Irrigation for Horticultural Crops				10																					
103	Tissue Culture Techniques				10																					
104	Crop Picking, Packing, Storage				30																					
105	Drip Irrigation in Green Houses (OSM)				5																					
106	Packing and Ventilation Units in Protected Houses (OSM)				5																					
107	Landscaping				10																					
108	Pruning and Grafting				100																					
109	New Methods of Breeding & Prod. of Ornamental Plants				10																					
110	Pest Control				5																					
111	Management of Food Factories				5																					
112	Milk Analysis				5																					
113	Food and Milk Analysis				12																					
114	Maintenance of Scientific Equip.				5																					
115	Instruction and Development of Food Factories				10																					
116	Food Technology: Eval. of Packing Materials				10																					
117	Farm Management				5																					
118	Use of Machines-Wood Testing Preparation, Treatment of Wood Machines				4																					

MAP 31

IN-COUNTRY FIVE YEAR TRAINING PLANS

Appendix E.

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
21	Cellulose Research				4																					
22	Reinoculation Techniques				10																					
23	Orchard Mechanization				10																					
24	Operation of Gardening Tools				10																					
25	Social Research																									
26	Evaluation of Extension Work													30												
27	English Adv. Translation													30												
28	Use & Maint. of A. V. Equip.																									
	Preservation of Library &																						100			
29	Archival Materials																						400			
30	Microfilm Technology																									
31	Reprocraphy/Copier Operation									10													200			
32	Use of Research Literature																						200			
	Use of Filing Systems for																						200			
33	Researchers																						50			
34	English in Libraries																									
35	Library Public Service																						50			
	Library Reference Sources &																						200			
36	Services																						200			
37	Database Search Techniques																									
	Management of Library																						100			
38	Sources & Services																						30			
	Library & Information Center																									
	Management																						20			
	Seed Law Implementation			5	10																					
	Seed Lab.Orgn. & Mgmt.																				15		60			
	Tetrazolium Testing																	40								
	Seed Pathology																	40								
	Seed- Internal Quality Control																	40								
	Pre-processing Management																	40								
	Seed Technology for Prod. &																	40								
	Proc. Officers																									
	Seed Equipment Maintenance																	80								
																		40								

Appendix E.

IN-COUNTRY FIVE YEAR TRAINING PLANS

#	Field of Training	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Certification Inspections &																									
148	Grower Guidance																		80							
149	Seed Program Management																		40							
150	Seed Storage																									
151	Technology & Management																		40							
152	Seed Storage Pest Control																		40							
	Seed Promotion, Marketing &																									
153	Extension Education																		40							
154	Building Maintenance																					155				
155	Agrometeorology Equip. Oper																					15				
156	Station Management Training																					20				
157	Pest and Disease Identification											100														
	On-Farm Trials Management																			8000						
158	for Researchers																			6000						
159	On-Farm Trials for Farmers																									
	Local Leader Training																									
160	(Mechanization)	14																							40	
161	Training Trainers - General																								20	
162	Organization Development																								20	
	Training Trainers Res. Mgmt																									
											APPROXIMATE TOTAL TRAINING OPPORTUNITIES										51,123					

APPENDIX F

INDIVIDUAL INFORMATION

A. BACKGROUND

Name as given in Identification Card_____

Egyptian Identification Card Number_____

Date of birth_____

Marital Status_____

Present Address(Street)_____

(City)_____

(Telephone No.)_____

Assigned Institute_____

Date of Appointment_____

Job Position_____

Area of Specialization_____

B. FORMAL EDUCATION AND TRAINING

	DEGREE	INSTITUTION	COUNTRY	FIELD OF STUDY	YEAR GRADUATED
1.					
2.					
3.					
4.					
5.					

C. POST-GRADUATE STUDY (Up to nine months)

	INSTITUTION	COUNTRY	FIELDS OF STUDY	DATE ATTENDED
1.				
2.				
3.				

D. IN-SERVICE TRAINING (If you have completed a training course in the last 12 months or will attend a training course, please complete)

	INSTITUTION	TRAINING COURSE	DATE ATTENDED
1.			
2.			

E. FUTURE TRAINING (What type of training course, both long and short term, technical and managerial do you feel you require for your professional development?)

	TYPE OF COURSE	COUNTRY	OBJECTIVES
1.			
2.			

F. TASK ANALYSIS (What percentage of your time do you normally devote to the followng tasks?)

RESEARCH MANAGEMENT	ON-FARM OR EXTENSION	ADMINISTRATION

G. MAJOR RESEARCH PROJECTS (List the major research projects or other types of activities you are currently involved with and the percentage of your time devoted to them.)

1.

2.

3.

4.

5.

6.

7.

8.

H. PAPERS PUBLISHED (List titles of papers published in last 3 years)

1.

2.

3.

4.

5.

6.

7.

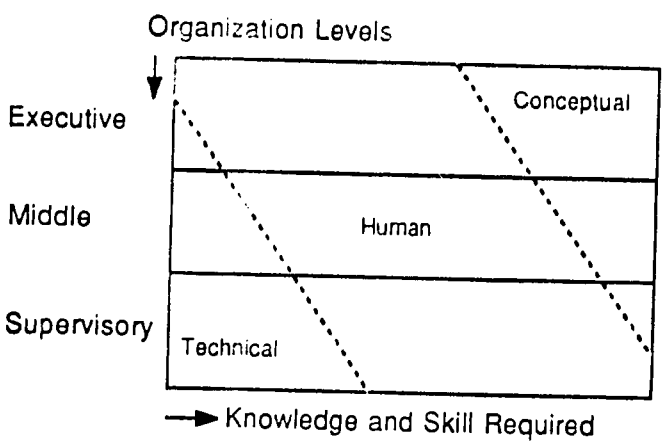
APPENDIX G

MANAGEMENT DEVELOPMENT

One of the problems identified in Egyptian agriculture is the need to increase production and productivity. Egyptian agricultural scientists have already shown that production can be increased through working with farmers to apply advanced practices in the field. It seems that further advances could come from the agricultural system if it is organized to utilize all of its resources; human, natural and financial. The agricultural system needs to respond to the employee's producers and the consumer's needs. Many times the research revolves around the technical and not the human resources within the organization. Studies in organizational management have shown that productivity of an organization can be increased by sixty percent through effective management. Managers at all levels, executive, middle and supervisory, can be helped through management training to be more cognizant and responsive to the environmental needs.

Management staff need to be aware of changes in the organization and staff and in methods and activities to be implemented to attain success. Most people start their agricultural career in a specialized technical ability and as the person ascends in the organization there is less emphasis on the technical skills but more on the management of efforts of people.

Knowledge and skills in management must be learned as in any other technical area and it varies with the organizational level. For example the following model developed by George R. Terry[1] is very clear in the types of knowledge and skill required at various levels in an organization.



People should be promoted to managers through their ability and skill to organize rather than just because they are getting older. Human and conceptual skills need to be broadened and improved. This can be accomplished through workshop, seminars or on the job training in such areas

as planning, decision making, communication, motivation, time management, listening skills, group dynamics and organizational development.

A management strategy as described by Mr. Odis Kendrick on management development needs to be developed where an organization can perform the following four fundamental functions.[2]

1. Pattern Maintenance

   The rules and roles that are the most observable part of the organization. The organization must be able to develop and maintain basic day-to-day procedures and patterns for action.

2. Goal Attainment

   The product or service of the organization. The organization must be able to set goals and objectives and develop strategies for achieving these objectives.

3. Integration

   The ultimate purpose and meaning of the organization. The organization must be able to develop dominant values that are shared throughout the organization.

4. Adaption

   The ability of the organization to meet new challenges from outside the organization. The organization must develop a sensitivity to change outside the organization and be able to change its patterns when necessary.

The agricultural institutions seem to be able to complete the first two steps but training must be developed that will help staff perform both the integrative and adaptive functions.

Managers must be able to perceive that change is possible and supported by the organization. Lecture methods which is often the method used in Egypt needs to be supported by audio-visual material and hands-on methods. Different kinds of training methods besides lectures need to be organized around problems that the managers are facing on-the-job. Management training needs to be focused on practical, learning by-doing approaches.

The action learning approach that is used in training staff in rural and social development can be helpful to tap the large amount of potential that the agricultural organization has in human resources. Samuel Paul[3] describes this approach as a process of action in the field, not viewed as an isolated and discrete activity. It is a process in which all people involoved apply their knowledge, and generate answers together. It does not presume a "trainer" who imparts knowledge to the "trainees".

Training can improve the managers so that they can serve as both change agents and models of effective managers. The can also be used as in-house consultants or trainers to teach other employees management skills.

References

1. Terry, George R., Principles of Management, Homewood, Ill., Richard D. Irwin, 1977, p.9.

2. Calverly, Paul H., Training Needs Assessment for Ministry of Irrigation, ARE Report to Ministry of Irrigation, Cairo, Egypt, February 20,1986.

3. Paul, Samuel, Training for Public Administration and Management in Developing Countries: A Review, Indian Institute of Management, Ahmedabad, India.

APPENDIX H

TRAINING PROCEDURES

Implementation procedures are outlined for out of country and in-country training in this appendix.

I. Out of Country Training Procedures

The information contained herein is based on USAID Handbook 10: Participant Training, various USAID/Egypt directives, guides and staff notices. Only policies, regulations, procedures and guidance relating driectly to the participant training activities of NARP are provided.

USAID participants are defined as foreign nationals sponsored by USAID to receive training outside their home countries. Management of a participant's program, under the NARP will be the responsibility of the Out of Country Training Contractor with approval of the Director General.

Participants will be nominated by the heads of the MOA/ARC research units and selected by the Director General. This will be coordinated by the Manpower Development and Training Unit (MDTU). An United States Contractor through a host country contract with the Egyptian government will provide the identification of training institutions, implementation of programs and monitoring functions.

The word "participant" is a shortened title for "United States Agency for International Development Participant". It denotes a "participant in development". USAID participant training is a part of the development-related projects jointly approved by the Egyptian Government and the United States. Participants are obligated to utilize their training by working in the development activity when they return home.

A. BASIC USAID POLICIES

1. All participants are subject to USAID participant training policies, regulations and reporting procedures.

2. All education and training should be closely geared to existing and expected work opportunities. Participants are obligated to return to Egypt upon completion of their planned training program and utilize their training by working in the development activity when they return to Egypt.

3. Participant training is arranged at the best available facilities to meet the training objectives within the funds available.

4. Training objectives are accomplished within Egypt whenever feasible. If this cannot be done, the next priority is to arrange participant training

in sites in the United States, international research centers or third world countries.

5. Participants proposed for training in countries where the training is conducted in English must demonstrate English language proficiency adequate to meet program requirements. USAID/Egypt Staff Notice No. 81-138 (Attachment A) describes Mission policy in this regard. See the step-by-step sequence of actions for procedural guidance. It should be noted that exceptions to English language testing and training are made for participants in technical training programs when:

   a) Groups of participants are accompanied by an official interpreter;

   b) The participant(s) has been(have) already lived or studied in an English-speaking country;

   c) Training programs are not conducted in English.

6. Participants must be medically cleared by undertaking a physical examination conducted by an Egyptian doctor under contract to USAID.

7. Participants are admitted to the United States under the USAID Exchange Visitor Program, using J-1 visas. This means they may not apply for immigrant or non-immigrant visas until two (2) years' residency is completed in Egypt following their return after training.

8. All participant training costs are paid out of NARP funds, with several minor exceptions. Some English language training and pre-departure physical examinations will be, paid from USAID/Egypt funds. The only Government of Egypt (GOE) cost is for the participant's regular salary during the term of training.

9. Evaluation of participant training is conducted on a continuing basis.

10. Participant training is conducted in compliance with the Civil Rights Act of 1964.

11. Academic training leading to a degree is requested when the degree is essential to the position for which the participant is to be trained.

12. A participant's academic degree program is limited to one degree only.

B. OTHER PERTINENT POLICIES AND REGULATION

1. Processing Lead time: The project implementation order/Participants (PIO/P) and all other documentation (copies of degrees and credit transcripts, letters of recommendation) must be received by the U.S. Contractor in advance of starting dates, as follows:

   Academic Training : 150 days
   Technical Training : 90 days

2. Medical certification: Each participant must be officially certified as physically and mentally fit by a qualified physician prior to departure for training. Such certification will mean freedom from communicable diseases or any illnesses or debilitations which would limit, shorten or impair the participant's ability to pursue the training program on schedule. Exemption from certification can be made on a case by case basis by the USAID/NARP Director General.

3. Travel

   a) All travel must be on U.S. flag carriers.

   b) Economy-Class travel is mandatory.

   c) Twenty-two pounds of accompanying excess baggage are allowed if not provided free by the airline.

4. Dependents: USAID does not encourage dependents to accompany or join participants, especially short term technical trainees, unless the GOE and USAID/Egypt approve such action. Approved dependents may accompany or join participants while they are in training in the United States, provided:

   a) The participant is scheduled to remain in one place for at least six (6) months;

   b) The participant furnishes proof of adequate financial resources over and above the USAID maintenance allowance, without working for pay to cover such expenses, including a round-trip airline ticket in advance for each dependent, by submitting Form USAID 1380-5, Dependent Certification

      Only the participant can initiate the request for dependents to accompany or follow, not the dependents. They must be covered by a health and accident insurance policy. (They are not eligible for the USAID Health and Accident Insurance Coverage program.

5. Allowance: USAID financed participants under the National Agricultural Research Project will receive an allowance to cover living and incidental expenses while engaged in their official training program. An advance according to regulations will cover the first participant before departure. A second check after arrival. Both payments are intended to cover all expenses including taxis and within-city transportation for the first 30 days only.

   After the first 30 days Academic participants will receive a monthly allowance based on the Bureau of Labour Statistics Cost-of-living Index. Rates differ per month depending on the institution.

After the first 30 days technical (non-academic participants) will receive a monthly allowance for their entire program, provided they stay in one location 30 days or longer.

All participants will receive a per diem in addition to their monthly maintenance allowance, while in official travel status during any part of residence program.

The maintenance allowance provided is considered adequate for meeting the cost of moderately priced living accomodations, food, local travel costs and incidentals. These are current rates that are reviewed periodically and are subject to change as required.

Participants also receive certain allowance for books and other training materials required for their program. The purchase of any special training equipment is subject to approval in advance by the NARP-Director General.

6. Health and Accident Insurance Coverage. USAID participants under the National Agricultural Research Project are covered by the USAID self-funded Health and Accident Insurance coverage (HAC) program. Coverage begins immediately on the date of departure for the United States and continues until the participant returns directly to Egypt or is released from USAID's responsibility, whichever is first. The current monthly cost per participant is $25, payable from project funds. As stated previously, accompanying dependents must have health and accident insurance coverage, but they are not eligible for the HAC program.

7. Return Processing: Upon return to Egypt after completion of training, all participants are required to report to USAID/Egypt's Training Office, regarding their training program. At this time theCertificate of Achievement is awarded.

Sequence of actions

On the following pages is a chronological sequence of actions which take place during the participant processing period, from the time the trainee is proposed by the NARP Director and his staff to the time of departure from Egypt.

ACTION TAKEN	RESPONSIBILITY OF
1. Field training selected by the Research Unit Director (RUD) and approved by the training unit (MDTU) & NARP Director General (DG)	RUD MDTU/DG

2. Names of Staff are selected by the Research Unit Director and approved by the Director General and forwarded to the MDTU who will arrange English language testing and training with USAID or private.	RUD DG MDTU
3. USAID (EDU) arranges for ALIGU English Language testing at the American University in Cairo (AUC) and informs MDTU of time, place and date. MDTU then informs the Research Unit Director to inform the participant of testing date, time and place.	USAID/EDU MDTU RUD
4. Participant takes test as scheduled, and test scores are provided to USAID Project Officer. The USAID Project Officer informs MDTU,and they inform the Research Unit Director who informs the participant of score.	Part USAID/EDU MDTU RUD
5. Letter of Nomination for training is submitted by the RUD and approved by the NARP Director General. The letter is not sent until the participant has taken the ALIGU English Language Test and has passed and been scheduled for English Language training.	RUD DG
6. Participant Commences English Language Training. Academic Trainees will usually enroll in intensive training at the English language program at AUC or the Amercan Cultural Center (ACC) in Alexandria, providedentrance level scores have been attained. For technical trainees, the low or medium intensity programs may be provided by private contractor or AUC.	Participant
7. Program Description is submitted by Research Unit Director to MDTU and forwarded to the Contractor and with copy to USAID. A clear description of training desired by type and level, and purpose for which training will be applied, is to be provided. Degree objectives, if appropriate, major field of study and suggested training facilities are to be identified. Sufficient detailed information must be provided in order that a program can be planned and arranged by the U.S. Contractor that will provide maximum benefit to the participant and the project.	RUD MDTU Contractor USAID
8. Preliminary processing of participant by Contractor advising of requirement for certain documents, medical examination, passport, visa, etc.	Contractor
9. PIO/P is prepared byContractor. Procedures are discussed and the participant is advised of additional documents needed, requirement for 8 passport-	Contractor Participant

type pictures and completed Biographic Data Form. (The Biographic Data Form is page 3 of the PIO/P.

10. English language training is completed. Qualifying ALIGU scores are received by USAID/EDU and MDTU passes the score to Contractor. When the institutios requires a TOEFL score the participant must-schedule the TOEFL EXAM.	USAID/EDU Contractor MDTU Participant
11. PIO/P and all other documents required are sent to USAID/Cairo requesting that a student be processed after an appropriate program has been arranged by the Contractor. A Training Implementation Plan (TIP) will be forwarded to MDTU and DG for review/appoval When the proposed program has been approved by all parties concerned, USAID/Cairo will be notified. The Contractor will provide a Call Forward date.	Contractor USAID/EDU MDTU/DG
12. Director General notifies the Contractor of TIP approval, with modifications as necessary, and requests a firm C/F date.	DG/MDTU Contractor
13. The TIP and tentative Call Forward (C/F) are received by participant and MDTU (approximately 45 days after receipt of documents by the Contractor.	Participant MDTU Contractor
14. Participant is notified byContractor of any further requirements prior to departure.	Participant Contractor
15. Firm C/F recieved by MDTU and USAID/Cairo and participant are notified.	USAID/ MDTU Participant
16. MOA issues letter to Particpant authorizing departure from Egypt.	GOE/MOA
17. Contractor prepares Advance Maintenance Allowance and obtainsU.S. visa (2 weeks before departure).	Contractor Participant
18. Participant advised of Pre-Departure Orientation schedule	Participant Contractor
19. Pre-Departure Orientation (3-4 days before departure.) a. Advance per diem check issued b. Tickets provided c. Entire training program discussed d. Advice provided on airport reception, travel, etc. e. Travel restrictions agreement signed	Participant Contractor
20. Departure.	Participant

II. In-Country Training Procedures

Public and Private Sector Personnel Training:

A cadre of public (governmental) personnel and private sector individuals which includes farmers (male and female), equipment operators, researchers and other persons engaged in or suporting the research activities in Egypt agriculture are to be trained.

In-Country Training Plan Design:

An annual training plan is required by USAID and GOE. The plan will be prepared by the Manpower Development and Training Unit and approved by the Director General each year.

Training Activities:

The Manpower Development and Training Unit will be responsible to:

1. Identify and classify in-service training needs.
2. Carry out research and studies necessary to develop training process.
3. Keep records and books of training data.
4. Develop and co-ordinate activities with training organizations, institutes and centers in order to acquire more experience for preparing project training plans.
5. Set up an in-country and participant training plan that is consistent with the general training policy of the project and to achieve this, all candidates are required to submit reports and complete evaluations about their in-country training.
6. Identify training priorities in light of training needs and available financial and administrative support.
7. Co-ordinate the use of essential training materials and audio-visual aids.
8. Spread training awareness through bulletins, meetings, workshops, etc.
9. Monitor trainees during their training programs and to follow-up their activities after their return to their activities after they return to their villages.
10. Evaluate the training program in terms of subject and instructors to ensure that the program is efficient and achieves its aims and objectives.

Trainees:

The following conditions apply to the trainees:

1. Should be at least 16 years of age.
2. Should have an identification card.
3. Is willing to accept the accommodation and training provided by the project.
4. Trainees in each course should have similar backgrounds.
5. Will not be absent for more than 7 days during any one course without an acceptable excuse or will be dropped from the course.
6. Additional regulations or instruction established by the project management will be distributed to all concerned.

Training Budget:

Training activities will be estimated on the basis of financial limiations of the annual training plan.

The training budget should include the following items:

1. Lecturers and instructors, supervisors, inspectors and guide fees,
2. Equipment rental,
3. Fuel, oil and lubricants,
4. Audio-visual aids and equipment,
5. Equipment and machinery operators,
6. Room and board,
7. Transportation,
8. Expendable training materials,
9. Incidental living expenses,
10. Training Center fees,
11. Administrative expenses,
12. Miscellaneous.

Follow-up and Training Evaluation:

The project training unit is responsible for following-up and evaluating training activities according to the overall plan to ensure its success in terms of implementation.

In order to carry out the above, the unit should request inputs from the technical units of the project or outside sources.

A report at the end of each course will be submitted to project management. This report will include the results of the evaluation.

At the end of the training period, the project will present the trainee with a certificate officially approved by project management.

Training Records and Books:

Records are kept by the training unit for registering all activities related to the training course held by the project abroad or in-country. These records are kept for future references for all data collected and statistics compiled on project training activities.

Executive Bodies, Lecturers, Instructors, Supervisors, and Guides:

The MDTU is authorized to request support from experienced institutes and centers either abroad or in-country to assist in carrying out planned training programs by providing selected lecturers, instructors, supervisors, guides and services workers for the training programs as follows:

1. The lecturers and instructors should be scientifically and practically oriented as well as educationally capable.

2. The supervisor should have leadership capability and be from the project or components staff or from outside sources if necessary; his job is as follows:

   a. To plan and follow-up program implementation with instructor,

   b. To solve problems impeding implementation,

   c. To administer and manage training courses and provide necessary support (Audio-visual aids and materials) to instructors and lecturers,

   d. To provide trainees with alternate lecturers and instructors in case scheduled original instructors or lecturers are absent,

   e. To provide evaluation plan fo the program as a whole including lecturers, trainees and instructors,

   f. To brief lecturers and instructors and supervisors before a program begins.

3. Whether the program guide is chosen from the project or from outside sources, he should be highly efficient and specialized in the planned program and complete the following:

   a. Study the program in detail.

   b. Contact the programs' lecturers and instructors and brief them about the program and trainees.

   c. Direct workshop and make decisions necessary to the implementation of the program.

   d. Maintain discipline among trainees participating in the training course.

   e. Submit a report on the lecturers and instructors.

   f. Participate in the program evaluation.

   g. Assist in preparing lectures and training materials.

4. A secretary for each course is to be assigned to do the following:

   a. Clerical and administrative tasks.

   b. Keep attendance and report trainee absences.

   c. Introduce lecturers.

   d. Type, print and distribute lecture notes related to the course.

5. Caretakers are to be assigned at the training location at a ratio of one to twenty trainees or less to provide miscellaneous services.

Lecturer and Instructor Fees

1. Fees paid to the lecturers and instructors for workshops, seminars and discussions are determined according to the following rules :

   a. LE 50 for an one hour lecture from an undersecretary and above, or university professors and equivalent.

   b. LE 40 for an one hour lecture from a director general and above and/or university professor assistant and equivalent.

   c. LE 30 for an one hour lecture from a lecturer or other ranks.

2. Field Instructors demonstrating to trainees in the field are paid at a rate of 50% of the above rate.

3. A maximum of LE 10 per day is paid to supervisors, inspectors, coordinators, guidance and field monitoring staff.

4. A maximum of LE 8 per day is paid for secretarial, financial and service workers.

5. All lecturers and instructors are fullly accommodated with room and board when attending courses in addition to the actual transportation cost to and from the training centers.

6. Translation and typewriting:

   a. Oral translation according to lecturers fees and categories;

   b. Written translation will be paid according to USAID regulations; and,

   c. Typing according according to USAID rules.

7. In items 3 and 4 staff will not be paid these fees if they receive incentives from the project.

Training Expenses

1. The following costs are convered for all trainees attending courses:

   a. LE 10 per day for room and board for trainees when accomodations are not availabie at the training center or live more than 50 kilometers from the training center or outside the governorate.

   b. LE 3 per day for incidental living expenses.

   c. Actual transportation expenses to and from training centers and/or the locations.

Training Center Fees

Training centers which have their own financial by-laws will determine the training center fees according to their by-laws for training programs conducted for the project.

Training centers without financial by-laws will have their training center fees estimated by agreement between the center's staff and the NARP staff.

Project management may choose to establish additional rules and regulations within the boundaries of the NARP training guidelines in order to ensure the successful implementation of the training plan.

PUBLICATIONS

PUBLICATION TITLE	PUBLICATION NO.
- Progress Report CID, Progress Report for Period (November 6, 1986 through January 6, 1987)	1
- Quarterly Report (January 1 through March 31, 1987)	2
- Implementation Workshop - Proceedings (February 9 - 17, 1987)	3
- Quarterly Report (April - June, 1987)	4
- Life of Project Plan (September, 1987)	5
- Implementation and Financial Plan, Fiscal Year 1987-1988 September, 1987	6
- Manual for Grant Research Under NARP October, 1987	7

DISTRIBUTION

NO.		
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1	Dr. Mohsen El-Didi	NARP News
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