

631.7.8

G232

RAO

EGYPT

irrigation management / human resource development / training

MINISTRY OF PUBLIC WORKS AND WATER RESOURCES

GOVERNMENT OF EGYPT

THE TRAINING CENTER AND HUMAN RESOURCE  
DEVELOPMENT IN THE MINISTRY OF PUBLIC WORKS AND  
WATER RESOURCES

P S Rao

A Report Prepared for the Study,

*"Strengthening Irrigation Management in Egypt"*

International Irrigation Management Institute  
Sri Lanka

Supported by:

United States Agency for International Development

Cooperative Agreement Number: 263-0132-A-00-5036-00

IIMI

631.7.8

G232

RAO

REFERENCE

ONLY

July 26, 1995

# 17035

17035

2

## PREFACE

This report was prepared as part of the Study, "Strengthening Irrigation Management in Egypt." The Study was carried out by IIMI and the Ministry of Public Works and Water Resources, Egypt, with the support of the United States Agency for International Development.

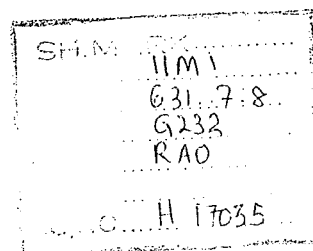
This report on the Training Center was originally proposed to be a chapter in the final *Action Plan* produced under the Study. However, a subsequent decision was taken not to include this in the Action Plan, and to issue it as a separate report.

The Training Center represents a significant investment in the future. This Report documents that the facilities are very good, and the training programs underway at present are useful and in demand. However, the Report suggests that more needs to be done to ensure the sustainability of the Center, and to make best use of it in the future, especially as training becomes increasingly important to improving the Ministry's performance. A number of specific suggestions are made.

IIMI is grateful to the Director of the Training Center, Eng. Abdel Aly Attam for his interest and support. Thanks are also due to Eng. Abdel Raouf Hassan, Consultant at the Training Center, for his assistance.

Finally, IIMI is grateful to the Ministry and to USAID for their support to the whole Study. IIMI hopes these recommendations are useful and implemented.

Douglas J Merrey  
Egypt Project Team Leader



## TABLE OF CONTENTS

1	INTRODUCTION .....	1
1.1	Human Resource Development in the Ministry .....	1
1.2	Objectives of the Study .....	1
1.3	Scope of the Study .....	2
1.4	Study Methodology .....	2
2	FINDINGS OF THE STUDY .....	3
2.1	Achievements of the Training Center .....	3
2.2	Future Development of the Training Center .....	6
3	RECOMMENDATIONS .....	11
3.1	Capacity building and capacity utilization .....	11
3.2	Role of TC in integrating IMS components .....	12
3.3	Research and training linkages .....	12
3.4	Development of new courses and programs .....	13
3.5	Management development programs and courses .....	13
3.6	Sustainability .....	13
4	ANTICIPATED SCHEDULE OF PROGRAM ACTIVITIES .....	14
5	EXPERTISE REQUIRED TO IMPLEMENT THE PROGRAM .....	14
5.1	Expertise from within the Ministry .....	14
5.2	Expertise from outside the Ministry .....	14
6	PLANNED OUTPUTS AND IMPACTS .....	14
	REFERENCES .....	15

# **THE TRAINING CENTER AND HUMAN RESOURCE DEVELOPMENT IN THE MINISTRY OF PUBLIC WORKS AND WATER RESOURCES**

## **1 INTRODUCTION**

### **1.1 Human Resource Development in the Ministry**

Training and human resource development constitute one of the important dimensions of strengthening institutional capacity for improved management of the operations of the Ministry of Public Works and Water Resources (MPWWR). Achieving the objectives of a comprehensive human resource development in the Ministry is a long term process. Training constitutes one of the components of such a comprehensive program. This study focuses on the extent to which training and human resource development needs of the personnel of the Ministry are addressed to ensure that staff of the Ministry at various levels possess the knowledge, skills, and the expertise needed to do their jobs. This report deals with the growth and development of the Training Center (TC) and its training programs as part of the Professional Development (PD) component of the USAID-funded Irrigation Management Systems (IMS) project. It contains an analysis of training issues and provides a set of recommendations for the Ministry's consideration.

### **1.2 Objectives of the Study**

The general objective of the study is to assess the extent to which the objectives of the PD component of the IMS project have been achieved in the growth and development of the TC and how the activities of the TC in its future training programs can be strengthened to serve the anticipated training and human resource development needs of the MPWWR.

The specific objectives are :

1. to review the current activities and training programs, and future plans of the TC in 6 October City;
2. to suggest ways in which the TC can strengthen its activities and programs to provide high quality training programs of relevance to meet the future training needs of the MPWWR, and, in particular, the role it can play in integrating the other IMS components;
3. to suggest the support needed by the TC to use the capacity created to its full potential, especially after the IMS project comes to an end; and
4. to look at the broader issues of human resource development and career planning and development of personnel of the MPWWR and the role of training in that context.

# **THE TRAINING CENTER AND HUMAN RESOURCE DEVELOPMENT IN THE MINISTRY OF PUBLIC WORKS AND WATER RESOURCES**

## **1.1 INTRODUCTION**

### **1.1 Human Resource Development in the Ministry**

Training and human resource development constitute one of the important dimensions of strengthening institutional capacity for improved management of the operations of the Ministry of Public Works and Water Resources (MPWWR). Achieving the objectives of a comprehensive human resource development in the Ministry is a long term process. Training constitutes one of the components of such a comprehensive program. This study focuses on the extent to which training and human resource development needs of the personnel of the Ministry are addressed to ensure that staff of the Ministry at various levels possess the knowledge, skills, and the expertise needed to do their jobs. This report deals with the growth and development of the Training Center (TC) and its training programs as part of the Professional Development (PD) component of the USAID-funded Irrigation Management Systems (IMS) project. It contains an analysis of training issues and provides a set of recommendations for the Ministry's consideration.

### **1.2 Objectives of the Study**

The general objective of the study is to assess the extent to which the objectives of the PD component of the IMS project have been achieved in the growth and development of the TC and how the activities of the TC in its future training programs can be strengthened to serve the anticipated training and human resource development needs of the MPWWR.

The specific objectives are :

1. to review the current activities and training programs, and future plans of the TC in 6 October City;
2. to suggest ways in which the TC can strengthen its activities and programs to provide high quality training programs of relevance to meet the future training needs of the MPWWR, and, in particular, the role it can play in integrating the other IMS components;
3. to suggest the support needed by the TC to use the capacity created to its full potential, especially after the IMS project comes to an end; and
4. to look at the broader issues of human resource development and career planning and development of personnel of the MPWWR and the role of training in that context.

### 1.3 Scope of the Study

The training program of the MPWWR started in 1982 with the establishment of a Training and Manpower Development (TMD) unit in the National Water Research Center (NWRC) to train the engineers involved in the IMS project. A study after the 1985 evaluation of the IMS project recommended that the TMD should be the foundation for a National Irrigation Training Institute (NITI) that would use a multi-disciplinary approach to technical training based upon an action research focus under field conditions. Additionally, the study recommended that management training be organized by NITI and introduced into its regular curriculum in support of MPWWR's activities.

In 1985, TMD expanded its scope of services with assistance provided by the PD component of the IMS project. The major objective of PD is "to institutionalize a multi-disciplinary training program to serve all of the training and development needs of the MPWWR" (emphasis added) (Sheladia 1994: 1-1). PD is one of the components of the IMS project. Each of the other components of the IMS project - for example, MSM, IIP, NWRC, - contained its own funding for training and its own objectives of meeting highly specialized in-service training needs specific to the particular component. NITI, which was developed under the PD component, was renamed as TC in 1990. It undertook to provide the types of training that are common to all departments of the MPWWR and to meet training needs not specifically met by the other components. Wherever possible, collaboration has been pursued with other IMS components.

The scope of this report is limited to the PD component and the programs of the TC. It does not deal with the training programs and activities of the various other components of the IMS project. However, attention is focussed on the possibilities for the TC to enrich the contents of its future activities through appropriate linkages with some of the IMS components.

### 1.4 Study Methodology

The study was conducted in two phases, each of about five weeks duration. The first phase was in February-March; and the second in May-June. The assessment and analysis are based on data and information obtained from the various activities conducted over the study period:

- > review of previous studies and reports;
- > many visits to the TC in 6 October City to see the facilities and for interviews with the staff and consultant there;
- > study of the courses and the detailed course contents of a selected sample of technical and management courses offered by the TC;
- > discussions with a few visiting trainers of the courses being offered at the TC;
- > discussions with a small sample of former participants in the training programs of the TC;

- > field visit to the Sharkia Directorate at Zagazig and discussions with General Director and engineers;
- > visits to four research institutes of NWRC at Delta Barrage and discussions with the directors of the institutes;
- > visit to the branch of the TC at Kafr El-Sheikh to see the facilities there and in particular the sites of the field work conducted by the participants of the On-Farm Water Management course;
- > visit in Kafr El-Sheikh to the field research office of the Water Management Research Institute of NWRC;
- > visit to the Hydraulics department of Cairo university;
- > visits to the Management Development Centers of Cairo University, Ein Shams University, and American University in Cairo; visit to the Middle East Advisory Group who are contracted by the TC to offer management courses in the TC.

Interviews were conducted with some of the senior officers of the MPWWR. The responses to questions concerning training in the field surveys conducted by IIMI teams were examined to get the perceptions of the field personnel of the MPWWR on training-related matters. The summaries of the interviews conducted by other members of the IIMI team and discussions with them have also helped greatly in the conduct of the study. Annex 1 provides a list of persons interviewed, and Annex 2 lists the reports and other documents consulted.

## 2 FINDINGS OF THE STUDY

### 2.1 Achievements of the Training Center

#### 1. Present status of the PD component of IMS project:

The training program in the MPWWR commenced in 1982 with the establishment of a Manpower Development and Training Unit in the National Water Research Center (NWRC) to train the engineers involved in the USAID-funded IMS project. It has since then grown considerably under the Professional Development (PD) component of the IMS project. Most of the objectives of the PD component will have been achieved and almost all the budgeted expenditures incurred by September 1995 when this component of the IMS project comes to a close.

#### 2. Infrastructure development:

A Training Center (TC) was built in 6 October City and equipped with excellent physical facilities - lecture halls, conference hall, laboratories, field experimental and demonstration facilities - and computers, teaching and training aids, and library. A hotel with 250 beds was

constructed to accommodate the participants. It is provided with excellent facilities for dining, recreation, and study. The TC also has well developed infrastructure and training facilities at its branches at Kafr El-Sheikh and at El Minya and is developing another branch at Esna in 1995. (Annex 3 provides details of the TC facilities.)

### 3. Development of training programs:

The U.S. company, Sheladia Associates Incorporated (SAI) has worked with the TC over a five-year period (1989-94) and provided technical assistance in the development of the various activities of the training cycle - training needs assessment (TNA), curriculum development (CD), monitoring, evaluation and feedback (MEF), training of trainers (TOT) both in Egyptian and in U.S. institutions, and development of appropriate training methodologies including audio-visual equipment and facilities. Almost all the staff of TC had received training in the U.S. Some are still receiving training and are on short-term visits to the U.S.

### 4. Current Programs of TC:

Training programs at the new campus of the TC in 6 October City commenced in March 1995. The TC course calendar for 1995 contains a listing of 106 courses for an estimated 2500 participants from the MPWWR. Many of the courses are of two-week duration. There are a few of one-, or three-, or four-week duration. The longest duration of a course is seven weeks. This course on On-Farm Water Management (OFWM) is given annually in the Kafr El-Sheikh branch of the TC and has participants from other countries also. It was developed on the basis of on-farm water management research conducted in Egypt under the Egyptian Water Use Project (EWUP) and many of the trainers in the course are drawn from the researchers in NWRC who participated in the multi-disciplinary field-oriented research in EWUP. The course is an excellent example of the need for good research base in order to develop good training programs.

### 5. Types of courses:

A large number of courses are technical courses for engineers and technicians to upgrade their knowledge and skills. There are induction courses for new entrants into the MPWWR and also courses to be taken periodically as they advance in their careers; there are some courses to be taken before they are promoted to higher positions. Some of the promotion courses deal with administrative and financial procedures and regulations. There are many computer courses of varying degrees of sophistication and there is a great demand for these courses from all categories of staff.

There are two courses dealing with management: one is on "project management", the other on "principles of management." Both are of two-weeks duration. There is a great demand for these management courses according to the Director of the TC who said they have been able to provide places in these courses to a much smaller number of persons than the number of requests. Therefore, the TC is trying to repeat the courses to meet the demand. Each of these two courses is offered three times in 1995.



#### 6. Course content:

The contents of the various technical courses are generally evaluated as good and useful by the participants in the training courses. Some of the former participants suggested increasing the practical content of some of the courses which they felt were more academic in their treatment. The computer courses have provided opportunities for hands-on experience and are rated as very useful. The contents of the two management courses are found to be very good. Particular mention should be made of the course on "On-Farm Water Management" which is multi-disciplinary and field-oriented, and has built into the course a lot of field work by the participants in the course. Similarly, the course on "Flow in Open Channels" is being conducted at the Hydraulics Research Laboratory at Delta Barrage with lot of field orientation and calibration of flow measuring devices.

#### 7. Staff and trainers:

The TC has a rather small core staff of trainers who conduct courses and manage training programs and the various components of the training cycle. The computer courses are conducted almost entirely by the staff of the TC. The staff have had good opportunities for training in the U.S. institutions, mostly in the form of attending short-term courses and visits to attend conferences. The TC draws its instructors and trainers for its courses from various sources: the universities, researchers of the NWRC, experienced engineers of the MPWWR, and the private sector (the Middle East Advisory Group for the two management courses). There is a good process for evaluation of the trainers by the participants of the training programs. In addition to the training courses, the TC also conducts short one-day seminars on specific themes of interest to particular groups of professionals, and invites experts in the field to provide inputs in such seminars.

#### 8. Training methodologies:

The TC is equipped with facilities and the staff are trained in the use of a wide range of training methods in the various courses. Audio-visual methods and videos are used; the laboratories, both indoor and outdoor, are well equipped to provide laboratory training; the computer laboratories are used intensively for hands-on training in the courses; field work is built into the courses as mentioned above. Group discussions and case study method are used especially in the management courses.

#### 9. Trainees' perceptions and feedback:

Based on the perceptions of the participants in the training programs and the feedback obtained, there is adequate evidence to lead one to believe that the current training programs of the TC are providing training useful to participants to improve the skills needed on their jobs; that the course contents are generally well designed; that the trainers' performance is evaluated favorably by the trainees; and appropriate training methodologies and facilities are being used by trainers. It was, however, pointed out that some of the courses are too theoretical and academic, lecture-based, and need higher practical orientation. This requires emphasis on field-oriented action research and the results of such research to be converted into training modules for inclusion in the courses as was the case in the course on On-Farm Water Management.

## 10. Management of TC:

Initially structured as part of the NWRC, the TC since July 1991 reports directly to the Minister of Public Works and Water Resources. There is also a Higher Training Committee (HTC) which acts as Board of Directors for the TC and provides technical and professional leadership and guidance to the TC. The HTC consists of all the heads of the authorities, sectors, and departments of the MPWWR. There is also a Steering Committee to oversee the development of the Professional Development (PD) component of the IMS project. The two committees - the HTC and the Steering Committee - are chaired by Dr. Mahmoud Abu Zeid, President of the NWRC.

### 2.2 **Future Development of the Training Center**

#### 1. Capacity building:

During the last five years, excellent physical facilities have been built for the TC in 6 October city, necessary equipment has been installed, staff trained, and the training activities are being conducted. The TC is strong and is doing a good job. Thus the capacity building phase has been completed at considerable investment. The next phase of capacity utilization to realize the full potential of the facilities created will be equally challenging. Training and human resources development are dynamic processes, and, therefore, the sustainability of the facilities and the operations and their periodic upgrading to maintain excellence in the outputs will also pose a great challenge.

#### 2. Capacity utilization:

The TC has commenced training programs in the new campus in 6 October City only in March 1995. In April itself seven courses were scheduled to run simultaneously for some duration. Similarly, there will be periods in August and September when seven courses will be conducted simultaneously for some period of time. Taking an average of 30 participants per course, there could be a total number of 210 participants staying in the hotel which has a capacity of 250, achieving more than 80 percent capacity utilization during these periods. Pending the development of the career development plans for Ministry personnel and a precise forecast of the demand for the training services of the TC, which process is expected to take some more time, the TC has prepared a tentative plan and expects to conduct, during the period 1996 to 2001 (Annex 6.4), on an average about 116 courses per year and train a total number of 3140 persons per year from the MPWWR. The courses are designed to cover the needs of an engineer from the time of entry into the MPWWR for the next twenty years of his or her career by which time he or she becomes an inspector; and, besides, there are courses for technicians, and non-technical staff of the MPWWR. It appears that the capacity of the TC will soon be utilized completely to meet the training needs of the MPWWR. A case can perhaps be made for expanding the branches of the TC in various places to accommodate some of the courses there in order to introduce new courses in the TC in 6 October City.

### 3. Budget:

The TC has prepared a five-year work plan and estimated operating budgets for the period 1994/95 to 1998/99. The estimated operating budget for the Financial Year 1994/95 shows a GOE contribution of LE 5349790, and USAID contribution of LE 914500 (Annex 5). The budgetary increase per each year in the five-year plan is based on five percent increases per year in all line items. The rate of inflation is believed to be higher than five percent. It would appear that the TC would need more support than what is budgeted in order to operate and maintain the facilities and to realize its potential. There is some concern that, after the end of the USAID contribution to the PD component of the IMS project, there may be difficulty in obtaining the necessary budgetary allocations to meet completely the operating and maintenance expenditures of the TC facilities.

There is a view that the TC facilities could be marketed to conduct international courses and international or regional seminars and conferences and some revenue realized to help the operational and maintenance expenditures. Certainly there exist such possibilities and they are being explored. It has excellent potential for use as a convention center with a conference hall and hotel facility and can rent these facilities to national and international organizations to hold conferences and seminars. It would take some time before such possibilities can be exploited. For a few years to come, such revenue generated should perhaps be considered as supplemental income to TC to provide incentives to its staff and thus providing a strong motivational force. Further, it should not detract the TC from the primary objective of catering to the training needs of the personnel of the MPWWR; and, as discussed above, its capacity would perhaps be needed for much of the time to meet its primary objective itself.

### 4. TC's role in integrating IMS components:

The Action Plan deals with the issue of integrating the IMS components into the regular operations of the Ministry. One chapter deals with the issue of strengthening the management processes in the Ministry to achieve this objective. Another chapter deals with integrating IMS components into irrigation operations and maintenance. The TC and professional development also constitute a component of the IMS. The TC will be required to play its role in responding to the demands for training and to take over recurrent training associated with some of the IMS components as they complete their developmental roles and come to a close.

Some examples include training the IIP staff (training of IAS staff in particular and training of IIP design and construction staff); the MSM staff (training of engineers and technicians in running and maintaining the telemetry system, and training of engineers in using the telemetry data); and the PM staff (training of engineers in new areas on the procedures to be used). This might require that the Ministry take a policy decision that the TC facilities will be used in future for providing such recurrent training, and then increase the staff strength of the TC so that it develops the needed expertise to play its role.

The Action Plan suggests a role for the TC in an action program to modify field operational practices so as to use relevant IMS components to improve the ability of the field staff to distribute water efficiently and effectively. There will be a need for training in this effort

and the TC should be asked to play a part. The TC could use its facilities and work with outside facilitators in arranging for the workshops and consultation processes proposed in the Action Plan on the Ministry's management processes.

The TC should be looking for opportunities to develop more courses based on research, for example related to IIP (or the irrigation operations action program described in chapter 4). In such a context, the TC could be called upon to play an effective role in conducting the seminars, workshops, for the senior and middle level personnel involved in action programs as well as courses and field-based training for engineers and operating personnel. It can also help in disseminating results of research widely by developing curricula and offering courses. Some specialist help may be needed to convert the research findings into course material. The TC has some expertise and could perhaps ask for more if necessary.

To date, the IIP has been arranging its own training programs, independent of the TC. There might have been good reasons for this as the TC's facilities and expertise were somewhat limited in the past. Now that the TC facilities have been created and expertise developed, it would be appropriate for the training programs in the MPWWR to use the facilities to the maximum possible extent, and for the TC to coordinate such programs.

#### 5. Linkages between TC and research institutions:

There are good linkages between the research institutes of NWRC and the TC. Researchers from the NWRC institutes participate as instructors and trainers in the training programs at TC. They prepare course material for courses when requested by the TC as in the example of the drainage course developed by the Drainage Research Institute. The TC sends the participants in the course on Open Channel Hydraulics to the Hydraulics Research Institute. Such linkages, however, seem to be on an ad hoc basis. It has been suggested that a more formal mechanism would strengthen the linkages. The participation of the NWRC institutes in field-based action research suggested above would also help strengthen the linkages for the benefit of TC in the development of course curricula based on findings of the action research. It has happened earlier in the EWUP in mounting such research on on-farm water management; and it could happen again. The NWRC research institutes should also play a significant role in upgrading the contents of the curricula of the courses to reflect recent research findings in their respective fields.

The following steps are suggested for strengthening the linkages between the TC and the research institutes:

- a. The NWRC research institutes are conducting specialized training in their respective fields of research. It would be useful to have a review of the training programs conducted by the research institutes and collect information on the training program objectives, program contents and nature, duration of the programs, trainers participating in the programs, evaluation procedures, and sustainability of the programs;
- b. With this information, the Board of Management of the TC should consider opportunities for integrating some of the training programs of the research institutes into the regular training programs of the TC wherever appropriate, based on the training needs assessment (TNA) procedures of the TC;

- c. The TC may also request specially tailored programs or sandwich courses from the research institutes to develop comprehensive training programs for engineers at different levels in service and experience.

#### 6. Development of new training programs:

For the TC to play its role effectively in the integration of the IMS components into routinized irrigation operations in due course and in meeting the training needs of field-based action programs, it will have to pay attention to development of new training courses and programs. The IIP has been doing a lot of training and those course curricula should be looked into. The IIP courses have been developed to train their personnel on subjects such as:

- > orientation course for Irrigation Advisory Service (IAS) personnel;
- > mesqa planning and design with farmer involvement;
- > mesqa operation and maintenance;
- > monitoring and evaluation of water use; and,
- > rapid appraisal of performance.

Interdisciplinary courses may be needed on such topics as performance assessment, diagnosis and improvement of irrigation systems in IIP; performance assessment of drainage systems; and dealing with farmers (WUAs and IAS). Preparation of training materials based on case studies with illustrations of field problems and their solutions would help to sustain the interest of the participants. The developments resulting from the application of new techniques and technologies - MSM, PSM, IIP, and PM, for example - to improve water resources management should provide, in due course, rich content for new courses and training programs.

#### 7. Training programs in management:

The two courses related to management on "principles of management" and "project management" are each of two weeks duration. They are of good quality and are in great demand. Because of their short duration, they are adequate only to develop awareness of and appreciation for the management aspects; and are clearly not sufficient to develop the managerial skills needed to improve job performance of the middle- and senior-level officers. There is a need to develop short course modules of one-week or two-week duration for intensive training and experiential learning on such topics as leadership, planning and decision-making, communication, motivation, self-development, development of interpersonal skills, team building, conflict resolution, management of change, time management, stress management, and crisis management. Such courses can be offered to senior- and middle-level managers who can choose from a menu and then take them in some sequence at their convenience. This is because they may not be able to be away from their jobs for long periods of time. There is a great demand for such courses based on the feedback from the field. The courses will be useful and will be popular.

A brief assessment based on visits to a sample of the management institutions in the universities and in the private sector has shown that such short-term training modules and programs are being offered to a variety of clients in the public and private sectors by these institutions. It should be easy for the TC to develop productive and useful linkages with such institutions. In fact, it has already developed a relationship with the Middle East Advisory Group (MEAG) which currently offers the two TC management courses. Both MEAG and the Institute of Management Development of the American University in Cairo are very well placed to offer high quality management development programs and to tailor-make them to suit the needs of the TC. However, they need to start with a Training Needs Assessment (TNA).

The TNA methods currently used by the TC have certain limitations when used to assess management training needs. This is because the officers are not generally sufficiently aware of the management functions and the knowledge and skills needed to perform these functions. This contrasts with the technical dimensions of their work with which they are familiar and for which they had received earlier education. A publication on "Public Sector Irrigation Training" (EDI and USAID 1989), and a recent book on IIMI's experience in irrigation management training for institutional development in Malaysia (Franca 1994) can provide some guidance on how to design and implement a management-oriented training needs assessment.

The document on "Public Sector Irrigation Training" provides guidelines for preparing strategies and programs. IIMI followed these guidelines and used a "Modified Nominal Group Technique" to assess the gaps in the managerial knowledge and attitudes of persons in doing jobs at various levels in the Department of Irrigation and Drainage (DID) in Malaysia. The TNA and all the subsequent steps in the training cycle for irrigation management training, and the strategic planning and institutional development activities in Malaysia's Department of Irrigation and Drainage (DID) were conducted by IIMI in close collaboration with DID, over a four-year period. These steps are described in great detail in Franca (1994).

#### 8. Sustainability issues:

The TC has some potential to develop into a regional and international center of excellence in the field of training for water resources management. The concept of sustainability should therefore include not only the current task of operating and maintaining the current facilities to realize the potential created, but also continually upgrading them to meet the emerging demands and challenges in the field. Physical facilities need to be maintained and some of the branches may have to be expanded; new equipment may be needed for transfer of new technologies, especially, in computers and software where there are fast moving developments; well trained staff have to be retained and new staff recruited and trained so that loss of a few trained staff members will not create difficulties; the linkages between the TC and the NWRC research institutes must be strengthened and the research findings used to upgrade the quality of the courses offered. All these issues require continuous guidance from the top management of the TC. The TC will also require commitment of adequate funds by the MPWWR and support from external funding agencies for such elements that need material and specialist assistance from outside the country.

As mentioned earlier, there exist possibilities for the TC to earn some revenue by marketing its facilities to outside organizations to conduct conferences, and by the TC itself conducting international or regional courses and training programs. But it is very unlikely that such revenues can ever make the TC self-sufficient financially. As the main objective of the TC is to continue to serve the training needs of the personnel of the MPWWR, the major budgetary allocation for the operation, maintenance, and periodic upgrading of the TC's facilities will have to come from the MPWWR with some possible assistance from donors for particular components as may be required.

#### 9. Human resource development:

The PD component of the IMS project has confined itself to the development of the TC in all its dimensions. Training is important but is only one part of personnel management and human resource development. Recruitment, induction training, continuous on-the-job training, periodic training to upgrade the skills needed to perform well on the job as part of a well-defined career development plan, proper placement with appropriate compensation packages, performance appraisal and management systems, incentives to encourage good performance, and creation of an environment that provides job satisfaction, motivation, and high morale -- all these must form a part of a good human resource management system. It is a fundamental principle that a strategic human resource development plan can be developed only after a strategic plan for an organization is developed.

The MPWWR is currently addressing the issues of developing a vision for the future and developing strategic plans to move towards realizing the vision. This IIMI-MPWWR-USAID collaborative study is a step in that direction. Broader issues of human resource development, career development plans for the personnel of the MPWWR including the specialization needs, and the other connected issues will hopefully be addressed soon.

### 3 RECOMMENDATIONS

The recommendations are presented concisely and reference is made to the text of the report where more detailed description is given. Action required to implement the recommendation is also given.

#### 3.1 Capacity building and capacity utilization

The capacity building stage of the TC is over and the capacity utilization of the facilities created in 6 October City has commenced; and it is gaining momentum. The TC is strong and is doing a good job. It should be provided full support by the MPWWR and external funding agencies to realize its full potential and sustain it.

**Action:** The TC may need more support than the Ministry can presently provide from its own operational budget. One strategy for consideration might be the use of the training facilities of the TC by the components of the IMS project that are getting one year

extensions -- MSM, IIP, and PSM -- and for them to pay the TC from their training budgets. There is serious apprehension that the MPWWR will not be able to fill the gap after the end of USAID's direct support; but this approach may provide a partial solution.

### 3.2 Role of TC in integrating IMS components

As the IMS projects like MSM, IIP, and PM come to a close after completing their developmental work in improving irrigation operations and water resources management, the TC will have to get better equipped to provide recurrent training to the engineers and technicians, to provide them the skills required to use the new techniques and technologies. It should also look for opportunities to develop courses based on field-based action research projects such as IIP in selected pilot projects. It may also be called upon to provide training support needed in other action programs.

**Action:** The Ministry should take a policy decision that the TC facilities will be used in future to provide recurrent training when some of the components of the IMS project complete their developmental role at the end of the IMS project. This also applies to the training under other donor-funded projects. The Director of the TC will then have to coordinate with the Directors of such of those components of the IMS project and prepare a plan for the development of new courses and the expansion of the TC staff to cope with future demands for training, and using project funds for training.

### 3.3 Research and training linkages

The existing linkages between the TC and the research institutes of NWRC should be further strengthened through creation of more formal mechanisms to replace the somewhat ad hoc arrangements found at present. Two sub-committees to be formed respectively by the Chairman of the NWRC and the Chairman of the Higher Training Committee should interact as frequently as necessary to strengthen the linkage between training and research in a long term perspective.

**Action:** Two sub-committees are proposed to be constituted by the Chairman of the NWRC and the Chairman of the Higher Training Committee:

- a. The chairman of the NWRC could constitute a sub-committee of some of the directors of the research institutes involved in collaboration with the TC's activities;
- b. The Chairman of the Higher Training Committee could constitute a sub-committee of engineers with field experience (heads of departments or sectors);
- c. The two sub-committees can be entrusted with the task of strengthening the linkages between the TC and the research institutes of NWRC; and



- d. They would report to their respective Chairmen and Boards of management for approval of their action plans to achieve the objective of strong linkages in a long term perspective.

### 3.4 Development of new courses and programs

The TC should develop new courses and programs to meet the needs of changing circumstances. Development of interdisciplinary courses on performance assessment of irrigation and drainage systems, and 'dealing with farmers' are examples. Such need will also be felt in computer courses where fast advances take place. Field and laboratory work experience and practical orientation of the course content should be constantly emphasized, including the use of the facilities of NWRC research institutes.

**Action:** Development of new courses and programs is an on-going activity of the TC. The Director of the TC should consider the recommendation and initiate necessary action.

### 3.5 Management development programs and courses

Management courses for middle- and senior-level officers should be increased in number and content. There is a great demand for the courses. They will help train persons for better managerial performance in their jobs. Training needs assessment is a first necessary step in developing the new management course modules.

**Action:** The Director of the TC will consider increasing the number and types of management course modules for the middle- and senior-level officers of the Ministry.

### 3.6 Sustainability

The top management of the TC needs to give attention to the various sustainability dimensions of the TC -- the physical infrastructure, the equipment, and other facilities, and their operation, maintenance and upgrading as needed; staff improvement and retaining highly qualified staff by appropriate incentives; and strategic thinking and policy-making to make TC an international and regional center of excellence in the training field.

It is important to note that a strategic human resource development plan can only be developed after a strategic plan for an organization is developed.

**Action:** The top management of the Ministry and the Chairman of the Higher Training Committee will initiate action to develop a strategic plan for the TC and its role in the human resource development plans of the Ministry. While such a comprehensive strategic plan may have to follow the strategic planning for the Ministry itself, immediate attention should be given to supporting the sustained operation of the TC in the short-term period of three to five years.

#### **4 ANTICIPATED SCHEDULE OF PROGRAM ACTIVITIES**

Unlike some other components which are under consideration for extension by one more year after September 1995 under the IMS project, the PD component will have been almost completed and achieved most of its objectives by September 1995. Therefore the recommendations and the actions suggested are focused on strengthening the TC and supporting its activities on a sustainable basis, both in the short-term and in the long-term; they call for policy decisions by the Ministry, and other institutional initiatives. There are also a few actions that the Director of the TC can initiate subject to his resource constraints. Therefore, no schedule of program activities is provided. A review of the status of the TC may be needed sometime in 1996 to plan for possible future support to the TC from other sources.

#### **5 EXPERTISE REQUIRED TO IMPLEMENT THE PROGRAM**

##### **5.1 Expertise from within the Ministry**

Most of the recommendations deal with institutional initiatives which can be taken only by the expertise within the Ministry including expertise in the research institutes of NWRC.

##### **5.2 Expertise from outside the Ministry**

- a. Expertise from outside the Ministry will be needed to develop management development programs for middle- and senior-level officers of the Ministry. Such expertise is locally available and is already being used by the TC in conducting its management courses.
- b. There may, however, be a need for support to the TC from a donor in the following areas where local expertise or technology may not be available:
  - i. Computer hardware and software and advanced training for computer-training staff of the TC. This is an area where technology is developing very fast.
  - ii. There may be other cases of transfer of technology similar to the case of computers and each case has to be justified separately.
  - iii. Specialist expertise in some particular cases may be required from outside the country, which, again, needs to be justified in each case.

#### **6 PLANNED OUTPUTS AND IMPACTS**

The outputs of the TC are a result of the considerable investments made in the establishment, growth, and development of the TC. On an average, about 3000 personnel of the MPWWR will receive training every year in the TC and its branches. The training received by them is bound to improve their knowledge and skills in performing their jobs. The impacts are not easy to evaluate and occur over a period of time. Training and human resource development are known to achieve high returns on the investments made in them.

**REFERENCES**

- EDI & USAID.  
1989           Public Sector Irrigation Training: Guidelines for Preparing Strategies and Programs. The Economic Development Institute of the World Bank and The United States Agency for International Development.
- Franca, Z.P.  
1994           Irrigation Management Training for Institutional Development: A Case Study from Malaysia. International Irrigation Management Institute, Colombo, Sri Lanka.
- Sheladia Associates, Inc.  
1994           Professional Development Component: Irrigation Systems Project - Final Report. March.

## TABLE OF CONTENTS

Annex 1 . . . . .	44
LIST OF PERSONS INTERVIEWED . . . . .	44
Annex 2 . . . . .	46
References quoted in the report . . . . .	46
ANNEX 3 . . . . .	48
MPWWR - TRAINING CENTER : ACTIVITIES . . . . .	48
ANNEX 4 . . . . .	55
FIVE YEAR PLAN OF MPWWR TRAINING CENTER - 1996 TO 2001 . . . . .	55
ANNEX 5 . . . . .	59
ESTIMATED OPERATING BUDGETS FOR TRAINING CENTER . . . . .	59

# **TRAINING CENTER AND HUMAN RESOURCES DEVELOPMENT**

## **ANNEX**

## Annex 1

### LIST OF PERSONS INTERVIEWED

#### Ministry of Public Works and Water Resources

##### Headquarters of the Ministry

1. Eng. Ali Abu El-Seoud, Undersecretary of Ministry; & Head of Planning Sector
2. Eng. Sarwat Fahmy, Chief, IMS Monitoring Office
3. Mr. Hussien Mandouh Shoman, Director of Public Administration of Personnel Affairs  
for the Irrigation Department

##### Training Center, 6 October city

4. Eng. Abdel Aty Allam, Director of the Training Center
5. Eng. El Hussien El Kholy, Deputy Director, and Head, Department of  
Planning and Program Design
6. Eng. Ahmed Bayoumi, Head, Department of Program Implementation
7. Eng. Abd El Baset Reyad Hussein, Head, Department of Evaluation and Follow-up
8. Mrs. Zeinab Abdel Ghany Hassan, Head, Financial and Administrative Affairs
9. Eng. Ahmed El Attar, Department of Evaluation, Follow-up of trainees
10. Eng. Abdel Raouf Hassan, Consultant of the Training Center

##### Visiting Trainers in the Courses at the Training Center

11. Dr. Lotfy Nasr, National Water Research Center
12. Prof. Osama Farid, Middle East Advisory Group

##### Branch of the Training Center, Kafr El Sheikh

13. Eng. Saad Hussien Zaki, In charge of the Branch, Department of Program  
Implementation

##### Former trainees from the Ministry Headquarters

14. Eng. Fotooh Ahmad Lotfy, Planning Section
15. Ms. Inas Mohamed Zakaria, Public Relations specialist
16. Ms. Ganette Moris, Public Relations Department
17. Mr. Osama Abdel Hady, Typist, Office of the President of Irrigation Authority
18. Eng. Amru El Kady, Computers Planning Center, Central Information Office
19. Eng. Mina Fawzy, Reservoir and Grand Barrages Department

National Water Research Center, Delta Barrage

20. Dr. Eng. Mohamed Samir Mahmoud Farid, Director, Water Resources Research Institute
21. Dr. M.B.A.Saad, Director, Hydraulics Research Institute
22. Dr. Moustafa T.K. Gaweesh, Deputy Director, Hydraulics Research Institute
23. Dr. Mohamed Abdou, Hydraulics Research Institute
24. Dr. Dia El-Din Ahmed El-Quosy, Director, Water Management Research Institute
25. Dr. Safwat Abdel-Dayem, Director, Drainage Research Institute

Water Management Research Institute - Field Center at Kafr El Sheikh

26. Eng. Ahamed Ismail, In charge of the Field Center
27. Eng. Mohamed Mielha, Agronomist

**Universities, Consulting Firms, and Specialists**

28. Prof. Dr. Ibrahim El Assiuti, Faculty of Civil Engineering, Cairo University
29. Dr. Yousry K. Ismail, Professor of Management, Director of Research and Commercial Studies Center, Cairo University
30. Dr. Ibrahim El Siedi, Director of Research and Consulting Center, Faculty of Commerce, Ein Shams University
31. Dr. Mohammed R. El-Hamalawy, Professor of Business Administration, Faculty of Commerce, Ein Shams University
32. Dr. Bassam El-Ahmady, Faculty of Commerce, Ein Shams University
33. Dr. Mohamed Maged Abaza, Director, Institute of Management Development, The American University in Cairo
34. Dr. F.A. Mohamed, Sadat Academy of Management Sciences
35. Dr. Soheir S. El Sherif, General Manager, Middle East Advisory Group
36. Dr. Max Lowdermilk, Irrigation Management Specialist, Nathan Associates Inc.
37. Dr. Robert Smail, Formerly Chief of Party, Sheladia Associates Incorporated

## **Annex 2**

### **References quoted in the report**

EDI of the world Bank and USAID. 1989. Public Sector Irrigation Training: Guidelines for Preparing Strategies and Programs. The Economic Development Institute of the World Bank and The United States Agency for International Development.

Franca,Z.P. 1994. Irrigation Management Training for Institutional Development: A Case Study from Malaysia. International Irrigation Management Institute, Colombo, Sri Lanka.

IIMI. March 1995. Work Plan - Strengthening Irrigation Management in Egypt: A Program for the Future. International Irrigation Management Institute, Colombo, Sri Lanka.

Sheladia Associates, Inc. March 1994. Professional Development Component: Irrigation Systems Project - Final Report.

### **Reports consulted**

Calverly, Paul H., Philip W.Harlan, and Aldon D.Nielsen. Report : Training Needs Assessment for the Ministry of Irrigation, Arab Republic of Egypt. February 20, 1986.

Ministry of Public Works and Water Resources. Report: Irrigation Management Systems Project, Second Annual Training Plan for the Professional Development Project. Output No.18, PDP Contract. March 1990.

Sheladia Associates Inc. Final Report: MPWWR - Training Needs Assessment. May 31, 1990.

Sheladia Associates Inc. Report: MPWWR - Training Needs Assessment-Vol.II. December 1990.

Ministry of Public Works and Water Resources - Training and Manpower Development - Training Center: Five Year Plan 1992-1997. May 1991.

Ministry of Public Works and Water Resources - Training Center. Course Catalogue. November 1991.

Ministry of Public Works and Water Resources. Course Bulletin : Training Center.

Ministry of Public Works and Water Resources. Information Bulletin: Training Center.

Ministry of Public Works and Water Resources. Course Calendar: 1995.



Eng. Abdel Aty Allam. Plan for Sustainability of MPWWR Training Center-Professional Development Component-PD. April 1994.

Eng. Abdel Aty Allam. MPWWR Training Center - P.D.Component. October 1994.

MPWWR. Information Bulletin: Water Research Center. 1989.

MPWWR. Information Bulletin: National Water Research Center - Hydraulics Research institute. 1995.

MPWWR. Information Bulletin: National Water Research Center - Drainage Research institute. January 1993.

MPWWR. Information Bulletin (Draft) : National Water Research center - Water Management and Irrigation Systems Research Institute. November 1994.

United States Agency for International Development. End of Project Report (November 1988 - June 1994) : Irrigation Management Systems/Water Research Center Project.

ISPAN Report No.54 : Irrigation Management Systems Project - Review and Planning Workshop. April 1-4, 1993. Port Said, Egypt.

Cairo University. Guide - Research and Commercial Studies Center, Faculty of Commerce.

Sadat Academy for Management Sciences. Information Bulletin.1995.

American University in Cairo. Information Bulletin : Management at AUC.

American University in Cairo - Institute of Management Development (IMD). General Management Programs 1994-95.

American University in Cairo - Management Center. Information Bulletin: Management Research, Consulting and Training Services.

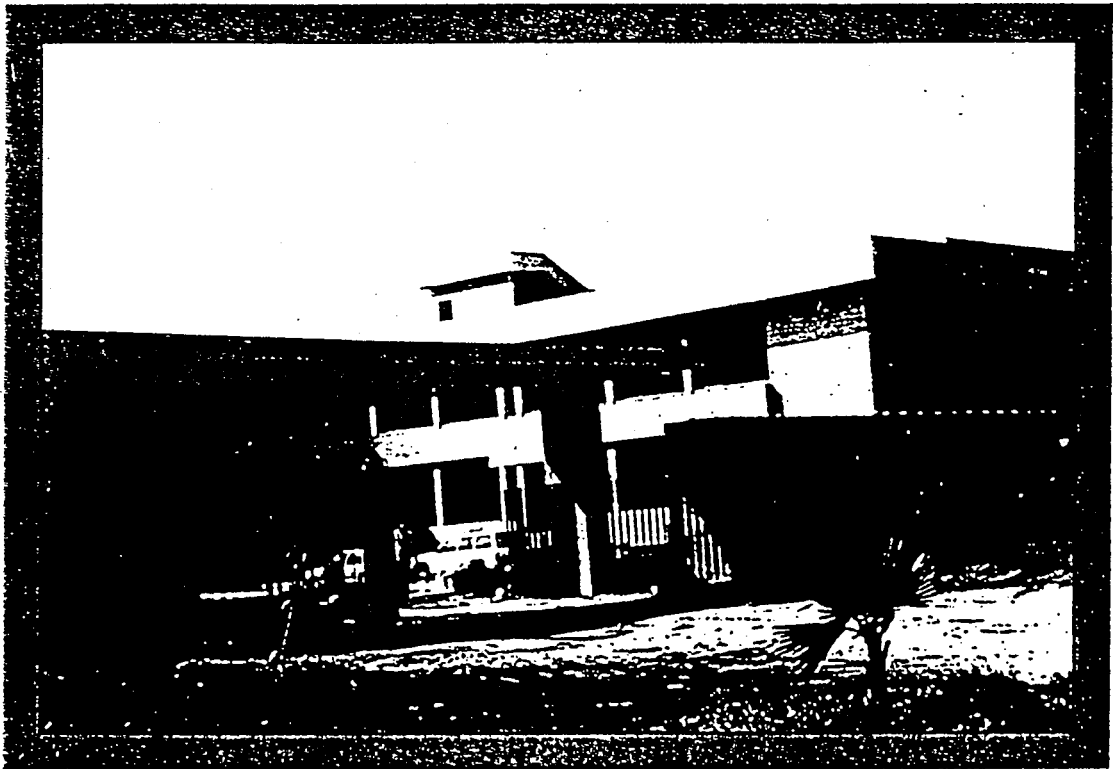
Middle East Advisory Group. Information Bulletin: Fields of Activity & Experience.

**ANNEX 3**

**MPWWR - TRAINING CENTER : ACTIVITIES**

Arab Republic of Egypt  
Ministry of Public Works and Water Resources  
MPWWR

**TRAINING CENTER**



## MPWWR TRAINING CENTER ACTIVITIES

### EGYPT : 5,000 YEARS OF WATER RESOURCES EXPERIENCE.

Egypt is unique among the nations of the world for its extraordinary dependence upon a single water source - the Nile River. For more than 5,000 Years, Egyptians have been managing Nile water to irrigate their fields.

The planning, implementation, and maintenance of the Nile irrigation and drainage system in Egypt are carried out by the Ministry of Public Works and Water Resources.

The MPWWR Training Center provides specialized training to help the six thousand professional and 80 thousand non - professional staff who work in irrigation, drainage and other public works activities acquire new knowledge and skills that will lead to improved on - job performance.

The MPWWR Training Center also organizes training courses, seminars, and conferences for other African and Asian countries, particularly those sharing the Nile River Basin.

### MPWWR TRAINING CENTER ORGANIZATIONAL HISTORY

**a.** The Training and Manpower Development (TMD) Unit, the organizational predecessor of the MPWWR Training Center, was established in 1982. In 1985 the TMD expanded its scope of services with assistance provided by the Professional Development Component of the USAID - funded Irrigation Management Systems Project.

Initially structured as part of the Water Research Center, the MPWWR Training Center since July 1991 reports directly to the Minister of Public Works and Water Resources .

**b.** The Training Center contains the following four departments :

- \* Department of Planning and Program Design.
- \* Department of Program Implementation .
- \* Department of Evaluation and Follow - Up.
- \* Department of Administrative and Financial Affairs.

In addition, a technical Office of Publishing and Information has been established.

## **MPWWR TRAINING CENTER ACTIVITIES**

### **IMPRESSIVE GROWTH 1982 - 1993**

The TMD Unit began in mid - 1982 with three courses and a total enrollment of 57 participants and has grown steadily to more than 95 courses offered in 1992 to about 2,000 Egyptian participants and 50 participants from Arab and African countries. In 1993 the Center offered over 80 courses to 1834 participants from the Ministry and 69 participants from Arab and African countries.

These Courses are conducted by instructors from universities, Water Research Center, specialized firms and consultants in training, and personnel from the Ministry.

Courses are held in Shoubra Training Center, Kafr El Sheik, and El-Minia. During 1994 courses will start at the new 6 October City Training Center, in addition to the satellite centers. In 1994 satellite centers will be added at Esna and at Aswan.

### **TRAINING NEEDS ASSESSMENT (TNA)**

MPWWR Training Center staff conduct an annual Training Needs Assessment meeting with Ministry staff in different locations. Training programs from 1990 - 1994 were prepared according to needs of employees at different stages in their careers, identified through the TNA process.

### **MONITORING, EVALUATION AND FEEDBACK (MEF)**

A closely related activity is the Monitoring, Evaluation and Feedback (MEF) studies undertaken for each course. Each course is tested throughout the course and at the end.

MEF monitors the effectiveness of current training and contributes to improvements in current curriculum, instruction delivery, and the development of new courses.

### **CURRICULUM DEVELOPMENT (CD)**

Using the results of the TNA and MEF studies, the MPWWR Training Center is engaged in the further development of its curriculum.

Training experts are working together with the instructors and consultants to enhance curriculum, using the latest advances in instructional technology, including computer assisted learning laboratory and field activities.

### **OFF- SHORE TRAINING**

The MPWWR Training Center also coordinates and assists in the selection of courses for candidates within the Ministry to attend offshore training. Each year, a number of employees are enrolled in short- term overseas courses to complement or enhance skills obtained through training at the TC. The Training Centre manages this offshore training for the MPWWR.

## MPWWR TRAINING CENTER ACTIVITIES

### NEW MPWWR TRAINING CENTER IN SIX OCTOBER CITY : DREAM TO REALITY

On March 27, 1990, the Prime Minister laid the first cornerstone brick in the ceremonial ground - breaking ceremony to mark the start of construction of the new MPWWR Training Center in 6 October City.

Joining the Prime Minister were the MPWWR Minister, Minister of Interior, U.S. Ambassador, USAID Director, and numerous other officials.

The total cost of construction for the Training Center will be LE 26 million, supported by USAID, through the Ministry of International Cooperation. In addition, the United States Agency for International Development (USAID) is contributing \$ 3.6 million worth of equipment for the Training Center through the \$ 14 million Professional Development (PD) Project.

Assisted by the U.S. company Sheladia Associates, Inc., the PD project is one of ten components in the \$ 340 million USAID funded Irrigation Management Systems (IMS) project.

Designed by the MPWWR, Engineering, Design and Irrigation Consulting Office, the center provides high - quality training for 2000 participants annually, focusing primarily on MPWWR professional staff. It also trains Egyptian professionals in the public and private sectors as well as trainees from Arab, African, and Mediterranean countries.

#### OBJECTIVES

The Training Center's objectives are :

- \* Train a cadre of senior supervision, executive and middle managers with comprehensive knowledge on how to plan and direct MPWWR technical, financial, and manpower resources.
- \* Train engineers and other professional staff of the Ministry for their present responsibilities and for future targets.
- \* Provide management and training resources for continuing professional self- development of engineers and other graduated staff.

## MPWWR TRAINING CENTER ACTIVITIES

- \* Create and execute training programs for sub - professional personnel to develop their needed range of practical skills.
- \* Facilitate training opportunities for African, Arab, and Mediterranean countries in the fields of irrigation, drainage, water resources development and management according to their needs.

### FACILITIES

The Training Center contains modern laboratories and classrooms with up - to - date technical and training equipment.

A technical library and Audio - Visual Department facilitate high quality training materials and methods.

The facility includes a 250 - seat auditorium suitable for national and international seminars and conferences. Dormitory, cafeteria and recreational facilities accommodate up to 250 persons.

### LABORATORIES INCLUDE FOUR IN DOOR LABS

- \* Materials of construction and quality control
- \* Soil mechanics
- \* Hydraulics
- \* Water flow measurements.

- \* Five specially designed outdoor labs to demonstrate the latest technologies in irrigation, drainage, and water management.

The Training Center has a new computer training laboratory with the latest computers. Software programs taught include the latest technology in irrigation, drainage and water management for engineers, graduates, technicians, and administrators.

### COURSES

- \* The Training Center prepares annual plans to train Ministry staff according to modern technologies and future targets in organizing irrigation and drainage systems.
- \* The calendar of 1994 contains 72 courses for about 1800 participants.
- \* In addition, the following special training courses address the needs of the Arab and African countries. These courses contain :
  - 1- Design and construction of irrigation and drainage systems
  - 2 - Operation and maintenance of irrigation and drainage system and pumping stations
  - 3 -Mechanical and electrical engineering for pumping stations.

## MPWWR TRAINING CENTER ACTIVITIES

- 4 - Application by computer in technical, administrations and financial affairs
- 5 - Management training
- 6 - Newly appointed engineers
- 7 - Scientific and practical courses in labs
- 8 - Promotion courses for engineers

\* New specific courses prepared and conducted on demand basis include the following subjects :

- 1 - Night storage in channels
- 2 - Laser land leveling
- 3 - Pressurized system of irrigation
- 4 - Shore protection and coastal engineering
- 5 - Inspection for pumping stations
- 6 - Electronic circuits
- 7 - Design and analysis by using mathematical models
- 8 - Storage, salaries and administrative affairs by computer
- 9 - Training of Trainers
- 10- Graphic - C by computer
- 11- Power house by computer
- 12- SAP and STAAD by computer

13- Preventive maintenance management.

\* In addition to the above, the Training Center maintains Communications with other training centers in and out of Egypt to be up to date on new information and technology.



**ANNEX 4**

**FIVE YEAR PLAN OF MPWWR TRAINING CENTER - 1996 TO 2001**

Five Years Plan  
of  
MPWWR training center from 1996 to 2001

Training Program	No. of trainees	No. of courses for every trainee	Total No. of trainees for this program	No. of trainees for every course	Total No. of courses	Notes
1 MPWWR Activites, Duties and Responsibilities	1000+ newly appointed eng.	1	1000	40	25	this course attended by newly appointed Eng. throuh 3 years
2 Lows applied in MPWWR	1200	1	1200	40	30	Training 1200 Eng. from the total number of 3rd dgree 1562
3 Technical courses for civil engineers until assistant director of works level	942	3	2826	25	137	Total number of courses 2826+ 599 (newly app. eng.=137 25
4 Technical courses for civil engineers from assistant director of works to 2nd director of works level	723	2	1446	25	57	
5 Technical courses for civil engineers from 2nd director of works level to inspector level	253	1	253	25	10	
6 Technical prepration for assistant director of works	942	1	942	50	18	
7 Technical prepration for director of works	723	1	723	50	14	

	Training Program	No. of trainees	No. of courses for every trainee	Total No. of trainees for this program	No. of trainees for every course	Total No. of courses	Notes
8	Technical preparation for inspector	253	1	253	50	5	
9	Technical courses for mechanical and electrical Eng. at 3rd degree	516	1	516	25	20	
10	Technical courses for mechanical and electrical eng. at 2nd degree	320	1	320	25	12	
11	Technical courses for mechanical and electrical technicians	500	1	500	25	20	Training 25% of technicians working in mechanical sector
12	Technical courses for technicians working in MPWWR other sector	500	1	500	25	20	Training 25% of total number technicians
13	Management, Administrative and Financial courses for Eng.	654	1	654	25	30	For eng. at 2nd & 1st degree
14	Management, Administrative and Financial courses for administrative staff	1250	1	1250	25	50	Training 25% of total number of administrative staff of MPWWR
15	Computer courses for Eng.	2070	1	2070	25	82	Training 50% of eng. at 3rd & 2nd degree

Training Program	No. of trainees	No. of courses for every trainee	Total No. of trainees for this program	No. of trainees for every course	Total No. of courses	Notes
16 Computer courses for technicians and administrative staff	1250	1	1250	25	50	Training 25% from the total number
			15703		580	

\* Training range / one year is 3140 trainees at 116 courses

**ANNEX 5**

**ESTIMATED OPERATING BUDGETS FOR TRAINING CENTER**

Sources : Eng. Abdel Aty Allam. MPWWR TRAINING CENTER -PD COMPONENT  
October 1994

Eng. Abdel Aty Allam. PLAN FOR SUSTAINABILITY OF MPWWR  
TRAINING CENTER - PROFESSIONAL  
DEVELOPMENT COMPONENT - PD  
April 1994

Estimated Operating Budget for  
 Training center , MPWWR  
 1994 /1995

ITEM	FY 94 /95	
	USAID in 1000 L.E	GOE in 1000 L.E
Training bonification		565
Salaries & temporary workers	117	
Transportation (vehicle)	*	250
Equipment	50	319.450
Construction (building)		2781.340
Housing (Payments)		321
Contracts, univ., instit., firms, individuals, training costs	169	5
Lodg	470	750
Maintenance:-		
- vehicle . Furnit., Equip.	18	55
-Security & cleaning		100
Printing, Books & newspapers	5	27
Office Supplies	8	15
Water, Elect.,		25
Vehicle operation & Spare	25	80
Parts & materials		
Travel & per diem	40	43
Communication		7
Off-Shore Training	**	
Others	4,5	11
Meetings, Conferences	3	
Staff Local Training	5	
<b>Total</b>	<b>914.5</b>	<b>5349.790</b>

Notes:

\* 6 Cars under approval are requested to be delevered

\*\* Off shore training costs 150,000 \$

FIVE YEAR WORK PLAN (Cont.)

Estimated Operating Budget for  
Training Center, MPWR  
1994/95 to 1998/99  
(in '000 LE)

ITEM	FY 94/95			FY 95/96	FY 96/97	FY 97/98	FY 98/99
	USAID	GOE	TOTAL				
Salaries	100	100	200	210	221	232	244
Transportation (vehicle)	--	200	200	210	221	232	244
Furniture	--	500	500	525	551	579	608
Equipment	100	400	500	525	551	579	608
Construction (building)	--	500	500	525	551	579	608
Contracts, univ., instit., firms, individuals	160	365	525	551	579	608	638
Lodg, Food	500	1025	1525	1601	1681	1765	1853
Maintenance							
- Vehicle, furni., Equip.,	--	650	650	683	717	753	791
- Security & cleaning							
Printing, Books & Newspapers	15	50	65	68	71	75	79
Office Supplies	--	15	15	16	17	18	19
Water, Elect.,	--	25	25	26	27	28	28
Vehicle Operation & Spare parts	--	100	100	105	110	116	122
Travel & Per Diem	--	40	40	42	44	46	48
Communication	--	10	10	11	12	13	14
Off-shore Training	400	--	400	158	166	174	183
Others	125	20	145	152	160	168	176
<b>TOTAL</b>	<b>1400</b>	<b>4000</b>	<b>5400</b>	<b>5408</b>	<b>5679</b>	<b>5965</b>	<b>6263</b>

Not

---- Based on 5 percent increases per year in all line items

# FIVE YEAR WORK PLAN (Cont.)

## Historical Operating Budgets Training Center, Mpwr By Source of Funds ( in ' 000 LE )

year	USAID	GOE	Sheladia	Total
1982	46	30	76	
1983	107	50	157	
1984	79	100	179	
1985	170	100	270	
1986	206	100	306	
1987	209	50	259	
1988	61	50	111	
1989	681	50	475	1206
1990	871	50	538	1459
1991	420	70	450	940
1992	512	317	458	1287
1993	794	817	510	2121

**Notes :**  
**Year**

1982 - 1992 Based on actual expenditures by Cy Training

1993 Approved budget for FY 1993/ 94, an additional 247,000 is requested from USAID.

GOE Costs do not include salaries for staff.  
Sheladia Budgeted amounts for support of TA effort; actual expenditures less than budgeted; 1993/94 actual expenditures to be approximately LE402,800.



# FIVE YEAR WORK PLAN (Cont.)

## FIVE YEAR TRAINING TARGETS

Year	MPWWR Agencies	Outside	Total
1994	1820	125	1945
1995	2100	175	2275
1996	2350	250	2600
1997	2600	300	2900
1998	3000	350	3350
<b>Total</b>	<u>11870</u>	<u>1200</u>	<u>13070</u>