Development of Human Resource

Contents

8.1 Introduction

Training is one of the main pillars for the development of capabilities, skills, and competencies in all society sectors. The advanced countries supports long life learning and offers training programs for different sections of leadership and executive jobs to update knowledge and improve performance in all fields. Investment in human resource development is considered the most important locomotive for progress. We all realize the importance of training in narrowing the performance gap, satisfy needs in different fields, accomplish goals, and achieve the development of individuals and institutions. Training is a science to be taught and a skill to be gained. In other words, it includes providing the trainee with knowledge as well as developing his/her skills.

The world today witnesses a remarkable scientific progress in different scientific and technical fields. This progress has been accompanied by a change in job opportunity competition. Focus on producing well trained graduates who have the knowledge and skills necessary to deal with modern technology has become one of the most remarkable interests of education institutions. Therefore, the advanced countries have changed their education and training policy to cope with this progress and provide the labor market with the skills and specializations it needs.

Training with its different programs is considered an advanced means of applied knowledge. It is based on the theory that the education process takes place in various stages classified cumulatively. It starts in the first and second stages with knowledge and awareness of the basic skills that can be successfully learnt through repetition and memorization in classrooms/ or training halls. Then come the advanced stages of the education process that begin with application, then analysis and finally evaluation to measure the outcome of training. These advanced stages cannot be optimally achieved except through practice and application of knowledge in different training programs. Hence, the role of HEEPF in supporting such activities.

8.2 Training programs implemented by HEEPF Management

HEEPF management has been concerned with different fields of training and skills upgrading from the very beginning. It has organized many training courses for staff members, accountants, and employees. These courses were implemented by more than 35 local and international experts and the number of trainees reached 3500 in the following specializations:

- How to Write a Proposal?
- Project Management
- Monitoring and Evaluation
- Preparation of Progress Reports
- Financial Auditing
- E-learning
- Total Quality Management
- Training workers in HEEPF management on electronic archive and ICDL

Since this chapter is interested in the outcomes of HEEPF financed Project s, you can refer to chapter 1

8.3 The Training skills developed through HEEPF Projects

HEEPF Project s depended on the best examples of staff members. Projects were accepted based on competition and international criteria to upgrade the skills needed to enhance education. Through this Project s, labs and training centers were established and equipped with the latest equipment and work teams were formed to carry out training activities. The

Projects were periodically monitored so that they became lighthouses for staff members spreading new and advanced concepts of education. However, their benefits were not restricted to staff members, students, technicians, and employees in the university. Rather, they interacted with the community to spread awareness, experiences, and skills such as: the Infection Fighting Project, Life Saving Project, Crises Medicine Project, Society Medicine Project, and other Project s that serve different society sectors. These activities do not contradict the activities of other enhancement Project s such as ETCP, ICTP, QAAP, FLDP. Rather, they are complementary because the different training programs implemented by HEEPF Project s included the development of staff members' and other social categories' skills as shown in Figure (8-1). Examples of the basic skills developed through the training programs offered by HEEPF Project s are:

1. Writing a proposal
2. Project management
3. Accountancy and preparing budgets
4. Effective Presentation
5. Preparing technical reports
6. New teaching trends
7. Using modern technology in teaching and doing research
8. The Credit hour system
9. Simulation Models
10. Virtual Reality
11. Producing websites
12. Infection fighting in university hospitals
13. Plastic organs and models
14. Microbiology and Particle Biology
15. Scientific equipment maintenance
16. Hotels and restaurants management
17. Crises and disasters management
18. Life saving
19. Special needs education
20. Leather products
21. Pharaonic Music
22. Ergonomics Designing
23. Methods of student assessment
24. Total quality management
25. Carrying out self-studies
26. Course and curriculum description
27. Small Project management
28. Producing ready-made clothes
29. Welding technology
30. Evidence-based Medicine
31. Developing clinical skills
32. Developing practical skills
33. Critical thinking education
34. field problem solving

Figure (8-1) shows the different training fields implemented by HEEPF financed Project s. The Project s established training centers, equipped them with the required equipment, apparatus, and programs, trained human resources, and prepared scientific content in the shown fields. The Figure also shows the fields in which other enhancement Project s within the PMU (ETCP, FLDP, QAAP, ETCP, and ICTP) cooperated with HEEPF.

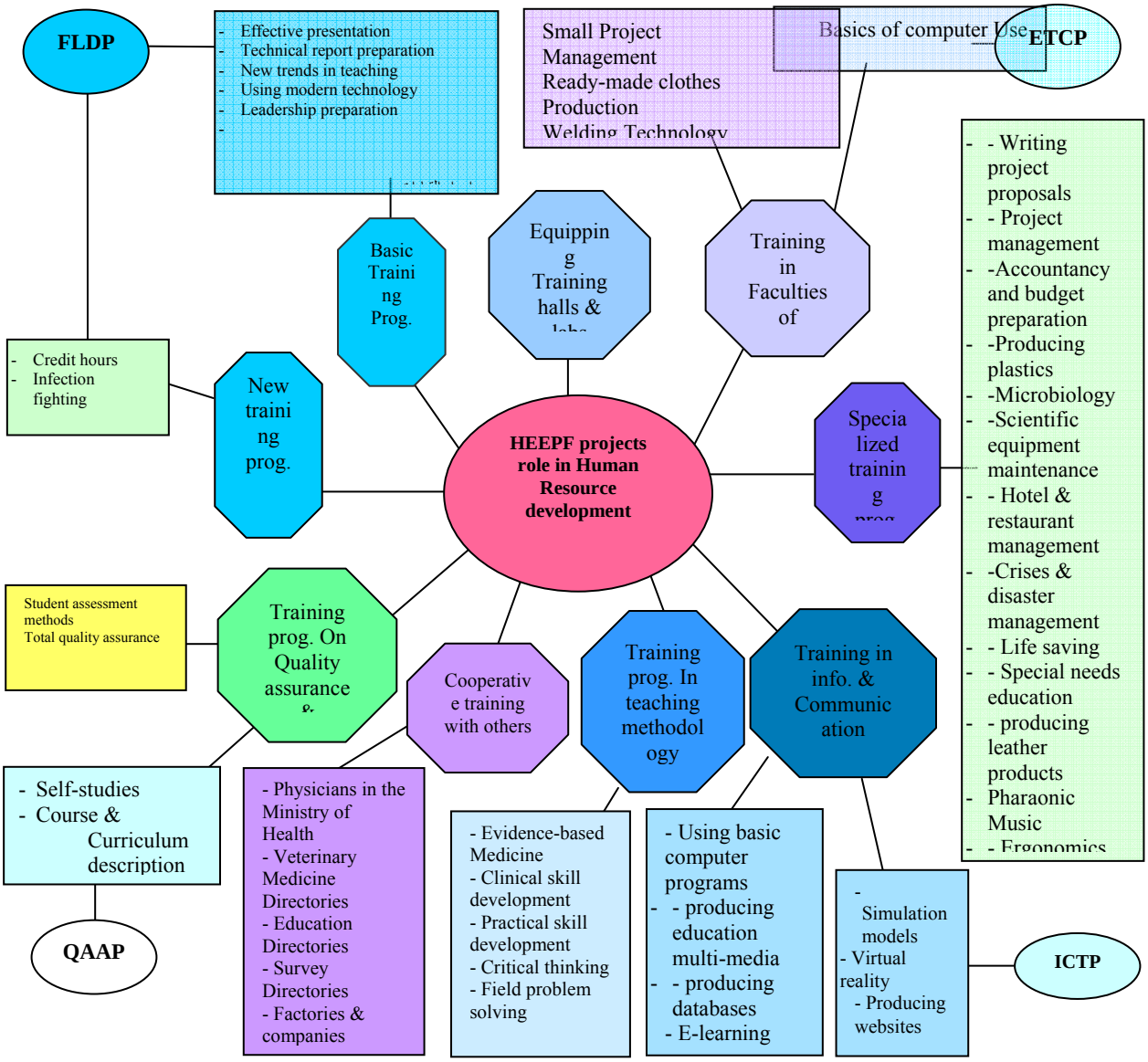

Fig. (8-1): The relationship between the training activities carried out by HEEPF financed projects and other enhancement projects

8.4 Examples of training programs implemented by HEEPF Projects

The process of evaluating and accepting Project s is basically based on open competition among universities. The Project proposals of the first phase during the four successive cycles were evaluated based on international criteria of Project s. These Project proposals were concerned to a large extent with the concept of training. The total number of HEEPF Project s that implemented training programs was 105 Project s during the different phases of HEEPF. As for the number of trainees, it exceeded 7000 trainees including staff members, assistants, students, and outside beneficiaries. Figure (8-2) is a detailed diagram of the number of Project s that offered training programs for skills development in universities, higher institutes, and the Ministry of Higher Education (Cultural Affairs and Missions Department). The training programs included the fields that serve medical, engineering, agricultural, and humanitarian sciences in universities. In addition, they prepared skillful workers in many fields such as ready made clothes, refrigeration, air-conditioning, cars, welding, etc. in higher institutes.

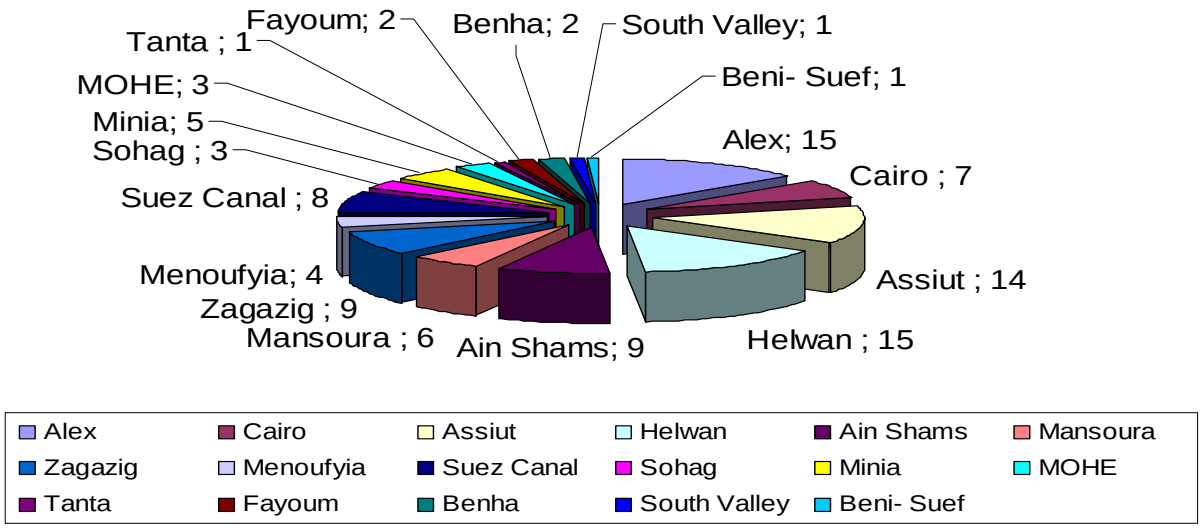

Fig. (8-2): The HEEPF projects that offered training in universities

Fig. (8-3) shows the distribution of HEEPF Project s that offered training in different specializations such as Engineering, Science, Medicine, Veterinary Medicine, Agriculture, and theoretical specializations.

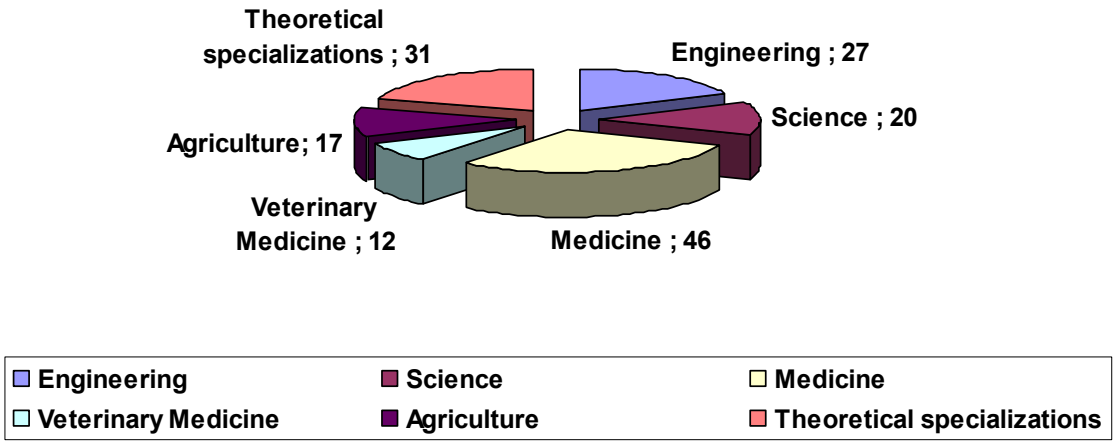

Fig. (8-3): The HEEPF projects that offered training in different specialization in universities

Therefore, training is considered one of the fundamental pillars of the higher education enhancement system with its different circles that include staff members, students, employees, and technicians to learn about the latest techniques and skills in different specializations that eventually lead to the upgrading of graduates' level and teaching them the skills necessary for the labor market and local, regional, and international competition. The following is a brief review of the training fields that Project s implemented in different sectors and were supervised by HEEPF.

8.4.1. Training Staff members

8.4.1.1 New methods of teaching

Training programs for new teaching methods were implemented through many Project s in many Egyptian universities. Among these programs are: training on designing skill gap

analysis courses (Project B-132-K0), training on the development of communication skills and preparing technical reports (Project A-099-K0). These Project s preceded the cycles that were concerned with the development of the staff members' and university leaderships' capabilities.

Fig. (8-4): A training program on new teaching trends

- **Training on student Assessment in light of contemporary international trends**

Project (A-038-T0), Zagazig Univ., organized many training courses for the development of the skills of staff members and their assistants in student assessment in light of contemporary international trends. Dr. John Bernard, an Australian expert in question banks, was invited to hold workshops with the Project team in the period from 19/02/2005 to 27/02/2005 with a rate of 10 daily hours of training from 9 am. to 7 pm. Training included new theories of measurement (The Single Response Theory, Unilateral, Bilateral and Trilateral models) in addition to related workshops. Besides, training included the way of building question banks through computer training and using statistical programs.

- **Using modern ultrasonic equipment in teaching**

Project (D-071-T1), Benha Univ., implemented a number of training programs for staff members in the Faculties of Veterinary Medicine in Alex., Suez Canal, and Benha Universities through the establishment of a modern ultrasonic unit and the invitation of a foreign professor in this specialization to design a training program for 200 staff members. The program included theoretical lectures and practical applications. This Project was carried out in the framework of scientific experience exchange and keeping up to date with the latest developments in this field which will upgrade performance in university hospitals.

- **Using the Plastination process to preserve samples**

Project (B-053-T0), Zagazig Univ., participated in training on using the Plastination process in the preparation of anatomical samples through an elite of staff members in Cairo, Assiut, Alex., and Zagazig Universities together with professors from Vienna and Munich Universities. 71 staff members and 125 students participated in the training programs and 6 workshops were held. Plastinated samples can be used in the Faculties of Veterinary Medicine, Medicine, Science, Agriculture, and scientific departments in the Faculty of Education. Training programs reflected directly on performance in the scientific faculties in the universities mentioned above. In addition, the experience of trained staff members was used in training their colleagues in other universities to maximize the benefit of these programs.

Fig. (8-5): An international symposium on Plastination

- **Developing surgical training**

Project B-092-L0), Mansoura Univ., is considered one of the pioneering applications in the field of surgical training on kidney patients through the equipment of the University conference hall with an audio-video system that allows filming and transmitting surgeries from the operation room to the conference hall. The Project also held training courses on different urinary passage surgeries and diseases. In addition, the software programs necessary for entering, saving, processing, and extracting patients' data were activated in different fields. The above-mentioned development contributed in enhancing some aspects that serve the field of higher education and training in the center, which is considered a world center that receives thousands of patients from the Arab countries and the whole world.

Fig. (8-6): Training activities of the Surgery training enhancement project

Project (B-047-I0) also offered training on speculum surgeries. A special training unit was established and integrated into the Medical Education Center in the Faculty of Medicine, Assiut Univ. The training attracted postgraduate students from the Southern universities, Arab countries, as well as general practitioners.

Project (D-135-Q0) in the Faculty of Medicine, Suez Canal Univ., implemented training programs on critical burns treatment and surgery in health units in the Canal governorates, as well as in Northern and Southern Sinai. The Project also coordinated with the Ministry of Health to dedicate a headquarters for training in the Public Ismaeleya Hospital on the condition that the human resources prepared through the Project should manage it.

- **A training center for the development of medical Education**

Project (A-032-T0), Zagazig Univ., established a training center for staff members in the Faculty of Medicine. The center offered many training courses to upgrade the skills of staff members and provide them with the latest technology necessary to give students the skills required by the work market. The training activities of this Project upgraded the skills of 1572 staff members and benefited students in the Faculty whose number reaches 4540 students. The Project was carried out in the framework of HEEPF message to provide universities with the necessary assistance to implement their continuous development plans.

Project (C-013-J0), Cairo Univ., established a center for training students and physicians on treating valvulitis patients. In this center, physicians were clinically trained on the quick and accurate diagnosis of microbic valvulitis, the quick request of laboratory tests. Ultrasonic physicians were also trained to support quick and accurate diagnosis using ultrasonic waves. Physicians and technicians in the lab were also trained on doing microbic agricultures with an aim to increase the effect of agricultures on the accurate choice of antibiotics. Through the training activities, 97 scientific seminars and workshops were held for undergraduates, postgraduates, nurses, and laboratory technicians whose number reached 2970 from February

2005 to January 2007. 146 cases were checked by the Project team 113 of which were certainly infected by valvulitis and 50 were transferred to have the necessary surgeries.

• **Evidence-based Medicine**

Project (B-120-J0), Cairo Univ., gave training courses to spread knowledge of Evidence Based Medicine which became one of the main components in universities in the advanced countries. Students were trained on using critical thinking, analytical thinking, and problem solving in order to connect the theoretical part to the applied field. Thus, courses would involve the latest scientific developments on one hand, and students' skills would be developed on the other.

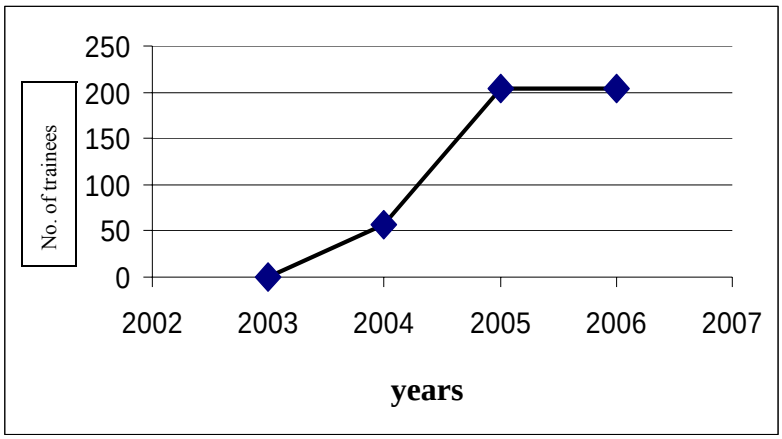

Fig. (8-7): Development of the number of staff members trained on Evidence-based Medicine

• **Critical thinking and problem solving**

Project (C-054-J0) in the Faculty of Engineering, Cairo Univ., organized training courses in the field of critical thinking to develop Irrigation and Hydraulics courses. Traditional methods of measuring open water passages were discussed; the advantages and disadvantages of these methods acknowledged; the benefits of the new integrated methods of measurement discussed; training on equipment done through a field visit; and data analyzed using the computer.

Project (C-012-N0) witnessed cooperation between the Faculties of Nursing in Menoufyia and Assiut Universities. A training center was established for staff members from different departments to develop curricula the main component of which is critical thinking, problem solving, and effective communication which the Higher Council of Nursing identified as basic requirements for curricula accreditation.

Project (C-005-M0) in the Faculty of Engineering, Minia Univ., gave training courses on using the method of problem solving in teaching some Civil Engineering courses to connect the theoretical part with the applied one and teach students the mental skills of analysis and designing.

• **Course and Curriculum Description**

Project (B-131-K0), Helwan Univ., invited two experts from the British Quality and Accreditation Organization to hold training programs for staff members in the field of course and curriculum description. These programs led to the formation of a team of staff members to describe courses and curricula based on the international slanderers. The Project encouraged the University to prepare for the completion of quality and accreditation levels.

There was coordination with a Tempus financed Project gained by Helwan, Tanta, and Menoufyia Universities to prepare human resources in the field of quality assurance.

Project(C-023-L0), Mansoura Univ., trained staff members on course and curriculum description, and students on the practical skills the labor market needs.

Fig. (8-8): A training course on using problem solving in the field of Civil

- **Training on teaching, preparing, and describing new curricula**

Project (C-031-K0), Helwan Univ., coordinated internationally accredited training courses for staff members in a number of Athletic Medicine courses. The curriculum was introduced to the Faculty of Athletic Education and the department was equipped with the latest equipment and education media.

Project (A-026-H0) trained staff members on the requirements of quality assurance and accreditation, as well as course and curriculum description. In addition, it trained workers on the basic of computer programs.

Project (C-039-K0), Helwan Univ., aimed at establishing the first diploma in Pharaonic Music in the field of connecting education with the ancient Egyptian civilization. 15 subjects were prepared for the diploma the study plan of which was accredited by the Supreme Council of Universities. Around 40 students joined the diploma in different specializations. Protocols were signed with different parties such as the supreme Council of Archaeology, the German Cultural Center, the Eastern Department in the Archaeology Institute in Berlin, the Research Society of Music Heritage, and the EU.

The curriculum includes two main parts: first, the cultural part aims at reviving the Pharaonic music heritage and spreading it in Egypt and the whole world; second, the academic part aims at protecting the Pharaonic music heritage from loss and distortion. A specialized database was built and scientific content was collected through field visits of tombs and ancient Egyptian temples. In addition, four Pharaonic musical instruments were made and cloned.

Fig. (8-9): International participation in the Pharaonic Music revival project

Project (D-058-K0), Helwan Univ., introduced a curriculum for leather industries to the Faculty of Domestic Economy. It included courses for the undergraduate and postgraduate stages as well as training in the field of leather industries. It is specially important to fulfill the requirements of the labor market through a scientific and technological content of the Faculty developed and innovated courses. The Project prepared a training program for staff members and their assistants to give them the knowledge and skills necessary for this industry. The program included: the tanning stage, Shoes manufacturing stage, leather products stage. In addition, an academic lab was prepared and equipped with modern equipment used in leather industries.

Fig. (8-10): Training on using modern machines in leather industries

Project (D-144-K0) established and equipped a lab and built a database that provides data in the fields of product design, clothes, interior architecture, and work environment design to produce the best products and designs that fit the human body. The Project gave many training courses in simulation using the c
omputer and anthropometry means. These courses led to the development of students' skills and capabilities in a way that fulfill the requirements of the labor market.

8.4.1.2 E-learning and producing e-learning models

Many universities such as Cairo, Helwan, Alex., Zagazig, Minia, and Tanta offered training Projects for staff members in the field of E-learning and using an electronic course management system.

- Project (A-024-H0), Alex. Univ., offered staff members a number of training programs during 12 months in different e-learning fields.
- Project (A-011-S0), Tanta Univ., offered staff members many training programs on electronic course designing and developing students' communication skills. The programs also trained staff members on students assessment using the websites of the different courses.
- Project (B-096- J0), Cairo Univ., trained staff members on using A-Tutor program to develop Concrete courses for the second, third, and fourth years. A website that includes interactive means of education, motion pictures, and video clips was built. The Project activity was carried out by both Cairo and Tanta Universities.
- Project (B-107-K0), Helwan Univ., offered an interactive model of Geotechnique courses (Soil Mechanics and Foundation) that included virtual experiments and designing problem solving.
- Project (C-006-M0), Minia Univ., trained staff members in the Faculty of Education on the production of many electronic courses. There was interaction and communication between staff members and students through the internet which led to the development of students' communication and computer skills which are among the chief requirements of the labor market.

8.4.1.3 Training staff members in the Faculties of Technology

A number of Project s offered staff members in the Faculties of Technology training courses. For example, Project (B-024-K0), Helwan Univ., offered all engineers and technicians teaching Refrigeration, Air-conditioning, and Car and Tractor Mechanics in the Faculties of Technology on using new methods of teaching, education films, and designing models using the computer.

Project (A-047-O1) offered many training courses on using the computer in teaching Engineering Drawing courses in different fields in the Faculties of Technology in Sahaffa, Mattereya, and Quesna.

Project (B-080-O0) introduced the Ready-made Clothes Department to the Faculty of Technology in Mahlla Kubra and organized training courses to prepare staff members for teaching the new courses. Director of Kardonald Faculty, Glasgow, Scotland, and specialist in the field of Ready-made Clothes, Mr. Alex Mekleusky visited the Project thanks to the finance of the Scottish Assistance Organization and praised the level of training offered through the Project . Moreover, he expressed his willingness to cooperate with the Project to offer excellent students four annual scholarships to Kardonald Faculty, Glasgow. This was reflected in students' understanding of the education outcomes of this department, i.e. connecting education to the needs of the surrounding environment, and their joining it until it included 350 students.

Project (D-140-O0) in the Faculty of Technology, Port Said, introduced a new department in the specialization of Welding Technology. Staff members were trained on teaching with the latest technology in the field of Welding Engineering.

8.4.2 Training of different categories

8.4.2.1 Training accredited by international organization

Project (A-029-T0), Zagazig Univ., organized 13 international courses in the field of accredited training. The number of trainees who got the internationally accredited certificate, Group ALSG Advanced Life Support, from England in the field of dealing with crises and disasters is 255 trainees. In addition, 62 international graduates could give training courses and international certificates. It is worth mentioning that the training courses are given by Egyptian trainers. Because of the success of this experiment, a Crises Management Unit was established in the Faculty of Medicine, Zagazig Univ. Moreover, training courses were offered in the Faculty of Medicine, Cairo Univ., the National Institute for Training, Depth Medicine Institute, Sharm El-Sheikh Hospital, and Hurgada Hospital in the framework of extending the benefit and exchanging experiences.

Fig. (8-11): Dealing with crises in different life fields

8.4.2.2 Training on infection fighting

Project (D-026-M0), Minia Univ., in addition to a number of Project s in other universities such as Project (B-015-H0), Alex. Univ., and Project (B-087-S0), Mansoura Univ., prepared training programs that included lectures and clinical training for staff members and their assistants as well as undergraduate students to spread knowledge of the latest scientific methods of infection fighting. Project (D-168-J0), Cairo Univ., also offered training for students in the Faculties of Medicine, Dentistry, and Nursing on infection fighting in university hospitals and medical units.

Fig. (8-12): Labs and guidebooks in the field of infection fighting

Project (D-181-H0), Alex. Univ., signed protocols with Dentists Syndicate in Alex. through the Dentistry center of excellence.

Fig. (8-13): (A training course) training students on infection fighting

8.4.2.3 Training on spreading the culture of life saving & life support

Project (B-089-L0), Mansoura Univ., designed a training program that spreads the culture of life saving and support among students in medical and non-medical faculties in the University. Around 2600 students were trained on the basics of life saving. In addition, 40 sector heads in the Fertilizers Factory in Dakahleya and 200 students in the Faculty of Dentistry were trained. The program also included training 160 physicians from different medical specializations. One of the additional advantages of this Project is that it does not only benefit staff members and students, but also the whole society in case of emergency, which enhances the social role of the University.

Fig. (8-14): Practical training on fast life saving works

Project (D-191-J0), Cairo Univ., trained staff members and students in the Faculty of Nursing on dealing with emergency and critical cases.

Project (D-083-H0), Alex. Univ., offered training courses on early discovery of children disability. The training center was equipped with modern equipment.

8.4.2.4 A training program in the field of Geographic Information Systems

Project (D-067-T1), Benha Univ., offered students a training program to upgrade their competency to reach the level of a professionally excellent and innovating engineer who can deal with the world technological changes. The program aimed at upgrading the graduates' level to cope with the labor market requirements in the field of Geographic Information Systems.

Project (A-028-T0), Zagazig Univ., is another example of preparing students in the field of Geographic Information Systems applications. A lab was equipped with the latest equipment and required software programs to train students on practical skills after preparing staff members through computer training courses to get the ICDL.

Project (A-069-G0), Ain Shams Univ., offered engineers in Survey Directories and Public Sector companies, as well as undergraduate and postgraduate students in the Public Work Section training on Survey works using the LIS (Land Information System).

Fig.(8-15): Training students on LIS System

8.4.2.5 A training program for students with special needs

Project (D-149-G0), Ain Shams Univ., offered students with special needs excellent education training through establishing the electronic vision center. In this center, training courses on the "Ibsar" software are offered for blind students in the Faculty of Arts to enable them to read and write any text on computers. The University leadership support of the center that is represented in equipping and providing it with an adequate headquarters, and encouraging staff members to provide courses and examination questions on CDs led to the exceptional success of this program and the high demand of blind students of training courses and reading the latest scientific publications on the online cultural library. 270 students were trained by 50 trainers on the Arabic "Ibsar" Program, and 70 students on the English "Ibsar" Program. The Project website was established and coordination was done between Al-Azhar and Assiut Universities to transfer the center experience there since they are about to establish similar centers. In addition to the human dimension of this Project that helps students with special needs to follow their studies regularly, it can be developed into a special unit that offers its services to the society with economic wages that serve the social activities of the University.

Figure (8-16): Training courses for blind students on "Ibsar"

8.4.2.6 A training program for students of Law using the electronic court

Project (C-087-G0), Ain Shams Univ., offered a unique example of training students in the Faculty of Law on the practical skills necessary for the labor market through the electronic court. During the training programs, different roles are distributed on students and engage in a role play where some students play the role of the judge, the prosecutor, the lawyer, and the defendant and practical application of different subjects is done.

8.4.2.7 A training program in the field of Commerce and Business Administration

Project (A-080-I0), Assiut Univ., organized training programs in different fields to teach students and graduates the necessary skills according to the needs of the labor market and requirements of free business. Two annual courses are organized: each training course takes three months and trains 250 trainees on three stages. In the first stage, training lectures are offered to staff members for three weeks. In the second stage, practical applications of the labor market experts and the Project supporting institutions are offered for three weeks. In the third stage, a field training in the work environment is offered for two weeks. The program concludes with a final employment meeting where the excellent trainees are honored by the presence of the participating institution managers, staff members, the Dean, and President of the University.

8.4.2.8 Training on practical skills

Project (A-253-J0), Cairo Univ., offered training on applied and advanced systems and designing laboratory experiments. It communicated with service societies to learn about their needs of qualifications, and teach graduates the scientific and laboratory skills that enable them to deal with automatic control and measurement technology in industry. In addition, protocols with the Eastern Company, the Holding Company for Vaccines, and the Ministry of Electricity were signed through the Project.

Project (D-043-N0), Menoufyia Univ., offered students and graduates training to develop their skills of establishing and managing small Project s in the field of food industry. The Project trained a large number of individuals in cooperation with the National Party in the Governorate and established a special unit in this field.

Project (C-096-H0), Alex. Univ., offered students and workers training to develop their practical skills in the field of water distillation using simulation programs and interactive units on the computer.

Project (D-190-H0), Alex. Univ., established a training center for air passages which attracted many general practitioners and postgraduate students.

Project (D-025-J0), Cairo Univ., held training courses for officers in the Ministry of Interior, as well as undergraduate and postgraduate students to develop their practical skills of discovering oil-painted picture and monument forgery and protecting them from robbery and smuggling.

8.4.2.9 Training programs on Biotechnology

Many Project s in different universities focused on the development of Biotechnology. For example, Project (B-015-H0), Alex. Univ., organized training courses in the field of Biotechnology. The beneficiary categories included postgraduate students as well as workers in different research centers and faculties. The Project sustainability plan included the

introduction of one of the basic programs for the development of staff members' skills (FLDP) in the Faculties of Medicine, Science, Agriculture, and Pharmacy.

Project (A-056-J0) in the Faculty of Agriculture, Cairo Univ., developed Biotechnology courses and innovated a new program in this field. It also equipped labs with the necessary equipment and trained staff members and lab technicians to develop students' scientific and laboratory skills in this field to cope with technological progress and the requirements of the labor market.

Fig. (8-17): Practical training for students on the latest equipment in the field of Biotechnology

8.4.2.10 Training programs for students and Veterinarians

Project (C-068-I0), Assiut Univ., organized training programs for Veterinarians, staff members, and students on the latest technology of healthy slaughter and meat industry. It is worth mentioning that the faculties that participated in the training activities included Zagazig, Suez Canal, Mansoura, and Alex. Universities.

Project (D-075-H0) trained members of the Faculty of Veterinary Medicine, Edfina, Alex. Univ., on producing electronic subjects to be used in the development of different skills and established a special unit for that purpose in the Faculty.

Project (C-061-I0), Assiut Univ., offered students and Veterinarians training programs according to the requirements of the labor market. Veterinary medical caravans were sent to the neighboring villages. The Particle Biology Center in the University also organized training courses in collaboration with Austrian experts.

8.4.2.11 Training programs for students of the Faculties of Technology

Many training programs were implemented through the Project s of the Faculties of Technology such as the new Project (D-139-O0) for small Project s in Mattereya, and Project (B-080-O0) in the Faculty of Technology, Mahlla Kubra. The latter offered training activities for staff members and students in the field of ready-made clothes industry to gain the latest practical skills. It equipped laboratories with the latest machines, equipment, and computer programs that are used in sewing and patron making. In addition, cooperation relations were built with clothes factories that spread in Mahlla Kubra and are affiliated to both the public and private sector. All factories praised the training programs and offered jobs to all graduates. Therefore, the Project is considered one of the Project s that support the government efforts to encourage small industries, increase exports, and eradicate the problem of unemployment.

Fig. (8-18): Training activities on the latest sewing and automatic cutting machines

8.4.2.12 Training program for secondary school teachers

Project (B-099-P1) in the Faculty of Science, Sohag Univ., is considered a successful experiment in the field of connecting education with higher education. It organized training programs for secondary school teachers in different specializations such as Physics, Chemistry, and Biology to upgrade their laboratory and technological skills focusing on the practical part of curricula which led to excellent outcomes.

Fig (8-19): Workshops to upgrade laboratory & technological skills of secondary school teachers

8.4.3. Training employees and workers

8.4.3.1 Electronic administration system

Project (B-113-J1), Fayoum Univ., is considered an example of training employees and administrative officials on the electronic administration system that copes with the Egyptian electronic government initiative. The Project aims at establishing an integrated administration system in the University in an advanced, comprehensive, and efficient framework that includes most administrative activities in the University Presidency and all faculties.

Project (A-043-H0), Alex. Univ., established the infrastructure for information technology and communication network and equipment. The Project offered employees training programs on using the computer, databases, and different applications to turn the University into a civilized environment that copes with the electronic government trends.

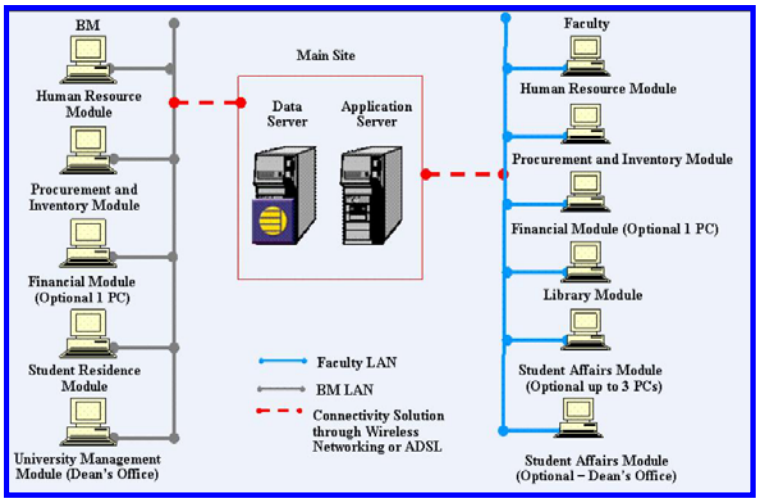

Fig. (8-20): A diagram of the electronic administration system

8.4.3.2 Gaining Leadership skills

Project (D-194-O0) trained workers on a program for the development of the Cultural Affairs and Missons Sector in the Ministry of Higher Education. Training programs were set for the development of human resource capabilities, restructuring, and functional organization. A number of training opportunities were provided in the fields of the basics of quality, secretariat, personal skills, writing reports, and using the computer. The programs led to the

introduction of a new department called the Marketing Department. These accomplishments led to maximizing the use of available resources and improving the performance level.

8.4.3.3 Courses and workshops in the field of equipment maintenance

Project (C-091-H0), Alex. Univ., offered many training programs in the field of technician training. A training team of staff members, instructors, engineers, and technicians was prepared. In addition, three labs were established and equipped with medical and lab equipment, as well as audio-video training media. Moreover, mechanic and electronic workshops were equipped and different training courses and workshops were held in the field of equipment maintenance. 578 technicians and engineers benefited from this training. A number of seminars in the field of equipment maintenance and student training on equipment maintenance were also held in the Technical Health Institute in Alex. This contributes in upgrading equipment and increasing their virtual age.

Fig. (8-21): Training technicians in the field of equipment maintenance

8.4.3.4 A training program for the establishment of an electronic database for all scientific equipment

Project (A-083-I0), Assiut Univ., offered a training program with an aim to upgrade technicians' skills and give them the experience of dealing with the electronic database of all scientific equipment in the University. The database was established by specialist staff members in the field of scientific resource management and lab equipment. Technicians working in different labs were trained on classifying and searching for a technician or equipment through the faculty, department, or lab to reach any equipment in the university units.

8.4.3.5 Training Workers on library automating systems and digital libraries

Project (A-109-K0), Helwan Univ., trained all workers on the library automating systems and digital libraries. The program included many factors the most important of which are: developing digital libraries in the faculties, a digital central library, establishing a unified network for all libraries in the University faculties in addition to a digital database in a unified internal network to connect these libraries with performance and control programs in the central library that allow browsing, searching, and copying. Moreover, a modern protection system of the library holdings was established, databases were developed for saving Master's degree and doctorate theses, and exchanging research information between the libraries of the University and other universities was facilitated.

Fig. (8-22): Training on the digital library system, Helwan Univ.

8.4.3.6 Electronic management of university hospitals

In the field of electronic management of university hospitals, Project (C-40-M0), Tanta and Minia Universities, trained employees and workers on the latest electronic systems of hospital management. The Project established an internal network between different medical sections to save patients' data and know the history of the development of critical cases.

Fig. (8-23): Training on modern equipment

8.5 The process of evaluating the training programs

The training offered by HEEPF financed Project s in different fields depended on the latest scientific models for the short, medium, and long term outcomes. Kirk Patrick's model was followed in the evaluation of education, behavior, and performance outcomes throughout the stages of the implementation of Projects.

Evaluating training was done directly after the workshops through trainees' remarks and questionnaires prepared for that purpose. Education, behavior, and performance outcomes were also evaluated throughout the stages of the implementation of Project s. In addition, the benefits of training and upgrading the trainees' skills and competencies were evaluated.

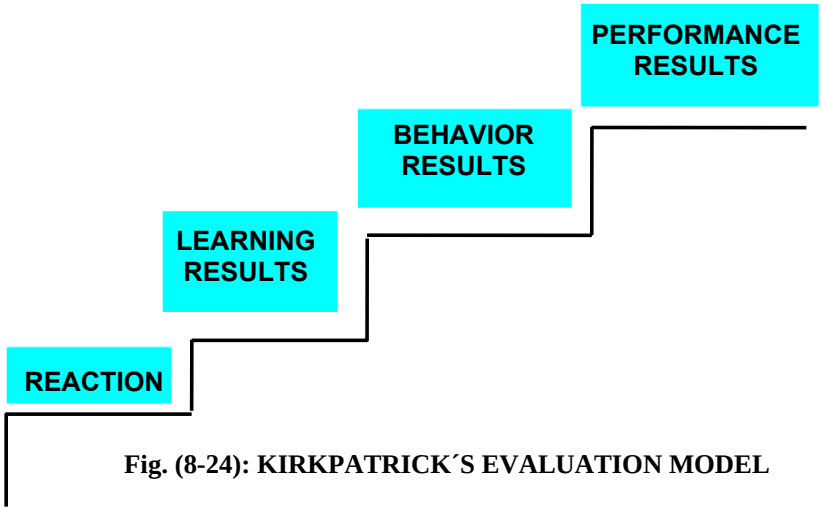

Fig. (8-24): KIRKPATRICK´S EVALUATION MODEL

8.5.1 Elements of the evaluation of training programs evaluation

HEEPF management was keen on unifying documents and factors for Project s that focused on holding training courses. It obliged these Projects to send the following documents with the periodical work progress report:

1. The training course objective
2. The course date, program, and period
3. Trainers' C.V.
4. Categories and numbers of trainees
5. Training materials that were submitted to trainees and trainers

6. The course outcome
7. Types of the certificates given to trainees
8. Evaluating training during the course:
    - Self-test before and after training
    - Trainees' assessment test
    - Trainees evaluation
    - Evaluation of training and equipment
    - Evaluation of the training program management
    - Evaluation of training monitoring and supervision
9. Evaluating training after the course

Project managers are asked to measure the extent of the trainees' benefit of training programs to achieve the Project specified goals.

8.5.2. Examples of the views of some beneficiaries and experts for the evaluation of training programs

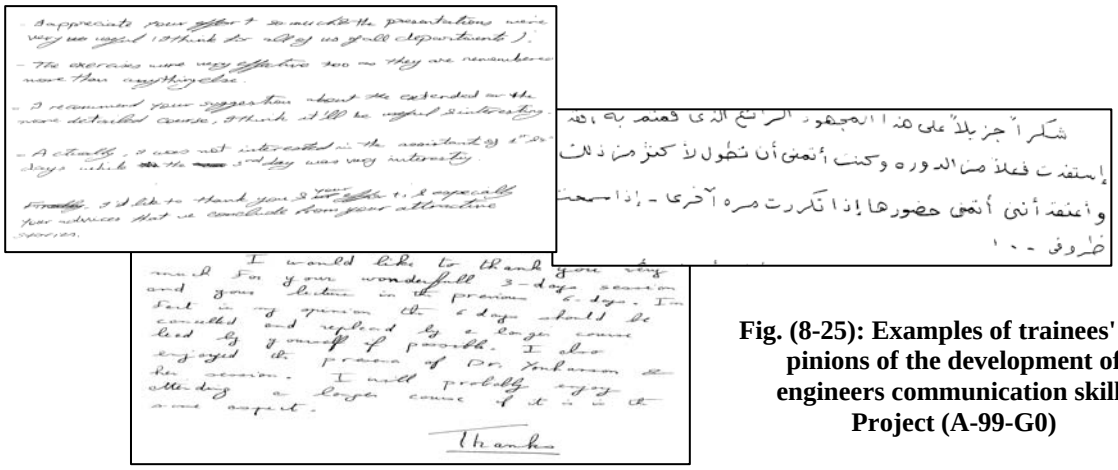

Fig. (8-25): Examples of trainees' pinions of the development of engineers communication skills Project (A-99-G0)

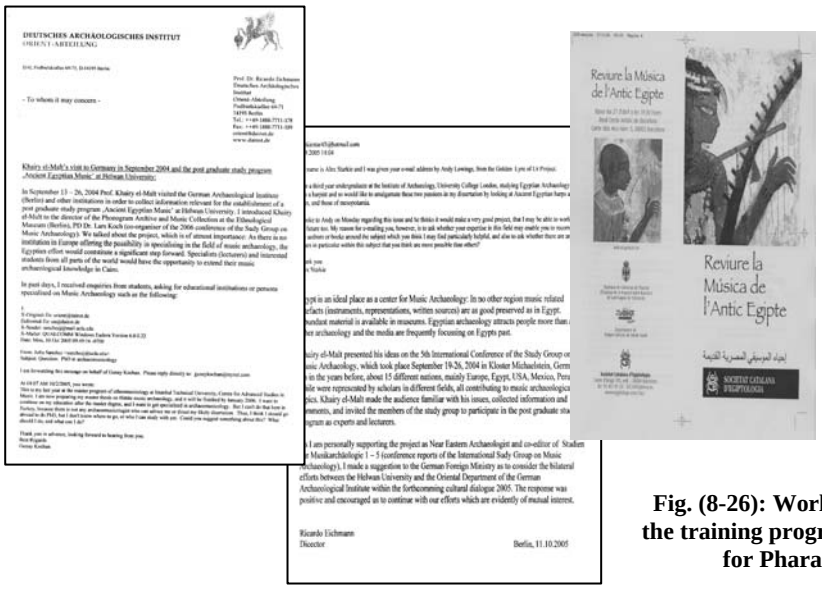

Fig. (8-26): World experts' letters praising the training programs of Project (C-039-K0) for Pharaonic Music Revival

8.6 Estimating the revenues of training compared to costs

HEEPF financed Project s (158 Project s in the four cycles) included training activities with different degrees. 105 Project s offered on training programs. However, training can be considered the main component of 49 Project s with a total budget of L.E. 24 million. The average equipment cost is estimated at 30%, i.e. around L.E. 8 million. In addition, the average cost of the implementation of the Project s training activities is L.E. 2 million, i.e. 25% of the total cost of the implementation of the Project s activities. Thus, the estimated cost of the training centers and programs established by HEEPF Project s reaches around L.E. 10 million, i.e. 10% of the total budget of HEEPF Project s that reaches around L.E. 82 million.

The number of direct beneficiaries of HEEPF Project s training programs reached 36938 beneficiaries according to the UPMUs statistics. Table (1) shows the number of direct beneficiaries that include various categories of which 51% are staff members.

8.7 Feedback of training programs

The previously mentioned examples show the diversity of training programs offered by different Project s to narrow the skill and technology gap for staff members, students, employees, and workers in various scientific specializations. This is in line with the government policy of interest in the quality of education so that Egyptian education institutions can catch the fast world progress and development. International experts were also provided to transfer experiences in the training fields. In addition, some Project s offered some mission for foreign countries to learn about the latest technology and training programs.

HEEPF Project s	Non-governmental Institutions	Governmental Institutions	Society	Technicians & managers	Assistant Staff	Staff members	Faculty/ University administration
Cairo	6	13	78	56	260	6572	7
Ain Shams	2	10	34	42	198	4820	4
Hewlan	4	7	34	2400	1250	1400	18
Banha	5	2	18	-	10	30	3
Sohag	3	3	80	17	58	89	22
Faculties of Technology	8	5	23	30	120	45	5
Fayoum	120	1	1	1600	700	730	13
Minia	-	9	-	20	27	265	21
Assiut	66	750	18	618	7.4	1063	180
Alex.	116	1474	400	486	317	1734	46
Munufeya	12	60	14	6668	1419	1725	5
Suez Canal	50	120	60	40	32	56	100
Tanta	8	1	45	22	8	30	8
Mansoura	2	47	525	46	622	352	50
Zagazig	32	12	557	34	18	23	30
Southern Valley	2	5	38	12	7	5	5
Total	**436**	**2519**	**1925**	**6822**	**5780**	**18939**	**517**

Table (1): Direct beneficiaries of the HEEPF financed training programs

The training programs offered by HEEPF financed Project s led to many positive results including the following:

- Establishing training centers that are considered international and in accordance with international standard
- Benefiting from the experiences of staff members who received training in training their colleagues in other universities to extend the benefit

- Incorporating the latest scientific developments into courses, upgrading students' skills, and using e-learning and multimedia in course preparation
- Exchanging scientific knowledge and keeping pace with the latest local and international developments in different fields to upgrade the performance of staff members
- Pushing university efforts to complete the levels of quality and accreditation
- Connecting the theoretical part with the applied part of many courses, teaching students the mental skills of analysis and designing to narrow the skill gap and help graduates find job opportunities
- Enhancing the government efforts to encourage small industries and eradicate the problem of unemployment
- Offering employees a number of training programs on using the computer, databases, and various applications to turn the university into a civilized environment that cope with the government directives and electronic government
- Benefiting from the Project s that enhanced the social role of the university by offering training programs that are not restricted to staff members and students, but benefit the whole society
- The training centers established through HEEPF financed Project s can be developed into special units that serve the outside community with economic wages that support the social activities of the university

8.8 Risks of the possible non-sustainability of training programs

HEEPF management hopes that these efforts would lead to the university adoption of a long-term strategic plan that aims at ensuring the sustainability of the positive outcome of these Project s. Such a plan can achieve a continual output that goes in line with the government policy of enhancing education and achieving quality and accreditation for higher education institutions.

1. Maintaining Training Centers:

HEEPF financed Project s established training centers in universities, equipped them with state of the art equipment and software programs, prepared the human resources that offered training, and used accredited scientific materials. All these components have to be maintained to continue achieving the targeted outcomes of training. Sustainability needs setting criteria for the accreditation of these centers and establishing continual appraisal parties.

2. Maintaining Training Components:

Universities are responsible for maintaining the training components that were provided by HEEPF financed Project s. However, no governing mechanism with this concern has been set up till now.

3. Administrative and Financial Support:

Projects need the universities administrative support represented in the establishment of special units for the training centers to provide the required finance for sustainability and achieve interaction with the social sectors served by the training centers. In addition, some projects need to be financially supported to cover the requirements of operation and equipment maintenance which are fundamental components of sustainability.

4. Financial Incentives for Trainers:

Universities have to provide the Project team with suitable incentives to continue their training tasks. the development and upgrading of the staff members' capabilities and teaching

them the necessary skills for offering training programs are the most important outcomes of the achieved HEEPF Project s. Besides, universities have to make sure of the sustainable use of these experiences.

The training programs offered by HEEPF financed Project s in the first phase are considered a successful example that paved the way for the implementation of many education enhancement Project s in universities and created an atmosphere of scientific competition to achieve the ideas that were latent in the distinguished scientists' minds. They had a great effect on the enhancement of the higher education system. In order to achieve the government policies and directives to upgrade the level of education, achieve the desired quality, and qualify graduates with the necessary skills to compete in the local, regional, and international market, such enhancement Project s and training programs can be generalized and spread to all the remaining specializations in the next phase.