

A.I.D. PROJECT EVALUATION SUMMARY: PART I

A. REPORTING A.I.D. UNIT: **USAID/EGYPT**
ES.#

B. WAS EVALUATION SCHEDULED
 CURRENT FY EVALUATION
 Yes Delayed
 Ad Hoc

C. EVALUATION
 TIMING
 Interim Final
 Ex Post Other

D. ACTIVITY EVALUATED: Science and Technology for Development (263-0140)

E. ACTION DECISIONS APPROVED BY THE MISSION DIRECTOR	ACTION TAKEN	RESPONSIBLE PARTY	COMPLETION DATE
- <u>SIC 263-0140.1:</u> Redesign of project to focus on environment as part of the Mission's strategy	Draft concept paper for Environmental Strategy	PDS/PS	1/93
- <u>SRP 263-0140.2:</u> Transfer project to HRDC/H	Completed	PDS/ENV and HRDC/H	7/30/92
1) Replacement of unsuitable field-based computers.		SRP	11/92
2) Quality improvement of proposals through technical workshop assistance. One workshop already held.			09/92
3) Training targets in 1992-93 Work Plan under revision.		SRP	03/93
4) Re-issue EPI 123 Operational Manual with amended authorship attribution.		SRP	12/93
5) Revise project implementation schedule following February 1993 Scientific Advisory Conference; re-assessment of research agenda and results to date.		SRP	03/93
6) Continuation of process of encouraging professional communication and exchange among American collaborators and Egyptian scientists. Major advances made.		MSCI/SRP	Ongoing
7) Redressing research balance in February 1993 special Workshop; Increased focus on Cost-Benefit Analysis research methodology, and associated proposal reviews.		SRP	03/93
8) Assessment of scientific progress with special Progress Summary for USAID. (Feb. 1993 Conference)		SRP	03/93

- 9) Improve collaboration and reporting between NAMRU-3 scientists and SRP. Reporting improved, though strengthening still needed. Major steps in collaboration. SRP 12/92
- ECEP 263-140.3: Concept Paper PDS/ENV and PDS/PS 10/92
 Redesign of project to focus on environmental protection and increase cash contribution from participating companies.
- EMDP 263-0140.4:
 o Transfer project to DR/UAD/P&T Completed PDS/ENV and DR/P&T 09/30/92
- o Drop manpower planning component Completed DR/P&T 05/92
- o Allow M/TA contract to expire and compete two new M/TA contracts: one for petroleum and one for electricity. RFPs Issued DIR/CS

RRhoda, OD/PDS/ENV <u>Draft</u>	RParks, PDS/P <u><i>RP</i></u>
JHunt, OD/DR/P&T <u>Draft</u>	KKertson, PDS/P <u>Draft</u>
FAwantang, HRDC/H <u>Draft</u>	JMalick, OD/PDS/P <u>Draft</u>
	RJordan, A/AD/PDS <u>Draft</u>

Approved: *Christopher D. Crowley* 2/8/1993
 Christopher D. Crowley / DDir

G. EVALUATION ABSTRACT

The S&T for Development (STD) Project

An umbrella project, the STD Project consists of a start-up activity and four component projects implemented by separate ministries. It began in 1986 and has a current LOP funding of \$136.75 million.

The overall goal of the Project is to improve the welfare and productivity of the Egyptian people. The Project seeks to:

- Maximize the contribution of science and technology to Egyptian socio-economic development;
- Generate and extend inter-disciplinary and inter-institutional cooperation;
- Develop, introduce, and transfer technologies to meet important and well-defined end-user needs.

Project Agreements for the S&T Cooperation (STC), Schistosomiasis Research (SRP), Energy Conservation and Efficiency (ECEP), and Energy Manpower Development (EMD) Projects were signed in 1987-1988. The proposed land use planning project was not approved. Phase II, the postdesign implementation phase of the Project, got underway in 1989-1990.

The S&T Cooperation (STC) Project

The purpose of the STC Project is to strengthen Egyptian S&T research capabilities in pre-defined, high-priority problem areas having the greatest impact on end-users. The Project funds research grants in fields such as construction materials, industrial minerals and chemicals, soil improvements, water/wastewater, lake ecosystems, small-scale industry, crops for semi-arid areas, and computer-based technology.

The STC Evaluation Team found the STC Secretariat, which is the GOE agency set up to carry out the STC Project, to be a "lean" operation with well-qualified staff and high staff morale. Project procedures are considered to be well thought out and appear to be working well. The Project seems well-launched towards the accomplishment of its major objective, which is "selling" the R&D approach to Egypt's industrial and local government sectors, and is thus helping to reinforce and forge links between the R&D community and these two sectors.

The Schistosomiasis Research Project (SRP)

The SRP underwrites a comprehensive U.S.-Egyptian research and development effort to control Schistosomiasis by developing tools (vaccines), methods and information through directed research. A secondary purpose is to improve the biomedical research capabilities of research institutions to conduct control-oriented Schistosomiasis research.

The SRP Evaluation Team found the SRP in the fifth year of its implementation to be a healthy, promising project that is for the most part on schedule and in line with the goals and purposes detailed in the Project Paper.

The Energy Conservation and Efficiency Project (ECEP)

The Energy Conservation and Efficiency Project has two purposes: (1) to promote and accelerate the adoption of energy-efficient technologies, processes, and practices among the country's energy producers and users; and (2) to improve Egyptian institutional capabilities, particularly in the private sector, to promote and implement energy-saving and energy-related productivity enhancing investments.

The ECEP Evaluation Team believes that the ECEP is being effectively implemented and is progressing well toward achieving its objectives. However, the Team has recommended that the Steering Committee for the Project meet more frequently and become more active in carrying out its Project management responsibilities .

The Energy Manpower Development (EMD) Project

The primary objectives of the EMD Project are to provide training related to the adoption of energy efficient technologies by energy producers and users, and to further develop the capabilities of indigenous technical and management staff on the application and use of advanced energy technologies.

The EMD Evaluation Team found the Project to be meeting a serious need in the development of manpower in Egypt's petroleum and electricity sectors. Their evaluation indicated that only one of the four components of the Project, the component focused on technical and management training, could be considered successful at this time. Two other components were started late and are experiencing implementation difficulties (upgrading training facilities and manpower planning). The fourth component is management support.

MISSION COMMENTS

The Mission decided in the Spring 1992 Portfolio Review to abolish the Science and Technology Office. Management of two activities, the Science and Technology Cooperation component, and the Energy Cooperation and Efficiency Component was transferred to a new Environment Office. This transfer was part of a project redesign involving a new environmental focus as part of the Mission's strategy.

Other steps taken included transferring the Schistosomiasis Project to the Health Office, and the EMD project to the Power and Telecommunications Office. The Manpower Planning Component of the EMD was dropped and the TA contract allowed to expire. New TA contracts are being prepared.

LESSONS LEARNED

Since the different project components of the project were all treated as individual projects for all practical purposes, the umbrella mechanism provided only minimal value. The mechanism did facilitate the start-up of the project although other mechanisms could have been employed at that point. Aside from the start-up facilitation, there was little implementation impact on the project's components.

H. EVALUATION COSTS

<u>Evaluation Team</u>	<u>Contract No.</u>	<u>Contract Cost</u>	<u>Source of Funds</u>
Development Associates	DTR-0000-1-11-0035-00	\$316,295	Project

A.I.D. EVALUATION SUMMARY: PART II

I. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

PROJECT DESCRIPTION:

The S&T for Development (STD) Project

An umbrella project, the STD Project consists of a start-up activity and four component projects implemented by separate ministries. Originally, there were to have been five component projects, but one involving land use planning was eliminated. Each STD component project is comparable to an individual USAID project.

The STD Project is based on the S&T strategy evolved in March 1985, following a major Egyptian-U.S. assessment of Egyptian S&T requirements in the early 1980s.

The general requirements of the Project include: (a) building on capacities installed under previous S&T projects, both bilateral and multilateral; (b) establishing R&D management systems and processes which are to remain after project completion; and (c) developing methods of planning and more selectively implementing transfers of appropriate technology.

The overall goal of the Project is to improve the welfare and productivity of the Egyptian people. The Project seeks to:

- Maximize the contribution of science and technology to Egyptian socio-economic development;
- Generate and extend inter-disciplinary and inter-institutional cooperation;
- Develop, introduce, and transfer technologies to meet important and well-defined end-user needs.

The purpose of the Project is to enable the Egyptian S&T community to solve complex, national development problems and constraints through applied research and technology in energy, health and industrial productivity. The Project is designed to provide models for the coordination of S&T research and development activities which have been lacking in previous efforts.

USAID approved the STD Project Paper in July 1985. In March 1986, USAID and the GOE signed a Project Agreement (ProAg) authorizing \$3.0 million for the design of the five proposed component projects and to finance the Phase I start-up of project implementation activities.

Project Agreements for the S&T Cooperation (STC), Schistosomiasis Research (SRP), Energy Conservation and Efficiency (ECEP), and Energy Manpower Development (EMD) Projects were signed in 1987-1988. The proposed land use planning project was not approved. Phase II, the postdesign implementation phase of the Project, got underway in 1989-1990.

The Four STD Component Projects.

The S&T Cooperation (STC) Project

The purpose of the STC Project is to strengthen Egyptian S&T research capabilities in pre-defined, high-priority problem areas having the greatest impact on end-users. The Project funds research grants in fields such as construction materials, industrial minerals and chemicals, soil improvements, water/wastewater, lake ecosystems, small-scale industry, crops for semi-arid areas, and computer-based technology.

The Project is being implemented by a Secretariat housed in the Egyptian Academy of Scientific Research and Technology (ASRT). Policy guidance is provided by a Steering Committee composed of senior representatives from the Egyptian S&T and end-user communities.

Egyptian universities, research centers, and private and public sector firms are eligible to compete for SIC contracts in response to advertised "Requests For Proposals" (RFPs). The proposals are developed in close collaboration with end-users, including individual companies and groups of producers .

The Schistosomiasis Research Project (SRP)

The SRP underwrites a comprehensive U.S.-Egyptian research and development effort to control Schistosomiasis by developing tools (vaccines), methods and information through directed research. A secondary purpose is to improve the biomedical research capabilities of research institutions to conduct control-oriented Schistosomiasis research.

The Project makes grants to Egyptian universities, research centers, and U.S. private and public sector groups for research in high-priority areas. Egyptian and U.S. investigators collaborate actively on joint projects. Young Scientist (YS) grants are used to involve a younger generation of Egyptian scientists in research activities. The SRP is the largest ongoing Schistosomiasis research project in the world.

The Energy Conservation and Efficiency Project (ECEP)

The Energy Conservation and Efficiency Project has two purposes: (1) to promote and accelerate the adoption of energy-efficient technologies, processes, and practices among the country's energy producers and users; and (2) to improve Egyptian institutional capabilities, particularly in the private sector, to promote and implement energy-saving and energy-related productivity enhancing investments.

The initial ECEP design called for technical assistance and funds (loans and grants) to be provided on roughly a fifty-fifty basis to private and public sector companies for the implementation of up to 60 applications (sub-projects) of energy-efficient technologies. A proposed loan component, which was to operate through the banking sector, was dropped.

The Tabbin Institute for Metallurgical Studies (TIMS) of the Ministry of Industry is implementing public sector applications, while the Cairo University, Development Research and Technological Planning Center (DRTPC), is handling the private sector. The Federation of Egyptian Industries (FEI) is responsible for promoting ECEP among Egyptian business enterprises.

The public sector in Egypt is by far the largest energy user and offers the best opportunities for energy conservation. Public sector companies in the metal, chemical and cement industries were selected for initial ECEP participation. Food and textile companies were added later.

The Energy Manpower Development (EMD) Project

The primary objectives of the EMD Project are to provide training related to the adoption of energy efficient technologies by energy producers and users, and to further develop the capabilities of indigenous technical and management staff on the application and use of advanced energy technologies.

The EMD Project has two interrelated components. The first addresses capacity building requirements and the immediate need to improve technical and managerial skills in Egypt's petroleum and electricity industries. The second involves introducing manpower planning and development systems on a pilot-testing basis in three GOE agencies: the Egyptian General Petroleum Corporation (EGPC), the Egyptian Electricity Authority (EEA), and the Electricity Distribution Authority (EDA).

Implementation Progress to Date

Current financial information for the STD umbrella project and the four component projects is summarized in the table below.

Project	LOP Fund- ing (\$ Millions)	Oblig. Thru 2/91 (\$ Millions)	Spent By 2/92 (\$ Millions)	Proj Comp. Date
STD Start-Up	3.00	3.00	2.40	9/98
S&T Cooperation	36.00	9.44	3.30	12/95
Schistosomiasis	39.65	16.00	9.20	9/98
Energy Conservation	49.50	21.00	6.50	9/96
Energy Manpower	8.60	8.60	2.60	9/94
	<u>136.75</u>	<u>55.04</u>	<u>24.00</u>	<u> </u>

Science and Technology Cooperation Project

Relatively limited implementation progress was made during the year following the signing in July 1987 of the Project Agreement for the STC Project. After contracting delays, USAID awarded a two-year M/TA contract to International Development and Energy Associates (IDEA) to assist the STC Secretariat in establishing operating procedures and a management information system (MIS), and to provide consultants for basic research in selected problem areas.

Operating procedures were in place by August 1989, but by then efforts were underway to remove the IDEA resident project manager for lack of performance. He left in November 1989. A new project manager arrived in early 1990 to serve the remainder of the contract, which ended in June 1991.

The STC Secretariat manages the day to day operations of the project. Secretariat staff are paid with USAID-allocated funds. Generally, staff are not current GOE employees; however, they may be GOE employees in leave without pay status.

The Secretariat hires Egyptian and American experts to conduct background studies on each research topic. Working in close collaboration with end-users, the Secretariat develops a draft RFP which is reviewed by technical experts and the end-user. After the end-user approves the final RFP, the Secretariat advertises the RFP and distributes it to interested parties.

The Secretariat awarded the first eight research contracts under the project in January-February 1990, for a total of about \$1.6 million. The grants cover staff salaries, research equipment and supply procurement, and international consultancy services.

In support of Project objectives and to promote the STC research program, the Secretariat also conducts a variety of workshops and seminars as well as publishing and distributing newsletters and other documents.

The Project prepared 48 feasibility studies for labor intensive, small-scale agricultural/industrial sub-projects and distributed these to about 2,000 young entrepreneurs. The STC is demonstrating three of these sub-projects in the 6th of October City.

The project also supports the Egyptian National Scientific and Technical Information Network (ENSTINET) and its extension to regional universities. ENSTINET was formally established in 1983 and received early financial support under USAID's Applied S&T Project and from the STD Project.

As of March 1992, STC had initiated eight research contract competition cycles, of which five were completed, and had awarded 33 research contracts.

Summary of the STC Evaluation Team's Findings

The STC Evaluation Team found the STC Secretariat, which is the GOE agency set up to carry out the STC Project, to be a "lean" operation with well-qualified staff and high staff morale. Project procedures are considered to be well thought out and appear to be working well. The Project seems well-launched towards the accomplishment of its major objective, which is "selling" the R&D approach to Egypt's industrial and local government sectors, and is thus helping to reinforce and forge links between the R&D community and these two sectors.

The Team has suggested that consideration be given by Project management to adopting a policy of requiring end-users to make progressively greater contributions to the local cost portions of R&D costs. Also, that the STC Secretariat consider setting itself up to provide short-term consultancy services to industry on a profit-making basis in areas such as modernization, technology upgrading and industrial restructuring.

Schistosomiasis Research Project

STD start-up funds were used to buy into AID/W's Vector Biology Control (VBC) contract with the Medical Service Corporation International (MSCI) to provide consultant services to the Ministry of Health (MOH) and USAID for design of the SRP. USAID also used STD funds for a second buy-in to enable MSCI to provide interim assistance to the MOH in organizing the SRP Secretariat and to help develop the technical, financial and administrative procedures needed to implement the SRP grant program.

In April 1989, USAID signed a two-year Participating Agency Services Agreement (PASA) with the U.S. Naval Medical Research Unit Three (NAMRU-3) in Cairo to help develop research proposals for SRP funding. NAMRU-3 also agreed to provide training in scientific techniques and procurement to selected SRP participants.

In August 1989, USAID awarded a competitive contract to MSCI for long-term M/TA for the SRP. Under this longer-term contract, MSCI is responsible for providing technical and managerial assistance to the SRP, for recurring SRP commodities (mostly research equipment for grantees), for training and training consultants, and for administering grants to collaborating U.S. research institutions.

STD also funded a two-year contract with the University of Lowell to establish a facility at the GOE Theodore Bilharz Research Institute (TBRI) to produce biological materials (Schistosomes) needed for Schistosomiasis research, and to provide early support for the Egyptian National Scientific and Technical Information Network (ENSTINET).

In January 1991, MSCI hired two consultants to conduct an assessment of SRP. This internal evaluation documented SRP's early successes and made a number of recommendations for improving the project. By September 1991, the SRP had awarded 46 research grants, including 29 full grants for about \$9.0 million and 17 Young Scientist grants for about \$340,000.

Summary of SRP Evaluation Team Findings

The SRP Evaluation Team found the SRP in the fifth year of its implementation to be a healthy, promising project that is for the most part on schedule and in line with the goals and purposes detailed in the Project Paper.

USAID assistance to the SRP will run out in 1998. A final external evaluation is scheduled for 1997, but before that date the SRP Team has recommended that an assessment be made on the status of Project efforts to develop a Schistosomiasis vaccine. Even if no suitable candidate vaccine is available at that time, it should be at least possible to predict a future date for its availability. If this cannot be done, the Team suggests that USAID support for the development of a vaccine be terminated.

Principal Recommendations

- A. Maintain current project organizational structures and institutional collaborations and linkages;
- B. No Project Amendment needed at this time, as project purpose remains valid;
- C. Steering Committee should have regular reviews for the purpose of revising the project implementation schedule as appropriate;
- D. Institute research design workshops to increase the quality of Young Scientist proposals.

Specific operational recommendations included - replacement of unsuitable field computers, reissuance of the project operational manual, improvement of working relationships especially between American and Egyptian Investigators in the EPI 123 element, improved reporting with an emphasis on improved reporting by NAMRU, establishing a balance in research topics, and performance of an assessment of scientific progress.

Energy Conservation and Efficiency Project

USAID signed the initial Project Agreement for the ECEP with the GOE in September 1988. In February 1989, the ECEP funded a one-year buy-in to an AID/W contract with ROG/Hagler-Bailly (HB) to assist with the establishment of the three ECEP secretariats to be staffed by DRTPC, TIMS and FEI and the completion of feasibility studies for the first set of technology applications.

USAID signed a two-year M/TA contract with Overseas Bechtel Inc. (OBI) in 1989, which included a sub-contract with ROG-Hagler-Bailly (HB). ECEP Project implementation started with the screening of technology application needs among private and public sector industrial plants. Of 135 plants screened, DRTPC and TIMS identified and completed feasibility studies for 36 technology applications. By February 1992, sixteen companies had signed contracts to implement sub-projects.

Under these contracts, the companies pay for the procurement of locally available equipment, the installation of all energy conservation equipment, and monitoring of energy savings (roughly one-third of total sub-project cost). ECEP pays for feasibility studies, detailed engineering work, and the procurement and delivery of energy saving equipment. Sixteen sub-projects have been funded under ECEP, nine in the private sector and seven in the public sector. Energy savings from these first sixteen sub-projects are expected to be about \$3.4 million per year. By September 1991, installation of the first three sub-projects had been completed and a fourth was nearing completion. By September 1991, 784 plant and other personnel had been trained in Egypt on modern energy conservation. An additional 14 had received training in the U.S.

Summary of ECEP Evaluation Team Findings

The ECEP Evaluation Team believes that the ECEP is being effectively implemented and is progressing well toward achieving its objectives. However, the Team has recommended that the Steering Committee for the Project meet more frequently and become more active in carrying out its Project management responsibilities .

The Team has also recommended that, for the remainder of the Project, beneficiary industries be asked to do cost-sharing for the technical services, training and commodities they receive under the Project. This will help in preparing them to bear the total cost of such support activities when the ECEP is terminated in 1996.

Energy Manpower Development Project

In May 1989, USAID awarded an interim buy-in contract to the Institute for International Education (IIE) to prepare manpower development master plans and to present training courses in Egypt for the EGPC, EEA and EDA. In June 1990, USAID negotiated and signed a two-year \$4.1 million contract with International Human Resources Development Corporation (HRDC) to manage the Project. Stone and Webster was a sub-contractor.

In February 1991, USAID and the Ministry of Electricity and Energy (MOEE) agreed to use EMD project funds for a new MOEE Executive Management Training Program. In July, IHRDC consultants started working with the newly established MOEE steering committee and MOEE senior management to develop an Action Plan for the Executive Management Training Program.

During 1991, EMD was presenting courses every month, except for the summer and the Gulf War period.

Summary of EMD Evaluation Team Findings

The EMD Evaluation Team found the Project to be meeting a serious need in the development of manpower in Egypt's petroleum and electricity sectors. Their evaluation indicated that only one of the four components of the Project, the component focused on technical and management training, could be considered successful at this time. Two other components were started late and are experiencing implementation difficulties (upgrading training facilities and manpower planning). The fourth component is management support.

The EMD Evaluation Team also recommended that the Project be re-focused to strengthen the emphasis being given to management and technical training, and to expand the capacities of Project-related training facilities. This task assumes even more importance in view of the Mission's current emphasis on environmental issues and privatization.

The Team also suggested that training under the EMD Project be made available to top management officials of the EGPC and the EEA, including the appropriate support Ministries, in order to promote their advocacy for the basic training concepts and goals of the EMD Project.

EVALUATION PURPOSE:

The purposes of this evaluation, which covered USAID/Cairo's umbrella Science and Technology for Development (STD) Project, were basically three-fold. The Team was asked to assess (1) the use of STD Project funds to finance the design and start-up of four component projects; (2) the progress of Project implementation and prospects for achieving the Project's principal goals and objectives; and (3) the relevance of the

S&T activities financed under the Project to current Mission and Agency strategic objectives.

METHODOLOGY:

Specialized evaluation teams evaluated not only the project but also the four components. The teams, composed of both Egyptians and Expatriates interviewed appropriate individuals, studied documentation, and visited project sites. Individual reports were prepared for each component, as well as a report summarizing the whole project.

MISSION COMMENTS

The Mission decided in the Spring 1992 Portfolio Review to abolish the Science and Technology Office. Management of two activities, the Science and Technology Cooperation component, and the Energy Cooperation and Efficiency Component was transferred to a new Environment Office. This transfer was part of a project redesign involving a new environmental focus as part of the Mission's strategy.

Other steps taken included transferring the Schistosomiasis Project to the Health Office, and the EMD project to the Power and Telecommunications Office. The Manpower Planning Component of the EMD was dropped and the TA contract allowed to expire. New TA contracts are being prepared.

LESSONS LEARNED

Since the different project components of the project were all treated as individual projects for all practical purposes, the umbrella mechanism provided only minimal value. The mechanism did facilitate the start-up of the project although other mechanisms could have been employed at that point. Aside from the start-up facilitation, there was little implementation impact on the project's components.