FISCAL YEAR 1990 AND 1991

ANNUAL REPORT

OFFICE OF SCIENCE AND TECHNOLOGY

DIRECTORATE OF HUMAN RESOURCES DEVELOPMENT AND COOPERATION

USAID/CAIRO

November 1, 1991

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INTRODUCTION

The Office of Science and Technology (OST) is the USAID/Cairo focal point for science and technology, energy management, technology transfer, natural resources, and geological and geophysical data collection and analysis. In addition to OST, the Directorate of Human Resources Development Cooperation (HRDC), one of six USAID/Cairo directorates, includes three other offices: Health, Population, and Education & Training. During the FY 90/91, the six person OST staff managed eight active projects with total AID authorized funding of $191.45 million.

PROJECT ACTIVITIES

OST project activities fall into two general groups. The first group, energy environment, and natural resources, ranges from integrated energy planning, through improved oil exploration and expanded use of renewable energy, to energy conservation and energy manpower development. The second general group, end-user targeted research and development, includes targeted research, focuses on specific problems such as solving production problems for private and public sector organizations, and develops a vaccine for schistosomiasis.

Office of Science and Technology Projects

Project Title and Duration	Total Project Funding	Total Spent to 9/30/91
Mineral, Petroleum & Groundwater Assessment Program (1980-90)	$33.7M	$33.4M
Energy Policy Planning (1982-90)	8.2M	8.2M
Renewable Energy Field Testing (1982-90)	12.8M	12.8M
Science & Technology Development (1986-98)	3.0M	2.7M
Science & Technology Cooperation (1987-95)	36.0M	3.7M
Schistosomiasis Research (1988-98)	39.5M	8.2M
Energy Conservation & Efficiency (1988-96) (Pollution prevention)	49.5M	5.3M
Energy Manpower Development (1988-94)	8.6M	2.3M
TOTAL (Land Use Planning & Investment)	$191.45M	$76.6M

Activities supported by the above projects are implemented by fifteen different Government of Egypt (GOE) counterpart organizations assisted by seventeen major AID funded contracts and several smaller contracts. Annex I is a summary of major OST contracts active during FY90/91. In addition to technical assistance contracts, AID funds cover project equipment and commodities, training, project management units within GOE counterpart agencies, and targeted research grants to Egyptian scientists.

OTHER ACTIVITIES

While focusing primary attention on projects, OST also coordinates implementation of selected activities sponsored by AID/Washington such as grants made to Egyptian researchers under the Program in Science and Technology Cooperation (PSTC). In addition, OST is involved with non-project USAID/Cairo activities concerning science, technology, energy, environment, and natural resource issues, as well as maintaining liaison with Egyptian professionals in these fields.

OFFICE HIGHLIGHTS OF FISCAL YEAR 1990/1991

From several perspectives, FY90/91 was an eventful year for OST. The Gulf Crisis had a significant impact on the implementation of OST projects. Unfortunately, during FY90, OST suffered one major tragedy and several near tragedies. Despite major staff changes, the Office made steady progress on project implementation. Two projects were completed and a third neared completion. The five newest OST projects entered the stage of full implementation.

Gulf Crisis

While life in Cairo remained calm throughout the period, the Gulf Crisis significantly hindered implementation of OST projects. In general, there are 15 to 20 short term consultants in Cairo every week working on OST projects. These consultants collaborate with Egyptian scientists, present seminars and training courses, review research proposals, analyze highly specialized energy issues, and oversee installation of sophisticated equipment and computer systems. In the fall of 1990, several project consultants canceled planned trips to Cairo citing terrorism concerns. Perhaps these cancellations were to be expected, given the large U.S. media attention to the possibilities for terrorism; however, those of us in Cairo felt little, or no threat whatsoever, so we had some initial difficulty understanding the actions of the consultants.

After the first of the year and throughout the war period, AID deferred approving the travel of all short-term consultants funded under AID direct contracts. OST had no consultants during this period which resulted in significant delays to all OST projects. Furthermore, Operation Desert Shield in the fall and the war and its aftermath seriously disrupted shipments of required OST equipment and other commodities from the U.S. to Egypt. Shipments and travel of consultants to Egypt did not fully return to normal until July. Many components of OST projects suffered delays of six months or more as a result of the Gulf Crisis.

Other Unplanned Events

On the second day of FY90, October 2, 1989, OST suffered a major tragedy in the form of a serious vehicle accident that killed four and seriously injured three. The victims were members of a team assessing the feasibility of large scale wind electricity generation along the Red Sea. The accident, which occurred at night about 450 kilometers from Cairo near Hurghada, claimed the lives of two consultants from Burns and Roe Company, and two counterparts with the GOE New and Renewable Energy Authority (NREA). Seriously injured were two consultants from R. Lynette and Associates and an NREA engineer. For two weeks following the accident, OST Project Officer, Marc Madland, worked closely with NREA and U.S. Embassy Consular Section on logistics of moving the victims to Cairo and eventually to final destinations, notifying next of kin and home offices, arranging financial transfers, contacting insurance companies, and collecting and shipping personal belongings. As a result of the accident, AID/Cairo revised and re-issued guidance on night driving. The surviving members returned with new colleagues in February and completed the assessment.

At the time, the two R. Lynette consultants were being stabilized for transport to the U.S. A Bechtel consultant was in the same hospital's Intensive Care Unit in a diabetic coma. Fortunately, the Bechtel consultant regained consciousness and enough strength to be transferred to the U.S.

In April 1990, a consultant from Lowell University suffered a major heart attack that went undetected, until OST Project Officer, Dr. Sherif Arif, took charge of the situation and had the consultant admitted to the hospital. After hospital admission, the consultant suffered two heart failures that might have been fatal had he not been in the hospital Coronary Care Unit. The consultant later was transferred by special jet to Geneva and subsequently returned to the U.S. for continued treatment. During this episode, a truck ran a red light and destroyed Dr. Arif's car; luckily, he only suffered minor cuts. Three months earlier while in Luxor on an Embassy employees tour, Dr. Arif and OST Project Officer, Salwa Wahba, and their respective families were in a bus accident. Ms. Wahba and her son suffered minor injuries. Luckily, two other OST staffers on the tour, Richard Rhoda and Laila Victor, were not in the bus at the time of the accident.

Fortunately, no tragic "unplanned events" occurred between May 1990 and September 1991.

Staff Developments

In July 1990, USAID/Cairo approved Dr. Arif to take one year (later extended to two) leave without pay so he could work as an Environmental Officer at the World Bank in Washington. OST misses his energy, enthusiasm, knowledge of AID and GOE bureaucratic systems, and wonderful sense of humor. Since he was managing six OST projects and was OST's institutional memory and main link to Cairo's S&T community, his departure left a gaping hole in OST. Fortunately the hole has been filled adequately by the combined efforts Salwa Wahba, Marc Madland, and Richard Rhoda. Ms. Wahba received a special award for her outstanding performance in absorbing many of the responsibilities previously assigned to Dr. Arif. Luckily, Dr. Arif's Bank assignments and travel schedule bring him back to Cairo and OST every few months.

Secretary, Sanaa Malaka, got married in April 1990 and resigned shortly thereafter, leaving the full load of OST secretarial work in the capable hands of Ms. Laila Victor. Ms. Malaka's resignation coupled with Dr. Arif's departure gave OST an opportunity to propose upgrading of position descriptions based on the realignment of Dr. Arif's responsibilities. Unfortunately, AID Management could not approve the proposed new position descriptions because they reassigned Dr. Arif's duties while his position remained intact, as he is technically on leave without pay status. The attempt and ultimate failure to upgrade position descriptions took several months and delayed recruiting a replacement for Ms. Malaka. The replacement, Ms. Wafaa Shehata, formally of the USAID Financial Management Directorate, joined OST on February 24, 1991.

PROJECT HIGHLIGHTS OF FISCAL YEAR 1990/1991

Considering delays resulting from the Gulf Crisis, project implementation moved ahead briskly in FY90/91. Several sub-activities were completed under OST's three mature projects and implementation accelerated rapidly on the four newest projects. The overall trend in OST project implementation activity from FY89 through FY91 is indicated by the expenditures table below.

Office of Science and Technology Projects

	Project Title	Project Expenditures FY1989	FY1990	FY1991
	Mineral, Petroleum & Groundwater Assessment Program (completed)	$7.013M	$6.135M	.094M
	Energy Policy Planning (completed)	1.220M	2.838M	.409M
	Renewable Energy Field Testing	1.901M	2.365M	2.281M
	Science & Technology Development	.606M	.585M	.160M
.1	Science & Technology Cooperation	.455M	.876M	2.345M
.2	Schistosomiasis Research	.465M	3.604M	4.147M
.3	Energy Conservation & Efficiency	.697M	1.534M	3.066M
.4	Energy Manpower Development	.080M	1.157M	1.072M
	TOTAL	$12.437M	$19.094M	$12.574M

Mineral, Petroleum and Groundwater Assessment Program (MPGAP)

The ten year MPGAP Project ended on September 27, 1990. The project purpose was to improve Egyptian collection, analysis, utilization, and dissemination of essential data on mineral, petroleum and groundwater resources. MPGAP improved the current information base by collecting and analyzing resource data, by compiling reports on newly surveyed areas, and by strengthening the institutional capacity of the four GOE implementing agencies: Egyptian General Petroleum Corporation (EGPC), General Petroleum Company (GPC), Egyptian Geological Survey and Mining Authority (EGSMA), Remote Sensing Center (RSC) and Desert Research Institute (DRI), which recently was renamed the Desert Research Center (DRC).

A major activity during 1990 was the final evaluation conducted by Dames and Moore. The following quotations from the evaluation indicate the strengths and weaknesses of the project:

> "On balance, the MPGAP project was executed effectively and the results were very positive. The three primary objectives of MPGAP (data collection, data handling & management, and private sector investment) were substantially achieved, though all the fruits of MPGAP in private sector investment may not be apparent for several years, owing simply to the nature of the natural resource development business."
>
> "The MPGAP project successfully provided participating GOE agencies with a wide ranging package of training, equipment and technical assistance which has assisted those agencies in moving strongly in the direction of full achievement of MPGAP project goals."
>
> "MPGAP was not noticeably successful in improving coordination and cooperation between participating GOE agencies, in part because of the failure of the GOE Coordinating Committee and in part because of longstanding interagency competitiveness."
>
> "To date, six petroleum companies have purchased all or part of the aeromagnetic data provided under contract by Aero Service. This type of private sector interest could well lead to additional concession agreements."

The aeromagnetic data collected by Aero Service for the General Petroleum Company (GPC) helped ESSO obtain a ten year concession for oil exploration in a 31,700 square kilometer area of the Eastern Desert. Marathon and AMOCO also used the aeromagnetic data for their respective concessions in the Gulf of Suez and in the Western Desert. The concessions could represent $115M in exploration expenditures and a far greater amount in potential new oil discoveries.

ESSO, Shell, Mobil, AMOCO, Phillips, TEXACO, and ARCO have expressed considerable interest in the Assyut/Qena regional seismic study by Geosource for GPC, which confirmed the presence of an oil bearing basin and could result in new oil exploration concessions.

Scientific Software Intercomp (SSI) and Egyptian General Petroleum Corporation (EGPC) personnel developed quantitative qualitative estimates of hydrocarbons in the Western Desert, Nile Delta, and North Sinai Coast. They compiled and computerized a vast array of data and analyzed the data in stratigraphic, structural and hydrocarbon general models. EGPC management was particularly pleased with this contract which made a significant contribution to EGPC's analytic capability.

Integrated Technologies, a division of Western Atlas International, assisted EGPC with the development of exploration and production data bases covering electric well logs, technical control of agreements, and reservoir simulation training. Bechtel completed library upgrading and development of a management information system for EGPC.

RSC, with the assistance of the Environmental Research Institute of Michigan, produced the first satellite atlas of Egypt consisting of 80 colored Landsat scenes radiometrically and geometrically corrected. Eight hundred copies of the Landsat Atlas, at a scale of 1:250,000, were produced in late 1990 and were received by March of 1991. Unfortunately, the Atlas arrived too late to be utilized by MPGAP agencies during the ten year life of MPGAP. However, the Atlas should be invaluable to these agencies and other institutions for future projects.

In March, 1990, the General Petroleum Company (GPC) and Improved Petroleum Recovery (IPR) Inc. commissioned two huge compressors and started injecting gas into the depleted North Bakr oil field as a pilot test of this method of enhanced oil recovery. While initial compressor problems were overcome, IPR did not successfully complete all contract tasks before the September 27, 1990 MPGAP completion date. GPC negotiated a plan for obtaining the required deliverables and is now continuing with the gas injection pilot test.

MPGAP Project data collection and analyses in the mineral sector led to three concession agreements between EGSMA and international companies. The agreements require a minimum exploration expenditure of $20M. Successful exploration could lead to production expenditures of over $100M per concession.

The groundwater portion of the project focused on finding the water required to economically exploit petroleum and mineral resources in remote areas. Project surveys under the Desert Research center (DRC) covered all water well points in the Eastern Desert and discovered three new aquifers. Marathon Oil currently using water from one of the discovered aquifers for its concession near the Red Sea.

A side benefit of the project is the linkages established between U.S. contractors and the Egyptian and Middle Eastern operations of oil companies. To complete the Project contracts, U.S. oil industry service companies established temporary offices in Cairo. As a result of their contract work and the relationships established, three companies are establishing permanent offices in Cairo (Improved Petroleum Recovery of Dallas; Integrated Technologies, a division of Western Atlas International of Houston; and Scientific Software-Intercomp. of Denver).

The final Project Assistance Completion Report has been written officially stating the project is complete with no formal follow-on.

The Energy Policy Planning (EPP) Project external evaluation in 1989 concluded that the project already had substantially achieved its purpose of building the institutional capability of the Organization for Energy Planning (OEP). The evaluation recommended that OEP focus more attention on outreach and influencing GOE energy policy. During FY1990, OEP worked on this evaluation recommendation and also tried to implement a very ambitious plan before the 30 June 1990 Project completion date. While OEP and its host country contractor, Meta Systems, made significant progress, they were not able to implement all activities in the plan. In May

1990, USAID extended the EPP Project completion date until 28 February 1991 and de-obligated $350,000 from the Project, reducing the total for the eight year Project to $8.15M. In February 1991, AID and the GOE extended the PACD to May 28, 1991 so that activities delayed by the Gulf Crisis could be completed.

During FY90, Project contractors worked with OEP to complete six comprehensive energy audits bringing the EPP project total to eleven. Foster Wheeler, RCG/Hagler Bailly Inc., and A. D. Little worked jointly with OEP to complete the audits of the following companies:

- Cairo Dying & Finishing Company
- National Company for Metal Industry
- El Nasr Company for Coke & Chemicals
- Misr Chemical Company
- El Nasr Company for Preserved Foods
- Edfina Food Company
- The Egyptian Company for Starch and Yeast
- Cairo Company for Oil and Soap
- Helwan Portland Cement Company
- El Nasr Pharmaceutical Company
- Alexandria Petroleum Company

OEP conducted an additional five audits with assistance from the Government of Sweden:

- America Petroleum Refinery Company
- El Nasr Company for Sand Bricks
- El Nasr Company for Forging
- Misr Helwan Spinning and Weaving
- Paper Company for Middle East (SEMO) (Cogeneration)

If all the attractive Energy Conservation Opportunities identified in the sixteen selectively audited plants were implemented at an estimated cost of US $43.55 million, the simple payback period on the investment would be 1.72 years. The annual energy savings to Egypt would be over $25 million and the energy savings in the sixteen plants audited represent over 24% of the energy consumed at

these plants. On an average, improved housekeeping contributed to about 10% of the energy saving potential in the industries with a payback period of two months. The OEP energy audits, which document the great potential for energy savings in Egypt, are currently being used by the OST Energy Conservation and Efficiency Project.

Training continued to be a major OEP activity in FY90/91. During the period, OEP provided its week-long energy management training course for about 1500 professionals from the public and private sectors, increasing the Project total to 3100. In addition, Meta Systems hired top level U.S. experts to present five, week-long energy seminars in Cairo on agriculture, transportation, buildings, and boiler efficiency.

OEP and Meta implemented a pilot high efficiency lighting activity at one floor of the new Nasr City Hospital Clinic. The preliminary results indicate that the pilot is savings 50% to 75% compared to the conventional lighting installed in the new building. But with the imminent threat of war consultants hired by Meta under host country contract postponed planned TDYs and the completion of the lighting efficiency demonstration. Meta fully implemented the lighting efficiency demonstration by the new PACD of May 28, 1991. OEP and Meta also designed a high efficiency energy system for the Omar Effendi Department Store.

OEP's three sophisticated computer energy planning models have been calibrated to fit the Egyptian situation: 1) ENPEP (developed by US DOE Argonne National Laboratory) which optimally allocates/ substitutes fuels (oil, natural gas, electricity, etc.) to various fuel consuming sectors; 2) Energy Input-Output Model (developed by MIT) for forecasting macroeconomic impacts of changes in energy sectors; and 3) EDSIM Energy Pricing Model (developed by Meta) for estimating production and economic impacts of various pricing scenarios. During 1991, OEP and Meta integrated the Energy Input-Output Model and EDSIM Energy Pricing Model such that the output of one model could be used as input to the other and vice versa. The integrated models enable OEP to analyze complex energy policy scenarios.

All activities were completed by the PACD of May 28, 1991 and the Meta System's final report was received.

The Renewable Energy Field Testing (REFT) Project aim is to promote the use of renewable energy technologies and improve the Egyptian capability to apply these technologies. The project started in 1982 and early implementation progress was slow for several reasons. USAID and the GOE could not agree on a contracting mode for providing Technical Assistance (TA). The first TA contract, which lasted five years, was less than fully successful. The GOE shifted the project from one GOE implementing agency to another three times. Field test contracts were not signed until 1987/88. The field tests were too complex for the isolated areas where they were being installed. The performance of two of three field test contractors was not up to GOE and USAID expectations.

During FY90/91, the Ministry of Electricity's New and Renewable Energy Authority and USAID worked to improve project management and complete ongoing implementation activities.

E.A.-Mueller successfully completed an industrial process heat field test at the General Poultry Company and provided excellent support to another field test which was implemented by NREA. International Development and Energy Associates (IDEA), an 8(a) firm which assumed TA responsibilities in 1989, did a good job of overseeing field test activities, establishing NREA's computerized Renewable Energy Information System (REIS), completing the wind farm field test, and producing an excellent manual on renewable energy options for tourist village development. In January 1990, a team from Burns and Roe with R. Lynette and Associates as sub-contracts, completed a pre-feasibility study for a large scale, grid connected wind farm along the Red Sea. The study suggests that the scheme is marginally feasible.

In May 1990, AID deobligated $4.3 million and extended the PACD and IDEA TA contract until February 28, 1991 (to complete field tests). Field test completion was delayed by the Gulf Crisis, so in February 1991, AID extended the PACD and IDEA and Solarex contracts until June 28, 1991. Due to the extenuating problems with the PV/D ice plant, the PACD has been further extended to August 28, 1992.

At the close of FY91, Solarex Inc. was completing the final acceptance of a photovoltaic ice plant.

The Science and Technology for Development (STD) Project is an umbrella project which was used to design and start implementation of the four new OST projects which are described below.

The Science and Technology Cooperation (STC) Project objective is to apply Egyptian science and technology expertise to solve development problems identified by end-users in productive sectors. The project funds research contracts in pre-defined, high priority problem categories. Egyptian universities, research centers, and private and public sector firms are eligible to compete for research contracts in response to advertised "Request for Proposals", which are developed in close collaboration with end-users. End-users include individual companies, groups of producers, or, in some cases, local governmental units.

The project is divided into three major components. The National Research Program (NRP) focuses on solving limited, but well-defined national development problems. The Local Research Program (LRP) addresses local/rural development problems identified by, and associated with, specific governorates or regions. The Advanced Technology Program (ATP) builds on advanced applications in biotechnology and computer-based technology. Policy guidance is provided by the STC Steering Committee composed of senior representatives from the Egyptian S&T and End-User communities.

The project is implemented by a semi-autonomous STC Secretariat which is housed in the Egyptian Academy of Scientific Research and Technology (ASRT).

The Secretariat's Executive Director and his 20 person staff manage the day-to-day operations of the Project. The Secretariat staff, which are paid with USAID allocated funds, are not current GOE employees (they may be GOE employees who are currently on leave without pay status). The STC Secretariat includes a Technical Liaison Office (TLO), with a branch TLO in the Tenth of Ramadan City, which is responsible for identifying End-Users and appropriate S&T development problems for research as well as

marketing research results. For each problem area, the Project works with End-Users and identifies specific research topics. The Secretariat hires Egyptian and American experts to conduct background studies on each research topic. Working from the background studies and 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 the interested parties.

Upon receipt of proposals, the Secretariat convenes Review Panels of technical experts, chaired by the End-User. In response to comments from the Review Panels, the selected Principal Investigators (PI) submit "Best and Final Offers", which are the basis for negotiation and ultimate award of the research contracts.

In June 1990, the Secretariat awarded an incrementally-funded ($1.7M for the first two years) host country Procurement Service Agent (PSA) contract to the American Manufacturers Export Group (AMEG, 8a). Under the contract, AMEG will procure up to $5M in scientific equipment required for implementation of the research contracts.

The Secretariat awarded the first eight research contracts in Jan./Feb. 1990 for a total of about $1.6M. The grants cover the salaries and local/international travel of researchers, imported and local research equipment and supplies, as well as local and international consultants.

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 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 the USAID Applied S&T Project and from the S&T for Development Project.

As of September 1991, STC has completed five research contract competition cycles and awarded 30 research contracts representing commitments of AID funds totalling $5.1M. In addition, research contractors had already contributed LE 1.1M (in kind) to STC research efforts. Furthermore, end-user companies had contributed LE 0.8M (including LE 158,000 in cash). AMEG had delivered almost $900,000 worth of research commodities to the Principal Investigators and had ordered an additional $600,000.

A full list of 30 research contracts is provided in Annex II. Some of the more interesting include:

* Automation of industrial processes for textile, food, metals, and carpet companies;
* Upgrading Egyptian kaolin for paper and ceramic industries;
* Manufacture of cement fondeds and bricks;
* Phosphoric acid production technology;
* Local production of currently imported commodities such as water treatment chemicals, enzymes, asbestos-like fibers and copolymers for PVC tile production, metallurgical alumina, grinding mills, molding gypsum, medical plaster, and titanium oxide for paint.

The Schistosomiasis Research Project (SRP) seeks to control the disease (Schistosomiasis) by developing tools, methods and information through directed research. The secondary purpose is to improve the biomedical research capability of existing medical research institutions to conduct practical, control oriented research.

The project got off to a rapid start and was ready to award research grants in early FY90. In mid 1988, USAID hired Medical Services Corporation International (MSCI) to provide assistance to the Ministry of Health with the task of organizing the SRP Secretariat and developing the technical, financial and administrative procedures needed to implement the SRP grants program.

In December 1988, USAID awarded a contract to the University of Lowell to assist the GOE's Theodore Bilharz Research Institute (TBRI) in establishing a biological materials facility. Within a year, the facility was providing researchers in schistosome worms and cercariae.

PASA

In April 1989, USAID signed a Participating Agency Services Agreement (PSA) with the U.S. Naval Medical Research Unit Three (NAMRU-3) in Cairo. NAMRU-3 immediately started helping Egyptian scientists develop collaborative research proposals for SRP funding. NAMRU-3 is also providing training on scientific techniques and procuring research supplies.

Egyptian scientists (with assistance from NAMRU-3 collaborators) developed the first cycle of research proposals and submitted them to the SRP Secretariat in July 1989. The proposals were reviewed by joint Egyptian-American Technical Review Panels and revised accordingly. After budget negotiations, the first cycle research grants were formally awarded in November 1989.

The SRP research grants program has continued making rapid progress. By September 30, 1991, the Project has awarded 46 research grants; 29 full grants (for about $9M) and 17 Young scientist grants (for about $340,000). A full list of the research grants is provided in Annex III.

The SRP has held two highly successful Technical Symposia. The first Symposium in October 1990, which focused on vaccine development and improved diagnostics, attracted over 259 Egyptian and international scientists. The scientists voiced confidence that vaccine agents for schistosomiasis would be developed by the Project's completion date. It became clear at the second Symposium in May 1991, that the SRP annual symposia had become a major event among international schistosomiasis scientists.

The Energy Conservation and Efficiency Project (ECEP) objective is to promote widespread adoption of energy saving technologies in the public and private sectors.

Egypt ~~&~~ improve efficiency
gas analyzers - tune ups

Public x private sector

The initial Project design provided private and public sector companies with technical assistance and funds (loans and grants) for the implementation of up to 60 applications (sub-projects) of energy-efficient technologies. The loan aspect, which was to operate through the banking sector, was later dropped. Project grants for energy-efficient technologies are split about 50-50 between the private and public sectors. While AID's policy strongly favors encouragement of the private sector, the public sector in Egypt is clearly the largest energy user and offers, by far, the best opportunities for energy conservation. Public sector companies in the metals, chemicals and cement industries were selected for initial ECEP participation, later, food and textile companies were added. All private sector industrial and commercial companies in Egypt are eligible for participation.

The Tabbin Institute for Metallurgical Studies (TIMS) of the Ministry of Industry is implementing the 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.

By implementing the project, TIMS, DRTPC, and FEI will improve their ability to promote, identify, engineer, install, operate and maintain energy-efficient technologies. ECEP will enhance the energy conservation capabilities of Egyptian companies through training in Egypt and the U.S. as well as through implementation of technology applications.

In February 1989, USAID hired RCG/Hagler-Bailly (HB) to assist DRTPC, TIMS, and FEI with: the organization of their ECEP Secretariats, the establishment of project procedures, and the completion of feasibility studies for the first set of technology applications.

In April 1989, AID provided funds to DRTPC, TIMS, and FEI Secretariats after they successfully established procedures and met AID's other requirements. Shortly thereafter, the 3 Secretariats

hired staff and started implementing the project. Initial activities included preparation of informational materials, presentation of the project to various industrial groups, and screening of companies interested in participating in ECEP.

During FY89, USAID competitively procured a long-term Management/ Technical Assistance (M/TA) contractor, Overseas Bechtel Inc. (OBI), to provide technical assistance and to procure the required energy conservation equipment for ECEP's sub-projects.

From a screening of 135 private and public industrial plants, DRTPC and TIMS have identified and completed feasibility studies for 36 technology applications. By September 30, 1991, fourteen companies have signed contracts to implement sub-projects. Under these contracts, the companies pay for detailed engineering work, procurement of locally available equipment, installation of all energy conservation equipment, and monitoring of energy savings (roughly one third of the total sub-project cost). ECEP pays for feasibility studies and the procurement and delivery of the energy conservation equipment imported from the U.S. (roughly two-thirds of the total sub-project cost).

Of the first 18 sub-projects: ten are in the private sector and eight are in the public sector; See Annex IV. Energy savings from the first 18 sub-projects are expected to be about $850,000/year. By September 30, 1991, installation of the first three sub-projects was complete and a fourth was nearing completion.

The Energy Manpower Development (EMD) Project purpose is to improve the technical and managerial capability of the petroleum and electricity sectors. The Project consists of systematic manpower planning, defining the most effective training programs available, training, building institutional capacity, and demonstrating the effectiveness of manpower planning and development systems in pilot companies.

The project's two interrelated components operate in parallel. The first component; capacity building, addresses an immediate need to improve technical and management skills in the petroleum and electricity industries based on manpower development plans.

The output will be better trained professionals who will improve job performance and increase production. The component consists of three elements: (1) focused management and technical training programs; (2) training of trainers; and (3) improving training facilities.

The second component will introduce manpower planning and development systems at the three implementing agencies; the Egyptian General Petroleum Corporation (EGPC), the Egyptian Electricity Authority (EEA), and the Electricity Distribution Authority (EDA). The component will adapt, design, and use human resource and career development systems for manpower planning. Services will include assistance in: preparing methods for and conducting annual training needs assessments; refining and updating training plans; designing and installing a manpower development and training database. Manpower development systems will be applied and tested, on a pilot basis, in three companies; the General Petroleum Company, the Cairo Petroleum Refinery, and the Alexandria Zone of EEA.

The EMD Project has made steady progress. In May 1989, USAID hired the Institute of International Education (IIE) on a temporary basis to assist EGPC, EEA, and EDA in preparing manpower development master plans and training courses to be offered in Egypt. IIE arranged U.S. training for thirteen participants, trained an additional thirteen Egyptian trainers, and conducted five training courses in Cairo.

During early 1990, USAID competitively procured a long-term Management/Technical Assistance (M/TA) contractor. In June 1990, USAID negotiated and signed a contract with International Human Resources Development Corporation (IHRDC), with Stone and Webster as a sub-contractor.

During FY91, the EMD Project was in full implementation. EMD was presenting courses every month. The three GOE implementing agencies approved plans for U.S. training which included: study tours, training of trainers, industrial training, and industrial internships. U.S. training under the IHRDC contract started in October 1991. USAID agreed to a request from the GOE implementing

agencies to eliminate U.S. academic training and re-program the funds for additional industrial training and industrial internships and study tours.

IHRDC started working with the three pilot companies to set up databases for pilot manpower development systems. IHRDC procured manpower planning software and started installing it in the three companies.

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.

By September 1991, the EMD Project had trained 350 people in 16 training courses in Egypt:

Petroleum Sector

- "International Petroleum Pricing and Agreements"
- "Petroleum Accounting, Finance and Economics"
- "Project Management, Appraisal and Evaluation"
- "Petroleum Economics"
- "Management I"
- "Learning Systems Design"
- "Reservoir Engineering"
- "Spare Parts"
- "Management II"

Electricity Sector

- "Utility Management"
- "Power Plant Operations, Maintenance & Utility Management"
- "Personal Skills for Managing People"
- "Performance Evaluation"
- "Engineering Economics"
- "Standard Specifications"
- "Improving Distribution Operations and Service Quality"

Annex I

OFFICE OF SCIENCE AND TECHNOLOGY
MAJOR ACTIVE CONTRACTS DURING FY90/91

CONTRACTOR	ACTIVITY	SIGN DATE END DATE	AMOUNT DOLLARS	AMOUNT LE	FY90/91 AWARD	CONTRACT TYPE	CONTRACT MODE	GOE AGENCY
MINERAL, PETROLEUM AND GROUNDWATER ASSESSMENT PROGRAM (MPGAP – 263-0105)								
Geosource	Seismic Survey of Western Desert	07/08/86 03/31/90	$1,782,463	676,500	-	TR	HCC	EGPC
Improved Petroleum Recovery (IPR)	Gas Injection in the North Bakr Field	03/23/88 09/27/90	$4,602,000	380,000	-	FP & CR	HCC	EGPC GPC
Scientific Software Intercomp. (SSI)	Assessment of Petroleum Resources	07/05/88 09/27/90	$2,563,857	1,260,228	$514,297	FP	HCC	EGPC
Scientific Software Intercomp. (SSI)	Feasibility Study of Assran Oil Field	09/22/89 04/13/90	$80,000	-	-	FP	HCC	EGPC
Integrated Technologies (IT)	Development of a Well Log Database	12/24/86 02/29/90	$1,581,040	247,961	$120,045	FP	HCC	EGPC/ DRI
Overseas Bechtel	Management Information System	07/26/89 06/30/90	$1,379,998	-	$180,000	CR & FF (Buy-in)	Direct	EGPC
Daylon L. Walton	Quality Assurance for Enhanced Oil Recovery	09/27/88 09/27/90	$98,000	-	-	CR	Direct	EGPC
George E. Failing Company	Spare parts for DRI	09/07/89 02/15/90	$50,000	-	-	CR & FP	Direct	DRI
Environmental Research Institute of Michigan (ERIM)	Technical Services to the Remote Sensing Center	02/27/90 09/27/90	$516,134	-	$516,134	CR	HCC	RSC
Dames & Moore	Impact Evaluation of MPGAP Project	08/01/90 09/15/90	$99,735	-	$99,735	CR IQC	Direct	DRI/RSC EGSMA/
PROJECT TOTAL			$12,753,227	2,564,689	$1,430,211			

LEGEND: TR: Time Rate, FP: Fixed Price, FF: Fixed Fee, CR: Cost Reimburseable, IQC: Indefinite Quantity Contract
Direct: Direct Contract, HCC: Host Country Contract
EGPC: Egyptian General Petroleum Corporation, GPC: General Petroleum Company, DRI: Desert Research Institue
RSC: Remote Sensing Center, EGSMA: Egyptian Geological Survey and Mining Authority

OFFICE OF SCIENCE AND TECHNOLOGY
MAJOR ACTIVE CONTRACTS DURING FY90/91 (Cont.)

CONTRACTOR	ACTIVITY	SIGN DATE END DATE	AMOUNT DOLLARS	AMOUNT LE	FY90/91 AWARD	CONTRACT TYPE	CONTRACT MODE	GOE AGENCY
ENERGY POLICY PLANNING PROJECT (EPP – 0123.1)								
Meta Systems Inc.	Prime Technical and Management Support	12/12/86 05/28/91	$5,251,838	-	$60,371	CR & FF	HCC	OEP
RCG, Hagler-Bailly	Industrial Energy Audit	02/15/89 10/31/89	$209,089	-	-	CR & FF (Buy-in)	Direct	OEP
Foster Wheeler	Energy Audits in Five Companies	08/14/89 03/16/90	$576,148	-	$85,097	CR & FF (Buy-in)	Direct	OEP
PROJECT TOTAL			**$6,037,075**	**0**	**$145,468**			
RENEWABLE ENERGY FIELD TESTING PROJECT (REFT – 263-0123.2)								
International Development & Energy Associates (IDEA)	Technical Assistance and Tourist Village Study	04/20/89 06/28/91	$2,508,000	-	$523,000	CR & FF (8a)	Direct	NREA
IDEA Inc.	Renovation of Wind Farm & Installation of ODAS	06/27/90 06/28/91	$189,000	-	-	CR & FF (8a)	Direct	NREA
Solarex Corporation	Photovoltaic/Diesel Ice Making Plant	09/24/90 06/30/92	$1,155,079	-	$18,079	FP	Direct	NREA
EA-Mueller Inc.	Engineering Services for design of FT #4 & Commodities for FT #3	09/21/89 02/28/91	$1,583,465	-	$100,765	FP	Direct	NREA
Burns and Roe Company	Wind Power Plant Prefeasibility Study	09/22/89 07/17/90	$247,771	-	$49,676	CR & FF	Direct	NREA/ EEA
PROJECT TOTAL			**$17,757,465**	**0**	**$982,456**			
SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (STD – 263-0140)								
Lowell University	Schisto Biological Material Supply	12/19/88 12/19/90	$830,000	-	-	CR	Direct	MOH
Medical Services Corporation International (MSCI)	Management and Technical Assistance		$469,335	-	-			
International Development & Energy Associates (IDEA)	Management and Technical Assistance	02/15/89 03/30/91	$350,000	-	-			
PROJECT TOTAL			**$1,649,335**	**0**	**$0**			

LEGEND: TR: Time Rate, FP: Fixed Price, FF: Fixed Fee, CR: Cost Reimburseable, IQC: Indefinite Quantity Contract
Direct: Direct Contract, HCC: Host Country Contract
OEP: Organization for Energy Planning, NREA: New & Renewable Energy Authority, MOH: Ministry of Health

OFFICE OF SCIENCE AND TECHNOLOGY
MAJOR ACTIVE CONTRACTS DURING FY90/91 (Cont.)

CONTRACTOR	ACTIVITY	SIGN DATE END DATE	AMOUNT DOLLARS	AMOUNT LE	FY90/91 AWARD	CONTRACT TYPE	CONTRACT MODE	GOE AGENCY
SCIENCE AND TECHNOLOGY COOPERATION (STC – 263-0140.1)								
International Development & Energy Associates (IDEA)	Management & Technical Assistance	02/15/89 06/30/91	$806,431	-	$187,923	CR & FF	Direct	MSR
American Manufacturers Export Group (AMEG)	Procurement Services	06/15/90 06/15/93	$5,000,000	-	$3,120,000	FP	HCC	MSR
PROJECT TOTAL			$5,806,431	0	$3,307,923			
SCHISTOSOMIASIS RESEARCH PROJECT (SRP – 263-0140.2)								
Medical Service Corporation International (MSCI)	Management & Technical Assistance	09/05/90 08/15/91	$11,869,239	-	$5,113,896	CR & FF	Direct	MOH
Naval Medical Research Unit-3 (NAMRU-3)	Management & Technical Assistance	04/03/89 09/27/91	$3,400,000	-	$1,400,000	PASA	Direct	MOH
Lowell University	Schisto Biological Material Supply	12/19/88 04/01/94	$1,516,304	-	$1,516,304	CR	Direct	MOH
PROJECT TOTAL			$16,785,543	0	$8,030,200			
ENERGY CONSERVATION AND EFFICIENCY (ECEP – 263-0140.3)								
Overseas Bechtel Incorp.	Management & Technical Assistance	02/14/90 02/14/93	$10,134,506	-	-	CR & FF	Direct	DRTPC/ TIMS/FEI
Johnsons Control	Energy Management System Ramsis Hilton	04/22/90 01/15/91	$185,000	-	$185,000	FP	HCC	DRTPC
RCG, Hagler Bailly Inc.	Interim Management and Technical Assistance	02/10/89 02/01/90	$891,670	-	-	CR & FF	Direct	DRTPC/ TIMS
PROJECT TOTAL			$11,211,176	0	$185,000			

LEGEND: TR: Time Rate, FP: Fixed Price, FF: Fixed Fee, CR: Cost Reimburseable, IQC: Indefinite Quantity Contract
Direct: Direct Contract, HCC: Host Country Contract
MSR: Ministry of Scientific Research, TIMS: El Tabbin Institute for Metallurgical Studies, MOH: Ministry of Health
FEI: Federation of Egyptian Industries, DRTPC: Development Research and Technological Planning Center

OFFICE OF SCIENCE AND TECHNOLOGY

MAJOR ACTIVE CONTRACTS DURING FY90/91 (Cont.)

CONTRACTOR	ACTIVITY	SIGN DATE END DATE	AMOUNT DOLLARS	AMOUNT LE	FY90/91 AWARD	CONTRACT TYPE	CONTRACT MODE	GOE AGENCY
ENERGY MANPOWER DEVELOPMENT (EMD – 263-0140.4)								
Institute of International Education (IIE)	Interim Technical Services	05/09/89 03/03/90	$916,508	-		CR & FF	Direct	EGPC/ EEA/EDA
International Human Resources Development Corp. (IHRDC)	Management & Technical Assistance	02/14/90 05/14/92	$4,127,537	-	$77,537	CR & FF	Direct	EGPC/ EEA/EDA
PROJECT TOTAL			$5,044,045	0	$77,537			
GRAND TOTAL OFFICE OF SCIENCE & TECHNOLOGY			$77,044,297	2,564,689	$14,158,795			

LEGEND: TR: Time Rate, FP: Fixed Price, FF: Fixed Fee, CR: Cost Reimburseable, IQC: Indefinite Quantity Contract
Direct: Direct Contract, HCC: Host Country Contract
EGPC: Egyptian General Petroleum Corporation, EEA: Egyptian Electricity Authority, EDA: Electrical Distribution Authority

Annex II

SCIENCE AND TECHNOLOGY COOPERATION PROJECT (263-0140.1)

Awarded Research Contracts as of September 30, 1991

RESEARCH CONTRACT TITLE	END USER	CONTRACTOR	START DATE	DURATION months	AID		EGYPTIAN (LE)		
							END USER		CONT'R
					L.E.	$	CASH	IN-KIND	IN-KIND
01 - Semi-dihydrate Production of Phosphoric Acid	Abu-Zaabal Fert's & Chem's Co.	Dr. Adel K. Ismail, CMRDI	09/01/90	24	160,000	150,000	-	35,000	120,000
02 - Computerized Control in Textile Industries	STIA & VESTIA Companies	Dr. Ayman El Dessouki, ERI	23/01/90	36	308,900	95,000	40,000	126,000	282,000
03 - Local Manufacture of Water Treatment Chemicals	Abu-Zaabal Fertilizers & Chemicals Company	Dr. Adel A. Abdul Azim, CMRDI	09/01/90	18	172,180	63,840	-	40,000	135,000
04 - Computer-Based Technology for Food Industry	Edfina Co. For Preserved Food	Dr. Hassan T. Dorrah, CU	09/01/90	36	325,000	160,000	125,000	275,000	150,000
05 - Tissue Culture Macromolecular Requirements and Industrial Application	Capacity Building Sub-project	Dr. Mamdouh Y. Kamel, NRC	06/02/90	36	150,800	127,800	-	-	326,700
06 - Enzyme Production for Clinical Diagnoses	Capacity Building Sub-Project du Papier (Rakta)	Dr. Mamdouh Y. Kamel, NRC	06/02/90	36	157,700	127,000	-	-	722,750
07 - Upgrading Egyptian Kaolin	Societe Generale d'Industrie	Dr. Aziza A. Yousef, CMRDI	09/01/90	24	184,520	94,040	-	92,800	369,000
08 - Development of Computerization of Jacquard Looms with a Device to Translate Designs on Magnetic Discs To Mechani	Oriental Weavers	Dr. Esmat Abdel Fatah Abd Alla, ERI	23/01/90	24	237,000	155,000	-	280,000	458,000
09 - Low-Cost Self-Building Housing	6th of October City	Dr. Sherif H. Eissa, NRC	09/05/90	24	245,150	54,500	-		100,000
10 - Local Substitutes for Imported Asbestos and Copolymers in Vinyl Tiles Production	Canaltex Flooring Company	Dr. Abbas A. Yehia, NRC	02/09/90	12	54,000	85,000	-	99,000	115,902
11 - Production of Metallurgical Alumina from Local Ores	The Aluminium Co. of Egypt	Dr. Adel K. Ismail, CMRDI	01/11/90	36	157,000	95,000	-	40,000	130,000
12 - Local Manufacturing of Grinding Mills	El Nasr Casting Company	Dr. Saad M. El Raghy, CU	24/07/90	36	156,300	152,000	-	400,000	120,000
13 - Production of Molding and Medical Plaster	Sinai Company for Manganese	Dr. Abdel Aziz A. Kahl, NRC	20/12/90	27	177,000	96,000	-	103,000	261,000
14 - Production of Aluminium Fluoride from Fluosilicic Acid Waste of Phosphate Fertilizers Industry	The Aluminium Company of Egypt	Dr. Ibrahim Fathy Heweidy, CMRDI	02/01/91	18	116,500	133,000	-	35,000	97,000
15 - Community Process for High Quality Cheese Making	Rural Community - New Settlement	Dr. Lotfy Fahmy Hamazawi, ASU	05/12/90	13	70,300	0	-		70,000
16 - Solar Vegetables and Fruits Drying	Rural Community - New Settlement	Dr. Salwa El Gharib, HU	01/02/91	12	144,900	0	-		200,000
17 - Production of Activated Bentonite from Local Ores	Sinai Mangenese Company	Dr. Ahmed Abdul Azi, CMRDI	01/02/91	22	153,000	150,000	-	15,000	130,000
18 - Computer Based Process Control System for EGYPTALUM	Aluminium Company of Egypt	Eng. Ali Sarhan, EGYPTALUM	01/01/91	24	325,000	210,000	325,000	300,000	200,000
19 - Prod. of Titanium Dioxide for Paints & Welding Rods	Misr Chemicals & Coatings Co.	Dr. Samir Z. El-Tawil, CMRDI	01/02/91	24	209,850	116,000	-	100,000	100,000

RESEARCH CONTRACT TITLE	END USER	CONTRACTOR	START DATE	DURATION months	AID		EGYPTIAN (LE)		
							END USER		CONT'R
					L.E.	$	CASH	IN-KIND	IN-KIND
20 - Treatment & Disposal of Sewage Sludge	Alex. General Organization for Sanitary Drainage	Dr. Mohamed A. Hamad, NRC	01/02/91	24	219,100	87,000	-	120,000	440,000
21 - Pollution Control of Industrial Effluents	El Gharbia Governorate	Sohair Imam Abo-Elela, WPCD	17/02/91	30	256,175	87,200	-	25,000	49,200
22 - Production of Produce Cement-Free Sand Brick	10th of Ramadan Factory for Sand Brick	Dr. Hassan Fahmy Imam, CU	03/03/91	12	106,395	101,000	-	45,000	57,000
23 - Computer Control of the New Electric Furnace	National Metallic Industries Co.	Dr. Ahmed Bahgat Gamal, CU	15/05/91	30	194,400	120,000	50,000	170,000	110,000
24 - Production of High Quality Industrial Castings	Tawakol Metal Industries	Prof. Adel A. Nofal, CMRDI	N/A		172,000	140,000	-	100,000	238,000
25 - Production of Thermospray Paints for Road Marking Using Local Materials	Misr Chemicals & Coatings Co.	Dr. Badran M. Badran, NRC	07/91		146,275	N/A	22,800	33,133	137,000
26 - Development of Cost Effective Technologies for a Sullage Conveyance System & Sullage & Septage Treat	Nawage Village, El Gharbia Governorate	Dr. Ahmed Fadel Ashry, MU	09/01/91	30	519,612	62,000	350,000	100,000	330,000
27 - Aquaculture in Lake Manzalah	Gen. Auth. Resource Develop.	Dr. Magda I. Zaki, NIOF	10/01/91	36	363,035	28,500	-	13,000	146,600
28 - Open Water Fisheries Development in Lake Manzalah	General Authority For Aquatic Resources Development	Prof. Khamis A. Hussein, NIOF	10/15/91	24	274,000	30,000	-	47,000	120,000
29 - Underground Water as a Complementary Source for Potable Water	Sharkeya and Gharbeya Governorates	Prof. Dr. Badr M. Mahrook, ZU		24	235,050	46,200	-	15,000	78,300
30 - Production of Magnesium Oxide from the Bittern Solution of Al Max Salines	El Nasr Saline Co.	Prof. Hammam El Abd, NRC	10/15/91	18	312,000	110,000	-	145,000	50,000
TOTAL					6,303,142	2,876,080	912,800	2,753,933	5,843,452

ASU : Ain Shams University
CMRDI: Central Metallurgical Research & Development Institute
CU : Cairo University
ERI: Electronic Research Institute
HU: Helwan University
MU: Mansoura University
NIOF: National Institute of Oceanography and Fisheries
NRC: National Research Center
WPCD: Water Pollution Control Department
ZU: Zagazig University

Annex III

SCHISTOSOMIASIS RESEARCH PROJECT

INTERNAL ASSESSMENT TEAM REPORT

Current Grants Awarded

GRANT NUMBER	RESEARCH TITLE	PRINCIPAL INVESTIGATORS (PI)	US COLLAB. INSTITUTIONS	AID			PI ESTIMATE IN-KIND LE
				GRANT LE	GRANT $	COLLAB. $	
01-01-01	Identification, Characterization and Production of Anti-Schistosomiasis Vaccine.	Nabil Guirguis VACSERA	NAMRU-3	190,000	196,000	via PASA	199,639
01-01-02	Human Schistosomiasis: Mother-to-Child Vertical Idiotypic Lymphocyte Sensitization & the Potential for the Development of Anti Idiotypic Vaccine.	Ekram Abdel Salam CU	NAMRU-3	301,900	232,312	via PASA	261,423
01-01-03	Schistosoma Haematobium Glycoprotein Antigens: Identification & Evaluation as Vaccine Candidate.	Mamdouh Kamel NRC	NAMRU-3	249,863	338,125	via PASA	722,745.7
01-01-04	Cloning of Stage Specific RNA/DNA Encoding Schistosome Protective Antigenes.	Mohamed Ali Saber TBRI	NAMRU-3	205,000	272,250	via PASA	210,000
01-01-05	Development of an Antipathology Vaccine Against Schistosomiasis.	Hanaa Hassanein TBRI	NAMRU-3	160,223	96,348	via PASA	169,900
01-01-06	Toward the Development of a Vaccine for Schistosomiasis.	Amr Karim Ain-Shams Univ.	SUNY Buffalo	184,000	502,596	197,808	200,320
01-02-07	Study of Circulating Schistosome Antigen in Schistosome-Infected School Children.	Zeinab Shaker TBRI	NAMRU-3	310,100	310,100	via PASA	210,000
01-02-08	Development & Optimization if Diagnostic Means of Active Schistosomiasis.	Momena Kamel CU	NAMRU-3	238,100	238,100	via PASA	486,765
01-02-09	Circulating Antigens in Diagnosis & Assessment of Cure in Children with Schistosomiasis.	Mohsen Hassan Zagazig Univ.	NIL, (Young Scientist)	43,150	43,150	0	0
01-02-10	Evaluation of Circulating Antigen in Diagnosis and Cure Assessment of Human Schistosomiasis.	Hala Morshedy, High Inst. of Public Health	NIL, (Young Scientist)	16,000	13,846	0	0
01-01-11	Identification of Schistosoma Haematobium Egg Antigens Inducing in Vitro Human T Cell Proliferation and Granuloma Formation.	Taghrid Mohamed Gaafer, CU	NIL, (Young Scientist)	34,500	6,500	0	0
02-02-12	Assessment of Morbidity Using Ultrasound.	Farid Abdel Wahab CU	T. Strickland Univ. of Md.	76,555	271,400	40,189	295,000
02-03-13	The Effect of Chemotherapy on Morbidity Using Ultrasound.	Farid Abdel Wahab CU	T. Strickland Univ. of Md.	241,874	23,500	66,561	320,000
02-03-15	Praziquantel Resistance.	Magdi Ismail Zagazig Univ.	John Bruce Lowell Univ.	346,297	198,669	153,538	170,835

GRANT NUMBER	RESEARCH TITLE	PRINCIPAL INVESTIGATORS (PI)	US COLLAB. INSTITUTIONS	AID			PI ESTIMATE
				GRANT LE	GRANT $	COLLAB. $	IN-KIND LE
02-03-16	Development of a Drug Formation for Children.	Adel Aziz El Sayed EIPICO	NIL	123,515	68,250	0	0
02-04-17	Epidemiology 1, 2, 3 (Ismailia and Sinai)	Zohair Noaman Suez Canal U.	See Footnote	354,787	130,750	0	105,304
02-04-18	Epidemiology 1, 2, 3 (Assyut and Qena)	Hammam Hammam Assiut Univ.	See Footnote	538,102	118,750	0	954,452
02-04-19	Epidemiology 1, 2, 3 (Menofya)	Ahmed El Hawy Al Azhar Univ.	See Footnote	307,343	94,500	0	461,437.1
02-04-20	Epidemiology 1, 2, 3 (Menia)	Anwar Orieby Menia Univ.	See Footnote	337,829	94,500	0	175,605
02-04-21	Epidemiology 1, 2, 3 (Kafr El-Sheikh)	Rashida Barakat HIPH	See Footnote	386,802	98,350	0	126,270
02-04-22	Epidemiology 1, 2, 3 (Fayoum and Gharbia)	Farid Abdel Wahab CU	T. Strickland Univ. of Md.	455,221	221,000	66,561	412,500
02-04-23	Epidemiology 1, 2, 3 (Qualyubia)	Moustafa Habib CFAR - Warak	Barnet Cline Tulane Univ.	257,633	94,750	167,756	212,328
02-04-24	Epidemiology 1, 2, 3 Data Management System	Mohamed Hussein CU	D. Miller Hawaii Univ.	135,463	60,125	177,266	3,900
02-04-25	Assessment of Stool & Urine Examination Techniques.	Ahmed Hamdy, ITM	NIL	24,095	0	0	56,327
02-06-27	Focal Transmission of Schistosomiasis.	Fouad Youssef TBRI	Clive Shiff Johns Hopkins U.	486,895	129,203	161,081	0
02-06-28	Health Education, Mass Media and Schistosomiasis.	Sarra Loza, SPAAC	Charles Atkin, MSU	307,308	0	41,982	0
02-03-29	The Course of Hepatitis B Among Bilharzial Patients Before and After Antibilharzial Chemotherapy.	Azza Galal HIPH - Alex.	NIL, (Young Scientist)	47,890	0	0	0
02-04-30	Chromosomal Damage in Urothelial Cells of Schistosomiasis Patients and Predisposition to Develop Bladder Cancer.	Wagida Anwar Ain-Shams Univ.	NIL, (Young Scientist)	34,400	6,300	0	0
02-05-31	Knowledge, Attitudes & Practice (KAP) of Mothers and Children Regarding Schistosomiasis in Egyptian Villages.	Maisa Farid NRC	NIL, (Young Scientist)	28,655	9,000	0	0
02-06-32	Testing Helisoma Duryi as Beocontrol Against Schistosome Vector Snails Under Field Conditions in Egypt.	Ahmed Tarek Salem TBRC	NIL, (Young Scientist)	35,600	6,000	0	0
02-06-33	Studies on Neclosamide in Controlled Release Elastomeric Systems for Focal Molluscicide.	Laila Emara NRC	NIL, (Young Scientist)	33,550	7,100	0	0

FOOTNOTE: Investigators 17 through 24 are part of the "EPI 1, 2, 3, Project". The 8 Egyptian Investigators share 3 US Collaborators: Dr. G.T. Strickland, Dr. B.L. Cline and Dr. F.D. Miller.

GRANT NUMBER	RESEARCH TITLE	PRINCIPAL INVESTIGATORS (PI)	US COLLAB. INSTITUTIONS	AID			PI ESTIMATE
				GRANT LE	GRANT $	COLLAB. $	IN-KIND LE
03-01-34	Idiotypic Regulation of Immune Response to Schistosomiasis.	Tarek Shata, Assiut Univ.	Eli Sercarz UCLA	329,980	151,000	274,157	149,760
03-01-35	Oncogene Activation in Bilharzial Bladder Cancer in Egypian Patients.	Yehia Gad NRC	NIL, (Young Scientist)	49,780	400	0	0
03-01-36	Immunological Aspects of the Development of Schistosomiasis in Biomphalaria Alexandrina.	Mohamed Mansour CU	NIL, (Young Scientist)	55,945	0	0	0
03-02-37	The Use of Cloned S.Mansoni Hemoglobinase in the Serodiagnosis of Schistosoma Mansoni.	Mahmoud A. El Meanawy, CU	NIL, (Young Scientist)	15,140	13,350	0	0
04-05-38	Investigation of the role of water supply & sanitation in the transmission of schistosomiasis. Identify sources of human water contamination by feces.	Samiha El Katsha AUC	John Gaumann Ohio State Univ.	658,220	9,000	102,660	0
04-04-39	Development of surveillance systems for schistosomiasis for use by the Ministry of Health.	Salah El Din Moustafa Menia Univ.	Richard Olds, Brown U., Rhode Island	394,200	61,500	189,150	0
04-05-40	Schistosomiasis in the newly reclaimed areas in Egypt.	Sohair Mehanna AUC	Peter Winch Johns Hopkins Univ.	452,550	26,500	0	0
04-03-41	Schistosomiasis in the newly reclaimed areas in Egypt.	Hesham El Sayed Suez Canal Univ.	Peter Winch Johns Hopkins Univ.	333,034	36,500	138,412	0
04-02-42	Evaluation of praziquantel reduction in dosage using formulations or agents to modify bioavailability.	Aisha Metwally TBRI	James Bennett Michigan Univ.	360,409	39,400	74,237	0
04-13-43	Chemoprophylaxis of Schistosomiais using liposome encapsulated oxamniquin.	Rawia Mohamed Khalil, NCR	NIL, (Young Scientist)	53,050	1,530	0	0
04-14-44	The imprint of venous flow pattern on injection schlerotherapy of bleeding oesophageal varices.	Hisham M. El Zeiny TBRI	NIL, (Young Scientist)	52,294	1,590	0	0
04-13-45	Evaluation of colchicine & gamma interferon with or without praziel in control of hepatic fibrosis in murine schisto.	Afkar Abdel Ghany Badawy, TBRI	NIL, (Young Scientist)	60,000	1,400	0	0
04-15-46	Impact of swimming pools as alternative recreation on incidence of urinary schisto in children.	Osama A/Rahman Mostafa, Assuit U.	NIL, (Young Scientist)	57,846	0	0	0
04-16-47	Comparitive studies on susceptible & non-susceptible B. alexandrina to infection with S. mansoni.	Nahla Shoukry TBRI	NIL, (Young Scientist)	66,000	0	0	0
04-13-48	Pharmokinetic study of praziquantel in bilharzial patients with and without liver cell failure.	Magdy A/Aziz Guinaidy, Ain Shams U.	NIL, (Young Scientist)	33,880	0	0	0
	TOTAL			9,464,978	4,223,644	1,851,358	5,904,510.8

FOOTNOTE: Investigators 17 through 24 are part of the "EPI 1, 2, 3, Project". The 8 Egyptian Investigators share 3 US Collaborators: Dr. G.T. Strickland, Dr. B.L. Cline and Dr. F.D. Miller.

ENERGY CONSERVATION AND EFFICIENCY PROJECT (263-0140.3)

Implementation Contracts Signed with Participating Companies

SUB-PROJECT (LOCATION)	TECHNOLOGY APPLICATION	STATUS	ESTIMATED SUBPROJECT COST ($)	ESTIMATED ANNUAL SAVING ($)	SIMPLE PAYBACK
PRIVATE SECTOR					
- Ramses Hilton - Cairo	- Energy Management - High Efficiency Lighting	Complete	300,000	83,000	4.6
- Cairo Beverages (7 UP)	- Power Factor	Complete	60,000	119,000	0.6
- Arab Contractors Medical Center (ACMC)-Nasr City	- Power Factor	Complete	244,000	119,000	2.2
- Giza Cables Company	- Power Factor	Complete	130,000	83,000	1.7
- Egyptian Co. for Aluminum (ALUMISR)-Helwan	- Waste Heat Recovery - Cogeneration	PO - 10/91	572,000	223,000	3.3
- Egyptian Int'l Pharm. Co. (EIPICO)-10th Ramadan City	- Energy Management System	RFQ - 10/91	420,000	152,000	2.3
- Combustion Analyzers	- Combustion Control	PO - 10/91	360,000	300,000	1.1
- Arab Pharm. Glass	- Combustion Control	RFQ - 1/92	204,000	78,000	4.2
- Asfour Crystal	- Combustion Control	RFQ - 1/92	204,000	88,000	3.4
SUBTOTAL (PRIVATE)			2,494,000	1,245,000	2.4

RFQ - Request For Quotations Issued
PO - Purchase Order Issued
ETA - Estimated Time of Arrival of Equipment

SUB-PROJECT (LOCATION)	TECHNOLOGY APPLICATION	STATUS	ESTIMATED SUBPROJECT COST ($)	ESTIMATED ANNUAL SAVING ($)	SIMPLE PAYBACK
PUBLIC SECTOR					
- Egyptian Copper Works (Phase I)-Alexandria	- Combustion Control	PO - 10/91	240,000	200,000	1.5
- Delta Steel	- Combustion Control - Waste Heat Recovery	RFQ - 1/92	540,000	200,000	3.0
- National Metals	- Power Factor	PO - 10/91	570,000	188,000	3.4
- Abu-Zaabal Fertilizers	- Cogeneration	PO - 11/91	1,205,000	750,000	1.9
- SEMADCO Fertilizers (Phase I)-Suez	- Waste Heat Recovery	PO - 12/91	60,000	350,000	0.4
- Combustion Analyzers	- Combustion Control	PO - 10/91	360,000	300,000	1.1
- Transportation & Engineering-Alexandria	- Power Factor	PO - 1/92	360,000	150,000	3.1
SUBTOTAL (PUBLIC)			3,335,000	2,138,000	1.8
GRAND TOTAL			5,829,000	3,383,000	

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