Egypt Environmental Sector Assessment

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List of Acronyms

AEDC	Alexandria Electricity Distribution Company
AEEC	Association of Enterprises for Environmental Conservation
AGOSD	Alexandria General Organization for Sanitary Drainage
ARCE	American Research Center in Egypt
CAP	Compliance Action Plan
CEOSS	Coptic Evangelical Organization for Social Services
CIDA	Canadian International Development Agency
CMS	Compliance Management System
CNG	Compressed Natural Gas
DANIDA	Danish International Development Agency
DFID	Department for International Development (formerly ODA)
DRTPC	Development Research and Technological Planning Center
DSM	Demand Side Management
DSWH	Domestic Solar Water Heater
E2	Energy Efficiency
ECEP	Energy Conservation and Environmental Protection Project
ED	Environmental Division
EDC	Electricity Distribution Company
EEA	Egyptian Electricity Authority
EEAA	Egyptian Environmental Affairs Agency
EEBC	Energy Efficient Building Code
EESA	Egypt Environmental Sector Assessment
EHP	Environmental Health Project
EIA	Environmental Impact Assessment
EIMP	Environmental Information and Monitoring Project
EMS	Environmental Management System
EMU	Environmental Management Unit
EOS	Egyptian Organization for Standards
EP3	Environmental Pollution Prevention Project
ESCO	Energy Service Company
EST	Environmentally Sustainable Tourism
FEI	Federation of Egyptian Industries
GEF	Global Environment Facility
GOE	Government of Egypt
HEPCA	Hurghada Environmental Protection and Conservation Association
KAP	Knowledge, Attitudes and Practices
KfW	Kreditanstalt für Wiederaufbau
M&V	Monitoring and Verification
MHUUC	Ministry of Housing, Utilities and Urban Communities
MOP	Ministry of Petroleum
MSW	Municipal Solid Waste
MW	Megawatt
NGO	Non-governmental Organization
NREA	New and Renewable Energy Authority
O&M	Operation and Maintenance
OECP	Organization for Energy Conservation and Planning
P2	Pollution Prevention
QA/QC	Quality Assurance/Quality Control
RBO	Regional Branch Office
RE	Renewable Energy

SCA	Supreme Council of Antiquities
SME	Small- and Medium-sized Enterprises
SW/HW	Solid Waste/Hazardous Waste
SWM	Solid Waste Management
TCOE	Technical Cooperation Office for the Environment
TDA	Tourism Development Authority
TIMS	Tabbin Institute for Metallurgical Studies
TOV	Table of Violations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tanks
VCR	Voluntary Challenge and Registry
VRG	Violation Response Guide
WTP	Willingness-to-Pay

Annex A

Scope of Work

Annex B

The Role of Non-governmental Organizations in the Environmental Field

Annex B

The Role of Non-governmental Organizations in the Environmental Field

A. Introduction

Non-governmental organisations (NGOs) can play a vital role in the enhancement and reform of Egyptian environmental policy through their access to the grassroots of society, and their flexible response to the current needs and trends within communities. A possible role for NGOs is to contribute to increasing environmental awareness, which currently is not on the list of public concerns *(2)*. In the context of socioeconomic and cultural concerns, economic issues predominate while education, health, housing and transportation are second priorities.

Recently, NGOs have gained much recognition and support from the government. This support could substantially expedite the role that NGOs can play in protecting the environment. Many constraints, however, will have to be overcome to enable NGOs to function successfully and efficiently. The legislative and regulatory framework, and the weaknesses and the strengths of the associations, are discussed in regard to the possible functions of NGOs offer in formulating and implementing environmental policy.

B. Legislative and Regulatory Frameworks.

In May 1997, the Ministry of Social Affairs released figures showing that there are 15,600 NGOs, or associations registered in Egypt. An association is defined as "an organised group composed of lay and/or legal persons who operate for a period of time with an aim other than achieving profit". NGOs operate in 17 areas, which are broadly classified into two categories. The first category, Social Care, accounts for 75 percent of the associations, while the second category, Development, which includes environmental associations, accounts for the remaining 25 percent of NGOs.

The jurisdiction of NGOs falls to the Ministry of Social Affairs, which operates under the umbrella of Law 32, enacted in 1964. The mandate of the associations must meet certain legal requirements; be of service to the public, be non-political, be fully registered by the Ministry of Social Affairs, and meet certain financial requirements. The 1990s, however, have witnessed an increase in the number of NGOs being registered as "civic companies" under the umbrella of civil law. Some of these companies are active in environmental research while others contribute to environmental protection.

For three decades, Law 32/1964 has imposed numerous constraints on the establishment and the activities of NGOs. These restrictions have raised considerable public debate and the call for change in the law. For instance, bureaucratic barriers slow down the registration process, thereby hindering the establishment of new organisations. Furthermore, the law gives the Ministry of Social Affairs the right to intervene and direct the internal affairs of a NGO.

Law 32/1964 stipulates the legal right of the Ministry of Social Affairs to control the formation of an association. While an organisation has the right to appeal a decision not to register it, the government is the final arbitrator in the appeal process. Prior to 1952, associations obtained legal status at the time they were established, and no government permit to claim legal status was required. After Law 32/1964, the legal status of an association is not guaranteed until the announcement of its registration. Law 32/1964 spells out the announcement procedures, required documents, and public review process required. An association will not be registered if the services it intends to offer are not deemed important, or if it may threaten security, or if its establishment would revive a previously dissolved association.

The Ministry of Social Affairs has the right to control the activities of established associations, and to examine documents and to control budgets. Any decision made by the NGO's governing board may be legally altered or reversed by the state administration. Furthermore, the Ministry of Social Affairs has the right to appoint its own representatives to the board of any NGO.

Law 32/1964 permits the dissolution of an association in four cases: (1) failure to fulfil objectives; (2) misappropriation of funds; (3) failure to hold a general assembly for two consecutive years; and (4) law breaking. NGOs with the same or similar objectives may be combined in order to coordinate services.

C. Current Roles Played by NGOs in the Environmental Sector

There are an estimated 64 NGOs which operate in the environmental sector *(1)*. There are four areas in which these environmental NGOs participate: (1) environmental awareness and education; (2) advisory capacity; (3) environmental protection projects; and (4) environmental research. Within these areas the activities range from recycling of solid waste, control of Nile River pollution, promotion of environmental awareness and care of the environment, advocacy, relief in the aftermath of environmental disasters, preservation and sustainability of valuable and historic buildings, and youth participation in environmental schemes.

There are approximately twenty environmental NGOs which direct their efforts towards a specific activity such as: promoting environmental issues in their particular community or region (Zamalek, Heliopolis, Tanta etc.); awareness for protecting the environment based on religious beliefs (El-Fath Association in the Suez); increasing awareness between the business sector and factories (Egyptian Association for Industry and Environment in Alexandria); promoting environmental awareness amongst industries and facilitating their adaptation to Egyptian environmental standards and international environmental standards (Association of Enterprises for Environment Conservation); protecting the society from environmental catastrophes (Association for Human Protection in Abasseyia-Cairo); and enhancing the relation between health, environment and development (Association for the Protection of the Environment-Cairo).

Twenty of the environmental NGOs are registered as scientific associations. For instance the “Egyptian Association for Organic Anthropology” is interested in the impact

of the environment on humans, while the “Egyptian Association for Medical Behaviour” is involved in assessing the impact of people on aspects of the environment. Other NGOs study the effect of insecticides on human and plant life.

Some NGOs work in development but include environmental projects in their approach. Two examples are the “Coptic Evangelical Organisation for Social Services”, and the “Upper Egypt Association for Development” in Minya. This comprehensive approach to development, improves the quality of life in villages and helps safeguard the environment.

D. The Profile of NGOs Working in the Environmental Sector

D.1 Geographic Profile

There is an imbalance in the geographical distribution of environmental NGOs. Most are based in Cairo Governorate, and likewise, most are located in urban areas. In particular, Cairo has attracted 17 of the 20 registered NGOs that are engaged in environmental research. This intensive concentration in the capital may be due to the obvious environmental concerns found in the city, such as pollution and solid waste disposal. Since Cairo is the centre of the country's mass media, the people living there tend to be more environmentally aware as attention is drawn to environmental issues. Cairo is also the seat of the government, enabling voluntary organisations to be established more readily. Similarly, Alexandria, Egypt's second city, has many registered NGOs. Many of the NGOs operational in Alexandria are active in education and awareness, in specific areas of environmental concern targeting citizen participation. Geographically, there are few environmental NGOs working in rural areas, although some developmental projects, as mentioned earlier, may include environmental aspects to their work.

D.2 Membership Profile

The membership of Egyptian environmental NGOs, working in the environment, mainly consists of educated people and professionals, many of whom are active in public and political life, and come from high-income backgrounds. They are environmentally aware and have contacts with donors and/or donor organisations, or policy makers, but they do not always operate at grassroots level. Many instead are responsible for creating initiatives.

The total membership of the 64 organisations is estimated to be around 20,000. Most have less than one hundred and fifty members, while 18 NGOs have up to four hundred members, and ten have between four hundred and a thousand members. Overall, 26 percent of members are women, although in some organisations women predominate.

The size of the NGOs’ boards varies between five and 30 members, depending on the size of the organisation. Bye laws advocate the board structure; president, vice president; treasurer; in some cases administrative director; and other board members. Committees for specific functions may be set up.

D.3 Date of Establishment

Over the last 15 years, 41 NGOs, operational in environmental issues, have been registered, as opposed to 18 in the 1950s, '60s and '70s. The rise in numbers reflects increased environmental awareness, the needs of the society for a cleaner environment, the deterioration of the environment, and the number of volunteers willing to contribute towards environmental campaigns. In the past, NGOs such as the "Egyptian Association for Nutrition" (1963) and the "Egyptian Association of Plants" (1956) were dedicated to environmental research.

E. Strengths and Weaknesses

The recently established NGOs have many strengths which, if harnessed and developed, could be used to tackle growing environmental problems in Egypt:

E.1 Strengths

Currently, the 64 NGOs are involved in a broad spectrum of environmental activities such as advocacy, research, environmental education and awareness, clean-up campaigns, solid waste management etc. Many projects are self-financing, and as a consequence support additional community needs. For instance, the "Association for the Protection of the Environment" recycles solid waste, and provides environmental education, but at the same time offers health and social services for the community of Manshiet Nasser.

Although educated and professional people lead the environmental movement they have succeeded in reaching out to all sectors of the community to work towards protecting the environment.

The increase in the number of NGOs reflects a growing awareness and the public demand to tackle environmental issues.

There is promise, in the growth of political will, to reform government policy to protect the environment. For instance in 1994, the government introduced Law 4/1994, implemented by the Egyptian Environmental Affairs Agency (EEAA), to protect the environment.

E.2 Weaknesses

There are several points of weakness which hinder the operation of environmental NGOs. Included are political and legal encumbrances, the inefficient functioning of NGOs themselves, and the socioeconomic and cultural framework of the country.

Institutional and legal factors constitute one of the main constraints. For instance, policymaking is the responsibility of the central government but additional complications arise because more than one ministry has responsibility for the environment; Ministries of Agriculture, Petroleum, Housing, Industry, Energy, Health and the EEAA. Consequently, the coordination, and implementation of the environmental laws is poorly managed and hindered particularly at the governorate

level.

Furthermore, lengthy, cumbersome and intrusive governmental bureaucracy frequently restricts and disrupts the establishment and functioning of environmental NGOs. As a result, NGOs are calling for institutional and legal changes to Law 32/1964 that would enable them to play a more significant and effective role in environmental protection.

Funding constraints provide one of the most difficult obstacles NGOs face. Each member of an association pays a nominal membership fee, which is rarely enough to cover administration costs. Public fund-raising is seldom lucrative given the religious practice of tithing to the underprivileged. Furthermore, in general people are unaware of environmental needs and do not see the collective benefit of contributing to environmental NGOs. Consequently, NGOs are forced to rely on inadequate government funding and foreign assistance *(3)*. Financial support from local communities is greatly needed to ensure the sustainability of environmental projects.

The lack of resources to hire skilled workers and the small numbers of skilled volunteers frequently restricts the capacity of NGOs to carry out projects. Staff dissatisfaction and disagreements also hinder work. Modern, efficient systems of administration, improvements to byelaws and accountability are required to enable capacity building of NGOs.

NGOs often lack training and experience in strategic planning which diminishes their effectiveness.

Poor communication and coordination between NGOs results in competition and duplication of project implementation, consequently, a coordinating body is required to establish better communication and teamwork among NGOs.

The lack of awareness and perception of environmental needs by the public hinder the growth, activities, and development of NGOs. More publicity through the mass media and educational institutions is required to change public attitude, and behavior in order to safeguard the environment.

Given the socioeconomic climate of the country it is understandable that Egyptians seldom contribute to environmental NGOs when their own financial and social needs are not being met. Consequently, the motivation to donate and volunteer amongst many communities is low and sporadic. Furthermore, because illiteracy rates are high (around 56 percent) it is difficult to reach people to encourage environmental awareness.

F. Recommendations to Enhance the Role played by NGOs in the Environmental Sector

The comprehensive approach by developmental NGOs, to integrate environmental aspects in their approach deserves support and enhancement in the future. This support can take several forms:

In order to strengthen the role played by NGOs, changes and adjustments to the legal and legislative framework of Law 32/1964 are required. For example, distribution of responsibility between the ministries involved in environmental policy making and implementation needs to be better defined. Furthermore, dissemination of information between the central government and the governorate level needs to be more effective.

Reduced bureaucracy, facilitating the establishment of NGOs, and greater autonomy limiting governmental interference in the operation of NGOs, are also recommended.

A national data base on NGOs working in the environment would be an important step towards coordinating NGO fields of specialization, projects, management of staff and volunteers, and identifying target groups for campaigns, thus increasing the efficiency with which NGOs operate.

Undertaking action-orientated research would help determine the potential capacity of individual NGOs and facilitate the development of a national plan prioritizing environmental needs and their management.

A national network enabling better coordination, interaction of experiences, and joint environmental ventures between NGOs will increase the potential of these associations. The network would provide a forum to strengthen small NGOs and the advocacy role played by some NGOs.

A capacity building program focused on specific aspects of personnel training would greatly strengthen NGOs. Training requirements are:

Training of personnel in techniques of educating and conveying environmental awareness to the illiterate.

Training of NGO staff to be trainers.

Training in leadership, administration, communication, and management would augment institutional capacity.

Training in proposal writing, fund-raising, volunteer motivation, and developing local resources.

7) New methods and initiatives to reach the grassroots of societies need to be developed, such as:

Recruit and motivate volunteers.

Involve leaders and members of the community in rural and underprivileged urban areas in environmental campa.

- Encourage developmental NGOs to adopt an integrated approach to development and the environment.
- Encourage new and creative methods to sustainable environmental projects particularly those that support the community.

Address the geographical imbalance of NGOs' presence by supporting and encouraging the establishment of NGOs in rural areas.

Strengthen the cooperation between the private sector and NGOs and encourage sponsorship, joint environmental projects, technical assistance and cost recovery.

Strengthen the interaction between NGOs and the mass media, radio, television and the press, to help promote public awareness of environmental issues.

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Annex C

Project Profiles

Table C.1: Assistance Project Summaries

Project No.	Project Title	Counterparts	Type of Assistance	Timing	Duration
LEGAL 1	Support for National Plan for Sustainable Development	MOEA/EEAA, Ministry of Planning	TA	Yr.1	1-2 yrs.
LEGAL 2	Capacity Building in National Institutions (Other Than EEAA)	MOEA/EEAA	TA	Yr.1	1-2 yrs.
LEGAL 3	Support for Inter-Ministerial Coordination on Environmental Management	MOEA/EEAA	TA	Yr.1	1-2 yrs.
LEGAL 4	Capacity Building in the Environmental Management Units	EMUs, EDs in Industrial Cities	TA	Yr.1	5 yrs.
LEGAL 5	Support for Completing the Legal/Regulatory Framework of Law 4/1994	MOEA/EEAA	TA	Yr.1	1 yr.
LEGAL 6	Building Capacity in the Legal System for Environmental Management	MOEA/EEAA	TA	Yr.1	3 yrs.
LEGAL 7	Public Awareness Campaign on Legal Action to Enforce Law No. 4/1994	MOEA/EEAA, NGOs	TA	Yr.1	2 yrs.
INDPOLL 1	Compliance Management System (CMS) for Correcting Industrial Noncompliance	EEAA	TA, FA, PA	Yr.1	2 yrs.
INDPOLL 2	National Laboratory Certification Program	Certification Board, EEAA	TA, TR, PA	Yr.1	3 yrs.
INDPOLL 3	Management of Underground Storage Tanks (UST)	EEAA, EGPC	TA, FA	Yr.1	1-2yrs.
INDPOLL 4	Lake Manzala Restoration Project	Governorates, MPWWR, MALR, EEAA	TA	Yr.2	1-2 yrs.
INDPOLL 5	Technical Assistance Centers	EEAA, NGOs, Existing TA Centers	TA,TR, PA	Yr.1	3 yrs.
INDPOLL 6	Wastewater Treatment Pilot Project	Municipal Govt., MHUUC, NGOs	TA, TR, PA	Yr.2	3 yrs.
INDPOLL 7	Pilot City-wide Environmental Management System	Municipality, NGOs	TA, TR, PA	Yr.1	3 yrs.
INDPOLL 8	Voluntary Challenge and Registry Program for Industry and Energy Facilities	EEAA, NGOs	TA, FA	Yr.1	3 yrs.
INDPOLL 9	Industrial Trade Associations	FEI, NGOs	TA, FA	Yr.1	3 yrs.

TA: Technical Assistance; FA: Financial Assistance; PA: Public Awareness; TR: Training

Project No.	Project Title	Counterparts	Type of Assistance	Timing	Duration
INDPOLL 10	Support for Financing of Industrial Environmental Investments	EEAA, NGOs	TA, FA, TR, PA	Yr.1	5 yrs.
INDPOLL 11	Venture Capital Fund for Start-up Egyptian Environmental Technology Companies	Investment and Commercial Banks, Investors' Associations	TA	Yr.2	1 yr.
INDPOLL 12	Targeted Public Awareness Campaign on Compliance Requirements	NGOs, EEAA, Industrial Associations	TA, PA	Yr.1	2 yrs.
INDPOLL 13	Public Awareness Campaign to Promote Financing Options	EEAA, Banks, Industrial Associations	TA, PA	Yr.1	2 yrs.
INDPOLL 14	Training of NGOs to Conduct Public Awareness Campaigns	NGOs, EEAA	TA	Yr.1	1 yr.
SWM 1	Measuring the Willingness-To-Pay for Municipal Solid Waste Services	EEAA, NGOs, MSW Handlers, Municipal Authorities	TA	Yr.1	1-2 yrs.
SWM 2	The Costs and Financing of Solid Waste Services	EEAA, NGOs, MSW Handlers, Municipal Authorities	TA	Yr.2	1-2 yrs.
SWM 3	Incentives for Provision of Services by the Private Sector	EEAA, NGOs, MSW Handlers, Municipal Authorities	TA	Yr.1	1-2 yrs.
SWM 4	MSW Landfill Standards Development	EEAA, NGOs, MSW Handlers	TA	Yr.1	1-2 yrs.
SWM 5	Municipal Solid Waste Disposal Enforcement	EEAA, NGOs, MSW Handlers, Municipal Authorities	TA	Yr.2	2 yrs.
SWM 6	Landfill Development	EEAA, NGOs, Private Sector, Municipal Authorities	TA	Yr.2	1-2 yrs.
SWM 7	Transfer Station Development	EEAA, Private Sector, Municipal Authorities	TA	Yr.2	1-2 yrs.
SWM 8	Equipment Optimization	EEAA, Municipal Authorities	TA	Yr.2	1-2 yrs.
SWM 9	Maintenance for MSW Collection Vehicles	Municipal Authorities, Private Sector	TA	Yr.4	1-2 yrs.
SWM 10	Public Education and Awareness on SWM Issues	EEAA, NGOs, MSW Handlers, Municipal Authorities	TA, FA, PA	Yr.1	4 yrs.
SWM 11	Environmental Restoration	EEAA, NGOs, Municipal Authorities	TA, FA	Yr.2	2-3 yrs.
SWM 12	Cooperative Waste Pick-up Venture	EEAA, NGOs, Municipal Authorities	TA	Yr.2	2-3 yrs.

TA: Technical Assistance; FA: Financial Assistance; PA: Public Awareness; TR: Training

Project No.	Project Title	Counterparts	Type of Assistance	Timing	Duration
ENERGY 1	Review MOP CNG Conversion Strategy	OECP	TA	Yr.1	1 yr.
ENERGY 2	Public Awareness Campaign on Benefits of CNG Conversion	MOP	TA, FA, PA	Yr.2	-
ENERGY 3	Renewable Energy Policy and Legislative Framework	NREA	TA	Yr.1	1.5 yrs.
ENERGY 4	Renewable Energy Equipment Certification and Labeling	NREA	TA, FA	Yr.2	4 yrs.
ENERGY 5	Cogeneration Policy	EEA	TA	Yr.1	1.5 yrs.
ENERGY 6	Energy Efficiency Policy and Legislative Framework	OECP	TA	Yr.1	2 yrs.
ENERGY 7	Energy Efficiency Standards Development	OECP	TA	Yr.2	4 yrs.
ENERGY 8	Energy-Efficient Building Code	OECP,MHUUC	TA	Yr.3	5 yrs.
ENERGY 9	Develop Appliance and Equipment Testing Facilities	OECP	TA, FA	Yr.2	3 yrs.
ENERGY 10	Appliance and Equipment Labeling Program	OECP	TA	Yr.2	3 yrs.
ENERGY 11	Energy Efficiency Public Awareness and Outreach	OECP	TA, PA	Yr.2	-
ENERGY 12	Building Energy Efficiency Educational Capacity	Ministry of Education	TA,FA	Yr.1	5 yrs.
ENERGY 13	Private Sector Delivery of Energy Efficiency Services	FEI, TIMS, DRTPC	TA, FA	Yr.1	5 yrs.
ENERGY 14	Energy Efficiency Financing Facility	Selected Banks	TA, FA	Yr.2	4 yrs.
ENERGY 15	DSM Program Development	EDCs, EEA	TA	Yr.2	4 yrs.
EST 1	Regional Tourism Development Impact Study	TDA, EEAA	TA	Yr.2	1-2 yrs.
EST 2	Development of a Strategic Plan for Cultural Resources in Egypt	SCA	TA	Yr.2	2-3 yrs.

TA: Technical Assistance; FA: Financial Assistance; PA: Public Awareness; TR: Training

Project No.	Project Title	Counterparts	Type of Assistance	Timing	Duration
EST 3	Construction of Artificial Wetland to Improve Water Quality in Lake Qarun	Governorate, MPWWR, MALR, EEAA	TA, FA	Yr.2	1-2 yrs.
EST 4	Incentives for Environmentally Sustainable Development	TDA, EEAA	TA	Yr.1	1 yr.
EST 5	Environmental Design and Engineering Assistance for Resort Development	TDA, Academic Institutions	TA	Yr.1	1-2 yrs.
EST 6	Sustainable Financing for Coral Reef Protection	EEAA	TA	Yr.1	1-2 yrs.
EST 7	Adaptive Reuse Demonstrations and Policy Guidelines	SCA	TA, FA	Yr.1	4-5 yrs.

TA: Technical Assistance; FA: Financial Assistance; PA: Public Awareness; TR: Training

PROJECT NO.: LEGAL 1

SECTOR: Legal/Institutional

PROJECT TITLE: Support for National Plan for Sustainable Development

LOCATION: National, based in Cairo

OBJECTIVE:

To provide technical assistance required, to support the preparation of Egypt's first National Plan for Sustainable Development.

BACKGROUND:

One of the first priorities of the new Minister of State for Environmental Affairs is to prepare a National Plan for Sustainable Development. Such a plan would combine economic, social, and environmental considerations for the first time in charting Egypt's development in the 21st century.

DESCRIPTION:

Technical assistance would be in the form of short-term consultant support for the preparation of the national plan. The consultant support would provide technical expertise in specific areas where it is needed, such as environmental and developmental economics, social sector analysis and long-range planning. The specific areas would be determined by the Ministry of State for Environmental Affairs and the Egyptian Environmental Affairs agency (EEAA).

IMPACTS:

The international technical expertise would enhance the analytical background work and documentation required to support the preparation of the national plan. This in turn would ameliorate the National Plan for Sustainable Development itself.

PROJECT NO.: LEGAL 2
PROJECT TITLE: Capacity Building in National Institutions (other than the EEAA)
SECTOR: Legal/Institutional
LOCATION: National, based in Cairo

OBJECTIVE:

To strengthen the capacity for environmental management and coordination with the EEAA within other national institutions with environmental responsibilities.

BACKGROUND:

Under Egypt's current institutional framework for environmental management, a number of additional national institutions perform environmental management functions that can support the EEAA's overall environmental mission. For example, the Ministry of Interior is responsible for enforcement, the Ministry of Housing, Utilities and Urban Communities is responsible for urban planning, the Ministry of Industry is responsible for industrial compliance, the Ministry of Manpower is responsible for workplace environment, and so on. In most cases, these institutions require capacity building in order to perform these functions effectively.

DESCRIPTION:

This technical assistance project would identify those national institutions, with environmental management functions, that can support the overall mission of the EEAA. Technical assistance would be provided to strengthen their capacity to perform these functions effectively, and consistently in accordance with the policies and programs of the EEAA. Assistance with strategic planning, program development, training, and other capacity building would be provided by a team of international, and local consultants over an 18-month period.

IMPACTS:

It is expected that the technical assistance would improve the capacity of these institutions to perform their environmental management functions. Additionally, better coordination between the programs of these institutions and those of the EEAA would be stimulated.

PROJECT NO.: LEGAL 3

SECTOR: Legal/Institutional

PROJECT TITLE: Support for Inter-ministerial Coordination on Environmental Management

LOCATION: National, based in Cairo

OBJECTIVE:

To develop mechanisms for institutionalizing coordination among ministries on environmental management

BACKGROUND:

Under the current institutional framework for environmental management, a number of national institutions, besides the EEAA, perform environmental management functions. For example, the Ministry of Interior is responsible for enforcement, the Ministry of Housing, Utilities and Urban Communities is responsible for urban planning, the Ministry of Industry is responsible for industrial compliance, the Ministry of Manpower is responsible for workplace environment, and so on. Close coordination among these institutions is critical, yet there are currently no mechanisms (e.g., inter-ministerial agreements or committees) for ensuring this coordination.

DESCRIPTION:

This technical assistance project would identify those institutions with significant environmental management responsibilities and propose specific mechanisms, such as inter-agency agreements, inter-ministerial committees, etc., to ensure close coordination between them and with the EEAA's policies and programs. Assistance would be provided for the drafting of such agreements, and providing terms of reference for committees or other mechanisms of coordination.

IMPACTS:

Improved coordination between the EEAA and other national institutions with environmental management responsibilities based on accepted mechanisms for coordination would result from the technical assistance.

PROJECT NO.: LEGAL 4

SECTOR: Legal/Institutional

PROJECT TITLE: Capacity Building in the Environmental Management Units

LOCATION: Governorates and industrial cities

OBJECTIVE:

To strengthen the institutional capacity of the Environmental Management Units in the governorates, and of the Environmental Divisions in industrial cities.

BACKGROUND:

In order to be able to decentralize environmental management to the local level of government in Egypt, the institutional capacity of Environmental Management Units in the Governorates and of the Environmental Divisions in the new industrial cities will have to be strengthened. Currently, these local institutions have extremely limited capacity with little or no environmental planning or program experience, professional staff who are untrained in environmental management, a lack of necessary office and technical equipment, and limited financial resources.

DESCRIPTION:

This technical assistance project would provide support for basic capacity building for environmental management in selected local institutions. Criteria would be established for selecting the local institutions, which would participate. Pilot projects in certain governorates, for example, 6th of October City, would be used to test capacity-building methods before wider applications. Technical assistance would include, as appropriate, capacity building in; strategic planning; program development and evaluation; monitoring and enforcement; workshops; training; and internships. In the area of monitoring and enforcement, for example, the technical assistance would include identifying target companies, developing an inspection strategy, preparing guidance documents and training inspectors to use the guidelines. In addition, assistance with the procurement and provision of basic office and technical equipment necessary to support effective environmental management would be provided.

IMPACTS:

The expected results of this project would be the improved capacity for environmental management in the selected Environmental Management Units (EMUs) and Environmental Divisions (EDs) selected. This would also include improved coordination with the EEAA in implementing its policies and programs.

PROJECT NO.: LEGAL 5

SECTOR: Legal/Institutional

PROJECT TITLE: Support for Completing the Legal/Regulatory Framework of Law 4/1994

LOCATION: National, based in Cairo

OBJECTIVE:

To complete the regulatory and administrative requirements for full implementation and enforcement of Law 4/1994.

BACKGROUND:

Not all of the regulatory and administrative requirements for complete implementation and enforcement of Law 4/1994 have been completed. Some of these can be accomplished by the EEAA (e.g., establishment of the Environmental Impact Assessment (EIA) Permanent Review Committee and conditions to obtain a permit for construction within the coastal zone, etc.), while many others require action by other national institutions (e.g., identification of hazardous substances and wastes and the application of vehicle emission standards in the governorates). Consequently, these regulatory and administrative impediments will delay effective implementation and enforcement of La4/1994.

DESCRIPTION:

This technical assistance project would provide the Ministry of State for Environmental Affairs and the EEAA with the legal and technical expertise to identify the remaining regulatory and administrative impediments to full implementation and enforcement of Law 4/1994. Appropriate regulatory and administrative actions to overcome these impediments will be undertaken. The project may also be expanded to review the existing Executive Regulations to Law 4/1994 and make recommendations for strengthening these regulations.

IMPACTS:

The technical assistance would expedite the role of the EEAA and other institutions to overcome the remaining regulatory and administrative impediments to effective implementation and enforcement of Law 4/1994.

PROJECT NO.: LEGAL 6

SECTOR: Legal/Institutional

PROJECT TITLE: Building Capacity in the Legal System for Environmental Management

LOCATION: National

OBJECTIVE:

To increase the capacity of the legal system and legal community in order to support the implementation and enforcement of Law 4/1994.

BACKGROUND:

Environmental law is a new field to the legal community in Egypt. Consequently, the legal system is ill-prepared to handle environmental issues. This lack of a knowledge and experience with environmental legal and technical issues presents a real barrier to effective implementation and enforcement of Law 4/1994.

DESCRIPTION:

This technical assistance project would help increase the capacity of the legal community in general, and of the legal system in particular (i.e., district attorneys, judges, etc.) to handle environmental issues and cases. Workshops and training, along with other methods would be used to strengthen the knowledge base and expertise within the legal community. The Institute for Training Judges may be used to educate legal officers such as district attorneys and judges in environmental issues.

This project may be expanded to contribute support to the introduction of environmental law courses, into the curricula of selected Faculties of Law. This assistance would draw on international legal expertise in the Middle East region, the U.S., or Europe to promote study in comparative environmental law.

IMPACTS:

The successful outcome of this project would be the establishment of a broad knowledge base and expertise in environmental law within the legal community and system. Consequently, the legal system in Egypt would be adequately prepared to handle environmental issues in an effective manner.

PROJECT NO.: LEGAL 7

SECTOR: Legal/Institutional

PROJECT TITLE: Public Awareness Campaign on Legal Action to Enforce Law 4/1994

LOCATION: National

OBJECTIVE:

To raise the awareness of the public and NGOs on using legal action to enforce Law 4/1994.

BACKGROUND:

Article 103 of Law 4/1994 grants every "citizen and organization concerned with the protection of the environment" the right to report violations of the law to appropriate administrative and judicial agencies for enforcement. This is a novel provision in environmental legislation in Egypt but it may provide a useful tool for citizens and NGOs, active in the environment, who want to serve as watchdogs for the EEAA in the enforcement of Law 4/1994.

DESCRIPTION:

This public awareness project would raise the consciousness and realization of the public and the NGO community to the provisions of Law 4/1994 and the right to direct citizen action to enforce the law. The awareness program would involve workshops, training, and the preparation of guidelines and/or other publicity materials explaining how to use legal action to enforce the law. An NGO would be used to develop and deliver the awareness program such as the Friends of the Environment Association in Alexandria which has carried out awareness raising and training programs and produced a compendium of environmental legislation).

IMPACTS:

The expected results of the public awareness program are an increased awareness among the public, and the NGO community, of Law 4/1994 and the public's right to take legal action to enforce it.

PROJECT NO.: INDPOLL 1

SECTOR: Industrial Pollution

PROJECT TITLE: Compliance Management System (CMS) for Correcting Industrial Noncompliance

LOCATION: National

OBJECTIVE:

To develop and implement a process for systematically gathering information from all applicable sources, and translating it into timely and appropriate compliance actions including enforcement measures when necessary.

BACKGROUND:

Egypt has a substantial body of environmental laws and regulations dealing with the control of water pollution and air pollution. The requirements under these laws appear to be adequate to restore the Nile River and its related water system to beneficial use. At least 16 Ministries, agencies, organizations and/or centers, however, are involved in the regulation of wastewater discharges. This has resulted in fragmentation in the effective implementation of a water pollution control program that would restore and protect the water resources of Egypt. In addition, the EEAA also has promulgated regulations for stationary air emission sources under Law 4/1994. These are due to take effect in March 1998.

A properly designed CMS would greatly assist in initiating the enforcement of regulations, which in turn would make it easier for industrial dischargers to comply with environmental laws pertaining to the discharge of wastewater or emissions to air. Information collected through inspection procedures would be disseminated between ministries and agencies responsible for law enforcement, thus enabling appropriate legal action to be taken.

DESCRIPTION:

In this project technical and financial assistance, as well as training would be provided to the EEAA to develop an effective CMS. Several basic elements would be developed, in three parallel phases, in conjunction with representatives from ministries with environmental responsibilities, industry, and NGOs active in the environment. Delivery dates would be calculated for each phase.

Phase 1: Create, maintain and utilize a source inventory of industrial facilities covering air emissions and wastewater discharges.

Initially, the inventory would contain information such as name of the source/ discharger, location, license number, point of contact in the industrial facility, applicable effluent requirements, and any compliance schedules, such as those required in an approved Compliance Action Plan (CAP). The inventory would be accessible to all ministries and agencies to facilitate cooperation in carrying out compliance and enforcement responsibilities. Appropriate time frames for the information flow would be established.

Phase 2: Develop a Table of Violations (TOV) and a Violation Response Guide (VRG) for screening and enforcing environmental laws.

The TOV and VRG would be developed in conjunction with representatives from ministries, the EEAA, industry and NGOs. The TOV would summarize possible violations of environmental laws applicable to the discharge of industrial wastewater. The VRG would list possible enforcement procedures in relation to each violation, and specify which ministry is responsible for enacting these measures. An enforcement screening procedure would establish criteria to identify offenders, and the ministry responsible for evaluating the non compliance. After a few months trial, both TOV and VRG would be modified. Once a violation has occurred it will be logged in the source inventory for future reference.

Phase 3: Develop capabilities and conduct compliance monitoring and enforcement actions.

Law enforcement is the cutting edge of the CMS and a key element in a compliance program is the ability to implement investigation strategy. This strategy would specify the ministries responsible for particular inspections, how often the inspections would be carried out and what items would be inspected. By jointly defining an overall inspection strategy, it would be possible for an inspector from one ministry to "check on" items of interest tanother ministry thus preventing the duplication of effort.

The data and results of the field inspections would be entered into the source inventory. This information would be available to assist ministries in delineating priorities, and earmarking budgets for environmental law enforcement and policy making.

IMPACTS:

The development of an efficient CMS would enable the enforcement of environmental laws pertaining to emissions to air and discharge of industrial wastewater. Effective implementation of inspection strategies would identify offenders who would be penalized under the legal system. The transparency of the CMS would enhance dissemination of information between ministries, prevent duplication of effort by law enforcers, and stimulate voluntary compliance of regulation by industrial companies. The inspections would impose environmental awareness increase industrial compliance with environmental laws, ultimately leading to improved environmental quality, leading to improved public health.

PROJECT NO.: INDPOLL 2 **SECTOR:** Industrial Pollution

PROJECT TITLE: National Laboratory Certification Program **LOCATION:** National

OBJECTIVE:

To establish an evaluation mechanism for the EEAA to ensure that the generation environmental data from commercial analytical laboratories, is within accepted limits of accuracy and whether sample handling and analysis complies with recognized quality assurance and quality control procedures (QA/QC).

Also, to build the EEAA's capacity in managing, establishing, and interpreting reported data.

BACKGROUND:

As Law 4/1994 is increasingly enforced, industrial enterprises will need to collect and maintain accurate analytical data at their facilities and be able to file the data at appropriate regulatory authorities, such as the EEAA. To date, QA/QC procedures vary widely at existing commercial laboratories and there is no certification procedure to guarantee that the generated data is acceptably accurate. Once the enforcement of Law 4/1994 and filing of environmental data become routine procedures, the EEAA (and/or its designated responsible parties) could receive environmental data from over 22,000 enterprises. Currently, there is no mechanism to store, manage or interpret the data

DESCRIPTION:

In this project technical assistance and training would be provided to the EEAA to develop a certification process for commercial analytical laboratories and to manage, store and interpret the data that have been collected. The project would be conducted in two concurrent phases and in conjunction with the Environmental Information and Monitoring Program (EIMP) run by Danida. and the program to establish regional laboratories at the EEAA regional branch offices, funded by the Japanese International Cooperation Agency.

Phase 1 would develop and implement a nation-wide laboratory certification process in conjunction with the Reference Laboratory for Quality Assurance, presently being developed the EIMP. Based upon the resulting appropriate and recognized QA/QC standards for commercial laboratories, the EEAA would establish a Certification Board that would perform the inspection and verification process for commercial laboratory applicants. The EEAA and National Reference Laboratory Staff would be trained in screening and inspection procedures. Periodic inspections and recertification procedures would be established to ensure certified laboratories maintain an acceptable level of operation. The EEAA would need to proclaim that only analytical data from certified laboratories would be a sufficient basis to uphold an enforcement action.

Public awareness and promotion campaigns would be implemented by the EEAA and other participants (e.g., Certifying Board, National Reference Laboratory), to encourage commercial laboratory participation in the National Certification Program.

Phase 2 of the project focuses on building the EEAA's capacity to manage and interpret the data reported by enterprises. The EIMP is currently assisting and training the EEAA staff to handle data from the ambient monitoring program, by using the Information and Computer Center. Phase 2 of this project would take advantage these systems, but expand the database to include data reported by enterprises.

Public awareness and promotion campaigns by the EEAA and the EMUs to inform industries of their data reporting requirements.

IMPACTS:

The National Certification Program would control the quality collected and reported by industries and would, therefore, give an accurate picture of industrial emissions.

Industry would recognize that accurate data filing with regulatory authorities is a routine part of their business that can be planned for in their Environmental Management System (EMS). This would help strengthen and clarify relations between industries and regulatory bodies and increase the capacity for private laboratories to offer accurate analytical services.

PROJECT NO.: INDPOLL 3

SECTOR: Land and Water Management

PROJECT TITLE: Management of Underground Storage Tanks (UST)

LOCATION: National, urban areas with high water table (Cairo, Delta)

OBJECTIVE:

To develop and implement an Underground Storage Tank program which includes components covering technical standards for USTs and leak detection, a replacement schedule for older unprotected USTs, and remediation requirements for leaking USTs.

BACKGROUND:

Egypt has done relatively little to protect its groundwater from accidental releases from underground storage tanks used to store petroleum, chemicals and waste oil, and solvents. In the US and Europe, leaking underground gasoline storage tanks are known to pose a severe threat to underground water supplies, particularly in areas where the soils are damp. Once USTs leak, they may contaminate ground or surface waters. Vapors can pose explosion risks, or render basements and underground facilities unusable. In the US, UST leaks have resulted in explosions in sewer systems and required shopping centers to close because of vapors.

In and around Cairo, and the cities of the Nile Delta, the water table is elevated. Until recently, most USTs installed at gasoline stations were constructed of steel providing only modest protection against corrosion. Where the water table is high, these tanks are exposed to corrosion on a continual basis. When the US initiated its UST program in the mid-1980s, more than 20 percent of all USTs were leaking. The cost to remedy releases from leaking USTs has increased into the billions of US dollars. The strategy employed in the US has been to require frequent inspections, develop continuous leak monitoring programs, and to upgrade or replace existing USTs to provide better protection against corrosion.

DESCRIPTION:

Preliminary discussions with the EEAA suggest there is interest in learning more about the UST program in the United States. With the cooperation of US Environmental Protection Agency (EPA), a workshop would be organized in Cairo on UST problems and programs. Topics would include an overview of the extent of the problem, case studies on leaks, the potential damages from leaking USTs, remediation approaches, tank testing, inventory control, and leak detection, technical standards for UST, financial responsibility rules, and public awareness programs. The EEAA would receive regulatory and information material developed by the US EPA's Office of Underground Storage Tanks. Follow-up assistance would be provided to the EEAA to develop regulations. The most important step that an UST program would need to take is to develop an inventory of USTs, that includes information on the number and size of tanks at each facility, tank construction material, and approximate age of tanks. This inventory would be required to initiate a regulatory program and identify facility owners who would receive information about UST leaks that could be subject to future requirements. Several demonstration projects could be undertaken, but only if the EEAA is committed to development of UST regulations, and their implementation and enforcement.

At first, demonstratof tank testing methods and leak detection systems could be undertaken in Cairo. The inventory of tanks could be used to identify older tanks to be tested. Secondly, assistance in managing a release incident could be provided at a site where a leak has been detected. Thirdly, demonstration projects of leak detection equipment, tank upgrading approaches (which afford corrosion protection retrofitted to existing tanks), and new tanks. The EEAA may want to consider creating a special account in the National Environmental Protection Fund that could provide co-financing for tank replacement and/or clean-up of UST leaks. The special account might be available to those tank owners who agree to upgrade their tanks voluntarily ahead of compliance dates. The EEAA should also consider a variety of financing mechanisms that could capitalize such a fund. In the US, the most common revenue sources for UST programs are gasoline surcharges and tank fees (which vary according to size, contents, and construction material).

IMPACTS:

In urban areas, UST releases are a major threat to ground water and surface water as well as subsurface cables, buildings, and tunnels. UST releases can take years to clean up, at costs of over 1 million US dollars per incident. Prevention of leaks is considered extremely cost-effective. Thus, an UST program can result in economic benefits to facility owners, provided they take actions before tanks leak.

PROJECT NO.: INDPOLL 4

SECTOR: Land and Water Management

PROJECT TITLE: Lake Manzala Restoration Project

LOCATION: Lake Manzala, Port Said Governorate

OBJECTIVE:

To increase awareness of the rapid deterioration in water quality in Lake Manzala and take some initial steps to reduce pollutant discharges to the lake.

BACKGROUND:

Lake Manzala is a large lake to the west of Port Said that has been under threat since the 1940s. The acreage of the lake has declined from 750,000 acres to around 500,000 of which 150,000 acres are managed as fish farms. The Lake receives water from a series of agricultural drains and from a large drainage canal carrying municipal waste water from Cairo and a number of Delta cities. Water quality has declined to the point that only two to three species of low-value fish are still found in the lake (outside of the fish farms).

In October 1991, a national conference was held in Port Said to discuss the problems of restoring the quality of Lake Manzala but no actions have been taken. Most of the solutions have been identified; reduction of pollution loads in the agricultural and wastewater drains; reversal of the sedimentation process; improved aeration; and expansion of wetland acreage at the mouth of the Bahr El Bakkar Canal.

DESCRIPTION:

The project would be divided into three phases.

Phase 1: Collection of Information on Pollution Sources

This analysis would utilize available data without additional sampling, and include a literature review to specify specific municipal and industrial sources and estimate daily discharge parameters for BOD, solids, fecal coliform, and heavy metals. This phase would not involve any sampling. In addition, historical data on the demise of the Lake Manzala fishery and the impact of reduced water quality and losses of wetlands on migratory waterfowl would be incorporated into the analysis. The study would estimate the potential impacts on water quality in the lake from reductions in pollution from the various sources, identify ongoing projects to construct municipal and industrial wastewater systems or tie additional customers to existing systems (e.g., 200 industrial facilities in Port Said discharge directly into canals, even though the city's wastewater treatment plant could accommodate this discharge), and estimate the potential costs to achieve reductions in pollution.

Phase 2: Discussion between Concerned Authorities to Identify Possible Solutions

Representatives from the various governorates, the EEAA, and the Ministry of Housing, Utilities, and Urban Communities would meet to discuss the pollution problems and the solutions. A site visit to see the black waters of the lake might be valuable. A conference to discuss the problems of Lake Manzala as well as other lakes, such as Lake Maryut and Lake Qarun, could be convened. A goal of the conference would be to initiate steps to prepare and implement a strategy for addressing the deterioration of lake Manzala.

Phase 3: Participation by Authorities in Greater Cairo

It is not clear whether pressure can be exerted on the city of Cairo, the major contributor to Lake Manzala's problems. Unless the authorities in Greater Cairo agree to participate in efforts to initiate a process for addressing the water quality problems, it is unlikely that progress will be made in restoring Lake Manzala. This issue would benefit from consideration in the Mubarak-Gore Partnership.

IMPACTS:

If the project can facilitate cooperation among the governorates to address the deterioration of Lake Manzala, there would be significant environmental and economic benefits.

PROJECT NO.: INDPOLL 5 **SECTOR:** Industrial Pollution

PROJECT TITLE: Technical Assistance Centers **LOCATION:** National

OBJECTIVE:

To disseminate technology resources (e.g., literature, data base access), and provide training, and on-site technical assistance to industries, on an as needed basis, by evaluating options for developing and sustaining industrial technical assistance centers, that would assist industries in implementing pollution reduction and environmental compliance programs.

BACKGROUND:

Egyptian industries are faced with an increasingly complex operating environment; an increasing number of environmental regulations; competition in previously isolated markets due to adoption of the General Agreement on Tariffs and Trade; higher operating costs due to reduced energy subsides; higher water costs; and a reduced workforce due to privatization and/or other cost cutting initiatives. As in many other countries, Egyptian industry must respond as quickly as possible to this new operating domain if they are to avoid business failures in the major industrial sectors, which could have serious effects on the overall health of the Egyptian economy.

There are a number of donors which sponsor programs specifically targeted to provide industry with technical information, especially for industries in transition, e.g., the USAID's Environmental Pollution Prevention Project (EP3). Some donor projects provide training, information and assistance not targeted exclusively to industry, such as the Centers for Quality Assurance and Manufacturing Technology Centers. These centers, however, are scheduled to close within the next two years. Part of Egypt's National Environmental Strategy calls for forming a National Cleaner Production Center which would serve as the focal point for industrial environmental management

Collectively, donor programs have assisted approximately 25 percent of Egyptian industry during this transition period. Of these assisted industries, only a small percentage are convinced of the benefits of implementing a company-wide EMS, and even fewer acknowledge their responsibility to reduce their environmental emissions to benefit a community's overall health and welfare. Some are taking the steps to file for a two-year extension to comply with environmental regulations laid down in Law 4/1994 (filing date August 31, 1997). The EEAA is expecting approximately 200 of the largest 600 enterprises to file for extensions, leaving the compliance status of the remaining 400 large enterprises and over 22,000 other facilities unknown. According to a recent survey, over 70 percent of Egyptian industries do not even know of the existence of Law 4/1994, and it is likely most would not be in compliance with the law. As such, there is still a significant information gap that should not be ignored if Egypt is to become a world class, industrial center.

DESCRIPTION:

This project would evaluate the effectiveness of the existing technical assistance centers and their services and make recommendations for closure, consolidation, or expansion. It would possibly support the start-up of a National Cleaner Production Center, which would serve as the focal point for industrial environmental management, as called for by Egypt's National Environmental Strategy. It is currently getting planning-stage assistance from the United Nations Environment Program. Selected centers would be supported, for a predetermined time frame, to implement those services deemed most useful to industry in reducing environmental discharges.

The project would also evaluate strategies for maintaining the sustainability of technical assistance centers so Egyptian industry would continue to have access to their services. To date, all these centers are supported by donor funding, and it is unlikely they would be self-sustaining once funding is no longer available. Sustainability action plans would be implemented at selected centers. New technical assistance centers could be formed in selected cities and/or communities where the city-wide EMS project (INDPOLL 7) is being implemented.

The technical assistance centers would provide industries with a wide range of services such as on-site assistance and technology transfer and assistance in developing compliance action plans. They would also provide training in areas such as self-monitoring, promotion, solid waste/hazard waste management, EIAs, and EMS/Energy Efficiency (E2)/Pollution Prevention (P2).

Industrial information clearinghouses have been established through the Federation of Egyptian Industries (FEI), under EP3, in Cairo and Alexandria. A need to maintain a clearinghouse of technical information at a number of industrial centers has been established through interviews with industrialists and those working directly with industry (e.g., donors, NGOs, regulators). The existing clearinghouses would be expanded to include a wider resource base, and others would be established at additional industrial cities, (e.g., El Minya, 10th of Ramadan,), and EMS selected cities.

An electronic knowledge-base of EP3 activities and products is being developed so data would be easily available for further analysis, and training, and application elsewhere in Egypt. The database would be updated with new data as it becomes available, and be accessible at designated clearinghouses.

IMPACTS:

This project would assist industry in adopting of E2/P2/EMS concepts and encourage them to make environmental investments using their own funds. Consequently, commercial banks would recognize that environmental investments provide an acceptable return on investment making them a viable funding source.

With the development and growth of municipal governments, NGOs, investor's groups, environmental consulting firms, environmental equipment vendors, etc., there would be an overall improvement in the financial and welfare status in the city. Similarly, increased public awareness and participation by the public would improve the well-being and the health of the communities.

PROJECT NO.: INDPOLL 6

SECTOR: Industrial Pollution

PROJECT TITLE: Wastewater Treatment Pilot Project

LOCATION: By industrial sector or selected industrial areas

OBJECTIVE:

To demonstrate cost-effective, efficient industrial pretreatment options by developing and implementing a pilot program, in at least one industrial sector or community based on information gathered from several countries, on available options of wastewater treatment technologies and their respective costs.

BACKGROUND:

While water quality has increased significantly in the last decade due to construction and upgrading of municipal wastewater collection systems and treatment plants, many industries continue to discharge untreated effluents into receiving waterbodies (primarily canals leading to the Nile, lakes, and the Mediterranean), despite regulations under Law 93/1962 and 48/1982. In cities where municipal treatment is available many industries are not connected because they do not meet pretreatment requirements under Law 93/1962, thus continue to discharge untreated effluent.

Historically, industries have not paid fines for discharging untreated effluent. However, with the compliance date for Law 4/1994 quickly approaching, industries would be pressured to treat their effluent to meet the required standards. Cost effective treatment of industrial wastewater is well known and can be demonstrated by sector or industrial area to encourage industries to invest in the pollution control equipment necessary to meet Law 4/1994 regulations.

DESCRIPTION:

This project would develop and implement a pilot program, in at least one industrial sector or industrial area on cost-effective wastewater treatment options for that industrial sector, by gathering information from several countries on optional methods of wastewater treatment, and their respective costs. Information would be collected on: possible process changes that result in less pollution being generated; options for pretreatment of the waste; and options for end-of-pipe treatment. If possible, cost analysis models would be developed to determine whether to discharge wastewater to a municipal system, following appropriate pretreatment, or to construct end-of-pipe treatment that would result in full compliance with applicable environmental laws.

This project would include training for target groups involved in industrial treatment and pretreatment and EMS/E2/P2 (e.g., industries, vendors, banks, etc.). Other issues that would be covered are self- monitoring and operation and maintenance (O&M) service recovery. Technical assistance would be provided to NGOs to implement public awareness campaigns covering topics such as industrial EMS benefits and O&M service recovery.

On-site assistance by industrial specialists would take into account Best Available Techniques (best available technology - BAT) and advise on appropriate technology for treatment of sector-specific industrial effluents.

Capacity building would be provided to entities involved in the sector such as the Ministry of Public Works and Water Resources, and Ministry of Housing, Utilities and Urban Communities.

IMPACTS:

This project would encourage industries responsible for untreated waste water discharge to adopt the most appropriate and cost effective means of treating effluent, in compliance with existing laws, thereby reducing environmental pollution.

PROJECT NO.: INDPOLL 7

SECTOR: Industrial Pollution

PROJECT TITLE: Pilot City-wide Environmental Management System

LOCATION: Selected Industrial Cities, new industrial development areas and/or municipal development areas

OBJECTIVE:

To demonstrate that an EMS can be successfully applied, at a city-wide level, with positive impacts to the business community, industry, and citizens. The EMS could be replicated in other industrial cities, new industrial development areas and municipal development areas.

BACKGROUND:

The concept of establishing an EMS at an industrial facility is just beginning to be accepted as an effective management tool in American and European Industry. An effective EMS can help companies approach environmental issues systematically and integrate environmental improvements into their normal operations and business strategy. These planned improvements identified through a variety of techniques, including environmental auditing and environmental life cycle assessment, can result in significant economic benefits (e.g., cost savings due to reduced raw material and utility use). These benefits can be increased by siting centralized unit processes, such as a central waste management facility (e.g., landfill, incinerator) or technology centers using "Hub" technologies.

This centralized approach to environmental management can be further expanded by encouraging city residents to practice responsible domestic waste disposal and residential water use, and recycling. Project promoters should include NGOs, local officials, as well as environmental educators (for school programs). A successful, effective cityEMS would attract clean-technology industry, and manufacturers of pollution control equipment to the city, resulting in an increased revenue base for the city which could be invested in additional environmental activities that would benefit the city as a whole.

The proposed approach would address the commonly held perception that economic development and environmental improvements are mutually exclusive objectives, and demonstrate practical ways in which stakeholders can identify and address their concerns.

DESCRIPTION:

A city-wide EMS would be implemented in a number communities, particularly existing industrial cities (e.g., 10th of Ramadan, 6th of October) that are familiar with the EMS concept due to donor projects. They would benefit by expansion of the EMS concept to the municipal and community level. The communities, industries and residents of new cities, municipal development areas and industrial development areas, where significant environmental problems, such as groundwater contamination, are absent, should be less apathetic about the environment, and less resistant to change. If a city-wide EMS is successfully implemented in these areas, it could be readily replicated in similar communities throughout Egypt.

The EEAA has outlined a similar initiative in their Draft National Environmental Strategy, which focuses on developing a manual for Environmental Planning of New Cities and establishing an EMS at existing cities by promoting environmental investment, self-monitoring, and enforcement.

Training will be provided to communities and authorities interested in E2/P2/EMS in addition to those involved in enforcement monitoring, solid waste and hazardous waste (SW/HW) management, environment impact assessments, operation and maintenance service recovery (e.g., water/wastewater), and promotion.

Technical assistance would be provided to NGOs and selected communities, which would through public awareness campaigns, promote SW/HW management, city-wide EMS benefits, noise reduction, and new clean technology industries.

Technology transfer would include the establishment of an E2/P2/EMS clearinghouse, or alternatively, training on the use of existing databases. Also, on-site assistance would be provided by industrial and SW/HW specialists, taking into account BAT.

Institutional Development and capacity building would be provided for the responsible enforcement body, GOPP, MOH, local research groups, NGOs, investors' association, local consulting firms, and E2/P2 and pollution control equipment vendors in industrial cities.

IMPACTS:

This project would result in the adoption of E2/P2/EMS concepts by Egyptian industry and encourage them to make environmental investments using their own funds. Consequently, commercial banks would recognize that environmental investments provide an acceptable return on investment making them a viable funding source.

With the development and growth of municipal governments, NGOs, Investor's Group, environmental consulting firms, environmental equipment vendors, etc., there would be an overall improvement in the financial and welfare status in the city. Similarly, increased public awareness and participation by the public would improve the well-being and the health of the communities.

PROJECT NO.: INDPOLL 8

SECTOR: Industrial Pollution

PROJECT TITLE: Voluntary Challenge and Registry Program for Industry and Energy Facilities

LOCATION: Cairo and/or an industrial city

OBJECTIVE:

To establish a voluntary "challenge" and registry (VCR) program as an incentive for industry and energy facilities to reduce environmental emissions by formally recognizing industry leaders in these fields.

BACKGROUND:

Egypt has a substantial body of environmental laws, decrees and regulations, which collectively provide adequate legal authority to begin necessary environmental planning, pollution prevention and control, and natural resources management. Implementation and enforcement of this framework have not, however, proven effective to date owing to fragmented institutional responsibilities, lack of inter-institutional coordination, weak institutional structure and capacity, etc.. The Executive Regulations promulgated for Law 4/1994 include a three year grace period until March 1998. Little industry compliance is anticipated by the time the grace period ends.

While conventional enforcement mechanisms are required to punish violators of environmental laws, positive incentives should also be put in place to encourage industrial and energy facilities to reduce the environmental impact of their operations. As direct foreign investment in Egypt continues to increase and privatization programs expand, there will be increased competition between foreign and Egyptian firms. Foreign firms are particularly sensitive to public perception and seek out opportunities to highlight their environment-friendly initiatives. A VCR program, through utilization of public pressure, combined with conventional enforcement mechanisms (e.g., fines), should prompt industry to improve its environmental performance by utilizing higher, more efficient technology, and adopting improved management and operational procedures. Similar programs have been successfully implemented in the Philippines, Indonesia and the US.

A VCR program operates on the premise that every industrial company wants to be recognized as a leader in its field. With growing public and industrial awareness of pollution challenges facing Egypt, industry leaders would use their initiative to reduce their pollution discharges in a cost-effective manner. Industrial companies which succeed in reducing their pollutant emissions would be rated and listed "Champions of Industry", in a registry in recognition of their success. Undoubtedly, a VCR program would produce rapid results because as other facilities hear of a particular company’s success, they will be challenged to implement cost-effective measures to reduce their pollution. As enforcement systems become more effective, the VCR program can continue to provide a focal point for industries that choose to lead Egypt on environmental matters. The program would build on the efforts of organizations such as the Association of Enterprises for Environmental Conservation (AEEC) and others, to encourage self-initiatives.

DESCRIPTION:

The VCR program would initially be located in Cairo and/or an industrial city, which has had some success in reducing pollution. The program has the potential to expand to all industries and energy facilities in Egypt within three to four years. The elements for a successful VCR program would include four phases to be implemented concurrently:

Phase 1 would entail the identification of "champions" from industry, energy facilities, government (usually at Cabinet level), donors, financial institutions and NGOs that are willing to participate as the core of the VCR program and set environmental performance ratings programs. The champions would encourage action by industrial and energy facilities through example, peer and public pressure, and promotion of programs such as ISO 14000 and 9000.

Phase 2 would concentrate on the development of a registry to track and register progress made by individual facilities in environmental improvement. The registry would be maintained at a VCR program office. It would be made available to the public, donors, and government institutions, probably through an Internet site. It should be noted that the registry would be developed under industry leadership, not government, although government representation in management decisions concerning the registry would be useful in terms of ensuring that it incorporates information that would be helpful to ministries involved in enforcement. The registry would include baseline data indicating the initial pollution load from each facility participating in the VCR program. It would also include periodic updates of progress by facility and plans for future improvements. A system of environmental performance ratings would be developed and assigned to each pollu. Performance results would be reported back to individual and industrial facilities at regular intervals established by the VCR program. Ratings would be updated annually to show actual progress and plans for future years. Self-reported pollution data would be corroborated with independent samples. Technical assistance would be provided to design a registry that would meet Egyptian environmental compliance needs and to train a small core staff.

Phase 3 involves the development and implementation of simple and clear guidelines for participation by industry in the VCR program. This activity would proceed in parallel with development of the registry. It would describe the type of information to be provided by the facility, the frequency of reporting, and procedures for recording the data in the registry. It would also include the development of a data sheet, used to calculate facilities' ratings.

Ideally a team of consultants would select an industrial sector and/or energy facilities, within a region among those willing to participate in the VCR program. The consultant team would assess the current situation at each facility to establish the baseline data, and recommend an action plan of measures, including financing arrangements, to reduce pollution discharge over a reasonable period of time.

Phase 4 would include a communications program, which would make extensive use of champions and success stories, to expand knowledge of the VCR program throughout Egypt. A key part of the program would be to ensure that success stories set an example to other industrial or energy sector companies and that the leaders in pollution reduction also receive recognition for their efforts.

IMPACTS:

The VCR has the potential to make a significant impact on reducing pollution in a short time, at least cost. It would serve as a mechanism to bring government, industry, donors, financial institutions and NGOs together in common cause. It would provide an opportunity to assist industry with creative financing mechanisms for installation or upgrading of equipment, and processes to reduce pollution. The registry would provide a durable, public record of progress by individual facilities in reducing pollution.

An increased awareness and availability of data would result in greater public and media monitoring of the environmental impacts of the industrial sector. Similarly, peer pressure would increase the number of energy and industrial facilities participating, consequently reducing pollution. Overall improved operational efficiency of the energy and industrial sectors would also be of economic benefit to the facilities themselves.

PROJECT NO.: INDPOLL 9

SECTOR: Industrial Pollution

PROJECT TITLE: Industrial Trade Organizations

LOCATION: National

OBJECTIVE:

To establish an industry-supported, sector specific organizations that would act as a focal point for sector-specific technical information and can be a champion for causes critical to continued environmentally friendly development of the sector through acceptable policy changes.

BACKGROUND:

While industrial sectors typically backed by foreign partners (e.g., oil refineries, energy exploration companies) have established industry groups to share technical information and follow political developments that may effect business interests, the majority of Egyptian industry has, to date, not fully organized into trade groups. Trade organizations in the North America and Europe offer valuable support to their members, including keeping members up-to-date on the latest technology through magazines, newsletters, and conferences; and lobbying legislators on behalf of sector interests. Since member companies pay dues to support the association, they significant leverage in establishing the trade group's agenda. Since the majority of Egyptian industry is concentrated in only a limited number of sectors (e.g., cement, metallurgical, textile, food, automotive) and faces increasing challenges on a sector-basis due to free trade and more stringent environmental regulations, Egyptian industry could be served well by active trade groups.

DESCRIPTION:

There are 11 major industrial sectors in Egypt, as well as significant small and medium enterprises (e.g., furniture, tanneries, marble and stone works, battery manufactures) that would be suitable sectors to consider formation of a trade group. The first phase of the project would be a needs assessment to identify two to three sectors who are interested and would benefit most by establishing trade groups, After sectors are identified, US and European trade groups in those sectors would be contacted to determine if they may be interested in developing a sister organization in Egypt. Sector groups would be modeled after sister organizations, and eventually board of directors would be established. Trade groups would be initially supported by project funding, but would convert to member financing as soon as possible. Project work would be conducted with organizations that already work extensively with Egyptian industry (e.g., the Federation of Egyptian Industries -FEI, a trade related entity and the AEEC, an environmental NGO).

Initially, technical assistance would include conducting a needs assessment and identifying pilot sector groups as well as soliciting the support of US and European counterparts. A sector organizing committee would be established to develop preliminary group mission statement and a six month agenda. Preliminary activities would include sector roundtables and conferences to solicit membership. Technical assistance would be provided to help develop a business plan outlining short and long term objectives and methods of achieving sustainability by membership support. Promotional campaigns would be carried out to attract membership and encourage other sectors to establish trade groups. Training would be provided for acting board members regarding operations and accounting systems and could include study tours for active participants

Financial assistance could include establishing offices, and purchasing equipment as well as establishing connections to existing databases.

IMPACTS:

The project would increase the sophistication of Egyptian industry through frequent technology transfer forums, resulting in educated investment decisions, optimized production efficiency, and ultimately cleaner, more efficient operations. The establishment of organizations supported by memberships would ensure that organization policies and priorities reflect members' needs. The relationship between government and industry would be enhanced through legislative lobbying activities undertaken by the organizations.

PROJECT NO.: INDPOLL 10

SECTOR: Industrial Pollution

PROJECT TITLE: Support for Financing of Industrial Environmental Investments

LOCATION: National

OBJECTIVE:

To provide assistance to industry to invest in environmental improvements by identifying existing financial sources in Egypt (e.g., commercials banks, donor organizations, investor funds) that would finance environmental investments, and if necessary, enhance these systems.

BACKGROUND:

Egyptian industry continues to adjust to privatization pressures and increasingly stringent environmental regulations, and has expressed a need for assistance in financing environmental compliance investments. Public enterprises, still the largest and most polluting enterprises, have made little investment in environmental improvements, because capital from both public and sector generated funds is primarily available for investments that would maximize profits. While private enterprises are generally newer, and therefore less polluting, they still require investment to achieve compliance with Law 4/1994. Commercial banks, offering conventional loans at approximately 15 percent interest, consider environmental investments risky, and are therefore reluctant to lend funds even if data is available showing an acceptable return on investment.

DESCRIPTION:

The project include three interrelated components.

Component 1: Evaluate industry's access to financing for environmental investment

This task would establish the basis for the other project phases. Both public and private sector enterprises would increasingly seek financing for environmental investments as Law 4/1994 is more consistently enforced and compliance actions are identified. While there is a perception that financing for environmental investments is limited, there is a need to assess if viable sources of financing exist, but are just not well known or utilized. The EEAA has initiated a process to evaluate financing that may be available for industries, and Phase 1 of this project would complement the EEAA's efforts, evaluating both public and private sector access to capital for environmental investments. The team would evaluate the suitability of various sources for different types of investments, considering such factors as collateral requirements, repayment period, and the minimum and maximum amount financed.

Component 2: Develop and strengthen options for supporting mechanisms that provide financing for environmental investments

If the results of Component 1 indicate that capital for industrial environmental investments is severely limited, the need to support existing environmental funds or to initiate a new environmental fund would be evaluated. Some environmental funds are being established, but may only be available to a targeted group of enterprises. The National Environmental Protection Fund, established by Law 4/1994, is empowered to provide assistance for priority projects that contribute to environmental improvements. To date, however, the Fund has been used primarily to defray operating costs at the EEAA. A reliable revenue base is being sought by the EEAA for the fund. In addition to the need to establish a sustainable revenue base for the National Fund, there is a need to strengthen the Fund so that it can play a role in co-financing compliance investments. Development of a competitive application process, assessment and adoption of alternative disbursement mechanisms, and development of negotiation and monitoring capabilities would improve the transparency and accountability of the Fund. If the Fund were to meet donor criteria, it could provide a mechanism for disbursing donor contributions.

Most donor supported funds, which are being channeled through commercial banks, are not intended to be revolving and have a limited life [e.g., World Bank's Pollution Abatement Fund (PAF) of $54,500,000 over 3 years; and KfW's of $38,500,000 until all funds are distributed]. Additional options for finance would be explored, as well as modifications to existing programs that would increase their appeal and accessibility to industry. Most of the financial programs would be geared towards private enterprise, though suitable programs for public enterprises would also be evaluated. Financial support for industrial environmental investments could be provided by offering loan guarantees for individual investors seeking commercial bank loans, or by offering incentives to banks to offer favorable terms, such as extended grace periods or reduced interest rates.

Technical assistance for the environmental fund portion of Component 2 is likely to be extensive. Both the managing entity and industries that are interested in accessing the fund would be provided with training regarding fund operation and management,

IMPACTS:

Upon completion of Component 1, the EEAA would have a realistic view of the access industries have to available capital, and would be better able to assess what incentives industry would need to commit investment to pollution prevention and pollution control equipment. If the industries begin to adopt P2/E2/EMS concepts and make environmental investments due to increased access to capital, they would eventually start using their own funds to finance such projects. This in turn would lead to recognition by commercial banks that environmental investments provide acceptable return on investment. All these would contribute to reducing emissions by industry and to a cleaner environment.

PROJECT NO.: INDPOLL 11

SECTOR: Industrial Pollution

PROJECT TITLE: Venture Capital Fund for Start-up Egyptian Environmental Technology Companies

LOCATION: National

OBJECTIVE:

To encourage development of a domestic environmental technology sector that can supply pollution control equipment to industry seeking to comply with Law 4/1994.

BACKGROUND:

Several projects are planned that will encourage industry compliance with Law 4/1994 and this is expected to stimulate demand for pollution control equipment. While this equipment is available from overseas suppliers, for many products it would be more cost-effective for industry to buy equipment that is produced in Egypt. In all cases, it would be less cumbersome and faster to buy from a local supplier, rather than to deal with the paperwork required and time delay incurred to import equipment. This fund would provide capital for start-up domestic environmental technology companies to help increase the volume and types of locally manufactured equipment. As the demand for pollution control equipment grows over time, investors seeking new investment opportunities would be attracted to the fund, particularly if companies are eligible for preferential tax treatment.

DESCRIPTION:

The project would work with a local investment company to establish a venture capital fund specifically for investment in start-up environmental technology companies. While an Egyptian financial management company would manage the fund, the project could assist in several ways: by helping to develop the criteria for company inclusion in the fund; by referring companies for possible inclusion in the fund; and by helping develop a customer base for the start-up companies through contacts made during technical assistance activities. Related activities could include helping Egyptian entrepreneurs link up with foreign environmental technology companies.

IMPACTS:

The venture capital fund would increase domestic availability of pollution control equipment and increased purchases of equipment by industry because of reduced cost, time delay, and paperwork.

PROJECT NO.: INDPOLL 12

SECTOR: Industrial Pollution

PROJECT TITLE: Targeted Public Awareness Campaign on Compliance Requirements

LOCATION: National, targeted to industrial areas

OBJECTIVE:

To increase awareness and understanding of the requirements of Law 4/1994 among Egyptian industry in order to increase the level of compliance.

BACKGROUND:

According to a Danish study, up to 75 percent of Egyptian industry is still unaware of the compliance requirements disclosed under Law 4/1994. Those industries informed of the compliance requirements, mastill have questions regarding their responsibility for implementing measures such as compliance actions plans, emission reporting requirements and sampling and analysis. A series of seminars and an advertising campaign targeted to industry would address this information gap, and be the first step towards increased compliance.

DESCRIPTION:

Technical assistance would be provided to educate industry, through a series of seminars, about the requirements of Law 4/1994 and the measures required for compliance. When appropriate, these seminars would be held in conjunction with other industry events, in order to maximize the number of companies attending the awareness groups. In addition, promotional material would written and published for distribution at these seminars and through other channels.

IMPACTS:

An increased awareness of compliance requirements set out in Law 4/1994, would motivate greater industrial cooperation. More companies would heed and take advantage of technical assistance available to assist industry achieve compliance. In the longer term industrial pollution would be reduced.

PROJECT NO.: INDPOLL 13

SECTOR: Industrial Pollution

PROJECT TITLE: Public Awareness Campaign to Promote Financing Options

LOCATION: National, targeted to industrial areas

OBJECTIVE:

Inform industry about the technical and financial support available to help them comply with Law 4/1994.

BACKGROUND:

The public awareness project is expected to motivate industry to comply with Law 4/1994, which would require industry to perform a number of new activities for which they would require technical and financial assistance. The EEAA and donors are offering such assistance and this activity would help industry take advantage of these programs.

DESCRIPTION:

The public awareness campaign would focus publicizing assistance available to industry for preparing compliance plans and financing needed actions. A range of methods, from personal contact and direct mail to regional television and press outlets would be used. In addition, seminars would be held to familiarize industry with available technical and financial programs.

IMPACTS:

With increased awareness of technical and financial support available industry would be able to assess the different options and select the most suitable type of assistance in order to comply with existing regulations, thus resulting in a reduction of industrial pollution.

PROJECT NO.: INDPOLL 14

SECTOR: Industrial Pollution

PROJECT TITLE: Training of NGOs to Conduct Public Awareness Campaigns

LOCATION: Selected industrial cities

OBJECTIVE:

To maximize the resources available for educating industry and the general public about environmental issues by increasing the capacity of NGOs to promote public awareness of these issues.

BACKGROUND:

In numerous countries, NGOs have been instrumental in raising public awareness of environmental issues and in promoting community action against environmental threats. Relative to government environmental entities, NGOs have the advantage of being independent and often community based. The project would strengthen the capacity of local NGOs to develop and execute public awareness campaigns as a supplement to those campaigns conducted by the EEAA.

DESCRIPTION:

Active NGOs in selected industrial cities would be trained to design and implement public awareness campaigns about environmental issues, with follow-up research to assess and strengthen the impact of the campaign. Suggestions would be provided to NGOs about potential topics for a campaign (e.g., the damages caused by pollution or the health impacts of pollution or the legal requirements for industry compliance), potential sources of material (e.g., brochures, television spots and fliers developed in other countries), and methods for disseminating information.

IMPACTS:

An increased public awareness of environmental issues would be created through the design and delivery of publicity campaigns by local NGOs. This would lead to increased cooperation, by industry and the public, with planned environmental initiatives.

PROJECT NO.: SWM 1

SECTOR: Solid Waste Management

PROJECT TITLE: Measuring the Willingness-To-Pay for Municipal Solid Waste (MSW) Services

LOCATION: Survey in selected urban areas

OBJECTIVE:

To determine the amount which residents of urban areas in Egypt are willing and able to pay for different types of municipal solid waste service. Also, to evaluate public awareness, knowledge and interest in solid waste issues.

BACKGROUND:

Ineffective management of MSW is one of the major environmental problems in Egypt. Many urban areas are blighted with trash that is dumped in streets or open areas. In many communities, solid waste is dumped directly in canals, rivers, and lakes. Uncontrolled burning of trash contributes approximately one-third of the fine particles measured in Cairo. Policy reforms to improve MSW collection and disposal practices will require strengthening of the institutions that implement or monitor MSW programs.

A major obstacle to MSW management is the failure to generate adequate revenues to recover the costs of collection. Within Egypt there exists a wide range of collection and disposal arrangements. In some of the wealthiest neighborhoods, private collection firms bid for the right to pick up solid waste. This practice has fostered a view among residents that solid waste has value to collectors. In many other areas households are served by government-run collection and disposal services. Between one-third and one-fourth of the residents of urban areas have no organized solid waste service.

Before embarking on a major policy initiative, it is important that the demand for MSW services be known. That is the amount that households at different income levels, and in different geographic areas are willing to pay for various collection and disposal services. Also to better understand how households react to prices and other incentive mechanisms, it is useful to evaluate current disposal practices and attitudes about solid waste problems.

Previously, the USAID has funded a willingness-to-pay (WTP) survey on water and waste water services in Egypt (Hoehn and Krieger).

DESCRIPTION:

In this project a survey would be undertaken to elicit residents' *knowledge* of the scope of solid waste problems, their *attitudes* toward making changes in the way they deal with solid waste in the household or place of business (receptivity to source separation, disposal at neighborhood collection points); and current *practices* (KAP) and their WTP for MSW services of varying quality and frequency of collection.

The study would be conducted in cooperation with the EEAA and selected local governments. Key issues to be decided would be the geographical scope of the survey, size of the sample population, and survey techniques to be used. A series of focus groups would be convened to discuss solid waste issues and the challenges of eliciting WTP responses, in a survey format, in Egypt. The design of the survey questionnaire would reflect the results of the focus group interviews. The questionnaire would be pre-tested and finalized depending on the outcome. The survey would then be conducted and the results analyzed. These results would be considered by the USAID in its decisions on supporting MSW policy reforms. Also, they would be incorporated into public awareness and educational materials developed by the USAID and its contractors.

IMPACTS:

A rationale for the management of MSW and the pricing levels for the services available would be provided by the survey. As a result MSW services would operate more efficiently thus reducing litter, air pollution from uncontrolled burning, water contamination from solid waste dumping and consequently improving social welfare.

The survey would also provide results that can be incorporated into campaigns to increase public awareness about the adverse environmental and health effects associated with improper waste management.

PROJECT NO.: SWM 2

SECTOR: Solid Waste Management

PROJECT TITLE: The Costs and Financing of MSW Services

LOCATION: National

OBJECTIVE:

To structure a system to generate sufficient revenues in order to provide environmentally-secure MSW collection services to the entire Egyptian population, and to promote privatization.

BACKGROUND:

Historically, there have been two sources of funding for MSW services. Firstly, higher income areas, because of their ability to pay for services, have had much greater percentage of their wastes collected than poorer areas. Secondly, cleansing tax revenues have been used as a source of revenue for MSW services. Preliminary analysis conducted by the Egypt Environmental Sector Assessment team suggests that the combination of these sources is not sufficient to finance comprehensive MSW services.

In order to provide incentives for the private sector to undertake MSW services, communities must be able to cover the costs of private sector contracts.

DESCRIPTION:

The intent of this project is to evaluate all revenue sources, and assist the Egyptians in selecting the most productive combination of revenue-generation alternatives. Particular emphasis will be given to structure a system that will strongly encourage privatization.

The first step in the project is to develop cost estimates of providing varying levels of MSW services. Since new MSW standards would be implemented, these costs will not be observable but would need to be estimated. The second step would involve refinements in estimates of revenue potential of existing mechanisms and identification of new mechanisms. The result from the WTP survey can provide useful input in determining the impact of higher rates or new user charges on revenue collection.

Technical assistance would be provided to appropriate GOE ministries and local governments to identify and evaluate all revenue sources. Likewise, Egyptian MSW management professionals would be assisted in selecting the most productive combination of revenue-generating alternatives. Particular emphasis will be given to structure a system that will strongly encourage private sector participation. An effective way to involve and educate public officials and the public will be developed.

IMPACTS:

An efficient and sustainable MSW management program would attract substantial private involvement while protecting the environment and minimizing health impacts and nuisance.

PROJECT NO.: SWM 3

SECTOR: Solid Waste Management

PROJECT TITLE: Incentives for Provision of MSW Services by the Private Sector

LOCATION: National

OBJECTIVE:

To develop model administrative procedures and organizational support for regional governmental units to contract private sector companies to provide SWM services under contract.

BACKGROUND:

Historically, the private sector has only provided collection services in those areas where waste generators were able to pay for SWM services. Consequently, MSW service in lower income areas are inadequate. A comprehensive, functional MSW management program requires that MSW services be provided to all areas on a routine basis, in the most efficient manner possible. Privatization has been demonstrated to be the most effective method to provide this level of service on a consistent basis.

DESCRIPTION:

A model program through which to facilitate use of private MSW services would be developed in this project. Technical assistance would be provided to governorate and municipal government authorities in the development of administrative procedures in order to the procure of private MSW services.

Some changes in Egypt's procurement law and its implementing regulations may be required. An analysis of the private sector's capacity to acquire the capital to provide MSW services would also be conducted. Potentially, the private sector firms would require tax or tariff incentives to acquire capital equipment.

IMPACTS:

An economical, efficient and sustainable service would be developed which, in the long term, would assist environmental improvements and transform neighborhoods.

PROJECT NO.: SWM 4

SECTOR: Solid Waste Management

PROJECT TITLE: MSW Landfill Standards Development

LOCATION: National

OBJECTIVE:

To develop environmentally sound landfill standards for all solid waste that is not recycled or reclaimed.

BACKGROUND:

Currently the disposal of MSW is not regulated in Egypt. There are no regulations designating the manner in which disposal of MSW should be managed, specifying the location nor the design, construction and operation of disposal facilities. As a result waste is dumped along roadsides, in vacant lots, canals, lakes, rivers and other public areas where it is frequently burned.

Uncontrolled solid waste disposal is a serious health and environmental and creates a nuisance. Atmospheric monitoring has demonstrated that over 30 percent of the fine particulate air pollution in Cairo is generated by open burning of solid waste. It also affects other areas, such as tourism, land development, and land values.

DESCRIPTION:

Technical assistance would be provided to familiarize the EEAA with standards developed and implemented in the US and Europe. This would include the organization of a seminar with presentations from SWM officials in selected countries. This would aid in the preparation of an options paper and case studies. In addition, technical assistance and training would be provided to guide the EEAA through the process of designing and developing comprehensive standards and relating those standards to a disciplined enforcement program. Subsequently, analytical tools would be introduced to evaluate the effectiveness and costs of MSW management regulations.

IMPACTS:

The establishment of a national landfill network would help eliminate unauthorized dumping and open burning of MSW. Consequently, this would lead to reduced air, surface and groundwater pollution. This in turn would improve health, the general appearance of communities, neighborhoods and roadsides thereby improving land values and hence development and tourism.

PROJECT NO.: SWM 5

SECTOR: Solid Waste Management

PROJECT TITLE: Municipal Solid Waste Disposal Enforcement

LOCATION: National

OBJECTIVE:

To ensure that all MSW, not recycled or reclaimed, is disposed of in an approved landfill.

BACKGROUND:

At present, there are no landfill regulations or standards for MSW disposal which provide the basis for compliance. Individuals, governmental bodies, commercial businesses and industries have been allowed to dump wastes indiscriminately and without penalty. An environmentally strong solid waste program requires that all waste be taken to an authorized disposal facility while objectivity is required to ensure that those individuals complying with the law are not disadvantaged vis a vis those who do not comply. Therefore it is necessary that trained enforcement officers be readily available to respond to violations and take appropriate action against unauthorized dumping.

DESCRIPTION:

Technical assistance would be provided to help the EEAA develop an effective MSW enforcement strategy, which prioritizes actions consistent with resource availability. Also, the EEAA enforcement staff would be trained in enforcement procedures. In addition, the EEAA would be assisted in providing technical guidance to existing enforcement agencies.

IMPACTS:

A strong solid waste management program would eliminate unsightly unauthorized dumping and hence improve the environment. A better business climate for private sector companies would be created.

PROJECT NO.: SWM 6

SECTOR: Solid Waste Management

PROJECT TITLE: Landfill Development

LOCATION: National

OBJECTIVE:

To formalize procedures for the designation of sites, and the design, development, construction and operation for solid waste landfills. The procedures would meenational standards drawn up for landfill development (SWM 4).

BACKGROUND:

Environmentally-sound landfills are required for effective MSW management. Currently, however, there are no landfills in Egypt that would meet standards generally considered to be environmentally acceptable. Barriers to develop new landfill include a number of factors, such as land ownership, zoning, land use, disparate agency approval requirements, and transportation issues. Successful enforcement of national standards, applicable to new landfill development, requires an understanding of these barriers.

DESCRIPTION:

In this project, consideration would be given to determined constraints when drawing up guidelines for site designation, development and operation of MSW landfills. Consequently, timing and efficiency in landfill development would be improved as would municipal and private sector management of solid waste.

Technical assistance would be provided to help government agencies and the private sector expeditiously site, design and construct new landfills. Initially, this assistance would involve identification and development of an experimental case study. Follow-up activities would include technical assistance to facilitate replication and to provide guidelines for municipalities and the private sector.

IMPACTS:

Formal guidelines for the development of solid waste landfills would enable an efficient and sustainable solution to solid waste management, well into the future. Consequently, the adverse health and environmental impacts of solid waste mismanagement would be reduced.

PROJECT NO.: SWM 7 **SECTOR:** Solid Waste Management

PROJECT TITLE: Transfer Station Development **LOCATION:** National

OBJECTIVE:

To develop criteria for designating sites and designing MSW transfer stations intended to provide efficient and cost-effective transportation of MSW to landfills.

BACKGROUND:

Historically, MSW has been transported directly to dump sites by collection vehicles. If the distance to dumps is great, or access to them is poor (i.e., because of bad traffic), there is an incentive to dump waste haphazardly. The result is widespread MSW litter. When landfills are eventually developed based on new environmental standards, they will almost certainly be at remote locations. This will make it inefficient for small capacity collection vehicles to transport MSW directly to remote landfills. The most efficient process would be to transfer MSW to larger vehicles for long distance transport. Consequently, transfer stations need to be optimally located and designed to maximize efficiency. Also, exact specifications for equipment need to be developed.

DESCRIPTION:

Optimal location and design criteria for transfer stations, and criteria for equipment selection would be drawn up in this project. Technical assistance would be provided to government authorities, and the private sector to site, design, construct and equip efficient MSW transfer stations. An economic analysis would be conducted to calculate cost effectiveness of transfer stations in comparison to traditional collection and disposal options.

IMPACTS:

Cost effective and efficient management of transfer stations would ensure regular MSW collection, and disposal in environmentally-sound landfills.

PROJECT NO.: SWM 8

SECTOR: Solid Waste Management

PROJECT TITLE: Equipment Optimization

LOCATION: National

OBJECTIVE:

To develop equipment specifications (trucks, waste collection bins, etc.) required for efficient, cost effective MSW service, consistent with a low-cost labor environment.

BACKGROUND:

Currently, no area in Egypt is entirely covered by a solid waste collection service; with particularly poor service in low-income, overcrowded areas. One reason for this is that decisions to purchase equipment are often based on availability, regardless of their suitability for the area in which they operate. Even if equipment was optimal at the time of purchase, system needs (e.g. expansion of collection into new areas) may change and it is difficult to forecast this kind of shift in equipment requirements. Provision of a comprehensive, cost-effective service to 100 percent of area residents requires equipment specifically suited to each application.

DESCRIPTION:

This project would specify the best equipment for diverse conditions such as narrow streets, different waste types and quantities, etc. In addition, equipment and maintenance costs plus the optimal degree of automation.

Technical assistance would be provided to government authorities and the private sector to develop optimum equipment specifications for diverse applications in MSW management. It will also determine maintenance and equipment costs and the optimal degree of automation.

IMPACTS:

The resulting equipment optimization is a key component in the development of an efficient and cost effective MSW management system for the provision of a cleaner environment.

PROJECT NO.: SWM 9

SECTOR: Solid Waste Management

PROJECT TITLE: Maintenance for MSW Collection Vehicles

LOCATION: National

OBJECTIVE:

To establish a maintenance program through which MSW collection vehicles will be routinely serviced. To demonstrate the economic benefit of properly maintaining equipment, and associated benefits such as increased reliability of vehicles in addition to increased employee morale.

BACKGROUND:

Routine maintenance of collection vehicles is not widely practiced in Egypt. As a result vehicle reliability and dependability drop off rapidly, thereby hindering the efficient collection of solid waste. An effective MSW management program requires equipment that is readily available and reliable. Elsewhere, experience has shown that it is cost-effective to maintain existing vehicles as opposed to replacing them with new when they break down.

DESCRIPTION:

A demonstration program for efficient and cost effective maintenance of waste collection vehicles would be developed in this project. Technical assistance would be provided to local governmental authorities and private sector companies to develop cost-effective maintenance programs for MSW collection vehicles. Maintenance courses would be provided for the staff responsible for the vehicles.

IMPACTS:

A reliable equipment fleet would increase the effectiveness and sustainability of a MSW program. Communities would also benefit from a more efficient waste collection service, delivered at a lower cost.

PROJECT NO.: SWM 10

SECTOR: Solid Waste Management

PROJECT TITLE: Public Awareness and Education on SWM Issues

LOCATION: National

OBJECTIVE:

To develop a public education program to gain public support for and participation in a comprehensive, local MSW management program.

BACKGROUND:

No community in Egypt has a comprehensive program for managing the entire MSW collection and disposal process. Consequently, because of lack of exposure, the public is unaware of examples of successful MSW management. Public support and participation, however, is essential sustaining a successful MSW.

DESCRIPTION:

This project would develop an awareness and educational program for targeted publics. Technical assistance would be provided to help the EEAA, and other appropriate governmental and institutional authorities develop awareness program to acquaint communities with new MSW requirements, and effective MSW practices. An analysis of alternative public awareness delivery mechanisms for educating adults about MSW problems would be conducted. In addition, an educational program for children on the environmental and social dimensions of uncontrolled dumping and littering would also be developed. Similarly, the most effective means of educating the general public would be determined, and a public awareness program formulated.

IMPACTS:

An educated public, including children, would enhance the sustainability of a MSW management program, through community participation and pressure. Cleaner neighborhoods amitigation of adverse impacts on public health and the environment would be the ultimate benefit of this program.

PROJECT NO.: SWM 11

SECTOR: Solid Waste Management

PROJECT TITLE: Environmental Restoration

LOCATION: Designated area within a city

OBJECTIVE:

To develop win-win environmental restoration demonstration projects, in order to prevent the practice of dumping MSW in public areas.

BACKGROUND:

It has been common practice to throw away or dump waste in public areas, along roadways, in lakes, rivers and canals. This practice creates environmental problems such as air and water pollution, plus a very negative visual impact. Usually, a public area becomes a dump site because the area it is vacant and unused; once some waste is dumped it is difficult to stop the practice. An approach that may be effective in curbing this type on indiscriminate dumping is to designate the public area for a use such as a corniche, landscaped open area, or for other community purposes. Once the development of the site commences, measures must be taken to provide alternative disposal sites.

DESCRIPTION:

The beneficial effects of environmental clean-up and restoration of public area would be demonstrated in this project.

To ensure the sustainability and success of the project, the participation and cooperation of NGOs, communities, local municipalities and the EEAA is required. Technical assistance would be given to participants to work together to develop proposals for alternative land use and efficient collection and disposal of waste. The proposals would be submitted to the EEAA, which would support the capital cost for developing the sites through budgetary resources or funding provided through the National Environmental Protection Fund. Although support would also be solicited from the local business communities.

Prior to the development of the sites, municipal authorities would be responsible for the clean-up of the sites and the provision of alternative disposal sites.

IMPACTS:

The clean-up and restoration of public areas would increase public awareness of the benefits of a cleaner environment with improved air and quality. The restoration projects would set a precedent for other neighborhoods to follow, creating a more desirable environment.

PROJECT NO.: SWM 12 **SECTOR:** Solid Waste Management

PROJECT TITLE: Cooperative Waste Pick-up Venture **LOCATION:** Designated city

OBJECTIVE:

To develop a program for cooperation between municipalities, NGOs, businesses and private solid waste service providers to increase waste collection and disposal rates.

BACKGROUND:

Generally, MSW services are available to people who are willing and able to pay for waste collection plus an additional few depending on the balance of the cleansing fund. Consequently, waste is never entirely cleared form areas. While improved and well-financed MSW management practices will ultimately increase collection rates, there may be community driven initiatives that could result in some immediate but limited, low-cost improvements in collection rates.

DESCRIPTION:

This project would involve an EEAA-sponsored competition open to communities that demonstrate significant improvements in waste collection rates through low or no cost approaches. This approach would encourage community participation in alleviating solid waste problems.

Technical assistance would be provided to the EEAA to draw up rules of the contest, and determine criteria for judging the entries. With the EEAA, a brochure would be developed with some suggested approaches that might be implemented to improve collection rates. The EEAA might consider different prizes such as donated MSW equipment or special recognition in the media.

IMPACTS:

The increased collection and disposal rates would increase public awareness of the benefits of a cleaner environment with improved air and quality and would set a precedent for other neighborhoods to follow, creating a more desirable environment.

PROJECT NO.: ENERGY 1 **SECTOR:** Energy
PROJECT TITLE: Review Ministry of Petroleum (MOP) compressed natural gas (CNG) Conversion Strategy **LOCATION:** National
OBJECTIVE:

To increase CNG conversions by reforming the MOP's existing CNG strategy.
BACKGROUND:

In the next decade, Egypt could become a net oil importer if domestic growth of oil consumption continues to increase at the current rate. The MOP's CNG Conversion Strategy must be evaluated to ensure that it provides clear, effective and consistent signals in support of conversion to CNG.

While the GOE is trying to induce consumers to convert to CNG, the price of diesel is subsidized significantly. Consequently, this low price provides an incentive to consumers to buy diesel instead of CNG. While it is understood that the subsidization of diesel reflects the government's intent to assist the poor, it directly conflicts with their objective to prompt conversion to CNG. Analysis of the existing CNG conversion strategy will seek to reconcile the government's desire to provide the poor with cheap fuel with the government's competing desire to improve environmental quality by inducing conversion to CNG.

In addition, CNG conversion kits are subject to a high duty. This duty, while providing revenue for the government, significantly increases the cost to consumers of converting to CNG, thus reducing their incentive to do so.

The overall CNG conversion strategy must be analyzed in order to identify and eliminate, where possible, these conflicting initiatives if CNG conversion is to be maximized.
DESCRIPTION:

This project would provide technical assistance for the analysis of the MOP's CNG conversion strategy, including identification of the objectives for various initiatives, conflicting signals and constraints. Upon completion of the analysis, recommendations for policy reform would be developed to ensure clear, consistent signals to the public.

Depending on the outcome of the review, there could be follow-on projects related to cash transfer options as incentives for a reduction of duties on CNG conversion equipment, and financing options for CNG conversion equipment.
IMPACTS:

Conversion from gasoline and diesel to CNG would free up petroleum resources for export and thus boost Egypt's foreign exchange earnings. In addition, conversion to CNG provides substantial health benefits. Gasoline and diesel fuels are major contributors to fine particulate matter, and other air pollutants such as sulfur and nitrogen compounds, which are deemed to be a serious health concern in Cairo.

PROJECT NO.: ENERGY 2 **SECTOR:** Energy
PROJECT TITLE: Public Awareness Campaign on Benefits of CNG Conversion **LOCATION:** National
OBJECTIVE:

To increase the public's awareness of economic and environmental benefits of CNG conversions.

BACKGROUND:

In the next decade, Egypt could become a net oil importer if domestic growth of oil consumption continues to increase at the current rate. The MOP's current CNG Conversion Strategy has sent conflicting signals to consumers, which have undermined the effectiveness of the strategy.

While the GOE is trying to induce consumers to convert to CNG, the price of diesel is subsidized significantly. Consequently, this low price provides an incentive to consumers to buy diesel instead of CNG. While it is understood that the subsidization of diesel reflects the government's intent to assist the poor, it directly conflicts with its objective to prompt conversion to CNG. However, analysis of the existing CNG conversion strategy will seek to reconcile the government's desire to provide the poor with cheap fuel with the government's competing desire to improve environmental quality by inducing conversion to CNG.

In addition, CNG conversion kits are subject to a high duty. This duty increases the cost to consumers of converting to CNG, thereby reducing their incentive to do so. While duties provide revenue desired by the GOE, the GOE must be made aware that the duty on CNG conversion kits comprises a disincentive to CNG conversion.

Conversion from gasoline and diesel to CNG would free up petroleum resources for export and thus increase the foreign exchange available to the GOE. In addition, conversion to CNG provides substantial health benefits. Gasoline and diesel fuels are major contributors to air pollution contributing fine particulate matter, and other air pollution such as sulfur and nitrogen compounds, all of which are deemed to cause serious health concerns in Cairo.

DESCRIPTION:

A comprehensive analysis of the existing CNG conversion strategy would be conducted in order to identify and reconcile initiatives like the duties and diesel subsidy which undermine the government's objective of supporting CNG conversion. Once a policy analysis and reform component has been completed, a public awareness campaign is required to increase the public's awareness of both the components of the new strategy and the economic and environmental benefits of CNG conversion, and to overcome confusion resulting from conflicting initiatives.

The public awareness campaign would be divided into two phases:

Phase I: Identify priority focus groups, locations and intermediary groups (media)

In conjunction with counterparts, themes would be developed and tested on priority focus groups for the preparation of a multimedia campaign. After the identification of key media personnel, a promotional kick -off event would be held. Briefing kits would be prepared and distributed during this event. Follow-up would include regular media briefings and broadcasts of specially prepared television and radio spots.

Phase II: Extend program to lower priority focus and intermediary groups

IMPACTS:

Egypt would benefit from improved air quality with the increased substitution of CNG. Petroleum resources would in turn be released for increased export thus generating increased foreign exchange earnings.

PROJECT NO.: ENERGY 3 **SECTOR:** Energy
PROJECT TITLE: Renewable Energy Policy and Legislative Framework **LOCATION:** National

OBJECTIVE:

To offset fossil-fuel combustion and achieve environmental improvement by creating a policy environment that supports the development of renewable energy projects and the increased sale of renewable energy products.

BACKGROUND:

Egypt has excellent renewable energy (RE) resources, especially wind and solar energy, which are among the best in the world. For the past 15 years, the GOE's RE strategy has focused on assessing its RE resources and developing, testing and demonstrating various RE technologies. The New and Renewable Energy Authority (NREA) has developed considerable expertise in the design, testing, installation and operation of various RE technologies. Energy pricing reforms are improving the competitiveness of RE products and projects in relation to fossil fuels.

Renewable energy has received considerable donor assistance from the USA, Germany, Denmark, the Netherlands and the European Union. These projects have focused almost exclusively on resource assessments, technology development and demonstration and pilot projects. Donors have yet to support work on RE policy. A five megawatt (MW) wind plant is in operation at Hurghada and an 80 MW wind farm is in the planning stage for Zafarana. NREA is also developing a 150 MW integrated solar and gas combined cycle plant at Kuraymat with Global Environment Facility (GEF) and World Bank financing.

The GOE has ambitious targets for RE to be implemented by 2017. They include the installation of 6,800 MW of solar thermal electricity generation and 8,200 MW of wind electricity generation and the supply of ten percent of industrial process heat with solar energy. The country, however, lacks a comprehensive, results-oriented policy and legislative framework with which to achieve these targets. Left unchecked, existing policy and market barriers will prevent private sector RE developers from pursuing projects and Egypt from attaining its RE targets or potential. All countries with active RE sectors have a supporting framework of policies and legislation, including financial or regulatory incentives for RE projects and products.

There are few significant opportunities for large-scale, off-grid applications of renewable energy, since more than 95 percent of the country's communities are connected to the national electricity grid.

DESCRIPTION:

This project would provide assistance for the development of a legislative and policy framework, including financial and regulatory incentives for the renewable energy sector over a two-year period.

In Year 1, the NREA would host a workshop with participants from other countries to learn about their RE policies and legislation. Following this, the NREA representatives and consultants would assess Egypt's RE policy and legislative needs and develop recommendations.

Similarly, in joint collaboration, the NREA and consultants would analyze the Egyptian Electricity Authority's (EEA) policy, tariffs and technical requirements for EEA's acquisition of RE resources and draw up a list of recommendations. The Ministry of Finance and the NREA consultants would then jointly assess the provision of financial incentives for RE and develop recommendations.

In Year 2, the NREA would host a workshop with relevant Egyptian agencies and stakeholders to discuss the recommendations from the above assessments and to solicit agreement on a preferred policy and legislative framework. Based on the results of the workshop, the NREA would prepare recommendations for consideration by the Ministry of Electricity and Energy. Upon receiving the ministry's decision, the NREA and consultants would prepare the final policy and legislative document for approval or enactment, then subsequently prepare and initiate implementation plans for the RE policies and legislation.

IMPACTS:

The project would generate sustainable, environmental benefits associated with the prevention of fossil-fuel combustion and economic benefits from lower life-cycle energy costs, increased petroleum and electricity exports and increased business for RE firms. The beneficiaries would include people in areas affected by energy production, energy consumers and RE firms.

In the immediate term, a policy and legislative framework would support increased sale of RE equipment and increased development of RE projects for electricity generation. The potential for long-term effects is high if renewable energy resources increase their market share.

PROJECT NO.: ENERGY 4 **SECTOR:** Energy
PROJECT TITLE: Renewable Energy Equipment Certification and Labeling **LOCATION:** National
OBJECTIVE:

To offset fossil-fuel combustion and achieve environmental improvement by instituting a certification and labeling program for renewable energy equipment.

BACKGROUND:

The NREA has demonstrated solar photovoltaic applications for rural electrification, water pumping, desalinization, clinical refrigeration, ice-making, and remote telecommunication and highway signage and solar thermal applications for domestic water, and industrial process heating. Some of these technologies are becoming commercialized while others have yet to reach that stage.

For instance, despite an economic market potential in the millions, only 150,000 domestic solar water heaters (DSWH) are presently in place in Egypt, virtually all made by six local manufacturers. A 1993 assessment determined that DSWHs were economically attractive compared to electric, oil or gas-fired water heaters. Electricity prices have risen since then, increasing the economic benefits of DSWHs. The market however, is hampered by customer concerns over inadequate quality and service of DSWHs. An estimated 40 percent of the above DSWHs do not work efficiently.

The NREA has developed technical performance standards for various types of renewable energy equipment and has the capability to test and certify this equipment. However, testing is voluntary and consumers do not demand certification from manufacturers, mostly because they are unaware of it.

To support the growth of Egypt's nascent markets in renewable energy equipment, there is a need for a government policy on certification and labeling to improve customer confidence in these products. Certification should cover the equipment's technical performance as well as installation and maintenance services. The certification program should be promoted through product labeling and other media.

DESCRIPTION:

This project which would generate a certification and labeling system for renewable energy generation equipment, will be developed over a five year period.

In Year 1, the NREA and consultants would develop a certification and labeling policy, and design a certification program for renewable energy equipment, in consultation with manufacturers, suppliers and service providers. Certification would cover the technical performance of the equipment, and the skill and expertise, of service providers (e.g. installation and maintenance). Service provider certification would be based upon minimum skill and proficiency levels prescribed by the NREA. Service providers would be required to recertify themselves periodically.

Subsequently, the NREA and consultants would conduct market research to develop a label for renewable energy equipment, in consultation with equipment manufacturers, suppliers and service providers. Certified equipment would be permitted to bear the label. To support the certification program, a training program would be designed and offered to manufacturers and service providers that wish to become certified.

Following on, a promotional campaign, to educate customers about the label and certification would be implemented.

Over the five year period, either the NREA or a contracted company, would implement the certification and labeling systems and training and promotional campaigns, with technical assistance provided as necessary.

Midway in Year 3, progress would be reviewed, and depending on the need for technical performance standards, legislation and regulation would be drawn up by the NREA for government consideration.

IMPACTS:

The project would generate environmental benefits from the substitution of solar energy for fossil fuels and economic benefits such as lower life-cycle energy costs and increased business for renewable energy equipment manufacturers and suppliers. The beneficiaries would be renewable energy equipment customers, manufacturers and service providers.

Immediate results would include increased sales of renewable energy equipment. The potential for long-term effect is great, if renewable energy equipment achieves even a portion of its market potential.

PROJECT NO.: ENERGY 5 **SECTOR:** Energy
PROJECT TITLE: Cogeneration Policy **LOCATION:** National
OBJECTIVE:

To achieve energy savings and environmental improvement by creating a policy framework that supports the development of cogeneration projects.

BACKGROUND:

Currently, several large industrial customers cogenerate within the fence (e.g. sugar mills, refineries and fertilizer plants). Considerable potential exists for more cogeneration to supply customers' own electricity requirements and to export power to the grid. This would improve the overall efficiency of energy use, thereby generating environmental benefits, and increase the profitability of cogenerating customers.

The barriers to expanded cogeneration include the EEA's disallowance of synchronization with the grid and wheeling of power between customers, the illegality of purchasing power from any supplier other than the EEA and the electricity distribution companies, an unattractive tariff for backup electricity supply from the grid and high import duties on cogeneration equipment. Changes to these policies and legislation would vastly improve the market for cogeneration and attract private sector cogeneration developers to Egypt. Adequate financing is available for these projects if a supportive policy environment exists.

A few industrial electricity customers presently cogenerate and export to the grid after securing Presidential decrees to circumvent the EEA's disallowance of synchronization with the grid.

The project would generate environmental impacts from a reduction in central electricity generation and economic benefits such as reduced energy costs, reduced need for new electricity generation capacity, increased potential for petroleum and electricity exports, improved power quality from dispersed generation and increased activity in the cogeneration industry.

DESCRIPTION:

This project would largely duplicate one of three components of the proposed United Nations Development Program (UNDP)/GEF project that would develop a cogeneration policy and create a small power group at the EEA. The USAID should consult with the UNDP and the EEA before launching this project to determine any areas for complementary assistance. At the time of preparation of this project profile, EEA did not have a detailed breakdown of the priorities or the schedule of the UNDP/GEF project, but recognized that the existing scope was far broader than the proposed UNDP/GEF funding could support.

In the first year, the EEA and consultants would develop recommendations for cogeneration policy and legislative framework, and submit these to the Ministry of Electricity and Energy or the regulatory authority, for approval. Upon receiving the ministry's decision, legislative changes, policies and tariffs would be drawn up for enactment or approval.

IMPACTS:

Project beneficiaries would include people in areas heavily affected by electricity generation, customers that cogenerate and that are situated in the vicinity of cogeneration units, the EEA and cogeneration equipment suppliers.

Immediate results would include an increase in the development of cogeneration projects. The potential for long-term effects is high if the cogeneration industry approaches its market potential.

PROJECT NO.: ENERGY 6 **SECTOR:** Energy
PROJECT TITLE: Energy Efficiency Policy and Legislative Framework **LOCATION:** National
OBJECTIVE:

To achieve energy savings and environmental improvement through the development of a comprehensive and action-oriented energy efficiency policy and legislative framework.

BACKGROUND:

Egypt is highly energy intensive relative to its neighbors and similar economies, as the result of years of subsidized energy prices and protected industries. The country has substantial E2 potential that is economic at today's rationalized energy prices. However, policy and market barriers impede the realization of much of Egypt's E2 potential. Import duties are declining on all products but do not differentiate between energy-efficient and standard efficiency products.

The USAID-supported Energy Conservation and Environment Project (ECEP) has successfully increased awareness and expertise regarding industrial E2 opportunities and technologies. More than 5,000 people have been trained in E2 technologies and practices and 30 demonstration projects implemented.

The UNDP is developing a $5 million project for the GEF support that would provide technical assistance to the EEA and the Organization for Energy Conservation and Planning (OECP) on energy efficiency, loss reduction and cogeneration policy development.

The GOE aims to reduce projected energy consumption by ten percent in the year 2005 through E2 policies and programs. The national E2 strategy includes guidelines for a national E2 policy but does not prescribe policies or legislation to achieve the GOE's target. Thus, there is a need for a comprehensive and results-oriented policy and legislative framework. The framework would establish the government's commitment to E2 and could direct or empower government agencies to:

introduce and enforce appliance and equipment efficiency standards or labeling programs;
introduce and enforce a building code;
conduct E2 information and awareness programs;
provide financial incentives for E2, including a reduction in import duties on E2 equipment;
direct electric and gas utilities to facilitate cogeneration development or implement demand-side management ;
create an E2 financing facility; and
incorporate E2 into university and technical education curricula.

DESCRIPTION:

This two year project, with consultant support, would create an energy efficiency policy and legislative framework based upon the GOE's aim to reduce projected energy consumption.

In Year 1, the OECP would host a workshop for foreign participants to learn about their countries' E2 policies and legislation. With that in mind, and after assessing the OECP's internal capabilities to address the broad range of E2 policy initiatives suggested in this document a plan for the OECP capacity building would be initiated. The assessment of Egypt's existing E2 policy and legislative would identify the need for new policies and legislation (e.g. to implement efficiency standards or undertake Demand Side Management - DSM) or changes to existing policies and legislation (e.g. to incorporate E2 into the industrial development strategy) as well as supporting programs and initiatives to implement policies, legislation and changes. Recommendations would be drawn up accordingly.

Similarly, the OECP, the Ministries of Economics and International Cooperation and Finance, and consultants would jointly assess financial incentives for E2 and import duties on E2 equipment and consequently, develop recommendations.

In Year 2, a workshop would be held to discuss and solicit agreement on a preferred policy and legislative framework. The framework would be documented and submitted to the regulatory authority for approval. Once approval is received the OECP would prepare the final policy and legislative framework and implementation plans for enactment.

IMPACTS:

The project would generate environmental benefits associated with reductions in energy consumption and economic benefits such as reduced energy costs, improved global competitiveness and increased petroleum and electricity exports.

Project beneficiaries would include people located in areas heavily affected by energy production, energy consumers and suppliers of E2 equipment and services. Immediate results would include small but growing reductions in energy consumption from a baseline due to the increased use of energy-efficient equipment. The potential for long-term effects is high if the policy and legislative framework leads to the realization of even a fraction of the country's E2 potential.

PROJECT NO.: ENERGY 7 **SECTOR:** Energy
PROJECT TITLE: Energy Efficiency Standards Development **LOCATION:** National
OBJECTIVE:

To increase the efficiency of residential and commercial appliances and industrial equipment.

BACKGROUND:

The introduction energy efficiency standards for equipment and appliance is the most effective policy measure to increase overall energy efficiency levels. Equipment and appliance energy efficiency standards are used in over eleven countries with the number increasing annually.

In Egypt, at present, most of the key electrical equipment (motor systems, lighting systems, refrigerators and air conditioners) is made locally or imported, but is inefficient relative to equipment used in western countries. A 1995 ECEP study estimated the potential size of the Egyptian energy efficiency market to be LE 3.6 billion, which included all energy end-uses, not just electricity.

While market forces in Egypt increase the economic attractiveness of energy efficient equipment, most local equipment and appliance manufacturers have not yet adjusted their product lines to produce energy efficient equipment. Without programs to increase their awareness, customers may not know to demand efficient equipment, to which the market would respond.

Law 4/1994, requiring Egyptian industries to meet minimum environmental and pollution control standards, comes into effect in March 1998, providing an opportunity for industry to install energy efficient equipment at the same time as it retrofits for environmental reasons.

DESCRIPTION:

(Note: Implementation of this project should be coordinated with the UNDP/GEF project to avoid duplication of effort. As currently planned, the UNDP/GEF project would not run long enough for the actual implementation of standards. Furthermore, the task of reaching a consensus on equipment and appliance standards in cooperation with manufacturers, is large enough to warrant input from both the USAID and the UNDP/GEF projects.)

Initially, refrigerators and industrial motors (with a third appliance to be determined) would be targeted for energy efficiency standards. The process by which current standards (for safety, etc.) are set, and whether the same process should be followed for setting energy efficiency standards, would be determined.

In cooperation with the designated testing facilities and both Egyptian and foreign industries, equipment currently in the Egyptian market would be tested to evaluate its efficiency compared with existing technology potentials and/or energy-efficient models on the world market.

Based on these results, and in conjunction with key stakeholders, energy efficient standards and a means of testing them would be developed and phased in over several years.

In collaboration with the FEI and public industrial holding companies, a representative group of major stakeholders for each target end use would be assembled. They would include: manufacturing and industry groups; utilities; ESCOs; technology experts from such institutions as the Development Research and Technological Planning Center (DRTPC); the Tabbin Institute for Metallurgical Research (TIMS); the FEI, the OECP; and other relevant entities.

In conjunction with this group, an implementation plan and schedule would be developed for upgrading standards to reflect current technology and industrial capabilities. Further revisions would be phased in at a later date.

Incentives, which currently exist for consumers to purchase energy-efficient products, would be explored, with the aim of developing options with which to strengthen the impact of introducing standards.

Finally, a workshop would be held for industry representatives and key decision makers, where they would be presented with information on the standards program prior to deciding whether to implement mandatory standards. Support for developing and implementing the necessary legislation and regulations would be provided.

IMPACTS:

The project's primary benefits would be increased equipment and appliance efficiency in the Egyptian marketplace. Project beneficiaries include energy end-users in all sectors, particularly those populations heavily dependent on energy use. The most immediate project results would be removal of the least energy efficient equipment and appliances from the market. The project has great potential to have a long-term impact on the economy and the environment if standards are adopted and enforced.

PROJECT NO.: ENERGY 8 **SECTOR:** Energy
PROJECT TITLE: Energy-Efficient Building Code **LOCATION:** National
OBJECTIVE:

To achieve energy savings and environmental improvement through the introduction of an energy-efficient building code or code of practice for new commercial and apartment buildings.

BACKGROUND:

Inappropriate incentives in the commercial building market or guidelines in the Ministry of Housing, Utilities and Urban Communities lead to the construction of energy inefficient buildings. Energy-efficient building codes (EEBCs) are used in other countries to ensure that E2 measures and equipment are incorporated into the design and construction of buildings. A voluntary code of practice is used in places where a mandatory code is unnecessary or unenforceable.

A proposed UNDP/GEF project includes a sub-component to develop an energy-efficient building code or code of practice which the USAID should assess before designing its own project to avoid unnecessary duplication.

DESCRIPTION:

The proposed project would generate environmental benefits associated with a reduction in energy consumption, reduce energy costs and improve comfort in working and living areas.

In year one, a study tour to examine EEBCs and their implementation in othcountries, as well as an inventory of commercial and multi-family buildings, documentation of present design features and installed equipment and an assessment of the potential for energy efficiency improvements that can be addressed by an EEBC would be conducted by the OECP, with consultant help as needed. Based on these findings, the OECP and consultants would design a draft EEBC and present it to Ministry of Housing, Utilities and Urban Communities (MHUUC).

A building stakeholders meeting would be convened to review and revise the EEBC, before the OECP and consultants finalize the document and submit it to MHUUC for approval. Upon receipt of the MHUUC decision, the OECP, MHUUC and consultants would prepare legislation and regulations for enactment, which in turn would be submitted to the Cabinet of Ministers for approval.

Later on, and in coordination with other educational project(s), the OECP would assesses the status of E2 in architecture school curricula and subsequently develop recommendations.

The EEBC would be promoted and implemented in years three and four. Initially, the OECP consultants would prepare a training program on the EEBC for consulting engineers and architects, in cooperation with engineering and architecture schools or training institutes. Eventually, the OECP would contract these schools or institutes to provide training.

Concurrently, an enforcement plan would be developed and submitted to MHUUC, after conducting study tour to examine EEBC enforcement in other countries. In the final year assistance would be provided to MHUUC to begin enforcement of the EEBC.

IMPACTS:

Project beneficiaries would include people living in areas heavily impacted by energy production and use, building owners and tenants. Immediate results would be the increased implementation of E2 design features and equipment in new buildings. The potential for long-term effects is high if the building code can achieve even a portion of the E2 potential in commercial buildings.

PROJECT NO.: ENERGY 9 **SECTOR:** Energy
PROJECT TITLE: Develop Appliance and Equipment Testing Facilities **LOCATION:** National
OBJECTIVE:

To provide assistance to the Egyptian Organization for Standards (EOS) and other institutions, to develop facilities to test appliance and equipment energy efficiency.

BACKGROUND:

Before standards can be introduced or labels developed, test procedures and capabilities must be put in place to determine a baseline for current efficiency levels of equipment in use, and for new equipment being sold.

The EOS and testing facilities lack the equipment and capability to test the energy efficiency of various appliances and equipment because there has never been a demand for this testing in Egypt. The OECP has developed its own capabilities for testing refrigerators, and the NREA tests air conditioners and heat pumps/exchangers, but no other organizations currently test appliances and equipment for energy efficiency.

Neither is any testing currently done to determine the efficiency of equipment repair and maintenance procedures, or of motor rewinding. The ECEP's Motor Efficiency Improvement Project, to be completed before the ECEP program ends, will assess current Egyptian motor rewinding practices, develop specifications for high quality motor repair practices, develop motor repair data forms to be used by rewind shops and their customers, and perform limited on-site motor efficiency testing.

DESCRIPTION:

This project would include development of testing facilities that can determine the energy efficiency of a specific appliance or piece of equipment, and the generation of information that will be used to develop appliance and equipment standards.

At first, the capabilities at existing testing facilities within Egypt (both those operated by the EOS and the NREA), and whether testing for energy efficiency can be done by existing facilities, would be determined.

The equipment and training needs would be identified. Subsequently, the EOS and consultants would procure and install equipment for the first testing facility. Technical assistance and training would be provided to testing facility staff as they test one type of equipment to be selected based on progress of the standards and/or labeling efforts. Training would also be associated with the procurement of any additional equipment.

IMPACTS:

Project beneficiaries would include government entities working to develop appliance and equipment standards and labels, consumers, and equipment and appliance manufacturers.

The project's immediate results would include centralized testing for energy efficiency; information on appliance and equipment efficiency levels, including the range of efficiency levels in the marketplace, for example, the most efficient equipment available, the least efficient equipment available, and the efficiency of the equipment most commonly purchased by consumers.

There is good potential for the project to have long-term effects if testing facilities are created for all major energy end-uses, and efficient motor rewinding standards developed to remove the least efficient equipment from the market.

PROJECT NO.: ENERGY 10 **SECTOR:** Energy
PROJECT TITLE: Appliance and Equipment Labeling Program **LOCATION:** National
OBJECTIVE:

To increase consumer awareness about appliance and equipment energy use, and to encourage consumers to purchase appliances and equipment that use energy efficiently.

BACKGROUND:

Well-designed appliance energy labels raise market efficiency by providing consumers with the information they need to choose efficient models with lower life-cycle and operating costs, for the best price. Programs in such diverse countries as Australia, Thailand and the United States have demonstrated that energy efficiency labeling can increase consumer preference for energy efficient models, thereby influencing manufacturers to introduce increasingly energy efficient appliance models.

Egyptian consumer awareness of energy efficient technologies is very low. Currently, equipment sold in Egypt has no labels indicating whether or not it is energy efficient. Little research has been conducted to determine consumer response to increasing energy prices (to the level of long-run marginal cost), or to determine what customers look for when purchasing new appliances or equipment.

DESCRIPTION:

(Note: Implementation of this project should be coordinated with the UNDP/GEF project to avoid duplication of effort. Since this project will develop appliance and equipment labels, and will require operational testing facilities, the USAID's role is likely to extend beyond the UNDP/GEF project.)

This program, to develop a system for labeling appliances in terms of their energy use, would be focused primarily on the residential and commercial sector. The industrial sector will be considered separately, since the ECEP and the OECP have collected so much information on the industrial sector, and since there are significant differences between industrial and residential/small commercial decision-making patterns.

After running a preliminary workshop on appliance labeling programs, focusing primarily on the residential and small commercial sectors, the OECP would review different labeling programs in use in several different countries including Thailand, the Philippines, US, Canada, Australia and Europe. Based on this review recommendations for the Egyptian labels would be made about the type of label (e.g. comparative; endorsement; number rating, etc.) and what information should be included on the label (e.g., annual kWh consumption; annual operating cost; life-cycle cost; environmental benefits' indicators or a combination, etc.).

These recommendations, together with information gathered from extensive market research, would feed into label development. Market research would also be used to investigate consumer awareness and interest in energy efficiency. (This effort would be coordinated with GreenCom's consumer awareness campaign for energy efficiency.)

A pilot appliance labeling program, for refrigerators and air cas suggested, would be conducted in a preselected, discrete, urban, residential area. Various labels would be designed and tested to gauge customer reaction to label content and design, and how well local sales staff are able to answer customer questions about the labels after receiving training.

Based on these findings and an ongoing evaluation of the pilot program, recommendations for a national appliance labeling program targeting residential and small commercial consumers would be made.

Depending on the success of this pilot project, a program using the same methodology, would be introduced for large industrial, commercial and institutional equipment prior to being introduced nationwide in cooperation with appropriate organizations and manufacturing groups.

IMPACTS:

Project benefits would include increased sales of energy efficient appliances and equipment, along with an increase in equipment availability. Project beneficiaries include manufacturers, retailers, and distributors of energy-efficient equipment; end-users.

Among the project's immediate results would be an increased knowledge and awareness of energy-efficient appliances and equipment at all levels of the market. The project has potential for long-term economic and environmental effects if both the demand and supply sides of the equipment/appliance market respond as in other countries, with increases in both demand and equipment availability.

PROJECT NO.: ENERGY 11 **SECTOR:** Energy
PROJECT TITLE: Energy Efficiency Public Awareness and Outreach **LOCATION:** National
OBJECTIVE:

To raise public awareness about the importance of energy efficiency to the Egyptian economy, to increase public access to information about energy efficient equipment and practices, and to encourage the purchase and adoption of the same. (The "public" includes consumers, manufacturers, distributors, retailers, and other trade allies.)

BACKGROUND:

In Egypt, both the OECP, through its mandate to promote energy efficiency awareness in various economic sectors by all mass communication media (including television publicity programming), and the USAID-sponsored ECEP program, have made initial contributions to increasing consumer energy efficiency awareness, but there has been no large-scale, coordinated effort, so overall awareness remains low.

The need exists for a broad energy efficiency information campaign to reach all levels of the marketplace, including equipment distributors and retailers, to help move the market toward the use of more energy efficient equipment.

Since the decision to purchase or install a more efficient appliance, or piece of equipment, usually is made at the individual consumer level (e.g. the end-use level), information campaigns are an effective way to reach large numbers of people about all kinds on energy efficient equipment.

Government decision makers, as well as the general public, may not have a strong understanding of energy efficiency's strong links to many broader energy and environmental sector issues, and need to be educated about how the pieces fit together to help inform their policy decisions.

Public information campaigns raise overall awareness of the importance of using energy efficiently, and begin to move the market toward selecting more efficient equipment, with the attendant macroeconomic effects: reduced energy usage and costs; improved global competitiveness; and increased petroleum and electricity exports.

All energy consumers potentially benefit, as do manufacturers, distributors, and retailers of energy-efficient appliances and equipment.

The immediate project result would be increased awareness of the importance of efficient energy use on the part of consumers, manufacturers, distributors, retailers, and the government. Potential long-term effects of this type of program are strong. As consumers begin to take actions, influenced by the public information campaign there would be a reduction in energy costs, better economic growth and a reduction in environmental pollution.

DESCRIPTION:

Project implementation should be tied to the other energy efficiency and environmental policy programs, since the public awareness programs will broaden the policy impacts.

The public awareness campaign would include a number of smaller components, targeted to specific audiences (e.g. tourist hotels, urban residential consumers, private industry, etc.). The first step would be to develop an overall identity or theme for the public awareness campaign, for example, "why energy efficiency is good for Egypt". (Various Themes would be tested with different consumer groups and might include the environmental benefits, how increased efficiency can boost industrial competitiveness in the world market, reduced energy costs, etc.)

Concurrent with development of the overall themes, a survey of successful public information programs would be conducted (primarily through interviews with the sponsors of those programs) to determine what the most effective methods of reaching different consumer segments have been.

Once the initial themes have been identified, they would to be test-marketed to different groups, and based on the results, the public awareness campaign designed.

The full public awareness campaign would continue for several years, and phase in different messages over the course of that time period. Where possible, links would be made to other energy efficiency policy activities (e.g. the introduction of appliance labels, any utility DSM programs that are implemented, etc.). Print media (billboards, newspapers, magazines) would be used, as would broadcast media (radio and television).

In conjunction with the proposed appliance and equipment standards and labeling programs, a public awareness campaign targeting equipment and appliance distributors and retailers should be developed to ensure that these important trade allies understand the benefits of the more efficient equipment they sell.

The existing gaps in the current literature available to the public on energy efficiency would be identified, and brochures, pamphlets, etc. would be designed to fill those gaps. This information would be made available at public forums, and through all participating entities (e.g. OECP, EEA, the Ministry of Electricity and Energy, etc.).

IMPACTS:

Increased awareness of the importance of efficient energy use and its contribution to economic growth, a cleaner environment, and reduced energy costs.

PROJECT NO.: ENERGY 12 **SECTOR:** Energy
PROJECT TITLE: Building Energy Efficiency Educational Capacity **LOCATION:** National
OBJECTIVE:

To incorporate energy efficiency into engineering, architectural and technical school criteria, thus increasing the base of professionals who follow energy-efficient design, engineering, maintenance and operation practices.

BACKGROUND:

Egypt's 1992-1997 National Five-Year Plan includes the energy sector objective of "overcoming major impediments to improving overall sector efficiency". Existing donor-sponsored projects in the energy sector have identified the lack of individuals trained to work with energy-efficient equipment as one of the major impediments to improving overall sector efficiency.

The OECP and the USAID's ECEP program have taken the lead, to date, in providing training programs on energy efficiency. Most of these training programs have been targeted to the industrial sector. As of April 1997, the FEI has coordinated training for 5,000 people under the ECEP program. However, many of the 100 half day seminars and courses were designed more to provide awareness than to transfer substantive information.

Training and certification programs offered to date have significantly increased the number of individuals familiar with and trained to operate energy efficient equipment, but there are not enough individuals to meet the potential demand created by a greater move towards a more energy-efficient economy.

Recently, the TIMS and the DRTPC have developed longer training seminars that will be financed entirely from participants' fees, and have found the private sector willito pay for these courses.

Currently, there are no efforts to incorporate energy efficiency into the curricula at engineering, architectural and technical schools, which is needed to ensure sustainability. Increasing the pool of trained individuals will help minimize the effects of the current high demand that draws many skilled people from Egypt to jobs in other countries.

Technical schools and universities need assistance with curriculum development, energy efficiency texts in Arabic, support to develop appropriate reference libraries, and laboratories for the engineering courses.

More broadly, Egypt needs an ongoing certification program for energy efficiency professionals, in which consumers have confidence, similar to the Energy Manager Certification offered by the Association of Energy Engineers in the US and elsewhere. A professional organization like Association of Energy Engineers (which has a three-person chapter in Egypt that could be developed) could work with universities and technical schools to develop the ongoing certification program.

DESCRIPTION:

A five year period would be required to carry out the training and technical assistance necessary to incorporate engineering, architectural and technical school curricula.

Initially, counterparts and consultants would assess energy efficiency programs in other countries, review the existing curricula at these institutions and determine where energy efficiency would be incorporated. Study tours would be conducted to countries with strong energy efficiency education programs to review how they incorporate energy efficiency into their educational curricula, what certifications are provided, and how graduate performance is monitored on completion of the training courses.

The Egyptian plan, with consultant support, would identify both short- and long-term goals, including: priority areas, training for teachers and trainers, program certification, monitoring, equipment and materials needs, etc. While formal educational programs would be the primary target, training for professionals already working in these fields also should be included, as should training for technicians who do not attend educational institutions (e.g. repair technicians who are trained by others in the same firm). Contact would be made with organizations that provide ongoing certification programs for energy efficiency professionals in other countries (e.g. the Association of Energy Engineers in the US, etc.) to determine what would be involved in setting up such a program in Egypt.

In years two to five, counterparts would take the lead on implementing the education and training plan (with consultant assistance, as needed), including official curricula revisions, development of specific courses to be incorporated into the different curricula, training sessions for instructors, and program certification and monitoring. Attention should be paid to linkages with other the USAID energy and environmental programs. Equipment and materials for schools to support E2 subjects (e.g. books, manuals, training videos, laboratory and testing equipment, etc.) would be procured. Consultant support would be provided to counterparts to establish an energy efficiency professionals association, which may be an extension of the existing Association of Energy Engineers chapter, or part of an existing Egyptian association, or a new organizations, to provide a forum for professional interaction. support professional interaction and experience sharing.

IMPACTS:

The project is likely to have a long-term impact on the economy, by increasing the number of individuals trained to incorporate energy-efficient design, engineering, operation and maintenance practices into their work. Many of the other initiatives proposed to increase efficiency of energy use within Egypt depend on having a skilled workforce that can support them. If energy-efficient equipment is installed in industries, but there are few technicians who know how to maintain and repair the equipment, then the efficiency benefits will be lost as soon as it needs repair. Before energy efficient building codes can be introduced, there must be architects who understand energy-efficient building design. This project would play a key role in developing these capabilities within Egypt and aiding the economy to move towards greater efficiency.

PROJECT NO.: ENERGY 1 **SECTOR:** Energy
PROJECT TITLE: Private Sector Delivery of Energy Efficiency Services **LOCATION:** National
OBJECTIVE:

To achieve energy savings and environmental improvement by supporting the private sector delivery of energy efficiency services.

BACKGROUND:

The market fundamentals for E2 in the industrial and commercial sectors are strong, driven by increasing competition and commercialization, rising energy prices, improved financing mechanisms and increasing awareness of E2. Despite these strong market fundamentals, few E2 projects are being developed because industrial and commercial customers still lack the necessary knowledge and expertise to implement such projects on their own.

Private sector E2 service providers, such as energy service companies (ESCOs), equipment vendors, consulting engineering firms, etc., can help this situation by providing turnkey E2 services to industrial and commercial customers. At the present time, there are no firms that are providing turnkey E2 services in Egypt. E2 services could be closely linked with pollution prevention services to support industrial firms' compliance with Environmental Law 4/1994.

ECEP has sponsored studies on legal, financial and business requirements for E2 services (including energy performance contracting), seminars to educate various stakeholder groups about E2 services, two demonstration projects and the development of alternative financing mechanisms for E2 services. These activities have increased interest and awareness of E2 services and several Egyptian firms are interested in becoming ESCOs.

The development of the E2 services industry would be supported and accelerated by government activities that support the creation and training of private sector firms which, similarly, can provide turnkey E2 services and the development of a standard energy savings monitoring and verification (M&V) protocol for Egypt.

DESCRIPTION:

The proposed project would generate environmental benefits associated with reductions in energy consumption and economic benefits such as reduced operating costs, improved competitiveness and potential for privatization, increased petroleum and electricity exports and increased business for E2 firms. The two parts of this project would be carried out, in phases, over a five year period.

Part A - E2 Service Industry Support and Promotion

In Year 1, the FEI and consultants would briefly assess the E2 services industry, based on the most recent developments arising from the ECEP's ESCO related activities. A multi-phase support program for the new E2 service providers would by phase, provide more extensive support to requesting firms which meet eligibility criteria.

Phase 1 could include technical assistance on business development and the facilitation of joint ventures with foreign firms for potential E2 service providers with sufficient technical or management capability. ***Phase 2*** could include training and start-up financing for firms with acceptable business plans. ***Phase 3*** could include technical assistance on project development and implementation for firms that have signed letters of intent with potential customers. The FEI and consultants would pre-qualify local and foreign consultants to provide technical assistance and training for each of these phases.

Through years one to five, the FEI would coordinate the provision of support to new E2 service providers while technical assistance and training would be provided by pre-qualified local and foreign consultants. Financing would be delivered by counterpart bank(s) in Part B.

Concurrently, the E2 services would be promoted through an awareness campaign and a series of seminars taking into consideration the promotionamaterials and seminars already developed under the ECEP. The seminars would cover E2 services, how to hire an E2 service provider and how to be an informed consumer of E2 services. A series of meetings would be facilitated by the FEI between consultants and public sector holding companies to discuss E2 services within public sector firms.

Similarly, through years one to five, a promotional campaign directed towards interested holding companies on their facilitation of private sector delivery of E2 services among their subsidiary companies would be coordinated by the FEI.

Part B - Monitoring and Verification Protocol

Through years one to three consultants would train the TIMS and the DRTPC on M&V protocols. The trainees would then apply their knowledge of M&V practices on initial E2 projects and would compile a "lessons learned" manual.

In Year 3 TIMS/DRTPC would, in conjunction with E2 service stakeholders, design a standard M&V protocol for Egypt based on existing practices, lessons learned, stakeholder input and protocols from other countries. The M&V protocol, developed as necessary with consultant support, would be reviewed and approved by E2 service stakeholders.

Impacts:

Project beneficiaries would include people located in areas heavily impacted by energy production and use, energy consumers, E2 services providers, and equipment suppliers. Immediate results would include the creation and training of a small number of E2 service providers. The potential for long-term effects is high if the E2 services industry approaches its market potential, the country would benefit economically and environmentally.

PROJECT NO.: ENERGY 14 **SECTOR:** Energy
PROJECT TITLE: Energy Efficiency Financing Facility **LOCATION:** National
OBJECTIVE:

To achieve energy savings and environmental improvement through the creation of an energy efficiency financing facility.

BACKGROUND:

The banking sector in Egypt is developing rapidly after reforms instituted in 1991. Ample corporate financing is available for industrial and commercial investment projects at interest rates of around 14 percent. In contrast, only limited project financing is available while leasing and vendor financing are undeveloped. The latter three are most appropriate for financing E2 projects.

In the short term, mechanisms that facilitate the use of existing corporate financing for E2 projects will be important to the development of an E2 services industry. Over the longer term, the development of project, lease and vendor financing mechanisms will become increasingly important for the continued operation of E2 programs.

E2 projects incur relatively high project development costs because they are smaller than typical industrial and commercial investment projects. These up-front costs increase the risks associated with E2 projects and prevent some projects from being developed. Over the short term, mechanisms that mitigate some of the risks associated with high project development costs could support the development of an E2 services industry.

ECEP has sponsored studies on E2 financing mechanisms, while Germany's KfW is considering the creation of a $20 million credit line for E2 projects in the industrial sector.

DESCRIPTION:

This project would incorporate the findings and recommendations of the ECEP sponsored study on E2 financing mechanisms, as well as work in coordination with KfW's credit line for E2 projects.

In Year 1, consultants would review the financing work sponsored by the ECEP and design an E2 financing facility. The purpose of the facility would be to partially finance project development costs, such as audits, feasibility studies and working capital, and to leverage existing corporate financing for E2 projects by providing partial or full guarantees of loans from banks, interest rate buy-downs and loan term extensions. Any policies or positions of the USAID/Egypt regarding the provision of financial support to public sector companies would be incorporated into the facility's design

In consultation with the USAID/Egypt managers of the Commodity Import Program (CIP), consultants would recommend bank(s) to operate the facility. The experience and expertise of Nasser Bank in providing loans for CNG conversion at reduced interest rates will also be integrated into program design. In particular, the collaborative efforts of the Ministry of Petroleum and Nasser Bank in loan program design and implementation will be carefully evaluated for lessons learned.

The USAID with consultant support, would select and contract at least one bank to operate the facility, while consultants would advise contracted bank(s) on the operation of the E2 financing facility.

Consultants would, as necessary, support the bank's in the administration of the E2 financing facility, over a five-year period.

Consultants would review operation of the facility in the third year of the project and make recommendations for any necessary changes to facilitate its successful operation. The state of project, lease and vendor financing in Egypt would be reviewed and any changes to the facility, that would support the use of these financing mechanisms for E2 projects, would be recommended.

IMPACTS:

The proposed project would generate environmental benefits associated with reductions in energy consumption and economic benefits such as reduced operating costs, improved competitiveness and potential for privatization, increased petroleum and electricity exports and increased business for E2 firms.

Project beneficiaries would include people located in areas heavily impacted by energy production and use, energy consumers, E2 service providers, and equipment suppliers. Immediate results would include the creation of several mechanisms to facilitate E2 financing. The potential for long-term effects is high if the appropriate E2 financing mechanisms can be put in place.

PROJECT NO.: ENERGY 15 **SECTOR:** Energy
PROJECT TITLE: Demand Side Management (DSM) Program Development **LOCATION:** National
OBJECTIVE:

To encourage the EEA and the Energy Distribution Companies (EDC) to incorporate DSM programs into their planning and business, and to build and strengthen the capacity of these organizations to design, implement, and evaluate DSM programs.

BACKGROUND:

The EEA staff have received training and analytical tools to perform integrated resource planning and to evaluate demand-side management program options, but the EEA sells to few customers directly. The EEA's assessment of load management opportunities has not been implemented, although there are plans to do so. Additionally, the EEA has begun work to design a time-of-use rate, which the UNDP/GEF project will provide funding to implement.

Alexandria Electricity Distribution Company (AEDC) has implemented several pilot DSM programs, including the installation of 1,000 compact fluorescent light bulbs in residences connected to a single transformer (to allow the AEDC to measure the impact on load); the bulbs were well-accepted. The AEDC also has performed a street lighting study, funded by the European Union, and has installed efficient lighting in two floors of a government building. The AEDC and the EEA jointly are participating in a pilot program to provide energy audits to 12 industrial plants and one hotel, four of which are under development for retrofit projects through the ECEP. The AEDC would like to offer a full-scale compact fluorescent lightbulb program, but needs customs duties to be lowered to make it economic.

EDCs have incentive to implement DSM programs targeted to subsidized rate classes from which they now incur losses. (The first 150 kWh/month are charged at 5 piasters per kWh, so EDCs lose money, particularly on low-use residential customers.) As EDCs move toward privatization, DSM programs may also offer new revenues through fee-for-service energy management assistance, or even performance contracting.

Currently, there are no prtargeted to the commercial sector at a time when Egypt is experiencing a boom in hotel construction to support its burgeoning tourist industry.

DESCRIPTION:

The focus of this program would be to help develop DSM capabilities within the EDCs, and to help design and implement effective programs for key customer sectors. Since each EDC serves a different mix of customers, they are likely to offer different programs. Therefore, the activities in the program would be tailored accordingly.

The activities would include the provision of assistance to the government to help delineate responsibility for DSM between the EEA and the respective EDCs.

All the EDCs would be invited to attend at which the AEDC project results and experience would be presented. The EDCs that are interested would be included in a working group for ongoing discussion about DSM programs. The premise of the working group is that in the short term, the EDCs will not be placed in direct competition with each other, and would therefore be willing to share information.

Those EDCs that are most interested should be targeted for support with DSM plans. They would be assisted with conducting load shape analysis, together with training in DSM technology and customer service. Assistance would be provided for the design, implementation and evaluation of pilot DSM programs.

IMPACTS:

Utility DSM programs have been proven to be an effective way to accelerate market adoption of efficient technologies and practices. The project will help build the capability to develop, implement, and assess the effectiveness of DSM programs within the power sector.

The benefits from this program would include reduced EDC losses, increased power factor, and increased availability of surplus power for export. An additional benefit of this program would be the increased coordination between the EEA and the EDCs.

Project beneficiaries would include the EDCs, the EEA, and most energy end-users.

Immediate project results include: reduced energy bills for those bill-paying customers that participate in the program (or, conversely, little or no increase in total bills as electricity prices rise) and reduced losses for participating EDCs.

The potential long-term project effects are great if several distribution companies and the EEA implement successful DSM programs. DSM programs would help with the overall system load management, increase the power factor, increase the availability of surplus power for export to Jordan when the transmission line is completed, and improve overall EDC operations as the distribution companies move toward privatization.

PROJECT NO.: EST 1

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Regional Tourism Development Impact Study

LOCATION: Red Sea Coast

OBJECTIVE:

To assess the potential economic and environmental impact of the planned development of the Southern Coast of the Red Sea.

BACKGROUND:

The GOE has decided to sell parcels of coastal land to developers of resort and hotel properties along the Red Sea coast southwards from Hurghada to the Sudan border. Attractive land prices, additional tax holidays and reduced tariff rates provide substantial incentives to developers. Land contracts, however, stipulate that significant development must be initiated, within three years, to avoid cancellation. Therefore, developers quickly plan these resorts and begin construction, without adequate information on future demand and hotel carrying capacity in the Red Sea coast region. The decision to open new areas of the Red Sea coast to development has direct impact on the economy of the area, local populations, and the land and marine environment. This new development also affects the existing tourism industry, often attracting tourists (and workers) away from older developments that do not provide the same amenities as the newer resorts. Timing of new development is critical. If development proceeds too quickly, the entire industry suffers. Lower occupancy rates extend payback periods for investors and make it difficult for hotels to hire staff to deal effectively with peak tourism periods. The projected number of new hotel rooms in the Red Sea coast raise numerous questions about the logic of this rapid expansion. Inadequate analysis of world and Egyptian tourism demand has been conducted by the Tourism Development Authority (TDA) to help inform investors of the potential risks of excess capacity and overdevelopment.

A good example of phased development is that of Hilton Head Island, which has expanded slowly over two decades from a single resort, residential, and commercial development to five major developments and supporting infrastructure. Despite competition from vacation and retirement developments all along the east coast of the United States, Hilton Head has been able to protect its market niche and provide attractive revenue potential for investors while maintaining a high standard of environmental protection.

DESCRIPTION:

Assistance would be provided to the TDA to conduct an impact study for a region of the Red Sea coast that has not undergone substantial development (even if land has been allocated). The region that would be serviced by the proposed Marsa Alam airport or regions to the south of it, may be suitable. Given that the development "clock" has already started for many of these properties, it would be necessary for the TDA to provide extensions to developers. Therefore, the results of this study could be incorporated into future resort planning.

The study would involve a comprehensive analysis of tourism demand and hotel capacity, job creation, infrastructure demands, implications for inland, coastal and marine resource protection, and economic and social impacts on communities in the area, and existing tourism developments, their workers and communities. Such analysis might also look at case studies from other countries to examine the impacts that new development has had on existing facilities in the time frame over which these facilities were developed. Within the region, case studies of development patterns in Tunisia, Cyprus and Turkey might be considered. This case study could be a first step in analyzing development capacity within Egypt, enabling the TDA to assess market trends, capacity issues and catalyze development of a sustainable tourism development strategy for Egypt, covering all inland and coastal destinations.

IMPACTS:

The impact study would help ensure that the selected study area is developed in an economically and environmentally sustainable manner. It would also reduce risks for investors and avoid development of needless resort capacity.

PROJECT NO.: EST 2

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Development of a Strategic Plan for Cultural Resources in Egypt

LOCATION: National

OBJECTIVE:

To assist the Supreme Council of Antiquities (SCA) in developing a long-range strategy for protecting and managing Egypt's vast heritage of antiquities and cultural sites.

BACKGROUND:

During the Participation Panel on Cultural Resources Management (a component of the Egypt Environmental Sector Assessment), participants highlighted a number of issues that need to be addressed if the SCA is to improve its efforts to preserve and protect over 10,000 antiquities and cultural sites. Among the problems were; the lack of an up-to-date inventory of sites (last updated in 1952) and an assessment of restoration and management requirements; the lack of trained staff for restoration and documentation programs; limited ability to address off-site stressors; lack of coordination with surrounding communities; centralization of management that limits local SCA initiative; and a lack of financing for costly restoration. Many specialists believe Egypt is losing antiquities at an alarming rate and that actions to set priorities for saving sites and improving management can not be postponed.

DESCRIPTION:

The USAID's potential role would be to facilitate and expedite the SCA to take action. One thrust of thinitial effort would focus on documenting the current situation and the management and financing needs for protecting cultural heritage sites. This study would also look at the antiquities in terms of their value to the tourism sector and the potential impact on tourism if; (a) the antiquity sites continue to degrade and; (b) the potential for increasing tourism if the antiquities were better managed. A survey to gauge visitor satisfaction and awareness of site conditions, and the range of antiquity sites in Egypt would be conducted. This background research would be coordinated with a training program proposed by the USAID's Development Training II Project titled “Forward Planning for the Supreme Council of Antiquities.” This training program focuses on strengthening planning and team-building skills, stimulating a dialogue on long-range planning, the scope for adaptive reuse, creative solutions to funding needs, and development of a customer service ethic in the SCA.

Provided these two activities foster greater interest among senior managers at the SCA, follow-up activities would focus on meeting specific needs for assistance requested by the SCA. These could include preparation to update the antiquities inventory, development of prioritization criteria, designation of special Antiquity Protection Sites or Districts, development of long range financing strategy, and development of new sources of financing to support the antiquities program.

IMPACTS:

The antiquities are the key to Egypt's growing tourism industry. If these resources are not maintained, the tourism industry could in the long run be jeopardized. Furthermore, although the major sites receive adequate attention, many additional sites are under threat; their loss is in most cases irreversible. The development of a strategic plan for protecting and managing Egypt's heritage sites, would, if implemented, reverse the current trend of degradation, and safeguard the future of Egypt's antiquity sites.

PROJECT NO.: EST 3

SECTOR: Land and Water Management

PROJECT TITLE: Construction of Artificial Wetland to Improve Water Quality in Lake Qarun

LOCATION: Lake Qarun, Fayoum Governorate

OBJECTIVE:

To demonstrate the feasibility, costs and benefits of reducing nitrogen, phosphorus, and other pollutant levels in drainage waters.

BACKGROUND:

Agricultural drainage is the main source of water to Lake Qarun and the Wadi Rayyan in El Fayoum Governorate. Agricultural drainage waters are pumped into the lake system at three locations. These drainage waters contain high concentrations of nitrogen and phosphorus resulting from fertilizer use, residual pesticides, and other pollutants associated with industrial activities. Nitrogen and phosphorus accelerate lake eutrophication. Levels of these substances can be reduced if the drainage water passes through an artificial wetland prior to being pumped into Lake Qarun. Removal of these pollutants would enhance water quality in the lake and slow the eutrophication process.

DESCRIPTION:

The project would involve the construction of one or more artificial wetlands in the agricultural drains to Lake Qarun. The first stage of the project would involve assessment of each of the three agricultural drains to select one or more for the demonstration project. Prior to construction, drainage waters would be analyzed to determine baseline concentrations of all pollutants. The second phase would involve construction of an artificial wetland. For the demonstration, a wetland of 10-15 feddans (approximately equal to an acre) would be proposed at a cost of US$150,000 to US$200,000. The third phase would involve three activities: (1) determination of the effectiveness of the artificial wetland in reducing pollutants; (2) analysis of cost-effectiveness and comparison of artificial wetlands to alternative methods for reducing nutrients in drainage waters; and (3) development of a list of other applications of artificial wetlands in Egypt.

IMPACTS:

The construction of the artificial wetland would lead to reduced nutrient levels in Lake Qarun and would be beneficial to wildlife in the lake, particularly migratory waterfowl. Such investment could delay costly lake restoration activities to address the buildup of sediments, and anoxic, conditions in the lake.

PROJECT NO.: EST 4

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Incentives for Environmentally Sustainable Development

LOCATION: National

OBJECTIVE:

To identify and analyze options for strengthening developers' incentives for developing resort properties in an environmentally-sound manner.

BACKGROUND:

To accelerate the development of the Red Sea coast, developers have been offered a number of incentives including very low land prices, tax holidays and reduced tariffs on imported equipment. In return, they must plan and initiate construction within three years or risk cancellation of their land contracts with the TDA. A major concern with this development program is the extent to which developers will design and build resorts that do not consider protection of coastal and marine resources. Presently, the primary tool for ensuring that environmentally sound development practices are followed is the EIA, which the developer submits to the EEAA before starting development. The EIA process has severe limitations as a tool for ensuring that environmentally-sound practices are followed. Firstly, the scope of review is limited to the EEAA, which may lack the technical skills to evaluate site impact or other remedies. A broader review process would allow greater input from other Ministries, local governments, NGOs, and the academic community. Secondly, the EEAA lacks the resources to conduct inspections during and following construction to verify the developer has followed the EEAA recommendations and/or the plan described in the EIA. The key to ensuring that developers build in an environmentally-sound way would appear to be the leverage the GOE has in providing subsidies to developers. These include the TDA's ability to include covenants in the land contract which restrict and guide the activities of the developer and provide tax holidays and tariff reductions to developers receive as a GOE inducement to develop.

DESCRIPTION:

This project would involve preparation of a paper identifying options for linking environmental performance to the various subsidies that are currently available to developers of properties on the Red Sea coast. It would be prepared in cooperation with the TDA and the EEAA and would consider the following options: (1) linking the EIA process to the TDA land contracts in the form of environmental covenants; (2) the development of a self-monitoring program (with spot inspections by the EEAA), during the construction and operation phase, tied to certain subsidies and benefits the developer receives; (3) relaxation of the three-year provision for demonstrating significant progress if developers take additional time to develop in an environmentally responsible manner; and (4) linking environmental planning and design as well as follow-up monitoring to the availability of tax holidays (cross-compliance provision).

Following the preparation of this paper, a workshop would be convened by the TDA and the EEAA to discuss the study recommendations and to elicit input and suggestions from developers, local government officials, and NGOs. Assuming the TDA decides to implement any of the recommendations, assistance could be provided to develop and provide training for a self-monitoring program and to strengthen guidelines for environmentally sound design and management practices.

IMPACTS:

Major impacts would be the demonstrated reduction in the potential for adverse environmental damages to shoreline and coastal waters, potential savings in the costs of energy and water and reduced demand for, and cost of, environmental services

PROJECT NO.: EST 5

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Environmental Design and Engineering Assistance for ResDevelopment

LOCATION: Red Sea Coast

OBJECTIVE:

To demonstrate potential economic and environmental benefits from improved environmental designs for hotel and resort complexes.

BACKGROUND:

Currently, mechanisms for compelling developers to adopt environmentally-sound designs and to plan for cost-effective infrastructure, water, and energy use are weak. While the TDA has the ability to incorporate covenants into land contracts to provide adequate environmental protection of the development site, such as the Red Sea coastal zone, it does not currently do so. Land contracts require developers to demonstrate significant progress within three years to avoid cancellation. So any additional covenants would add time to the project planning process and delay progress. In addition, environmental restrictions on design may be perceived by the developer to be costly, albeit of unknown magnitude.

Since environmental design is a new area of study and practice in Egypt, limiting developers have limited access to this expertise. An assistance program to help developers implement principles of environmental design and engineering, carried out on a demonstration basis, could serve as a catalyst for better planning, and encourage the TDA to incorporate environmental covenants in land contracts. Ideally, the TDA would consider extensions to the land contract performance period if developers agree to additional environmental provisions. Given recent decisions by the TDA to cancel 50 land contracts, such extensions might be attractive to developers, particularly if assistance was available from the USAID

DESCRIPTION:

The project would include three components: environmental design and engineering assistance on selected development projects, preparation of a guidebook, and assistance in developing/improving university curricula to incorporate environmental practices in design and engineering.

Phase 1: Environmental Design and Engineering Assistance

The TDA would be responsible for screening developers and projects using criteria to be developed jointly by the TDA, the EEAA, and the USAID. The USAID would provide an advisor qualified to work with developers on environmentally-sound designs and engineering specifications. This advisor would provide technical assistance, estimate costs and cost savings (if realized by the design), compared to more traditional designs, and prepare, and present, a report for each project. Subsequently, each project would be developed into a case study.

Phase 2: Environmental Design Guidelines

The second component would involve development of information on environmental design, selected case studies, and guidelines for environmentally-sound development. The advisor would assist the TDA in developing a guidebook and related information materials.

Phase 3: Environmental Design Curricula Development

The third component of the advisor's work would be to cooperate with university faculty in integrating environmental design practices into university curricula. The advisor may participate and/or help organize seminars featuring other specialists in the field of environmental design. As part of this activity, an exchange with a US university, with a strong curriculum in environmental design, may be organized by the USAID.

IMPACTS:

A reduction in the potential for adverse environmental damage to the Red Sea shoreline and coastal waters, potential savings in the cost of energy and water, and reduced demand, for and cost of, environmental services would be demonstrated.

PROJECT NO.: EST 6

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Sustainable Financing for Coral Reef Protection

LOCATION: National, Red Sea

OBJECTIVE:

To assess financing needs, and identify revenue mechanisms, for the protection and management necessary to provide adequate protection of the Red Sea coral reefs.

BACKGROUND:

The USAID's Environmentally Sustainable Tourism (EST) project has provided technical and financial assistance to support the efforts of the EEAA and the Hurghada Environmental Protection and Conservation Association (HEPCA) to protect the Red Sea coral reefs from damages primarily associated with dive boats and divers. To date, the USAID has financed the installation of 250 mooring buoys (with plans for an additional 150 buoys by the end of 1997), supported training activities for 200 dive boat captains on the use of the buoys, and supported the establishment of the EEAA's ranger program. To afford adequate protection to the Red Sea coral reefs, it will be necessary to extend protectorate status to coastal and island reefs. To effectively patrol and police these areas, will require expansion of the ranger program. Also, as new resorts open up in other diving areas, it may be necessary to expand the system of buoys. To date, the USAID has provided most of the financial assistance for these activities. Whilst the USAID, however, is committed to continue support for these activities, the EEAA, the governorates and the resorts need to explore other financing options that can be sustained when the USAID eventually shifts resources to other problems.

DESCRIPTION:

The project would be carried out in four phases.

Phase 1: Conduct a Financial Needs Assessment

In order to match financing mechanisms to requirements, it is necessary to estimate the level of financing required to sustain protection and management activities. These costs include staff and resource costs for the ranger program and other protection activities. It is necessary to recruit staff with appropriate background, determine training requirements, and to determine capital, and ongoing operational and maintenance costs, for equipment such as ranger boats. In addition, the buoy program will require dive/boat teams to install and maintain buoys, funding for new and replacement buoys, and recurring training programs. The major factor affecting the magnitude of all these programs is the extent of the protectorate program. If protectorate status is extended to all of the islands, the cost of these programs would increase significantly over their current levels. On the other hand, to facilitate comprehensive protection the use of certain financing mechanisms such as fixed charges for divers, may be required.

Phase 2: Evaluate Alternative Revenue Sources

A number of mechanisms could be used to meet revenue needs. These may include fees paid by each diver, licensing fees on boats, small surcharges on accommodation, "association fees" for dive centers and resorts, as well as government budgetary sources of revenue. Some of the existing GOE mechanisms have been previously evaluated under the EST project. The mechanism reviewed in that study, as well as alternative mechanisms, would be evaluated in terms of the following criteria: ease of adoption, potential legal or legislative barriers to overcome; collection efficiency; amount of revenue generated; potential impact on demand for the good or the service upon which the mechanism is based; and the relationship between party charged and the benefits derived from the use (or availability/quality) of the protected coral reefs.

Phase 3: Evaluate and Develop Options for Removing Obstacles to Earmarking

Even if revenues can be collected from the mechanisms above, it may still be necessary to ensure that these revenues can be earmarked for protection activities. For example, flat fees for visitors to Ras Mohammed National Park are deposited into the National Environmental Fund. These revenues, however, can then be used for a variety of purposes. Similarly, hotel room surcharges go to the Ministry of Finance. Potential obstacles to earmarking funds for specific purposes would be identified and solutions for overcoming these obstacles developed in conjunction with the EEAA, hotel operators, investors, dive shops, and NGOs.

Phase 4: Conduct Public Awareness Campaign

Assuming the selected revenue source selected will be paid by divers and/or visitors, the collection efficiency and support for the revenue mechanism can be enhanced through a public awarenessprogram. This program would explain to the visitor the importance of the programs financed through their payments. Phase 4 would also involve development and dissemination of the public awareness material. Some options might include information posted at dive shops, brochures handed out to

IMPACTS:

If the project can be carried out and the mechanisms implemented, sustained financing for reef protection would maintain the quality of the reefs and reduce potential damage to reefs from the anticipated growth in visitors. In addition, this project could serve as a demonstration for earmarking of other revenues (e.g., entrance fees collected at antiquities sites) for site protection.

PROJECT NO.: EST 7

SECTOR: Environmentally Sustainable Tourism

PROJECT TITLE: Adaptive Reuse Demonstrations and Policy Guidelines

LOCATION: National and demonstration city (probably Cairo)

OBJECTIVE:

To develop criteria for, and support, selected adaptive reuse demonstrations and assist the SCA in developing policy guidelines for an expanded adaptive reuse program.

BACKGROUND:

Throughout Egypt, many antiquities and cultural resource sites require restoration, and subsequent protection, if they are to be saved from gradual decay or destruction to clear the way for new development. Although the SCA collects substantial revenues from visitors to the major tourism sites (Giza Pyramids, Luxor, and the Egyptian Museum), this revenue is not fully recirculated to support site restoration, protection and management needs. The SCA allocates a budget for restoration, but donors, including the USAID, provide some finance for restoration. Nevertheless, the financing needs are tremendous and unfortunately, some sites will be destroyed before resources can be mobilized.

Cultural resource sites in Medieval Cairo are especially at risk because of developmental pressures, and inadequate site management. In addition, the surrounding communities, particularly merchants, dislike these cultural resource sites because they detract from rather than complement their businesses. In effect, the surrounding community derives few benefits from the sites that have not been maintained well enough to attract tourists. One option for financing and improving community support for and involvement in the protection of cultural sites is adaptive reuse. Through support from the private sector, selected cultural sites would be restored and developed for uses that are compatible with the protection of the cultural and historical values of the sites. The major constraint to adaptive reuse is the SCA's concern that adaptive reuses will be incompatible with protection or inadvertently result in damage to the site. Paradoxically, the SCA may receive more criticism if adaptive reuse projects fail to provide adequate sustained protection, than if the sites are neglected and destroyed. A demonstration project, which includes the development of appropriate criteria and guidelines for adaptive reuse, and a monitoring and management program, may be able to reduce opposition to an extensive adaptive reuse program.

DESCRIPTION:

The SCA faces three key challenges in developing an adaptive reuse strategy: (1) identifying the best methods of promoting visits to cultural sites without other uses of the site detracting from visitor satisfaction; (2) identifying compatible adaptive reuses consistent with protection of the site; and (3) identifying appropriate sources of financing for site restoration and management. To prepare for demonstrations of adaptive reuse, the project team would work with the SCA to develop criteria for selecting sites, partners for adaptive reuse projects, and a monitoring and management plan. The criteria would be applied to select the sites for demonstration projects. Additional assistance would be provided to the SCA to prepare agreements and/or contracts with adaptive reuse partners and develop public awareness programs. Following the demonstration of the models, assistance would be provided to the SCA to help develop an adaptive reuse strategy. Components of this assistance would include preparation of an inventory of potential sites suitable for adaptive reuse, development of a priority list based on assessment of the urgency to initiate restoration and protection activities at sites on the inventory, refinement of criteria used to select demonstration sites, monitoring protocols, and site management plans.

IMPACTS:

The demonstration projects would protect cultural sites that might otherwise be destroyed, create a source of revenue for the SCA, and foster a partnership between the SCA and the communities that potentially foster off-site threats to cultural sites. Development of an adaptive reuse strategy could lead to additional protection of sites that will otherwise be irreversibly damaged or destroyed.

Annex D

Donor Assistance to the Egyptian Environmental Sector

Annex D

Donor Assistance to the Egyptian Environmental Sector

Background

Donor assistance to the Egyptian environmental sector has been extensive over the past twenty years. As such, donor experience in cooperating with various counterparts and stakeholders was considered an important source of information in carrying out the Egypt Environmental Sector Assessment (EESA).

As part of the participatory process the USAID invited representatives of donor agencies working in the environmental sector in Egypt to a meeting on April 3, 1997. The objective of the meeting was to engender support and cooperation for the EESA. The meeting was attended by representatives of the following donor agencies: the Department for International Development (DFID); the World Bank; the Danish International Development Agency (DANIDA); Embassy of the Netherlands; the United Nations Children's and Education Fund (UNICEF); the Canadian International Development Agency (CIDA); the UNDP; the Italian Cooperation; and the Finnish International Development Agency (FINNIDA).

As follow-up to this preliminary meeting, the assessment team conducted interviews with various donor agencies (Table D.1) and reviewed donor project documents and reports in order to gain a comprehensive picture of donor activity in the environmental sector and avoid overlap and duplication of effort and also to gain insight on major policy constraints and suggested policy reforms as perceived by donor representatives.

Review of Donor Assistance

The assessment team conducted an analysis of donor activity in the Egyptian environmental sector categorizing projects based on sector, type of assistance (financial, technical etc.), geographic locations, and scope of technical assistance.

In addition to personal interviews and a literature review the analysis also relied on a survey of all donor-funded projects in Egypt prepared by the USAID in April, 1997. The projects reviewed extend over a 25-year timeframe, beginning in 1979 and running until 2006. The majority of the projects, however, were/are being implemented during the 1990s.

In Table D.2 all of the donor projects (280) are tabulated by sector and geographic location. As indicated in the table, the Municipal Wastewater & Water Supply Sector has the largest number of projects (91), representing 30 percent of the total. These projects are mainly concentrated in the Greater Cairo (29) and Upper Egypt (31) areas. The next largest sectors are the Land and Water Management (44) and Energy (48) sectors.

Table D.3 categorizes donor assistance projects on the basis of type of assistance,

financial, technical or a combination of the two. There are a total of 121 technical assistance projects, 59 financial assistance projects, and 69 projects involving both financial and technical assistance.

Table D.4 categorizes donor technical assistance according to types of activities undertaken. Categories of technical assistance include policy promotion, institutional strengthening, training, public awareness, and support for investment projects. The table identifies the donor agency/country and the number of projects being funded in each sector.

As indicated in the table, the majority of technical assistance is concentrated in the areas of institutional strengthening (105 projects) and training (20 projects), which constitute 70 percent of the total number of projects. The main sectors in which these are focused are in the Municipal Wastewater and Water Supply and Land and Water Management Sectors.

Discussion

In general, all donor representatives interviewed stressed the importance of coordination of efforts both within the donor community and also with the GOE counterparts. Other problems mentioned by donors include the lack of public awareness of environmental issues, the weakness of agencies responsible for monitoring and enforcement, the lack of financial incentives for environmental improvements and the need for a comprehensive plan for environmentally sustainable development.

Table D.1 Donor Interviews

Donor Agency	Egyptian Counterpart	Representative Interviewed	Topics Discussed
DFID - Britain	EEAA, Cairo Waste Water Organization, Drainage Research Institute, Ministry of Public Works	John Warburton (Advisor to EEAA/TCOE) Philip Jago (SEAM)	Strengthening government capacity to establish action plan; possible future funding for action plan; major activities are within solid waste management strategy and industrial pollution; DFID follows EEAA national specific program
CIDA - Canada	EEAA, Ministerial and Agricultural Sectors, Egyptian NGOs	Iman Radwan	Supports economic and social reform; supports environment and promotes sustainable water and land development; follows Egyptian Action plan
DANIDA - Denmark	EEAA	Dina El Naggar	Technical and financial assistance; National Environmental Strategy followed; focused on capacity building and institutional linkages; Sector Program Work being designed
FAO	Ministry of Agriculture, Ministry of Public Works and Water Resources, Ministry of Agriculture and Land Reclamation	Ibrahim Abu El Zahab	Advisory assistance; Government strategy followed
World Bank		Roudchy Saleh	National Drainage Project; Egyptian Red Sea Coastal Marine Resource Project; Pollution Abatement Project, Gas Investment Project
FINNIDA - Finland	Information database, industry, banks, NGOs, EEAA	Alec Estlander	Egyptian Pollution Abatement Project; Training, Education and Awareness at the University of Alexandria, Hazardous Waste Management Project in Alexandria, focused on industrial pollution
KfW - Germany	EEAA	Martin Dorschel	Technical and financial assistance; investment package
JICA - Japan	EEAA, Public works and municipalities in local Governorates	Naiko Deputy Resident Representative Sakamoto Assistant Resident Representative	Technical assistance; Training program; Third Country Training Program; long and short term Expert Dispatch Program; Equivalent Provision Program; focused on environmental monitoring system for industrial pollution
UNICEF	Governorates, United Coop for Agriculture Development, Ministry of Agriculture, NCCM	Reda Haggag	Technical and financial assistance

Table D.2
Projects Categorized by Sector and Geographic Location

	SECTOR												
LOCATION	Urban Air	Municipal Waste Water & Water Supply	Hazardous Waste	Tourism	Land & Water Mgmt.	Industrial Pollution	Energy	Municipal Solid Waste	Coastal Zone Mgmt.	Strategy Development	Capacity Building	Public Awareness and Training	rehO
Alexandria	-	7	1	-	-	2	4	2	1	-	-	2	-
Canal Cities	-	4	-	-	1	-	3	-	-	-	-	-	-
Delta	-	4	-	1	6	1	4	-	-	1	-	-	-
Greater Cairo	1	29	2	4	-	2	4	2	-	1	-	1	-
Red Sea & Sinai	-	1	2	5	1	-	3	-	1	-	-	-	-
Upper Egypt	-	31	-	-	7	1	8	1	-	3	1	8	-
Western Desert	-	-	-	-	2	-	1	-	-	-	-	-	-
Nationwide	1	15	3	6	25	6	20	-	8	4	11	8	5
Regional	-	-	-	-	2	-	1	-	1	-	-	-	-

TABLE D.3

Projects Categorized by Sector and Type of Assistance Provided

	TYPE OF ASSISTANCE			
Sector	**Technical Assistance**	**Financial Assistance**	**Technical and Financial**	**Total Projects in Sector**
Urban Air	1	-	1	**2**
Municipal Waste-water and Water Supply	27	30	15	**72**
Hazardous Waste	3	2	3	**8**
Environmentally Sustainable Tourism	6	2	8	**16**
Land and Water Management	22	3	12	**37**
Industrial Pollution	5	4	7	**16**
Energy	12	25	9	**46**
Municipal Solid Waste	4	1	-	**5**
Coastal Zone Management	10	-	1	**11**
Strategy Development	7	-	1	**8**
Capacity Building	10	-	2	**12**
Public Awareness and Training	11	-	-	**11**
Other	3	2	-	**5**
Total	**121**	**69**	**59**	**249**

TABLE D.4
Technical Assistance Projects Categorized by Donor and Sector

TECHNICAL ASSISTANCE	SECTOR												
	Urban Air	**Municipal Wastewater & Water Supply**	**Hazardous Waste**	**Tourism**	**Land & Water Resources**	**Industrial Pollution**	**Energy**	**Municipal Solid Waste**	**Coastal Zone Mgmt.**	**Strategy Development**	**Capacity Building**	**Public Awareness & Training**	**Other**
Policy Promotion & Analysis	UNDP (2) USAID (2)		WBANK (1)		FAO (1) USAID (3)		UNDP (1) USAID (1)		UNDP (1)				
Institutional Strengthening	USAID (3)	DFID (3) GTZ (1) SIDA (1) NETH (8) USAID (1)	EEC (1) FINNIDA (1) SWISS (1)	ITALY (4) ITALY (1)	CIDA (5) EEC (2) GTZ (1) ITALY (1) NETH (2) WBANK (3) FAO (2) USAID (1) UNICEF (2)	DANIDA (1) FINNIDA (1) KfW (3) USAID (2)	CIDA (1) DANIDA (1) EEC (2) FRANCE (1) KfW (2) UNDP (1) USAID (2)	DANIDA (3) JAPAN (1)	DANIDA (6) EEC (2) WBANK (1)	CIDA (1) DANIDA (2) ITALY (1) JAPAN (1) NETH (9) UNDP (1) UNICEF (1)	DFID (2) DANIDA (7) UNDP (2) UNICEF (3) USAID (1)		DANIDA (1) UNDP (1)
Training		DANIDA (1) SWISS (1) NETH (2) UNICEF (2) USAID (2)			GTZ (1) ITALY (1)		DANIDA (2) GTZ (1)	DANIDA (1)			DFID (1) JAPAN (1)	DANIDA (1) SIDA (1) NETH (1)	
Public Awareness		NETH (2) FRENCH (5) UNICEF (1)		UNDP (3) USAID (2)	UNICEF (1)			FRANCE (1)				DANIDA (1) FINNIDA (1) FES (1) UNICEF (6)	
Support for Investment		NETH (3) USAID (1)			UNICEF (1)		NETH (2)	FINNIDA (1)		CIDA(1)			

Annex E

Participation Panel Meetings

Annex E

Participation Panel Meetings

Under Task 4 in the Work Plan the EESA team organized and conducted a series of one-day panel meetings, with the participation of a wide range of Egyptian stakeholders. The purpose of these meetings was to obtain feedback on priority environmental issues and discuss alternatives for regulatory, policy, and institutional reform.

Eight participation panel meetings (see attached table) were completed in all, three on local environmental management in Alexandria, Port Said, and Minya; two on industrial pollution in 10th of Ramadan City and 6th of October City, and one each on solid waste management, public awareness, and cultural resources management held in Cairo.

The panel meetings have been designed to involve as broad a spectrum of environmental stakeholders in Egypt as possible. They have included a number of officials from the national, governorate, and municipal government level; representatives from a range of industries and business associations; and leaders from non-governmental organizations and academic institutions.

The panel meetings have succeeded in eliciting the views of these stakeholders with respect to many of the priority environmental issues facing Egypt today, e.g., implementation and enforcement of Law 4/1994, the lack of capacity for local environmental management, technical and financial assistance for compliance with environmental standards, etc. They have also assisted the EESA team in analyzing priority alternatives for institutional, regulatory, and policy reforms. A brief summary of each panel meeting and a list of the participants are attached.

Table E.1: Participation Panels

Theme	Participants	Number of Participants	Location	Date
Local Environmental Management	Local NGOs, private sector, academics	11	Port Said (Sonesta Hotel)	May 25 8:00-11:00 p.m.
Solid Waste Management	Waste haulers, city officials citizens groups, public health academic community	17	Cairo (President Hotel)	May 28 11:00-2:00 p.m.
Industrial Pollution (Investors' Group)	Representatives of industry, industry association	10	10th of Ramadan (BTM Plant)	June 1 11:00-2:00 p.m.
Industrial Pollution (Investors' Group)	Representatives of industry, industry association	10	6th of October (Agricultural Research Institute)	June 2 11:00-2:00 p.m.
Local Environmental Management (Governorate)	Head of Alex. City Council, local NGOs, public/private sector industry, academics	26	Alexandria (Ramada Hotel)	June 3 6:00-9:00 p.m.
Local Environmental Management (Governorate)	Sec. General of Minya, local EMU, local NGOs, private sector	24	Minya (Mercure Hotel)	June 9 10:30-1:30 p.m.
Public Awareness	Representatives of print and television media, NGOs, and academics	30	Cairo (President Hotel)	July 30 11:00-2:00p.m.
Antiquities	Supreme Council of Antiquities, ARCE, academics, NGOs	11	Cairo (President Hotel)	August 4 11:00-2:00p.m.

Port Said Local Environmental Management Panel

Date: May 25, 1997
Location: Sonesta Hotel, Port Said
Time: 8:30 - 10:30 p.m., followed by dinner

Participants:
EESA Team: Glen Anderson, Gretchen Mikeska, David Colbert, Bob Anderson
Osama El Hamshary, Nevine Henein, Nada El Husseiny, Irene Sourial
USAID: Salwa Wahba, James Goggin
TCOE: Inas Tawfik
Moderator: Mohammed Islam

A. Background

Port Said, at the northern entrance to the Suez Canal, is a city of nearly 500,000 residents. The city is surrounded by water: the Suez Canal to the east, the Mediterranean Sea to the north, and Lake Manzala to the west and southwest. Groundwater is at a depth of only 1/2 meter.

The major environmental concerns in Port Said are: the continuing deterioration of Lake Manzala and solid waste collection and disposal. Other issues of lesser concern include pollution from the industrial zone, loss of green areas, and maintenance of drinking water quality.

B. Priority Issues Discussed

Lake Manzala - This large lake that has been under threat since the 1940s. At one point, Lake Manzala had 750,000 acres of free water. The acreage of free water has declined to around 350,000 acres (plus 150,000 acres of water managed as fish farms) and has the appearance of a series of interconnected lagoons. Six governorates impact on the lake as it drains agricultural lands and receives wastewater through a series of drainage canals. Water quality has declined to the point where only two or three species of low-value fish are still found in the lake, down from about sixteen species in previous decades. It appears that Port Said is the governorate most impacted by the declining quality of the lake. There are concerns about the loss of the indigenous fishing industry and culture. Massive fish kills have occurred as a result of the pollution. The lake is under pressure from agricultural interests, who would like to see the lake filled in and used for agricultural crops. The city of Port Said also contributes to the lake's demise, using one canal leading into the lake as a landfill and discharging waste water into the lake (although the municipal waste water is now mostly treated and cleaner than lake). Participants feel that Lake Manzala is six times more valuable as water than land and that the loss of the lake would adversely impact the entire Mediterranean basin.

In October 1991, a national conference was convened in Port Said to discuss the problems of restoring the lake to its previous condition. While recommendations were

prepared, no actions have been taken. One participant estimated it would take 20 years to restore the lake at a cost of LE 100 to 200 million per year. An environmental action plan for restoration of the lake was prepared by Professor Dewedar and Professor Khalaf of Suez Canal University. Restoration would involve reduction of pollution loads and reversal of the sedimentation process, improved aeration and restocking of the lake with fish (as water quality improves). While some wetlands exist at the mouth of the Bahr El Bakar Canal, they need to be expanded to deal with the heavy loads of sewage flowing from Cairo. One of the key impediments to restoration efforts is the complex institutional arrangements and range of competing and conflicting interests, which include 12 government organizations at the national level and six governorates. So far, the EEAA has not played a mediation role to resolve differences between ministries and between governorates.

Solid waste - is landfilled in a canal leading into Lake Manzala. The estimated remaining life of this disposal site is one to two years. Participants indicated there is no other landfill site in Port Said. Waste collection efficiency was reported to be 60 percent, which is considered high for Egypt. Collection services are provided by government employees and there are often several days (especially during holiday periods) when garbage is not collected. Some of the identified needs to address solid waste problems include a landfill site, incineration capacity for hospital waste, improved management of waste collection and disposal, improved government oversight, financing, and public awareness. Forty NGOs are active in Port Said and devote some attention to solid waste problems. Recently, the NGO community sponsored a one-week clean-up in Port Said. Nevertheless, problems of litter remain. Plastic bags are a problem, often blowing into the Mediterranean and Suez Canal. As many as 50 percent of Port Said's residents may be illiterate and NGOs indicated they have had difficulty convincing residents to separate wastes and use special containers.

C. Other Issues Discussed

1. **Air Pollution** - Generally, the industries in Port Said do not generate significant air pollution. There appears to be considerable uncontrolled burning of rejected products in the economic free zone. A large textile plant employing 20,000 people has a dust problem that impacts on worker health. Factory owners install blowers, but this just spreads the problem to the community where it adversely affects public health (especially children). The industrial zone of Port Said generates considerable liquid wastes. These facilities are not connected to the wastewater treatment plant and appear unprepared to comply with requirements for industrial wastewater discharges.

2. **Greenbelts** - They play an important buffering role against wind-driven sand. Many of these green areas have been claimed by development. Additional greenbelts would also provide psychological benefits.

3. **Potable Water Quality** - Port Said has experienced some problems in maintaining the quality of potable water. Three types of algae have been identified in the water system, one of which results in illness. They encounter problems during approximately three months each year when the canal water changes in color and taste.

4. **Environmental Management** - Several participants indicated that there are

problems in environmental management. The governorate has one person and lines of authority and responsibilities are not clear between the governorate, the EEAA, and the planned Regional Branch Office of the EEAA. Participants seemed frustrated that this RBO would not be established in Port Said but rather in the city of El Mansour (DANIDA has a project to help delineate roles and responsibilities of the environmental managers in the governorate, the EEAA Branch Office, and the national government).

5. **Dinto Bahr El Bakar Canal** - At least 50 industrial plants discharge to the main drainage system (Bahr El Bakar Canal). These plants cannot meet the standards of Law 48/1982. Plants do not have the resources to solve their problems.

6. **Marine Pollution** - There is a serious problem with marine pollution as about 2,000 ships use the Suez Canal monthly. They wash ballast tanks and storage tanks and discharge waste water in the waiting area. Suez needs a discharge facility for ship waste water and needs to enforce discharge rules.

Port Said Panel Local Environmental Management Panel
List of Participants

Name	Position
Alia El Shatwy	President of Baladi Community Development Association
Gamal Refaat	Baladi Community Development Association
Ibrahim Hilal	Former Ministry of Education Rep.
Fikry Khalaf	Professor of Environmental Studies, University of Mansoura in Port Said
Samir Moawad	Former Economic Consultant for the Port Said Free Trade Zone
Sobhi Sirry	Deputy Dean of Social and Environmental Services, Suez Canal University
Mohebat Alam	General Manager of Social Services Department in Port Said
Mahmoud Awad	Environmental Management Unit, Port Said Governorate
Mosad Soliman	General Manager of Sanitary Drainage Authority in Port Said
Wagih Abdel Wahid	Head of Manakh Municipality
Mohamed Abdo El Sheikh	Sanitary Drainage Authority, Port Said

Solid Waste Management Panel

Date: May 28, 1997
Location: President Hotel, Cairo
Time: 11.30 - 13.30, followed by lunch

Participants:
EESA Team: Glen Anderson, Gretchen Mikeska, David Colbert, Thomas Remar, Bob Anderson, Osama El Hamshary, Nevine Henein, Nada El Husseiny, Irene Sourial
USAID: Salwa Wahba, James Goggin
TCOE: Inas Tawfik, Khaled Karara, Ahmed Wagdy
Moderator: Mohammed Islam

A. Background

This panel was organized to obtain input and information on the status of municipal solid waste management in Egypt. It was attended by approximately 20 individuals representing a broad range of organizations involved in some manner in solid waste management in Egypt, including waste haulers, NGOs, academia and public officials. A list of attendees is attached. The quality of the panel was high and a great deal of information was exchanged.

B. Priority Issues Discussed

Private Sector Involvement in MSW Services - The private sector, represented by Care Services, desires to engage more fully in the entire range of municipal solid waste activities, including landfill operations, composting and recycling activities. The private sector is now excluded from private landfill operation since all landfills are municipally operated. The private sector contended that overall costs could be lowered through such an integration of operations.

Cost recovery and collection of funds are major problems. The private sector representative stated that access to capital is difficult in part because of the poor flow of funds, a debt security issue. The private sector needs access to larger capacity collection and transfer equipment. This equipment is imported and expensive, and import tariffs are high.

Another issue raised by the private sector representative is the inadequacy of current dump sites relative to the amount of solid waste generated. Current dumps have "no administration", casual dump fee collection, no disciplined operations. Care Services stated that *daily* 4,000 tons of garbage is dumped in Cairo streets. Interestingly, the Coptic Evangelical Organization for Social Services (CEOSS) supported private operation of landfills.

Current Waste Disposal Practices - Most participants including the private sector, as noted above, stated that current landfill availability, access (roads), and conditions in

general were lacking. Specifically, the scattered, open-burning dumps as well as burning garbage piles were a major problem. The use of canals as disposal sites was noted as poor practice. Adverse health impacts (lung disease) were stressed.

Current Waste Collection Practices - Most participants stated that current waste collection practices were essentially unacceptable. The current mode of manual collection and separation causes disease, health problems and land pollution. Drs. Galal and Haggar suggested that source separation should be used instead of manual (Zabaleen) separation. Dr. Kamel stated that other recycling technologies should be studied. The need for greater use of transfer stations was indicated. Transfer technology technical assistance is required.

C. Other Issues Discussed

1. **Medical Waste -** Commingling of medical wastes with municipal solid wastes was considered a highly serious health hazard that needs immediate attention. Toxic wastes were likewise considered a risk to those handling wastes.

2. **Policy/Planning Issues -** The TCOE is in the process of writing comprehensive, detailed solid waste regulations, evidently based on US regulations. The target is to complete this task in the next "few months".

Several participants stated that the lack of a central government "master plan" was a major impediment to solid waste management problem resolution. The master plan should relate to and provide resolution of local problems. Implementation is lacking. Solutions to specific problems were available, but no integrated, comprehensive management plan is being developed. The government role is to control and monitor; the private sector role is to operate. Because of the centralization of authority local planning efforts often go unacknowledged and unsupported.

Organizationally it was suggested (by the Zamalek Community Development Association representative based on their experience) that part of the problem in Cairo was that the areas of responsibility were too large. The 26 Cairo subdivisions were too large and needed to be broken down further into more manageable areas of service.

Interestingly, it was stated by several participants that while the availability of funds is a major problem, technical assistance is also required.

3. **Public Awareness -** Public education is needed. NGO's should play a major role in developing public awareness, as well as being a catalyst for problem recognition, solution monitoring and as pressure groups.

Solid Waste Management Panel
List Of Participants

Name	Position
Mohamed Hamam	Head of Sherbin City Council (Delta Area)
Samir Moez	Research and Development Division, New and Renewable Energy Authority
Yusria Loza	President of the Association for the Protection of the Environment (APE) and member of parliament
Ayman Moharram	Association for the Protection of the Environment
Mounir Nawar	Vice President of the Zabaleen Community Development Association
Inas Omar	Zamalek Community Services Association
Sameh Seif	CEOSS
Hani Kamal	CEOSS
Adel Emara	Executive Director, Care Service (private sector firm)
Leila Kamel	Community and Institutional Development
Mounir Nematallah	President Environmental Quality International
Abdel Messih Samaan	Environmental Research and Development Institute, Ain Shams University
Samia Galal	Environment Department, the American University in Cairo
Salah El Haggar	Environment Department, the American University in Cairo
Mokhtar El Halwagi	Exec. Dir. of Consultant Fund Ministry of Scientific Research
Manal El Batran	Urban Planner
Philip Jago	Overseas Development Agency

10th of Ramadan City Industrial Pollution Panel

Date: June 1, 1997
Location: BTM Factory, 10th of Ramadan City
Time: 11:30-13:30, followed by lunch

Participants:
EESA Team: Glen Anderson, Gretchen Mikeska, David Colbert, Osama El Hamshary, Nevine Henein, Irene Sourial, Nada ElHusseiny
USAID: Salwa Wahba, James Goggin
TCOE: Mohammed Kandeel, Ines Tawfek, Khaled Karara
Moderator: Mohammed Islam

A. Background

The 10th of Ramadan City Panel Participants were primarily of private industry owners and managers from private 10th of Ramadan factories, as well as local environmental authorities. Industries represented included: glass and paint manufacturing, dairy products, paper processing, instant coffee, and te/clothing manufacturers.

10th of Ramadan City, founded in 1978, is one of seven new industrial cities in Egypt. It is located 55 km east of Cairo and is being constructed in four phases, with an ultimate planned population of 5 million people. Currently, there are almost 1,000 factories located in the 10th of Ramadan City of which 720 are privately owned. 400 new facilities are under construction, while a further 500 are seeking licenses to begin construction. Water is supplied by the Nile (Ismailia Canal). 10th of Ramadan industries include one or more facilities from the following sectors: food and beverage, wood, electronics, chemical, pharmaceutical, auto, paper, plastics, and textile. 60 percent of 10th of Ramadan industries are considered small to medium-sized enterprises (SMEs). Industrial environmental discharges are handled as follows:

· Air Pollution - Panel members believe that industrial air emissions are not a problem in 10th of Ramadan since all industries are located downwind of residential areas. Energy sources include oil, mazout, natural gas, and solar.

· Wastewater Discharge - All industrial effluents discharge to a collection system that delivers mostly untreated (some pharmaceutical industries pretreat effluents) industrial and municipal wastewater to an unlined lagoon on the edge of the desert. The wastewater dissipates through evaporation and infiltration. Plans to expand the lagoon or build additional lagoons, dredge its sludges, or build a wastewater treatment plant were not discussed, though EP3 representatives report that donors who had previously committed to financing a wastewater treatment plant have withdrawn their offer. Recent studies of the groundwater in the vicinity of the lagoon indicate that the perched water table is heavily contaminated and is beginning to contaminate the underlying regional groundwater system. Panel recognizes that liquid wastes are a significant concern in 10th of Ramadan City.

· Solid/Hazardous Wastes - All solid/hazardous wastes are collected and burned independently by each factory.

The Investors' Association, which consists of private factory owners and investors in the 10th of Ramadan City, has established an environmental local awareness program in cooperation with the city administration and the Technological Institute. Their goals include better enforcement of existing and upcoming environmental laws.

Sixty plants in 10th of Ramadan City were screened under EP3's pollution prevention (P2) assessment process. EP3 staff, working with DRTPC, have completed P2 assessment reports for at least 18 plants. Two plants in 10th of Ramadan City, Bishara Textile Manufacturing (BTM) and the National Company for Maize Products, have worked extensively with EP3. BTM has implemented over 80 percent of the P2 actions outlined in EP3's Pollution Prevention Diagnostic Assessment (PPDA). Five to six more PPDAs are planned for 10th of Ramadan City plants in the next 18 months. Since 1995, a number of 10th of Ramadan factory representatives have participated in EP3 workshops.

B. Priority Issues Discussed

Law 4/1994 - While the panel generally knew of Law 4/1994 and its requirements, and its eventual effects on operations at their facilities, they acknowledged that most industrialists knew little, if anything of Law 4/1994. Panel members requested technical assistance (TA) from EEAA to in preparation for compliance. EP3 provided a summary of Law 4/1994 milestones, including the initial compliance date (February 1, 1998), and/or the two year extension filing deadline (August 1, 1997). Though EP3 had distributed its newsletters throughout 10th of Ramadan industries, panel members were not aware of the publication.

Implementation of Law 4/1994 - Panel members believe that Law 4/1994 must be implemented rationally, not with a blind "Command and Control" approach. They recommended implementation in a staged approach for the responsible authority:

Provide initial monitoring to identify areas out of compliance.
Identify norms that must be achieved and possible actions that facilities can implement to achieve compliance.
Develop a plan, based on a field study, for staged compliance. Prioritize factory compliance considering severity of a plants environmental problems, as well as plant location and financial condition.
Provide periodic monitoring to ensure factories remain in compliance.
Provide consultancy, as requested, to factories needing assistance in selecting pollution control equipment or upgrading existing to cleaner technology.
Assist in identifying financing for environmental investments.

Panel members identified the following barriers to the implementation of Law 4/1994:

Lack of affordable clean technology.
Lack of information to assess clean technology alternatives.
Lack of financing alternatives for environmental investments for compliance.
Lack of EEAA ability to enforce Law 4 and capacity to assist industries that are seeking compliance.
Free trade initiatives.

Lack of Financing is considered a major problem by panel members. After a brief summary of existing financing options, EP3 offered to summarize these options for environmental investments in their next newsletter.

The Assessment of Pollution Mitigation/P2 Equipment - The panel noted that in their effort to comply with Law 4/1994, they must optimize existing operations and sometimes consider the purchase of pollution control equipment. Their interaction with venders has not been promising, as vendors often lack the technical knowledge to explain the equipment use, operation and maintenance, and advantages over competitors' equipment. The panel requested that an impartial body be formed to assist factories in evaluating P2 and/or pollution abatement equipment alternatives. They believe that successful pollution abatement/P2 case studies should be compiled by a 10th of Ramadan body in one place so that each factory does not have to "reinvent the wheel" each time it must consider an environmental investment.

C. Other Issues Discussed

1. **New Construction** - Panel members believe that Law 4/1994 would limit new construction investments. The EIA process must be made more transparent.

2. **Law 4/1994 Enforcement Authority** - Panel members believe enforcement of Law 4/1994 should be with the 10th of Ramadan Authority with supervision by EEAA. After listening to a summary of Law 4/1994 requirements by the TCOE representative and the EESA team, the panel demanded that EEAA provide them with guidance regarding how to proceed regarding compliance with Law 4/1994. Panel members do not think EEAA should have the authority to close down factories.

3. **Donor Aid** - Many panel members believed that EEAA wasted most of donor funds due to lack of prioritization of projects.

4. **ISO9000/14000** - Panel members are interested in ISO certification, but realize that certification does not necessarily guarantee that the factory is using a cleaner production process or producing a green product.

10th of Ramadan City Industrial Pollution Panel
List of Participants

Name	Position
Nayel Abu El Ezz	Chairman National Glass & Crystal Co.
Louis Bishara	Chairman, BTM
Essam Samir	Engineer, BTM
Montasser Zahran	Secretary of the Environment Committee
Reda Helmy	Head of Investors' Group
Mohamed El Shafei	Textile Industries (Messiri & Kaliouby Plants in Mehalla)
Sherif Barsoum	Egyptian Glass Co.
Mamdouh El Hittamy	Egyptian Paper Co.
Mohamed Sharma	Projects Dept. 10th of Ramadan Authority
Jack Farmer	Technical Director EP3/Egypt

6th of October City Industrial Pollution Panel

Date: June 2, 1997
Location: Ministry of Irrigation Regional Training Center
Time: 11:30-13:30, followed by lunch

Participants:
EESA Team: Bob Anderson, Gretchen Mikeska, David Colbert, Osama El Hamshary, Nevine Henein, Irene Sourial
USAID: Salwa Wahba
TCOE: Mohammed Kandeel
Moderator: Mohammed Islam

A. Background

The 6th of October Panel participants consisted primarily of industrialists and managers from private 6th of October City factories, mostly from the pharmaceutical or chemical sectors. The 6th oOctober City industries include one or more industries from the following sectors: food and beverage, wood, electronics, chemical, pharmaceutical, auto, paper, plastics, and textile. There are almost 1000 existing industrial facilities, 400 under construction, and 500 seeking licenses to begin construction. 60 percent of the 6th of October City industries are considered small to medium-sized enterprises (SMEs). Industrial environmental discharges are handled as follows:

Air Pollution - Panel members believe that industrial air emissions are not a problem in 6th of October since all industries are located downwind of residential areas.

Wastewater Discharge - All industrial effluents discharge to a collection system that delivers mostly untreated (some pharmaceutical industries pretreat effluent) industrial and municipal wastewater to an unlined lagoon on the edge of the desert. The wastewater dissipates through evaporation and infiltration. Plans to expand the lagoon or build additional lagoons, dredge its sludges, or build a wastewater treatment plant were not discussed. Panel recognizes that liquid wastes are a significant concern in 6th of October.

Solid/Hazardous Wastes - All solid/hazardous wastes are collected and burned independently by each factory.

B. Priority Issues Discussed

Law 4/1994 - Private factory representatives had little or no knowledge of the contents of Law 4/1994, when it was to be enacted (February 1, 1998), and/or the two year extension filing deadline (August 1, 1997). They also had little or no knowledge of existing laws they should be complying with, such as Law 93/1962 that establishes effluent standards (norms) for discharge into a public sewer system or Law 48/1982 that specifies effluent norms for discharge into water bodies.

Of those who expressed knowledge of Law 4/1994 many had concerns about the following issues:

Lack of affordable clean technology.
Lack of information to assess clean technology alternatives.
Lack of financing alternatives for environmental investments for compliance.
Lack of EEAA credibility considering both their ability to enforce Law 4/1994 and capacity to assist industries that are sincerely seeking compliance.

Achieving Law 4 Compliance - Panel believed that compliance with Law 4/1994 would only be possible, and even then not in all cases, if EEAA worked with industry offering the following staged assistance:

Conduct pilot projects at selected industries in each industrial sector to demonstrate appropriate clean technologies. Disseminate results and assist in replicating successes. Provide constancy, as requested, to factories needing assistance in selecting pollution control equipment or upgrading existing to cleaner technology.
Assist in securing financing for environmental investments.
Provide initial monitoring to identify areas out of compliance.
Provide periodic monitoring to ensure factories remain in compliance.
Consider promulgating separate requirements for heavy industry, SMEs and light industries. 6 percent of 6th of October industries are SMEs.
Assist industries in securing financing for environmental investments. (Some panel members knew of KfW fund. The EESA team noted that EP3 would be outlining existing financing mechanisms in next newsletter.)

C. Other Issues Discussed

1. EEAA Guidance - After listening to a summary of Law 4/1994 requirements by the TCOE and the EESA team, the Panel demanded that the EEAA provide them with guidance regarding how to proceed regarding Law 4/1994. Specifically:

What are the required components of the extension request?
What norms must industries eventually comply with?
Who is their contact person at the EEAA if they need additional information?
Will the EEAA assist them in preparing the extension request and/or assess alternative technologies they may have to implement to achieve compliance?
Will the EEAA provide monitoring initially to determine if they're out of compliance and on a regular basis to confirm their compliance status.

2. EEAA Enforcement Ability - Panel members do not believe that the EEAA will be able to enforce Law 4/1994, and are convinced that they will not be able to shut down any factory. As such, factories will not be compelled to comply with Law 4/1994 out of fear, but seem willing to accept their environmental responsibility and seek compliance if Law 4/1994 is applied in a rational staged approach.

3. Existing versus Planned Facilities - Many of the industrialists believed that existing facilities should be exempted from Law 4/1994 requirements. They reasoned that because existing factories were not designed to operate at Law 4 /1994 compliance levels, it is now too expensive to retrofit them. If compliance was mandated, many factories would go out of business, as increased competition due to General Agreement on Tariffs

and Trade policies has made many factories only marginally viable. Most of the industrialists agreed that factories currently in the planning stage could comply with Law 4/1994 if they were designed from the start to use clean technology. However, new factory planners will need a transparent, step-wise process from the EEAA to ensure compliance upon start-up. The EEAA informed the panel that the EIA guidelines are available and all required norms are published and can be furnished upon request.

4. **Donor Aid** - Many Panel members believed that the EEAA wasted most of donor funds and that factories that were selected for donor programs were not chosen objectively. A panel member explained EP3 assistance at his factory.

5. **ISO9000/14000** - Panel believes ISO certification is currently "in fashion", and does not necessarily indicate the factory is using a cleaner production process or producing a green product. Forty to fifty percent of 6th of October industries are exporting goods.

6th of October City Industrial Pollution Panel
List of Participants

Name	Position
Safwat Youssef	6th of October Investors' Association
Ahmed Othman	Chairman, Modern Paint Co.
Mokhtar El Fayoumy	Lotus Metal Products
Ahmed El Sherbiny	GMC (Electrical Equipment)
Mohamed Kamel	Sedico (Pharmaceuticals)
Raafat Fawzi	Heidlina Medical
Ahmed Korany	GMC Real Estate
Mohamed Nassar	Marketing Manager Recket Co.
Ahmed Hassan	Chairman, United Corrugated Cardboard Co.
Adel El Badry	El Gammal Paints

Alexandria Local Environmental Management Panel

Date: June 3, 1997
Location: Ramada Renaissance Hotel, Alexandria
Time: 7:00 - 9:00 p.m., followed by dinner

Participants:
EESA Team: Glen Anderson, Gretchen Mikeska, David Colbert, Bob Anderson, Ted Manning, Osama El Hamshary, Nevine Henein, Nada El Husseiny, Irene Sourial, Beryl York
USAID: Salwa Wahba, James Goggin
TCOE: Inas Tawfik
Moderator: Head of Local Council

A. Background

Alexandria, with 2.5 million inhabitants, is Egypt's second largest city and has 35 percent of its industrial base. The city stretches in a long narrow strip along the Mediterranean coast, its sandy beaches and marine waters attracting millions of Egyptian tourists each summer. Until recently, however, Alexandria polluted its coastal waters heavily with municipal and industrial wastewaters. The efforts of the municipal wastewater utility, the Alexandria General Organization for Sanitary Drainage (AGOSD), to turn this around are a real success story.

The major environmental issues in Alexandria are: industrial development/pollution, solid waste management, and wastewater management. Other issues of lesser concern include public awareness on environment, contamination from agricultural runoff, and implementation of Law 4/1994.

B. Priority Issues Discussed

Industrial Development/Pollution - Much of Alexandria's industrial base is the heavy industry of Egypt, e.g., smelters, chemical plants, etc. As a result, the industrial pollution in Alexandria often involves toxics and heavy metals and is difficult to address. In addition, heavy industry has been for the most part, public sector and has thus been deprived of investment for the past 15-20 years. It has, therefore, not been able to invest in cleaner technologies or pollutiontreatment/control devices. For this reason, industry would like to see the EEAA implement the incentive provisions under Law No. 4/1994, providing a range of tax cuts, tax deferrals, import exemptions, etc., to assist industry with its pollution control investments. Also, industry needs technical assistance/transfer in pollution prevention/clean technologies. Alexandria has already witnessed several success stories, e.g., replacing mercury in industrial processes, vitrification of waste material, etc. Industry would like to see environmental policy/implementation decisions left up to local government, not the dictates of national law. Local decision-makers are best able to balance economic and environmental considerations.

Solid Waste Management - The existing solid waste collection and disposal system

in Alexandria has major problems. Waste is often separated on the street, goes uncollected for long periods of time, or is improperly disposed. The local government operates the current waste management system, but there is interest in privatizing collection and disposal of municipal solid waste, leaving the local government to supervise these activities.

Wastewater Management - Until very recently, Alexandria had outfalls from its sewer system discharging untreated municipal and industrial wastewaters directly into Mediterranean coastal waters. As a result, its beaches routinely failed to meet standards for water quality for bathing in coastal waters. With assistance from the USAID, AGOSD undertook a major sewer expansion (LE 1.5 billion), installing pumping stations and building two primary treatment plants. With the first phase just recently completed, the project is considered the most successful USAID project in Egypt. In a second phase, the USAID will assist the AGOSD in expanding the treatment plants and strengthening the institutional and financial capabilities of the AGOSD (with the goal to meet operation and maintenance costs). With support from European donors for capital investments, the AGOSD hopes to expand its sewerage coverage from the current 70 percent to more of the population of Alexandria.

C. Other Issues Discussed

Public Awareness - Generally, public awareness and understanding of environmental issues are very low. There is a serious need to develop public awareness campaigns, environmental education, training programs, etc. Farmers, in particular, need to be educated with respect to pesticide use. Training programs are needed for personnel in wastewater treatment plants and other environmental technologies.

Agricultural Runoff - Although Alexandria has a fairly urban makeup, there are areas of agricultural production. These areas are the source of some agricultural chemical, i.e., pesticides, herbicides, insecticides, contamination. Water pollution from agricultural runoff can cause human health and environmental hazards, particularly in marginal areas where the population may use contaminated sources for drinking water.

Environmental Management Capability - The Governorate suffers from a basic lack of institutional capability. Little environmental planning is being done, and land use is a critical issue in Alexandria. Monitoring capabilities are inadequate.

Alexandria Local Environmental Management Panel
List of Participants

Name	Position
Adbel Kader Abu Ekada	Chairman of the Local Council, Alexandria Governorate
Mohamed Abdella	Vice Dean for Community Development and Environmental Affairs, Alexandria University; Head of Foreign Affairs Committee of the City Council
Fahmy El Sharkawy	Professor, High Institute of Public Health
Hassan El Hakeh	Chairman, General Organization for Sanitary Drainage
Mohamed Abdel Fattah	Dean, High Institute of Public Health
Magdy El Messiri	Vice Dean for Community Development and Environmental Affairs, Faculty of Engineering, Alexandria University
Mohamed El Ra'i	Dean of Institute of Higher Learning and Research
Hazem Abu Shleib	Deputy Minister for Tourism and Tourism Development
Sherif Kandil	Professor, Alexandria University
Maryam Mostafa	Vice Dean for Community Development and Environmental Affairs, Faculty of Literature, Alexandria University
Hossam Mostafa	Executive Member, Horus Association
Samir Nada	Manager of Environmental Research, Abu Qir Fertilizer Co.
Shaker Helmy	Professor, Institute of Higher Learning and Research

Name	Position
Mostafa Abdo	Assistant Technical Director, EP3/Egypt
Jack Farmer	Technical Director, EP3/Egypt
George Mitry	El Nimr Glue Factory
Abdel Moez Akil	Misr Chemical Industries
Sherif Delauer	Alexandria Businessmen's Association
Taher Bishr	Deputy of Federation of Egyptian Industries
Sami El Awadi	Manager of Laboratories and Water Treatment Plant, Faragalla Co.
Nabil Shehata	Deputy Minister, Technical Office, General Organization for Sanitary Drainage
Goma El Gharabawi	General Manager, General Organization for Sanitary Drainage
Salah El Sharkawi	Civil Engineer
Mohamed Abdallah	General Manager, Alexandria Petroleum Co.
Ahmed Kamal	Manager, Alexandria Petroleum Co.
Yehia El Mokadem	Chairman, El Nasr Tanneries

Minya Local Environmental Management Panel

Date: June 9, 1997
Location: Mercure Hotel, Minya
Time: 10:30-1:30 p.m., followed by lunch

Participants:
EESA Team: Glen Anderson, David Colbert, Osama Elhamshary, Beryl York, Nevine Henein, Nada Elhusseiny, Irene Sorial
USAID: Salwa Wahba, James Goggin
Moderator: Mohamed Islam

A. Background

The city of Minya is situated on the Nile River 247 km south of Cairo. Minya governorate has a population of 3.5 million, while the capital city of Minya has a population of around 300,000. Minya enterprises process sugar cane, cotton and vegetable oils. The city has textile and cement factories and produces soap and perfumes. The major environmental concerns include; solid waste disposal and collection, environmental health facilities in the city, and water contamination from both agriculture and industry.

B. Priority Issues Discussed

Environmental Health - Several factors contribute to poor health and hygiene conditions. These include groundwater contamination, the lack of potable water in many villages, poor sanitation and the lack of public facilities, waste disposal in canals and irrigation ditches causing water pollution, air pollution from the burning of heavy fuels and garbage, and the lack of basic infrastructure in unplanned settlements.

Solid Waste - 80-100 tons of solid waste are generated daily in Minya. Currently, waste collection services are haphazard. At best, the waste is collected and dumped in the municipal dump where it is left to accumulate and burn uncontrolled, at worst the garbage is dumped into a canal causing water contamination. The need for more advanced technology and better waste management systems was expressed. One positive note was a success story described by the representative of the CEOSS, an NGO active in environmental issues in Upper Egypt. CEOSS established a pilot project to recycle municipal solid waste into compost in a village near Minya. The pilot project was successful in reducing the amount of solid waste dumped illegally in the streets and canals. They contended that 70 percent of municipal solid waste can be composted. However, it was generally felt that composting was only a partial solution and had to be accompanied by effective waste management systems.

Hospital Waste - There are several medical units in the province ranging from rural health units to provincial hospitals. Medical waste was looked upon as a separate issue. It was suggested that an appropriate incinerator system be established.

Agricultural Run-off - The comments made about agricultural waste were fairly positive. There were a number of examples given to illustrate that pesticide contamination

of surface water from agricultural run-off can and is being reduced. The representative from the Department of Agriculture estimated that the use of pesticides can be reduced by 90 percent without affecting crop quality. He said that the key abuses lay with smafarmers lacking in awareness. He also cited the lack of qualified staff to monitor and control pesticide use as being a major problem. It was suggested that technical assistance targeted to agricultural pollution control would have widespread benefits in the governorate.

Greenbelts - Greenbelts play an important buffering role against wind-driven sand and help reduce airborne particulates in the area. To date Minya has only received L.E. 70,000 from the government for "greening" activities whereas other governorates have received millions. Participants felt that financial fairness needs to be applied in the distribution of funds. Better coordination is also needed between the governorate and the Ministry of Agriculture and Land Reclamation in the allocation of government land for the establishment of plant nurseries. The extension of the Minya Corniche to an informal settlement a few kilometers south of the city was suggested as a project that would benefit the community both psychologically and from a health point of view.

Industry - Although Minya is not heavily industrialized at this time, a 1500 feddan industrial zone has been designated. The industrial zone representative expressed the opinion that effective industrial planning could help prevent future negative environmental impacts. The key concern expressed by industry representatives was the lack of available funds necessary for technical upgrading of the facilities in order to comply with Law 4/1994. Each factory in the area now has an internal environmental management department to oversee environmental issues. However, since most industrial facilities in the area are public sector, current state subsidies cannot cover the costs needed to comply with standards promulgated under Law 4/1994. The lack of adequate monitoring equipment was also cited as a major problem.

C. Other Issues Discussed

1**. Law 4/1994 -** It was clear that the majority of participants were not familiar with Law 4/1994. A brief overview was provided by the representative of the EMU. The reaction by the group was fairly unanimous in its view that the guidelines for compliance with the law were completely inadequate. The lack of financing for environmental initiatives was cited as being one of the primary reasons for non-compliance.

2. **Public Awareness -** Public awareness of environmental issues is perceived to be very low. Small farmers in particular need training in the area of effective pesticide use.

3. **Role of NGOs** - Grass roots organizations are very active in Minya. The CEOSS representative detailed successes in solid/agricultural waste control, water and sanitation, and the organization of awareness programs.

Minya Local Environmental Management Panel
List Of Participants

Name	Position
Samir Abu El Leil	Head of Minya City Council
Abdel Rehim Abdel Aziz	Deputy Minister, Min. of Public Works and Water Resources
Othman Awad	Deputy Minister, Min. of Agriculture
Nagi Abdel Aziz	Manager of Agricultural Readjustment Project
Kamel Mikawi	Manager of Roads and Bridges Authority
Ahmed Abbas	Gen. Manager for Admin. Affairs; General Co. for Cotton Ginning
Omar Ibrahim	Environmental Management Unit
Seifallah Moussa	Manager, EMU
Mamdouh Morsi	Environmental Management Unit
Abdel Radi Sayed	Gen. Manager; Min. of Military Production
Sameh Seif	CEOSS
Ahmed Refai'	Manager of Eng. Dept., Central Egypt Co. for Spinning and Weaving
Mohamed Marwan	Head of Development Authority, Minya Ind. Zone
Omar Abdel Azim	Consultant to Dean of Minya University on Env. Affairs
Nagi Mahmoud	Manager, Central Egypt Grainery Co.
Sami El Dib	Gen. Manager, Central Egypt Grainery Co.
Hassan Mansour	Manager, Environmental Health
Mohamed Ibrahim	Deputy Minister, Min. Of Health
Ahmed Tewfik	Manager, Abu Korkas Sugar Factory
Tharwat Tadros	Environmental Health Department
Adel Kirollos	Environmental Health Department
Girgis Basta	Environmental Health Department
Soliman Shehata	Occupational Health Department
Medhat Maher	Environmental Health Department

Public Awareness Panel

Date: July 30, 1997
Location: President Hotel, Cairo
Time: 11:00-1:30 p.m., followed by lunch

Participants :

EESA Team: David Colbert, Margaret McKay, Dale Bryson, Gretchen Mikeska, Randa Fouad, Nermine Nour, Geilan El Missiri, Osama Elhamshary, Nevine Henein, Nada Elhusseiny, Irene Sorial
GreenCOM: Brian Day, Jestyn Portugill
USAID: Salwa Wahba, James Goggin, Bastiaan Schouten
Moderator: Mohamed Islam

A. Background

The planners and future implementers of the sector-wide effort to address the public sector policy constraints and obstacles to environmental progress in Egypt recognize the importance of public awareness to achieving success. Without a broad base of public support, environmental reform is doomed to failure. It is also recognized that public awareness encompasses many audiences, including but not restricted to, the general public, private business leaders, small industry owners, active NGOs, national and regional electronic and print media, religious leaders, and the decision-makers in the GOE.

The objectives of the public awareness panel were to determine and assess the current level of public awareness about environmental issues, the roles of various sectors in reaching target groups, and, given the levels of awareness, to establish initial directions for reaching adversity of target audiences with pubic awareness mechanisms to achieve whatever change in attitudes and behavior are needed.

Accordingly, the participants included representatives of the mass media and NGOs which have taken the lead in environmental issues at the community or grassroots level, as well as a research specialist and representatives of the EEAA and the Ministry of Information.

B. Priority Issues Discussed

Current Status of Media Reach and Coverage of Environmental Issues - At the outset, a leading environmental print journalist and an NGO direct stated that a very low percentage of the population (five to ten percent) of the population reads daily or periodical publications, while virtually all watch television or listen to the radio. The journalist added that environment has a low priority for coverage, and it was observed by another media representative that television programming, through widely watched, is highly subjective and reflects the "political winds."

Current Public Awareness of Environmental Issues - While opinions varied, participants generally agreed that public awareness of the importance of the environmental

is low. Among the reasons noted for this low awareness were the lack of Egypt-specific information in the media, the weakness of the current environmental efforts in effectively transmitting information to the treat environment in the abstract, and the feeling of many that they are powerless to change things. This feeling is especially strong among the predominantly low-income majority of the population (estimated at 80 percent). In addition, it was noted that though the poor are concerned about the visible aspects of the environment (e.g., piles of garbage around their houses, raw sewage running down the sides of streets), they are not aware of the pollution in the air around them (with the exception, for example, of those living next door to the cement factories in Helwan) or in the water they drink.

Role of Various Media in Addressing Range of Environmental Problems - While the crucial role of mass media in educating and informing the public is universally acknowledged, the group concluded that mass media alone cannot make the difference and reached consensus on the need for an integrated approach to public awareness the would include a range of entities concerned with the environment. These would include electronic and print media, NGOs, the relevant Ministries of the GOE (including the Ministry of Education), private and public sector industry leaders, small industry owners, the religious community, a range of influential (prominent physicians and academics), among others. In making this recommendation, may mass media representatives cited the example of the success of the national family planncampaign which brought together many of the elements mentioned above. Several in the group stressed that NGOs should work closely with the mass media for effective exposure of environmental concerns and issues.

Media Needs - The lack of relevant, up-to-date information was a thread that ran through the discussion. Mass media participants currently have no consistent, reliable source of information and rely on personal contacts, such as scientists. More than one stated that the EEAA, the lead agency, has "never" been a source of useful information. It was clear that an information/data base accessible through traditional sources and/or through the Internet, should be established. This could conceivably take the form of an independent, centralized news bureau. In the meantime, it is also clear that the EEAA should take a more proactive role in making information available.

C. Other Issues Discussed

Appointment of Minister of State for Environment - Though the power of a minister of state or minister without portfolio is limited, the appointment was generally regarded as a positive step as it separates the environment from other issues previously combined under one ministry and provides environmental issues with a voice in the cabinet and the ability to support environmental laws and funding issues with the Parliament. It was noted that when all family planning efforts where placed under one ministry, more was accomplished. One participant commented that the minister’s major role should be to coordinate with other ministers to focus on environmental issues.

Public Awareness Panel
List of Participants

Name	Position
Salama Ahmed Salama	Al Ahram Newspaper/ Society of Writers
Bahira Mokhtar	Al Ahram Newspaper
Soheir Mehanna	Social Research Center, AUC
Rana El Nemr	Egyptian Environmental Affairs Agency
Aida El Kassas	EEAA
Nahed Hamza	Akhbar Newspaper
Essam El Sheikh	Gomhoria Newspaper
Salama Ahmed Salama	Al Ahram Newspaper
Mohamed Abdel Maksoud	Akhbar Newspaper
Hani El Banna	Dar El Ta'awon
Eman Abdel Moeti	Al Ahram Weekly
Ali El Amash	El Sha'ab Newspaper
Hend Farag	Nile Television
Wael Sharkas	Nile Television
Samer El Mofty	MED Ecomedian Network
Mohamed Kamal	Federation of Egyptian Industries
Mohamed Gamal	Journalist
Hossam Abdallah	Journalist
Gamal Zakaria	CEOSS
Adel Abu Zahra	Friends of the Environment in Alexandria
Fawzi Abdel Halim	Al Ahram Newspaper
Ismail Rady	Media Unit, MPWWR
Soheir Shemeis	Journalist
Hossam Abd Rabou	Journalist
Mohamed Morsy	Environmental NGO Steering Committee
Riham Abdel Gawad	Mena
Nahed El Minshawy	Al Gomhoriya Newspaper
Wagdy Riad	Al Ahram Newspaper
Mahmoud Abdel Rahman	Ta'awon Newspaper
Leila Marmoush	Al Mosawar Magazine

Cultural Resource Management Panel

Date: August 4, 1997
Location: President Hotel, Cairo
Time: 11:00 a.m. - 1:00 p.m., followed by lunch

Participants:
EESA Team: Glen Anderson, David Colbert, Nevine Henein, Nada El Husseiny, Osama Elhamshary, Alan Loeb, Irene Sourial
Winrock: David Smith
USAID: Seifallah Hassanein, Bastiaan Schouten, Mike Colby
TCOE: Inas Tawfik
Moderator: Mohamed Islam

A. Background

With reportedly two-thirds of the world's antiquities, Egypt is one of the richest countries in the world in terms of cultural heritage. Unfortunately, Egypt has thus far been unable to preserve and manage this cultural heritage properly, with the result that many of its pharonic, Greek, and Roman treasures, as well as much of its Islamic and Coptic Christian heritage, are vulnerable to theft or vandalism, degradation from environmental pollution, or outright destruction by modern development. The SCA, the national institution charged with the preservation of Egypt's cultural heritage, has been largely ineffective in addressing these threats for lack of both technical capacity and financial resources.

The major issues in antiquities are: the weakness of institutions overseeing cultural heritage, the physical and environmental threats to cultural heritage, and the role of NGOs in protecting cultural heritage. Other issues of lesser concern include the need for greater public awareness, more effective use of the media, and adaptive reuse for preserving historic buildings.

B. Priority Issues Discussed

Weakness of Institutions Overseeing Cultural Heritage - The SCA, with its current organizational structure, capacity, and resources, cannot adequately perform its functions of preserving and managing Egypt's cultural heritage. And, under existing law, the SCA apparently cannot seek private or corporate assistance in carrying out its functions. The result is an extremely weak institution, which does not even have a complete inventory of antiquities (and has not revised its list of antiquities since 1952), much less provide adequate maintenance and/or restoration of the monuments under its control. (Representatives from the SCA identified its primary needs in (1) training conservators, (2) strengthening enforcement of pollution control laws, and (3) preventing theft of antiquities.) To be more effective, the SCA will need to collaborate closely with other agencies (e.g., the Ministry of Waqf, the Governorates, wastewater organizations, etc.) and with the local community. Ideally, a permanent committee for antiquities should be formed at the local level, integrating representatives from the local SCA office, the key national and Governorate agencies, NGOs, investors, and the local community. This

would overcome the current barrier that exists between those who control the monuments and those who control the neighborhoods and streets around the monuments. A recent example of this sort of collaboration is the new Governor of Cairo's visit to Islamic Cairo accompanied by representatives of the SCA and various NGOs.

Physical and Environmental Threats - Many of Egypt's finest treasures, including the Sphinx and the historic buildings of Islamic Cairo, are under direct threat of harm from physical and environmental sources. In many cases, the rising water table, a problem attributed to water and wastewater management practices, is causing damage to cultural monuments. For example, the problem with the flaking of stone on the exterior of the sphinx is blamed on the rising water table. In other cases, the air pollutants generated by industrial and vehicular sources are defacing monuments. Probably more common, however, is the destruction caused by urban expansion and infrastructure development. Alexandria, for example, recently unearthed an undiscovered necropolis while undertaking the construction of a bridge in the urban area. At the insistence of a local NGO, the Governor intervened to protect the archeological discovery.

Role of NGOs - To date, the SCA has not recognized the value of Egyptian NGOs active in the area of antiquities preservation nor has it accepted their support in identifying sites and raising awareness and funding for preservation and maintenance of cultural heritage. An Alexandria-based NGO, for example, has prepared its own list of cultural heritage sites in Alexandria (which the SCA has so far failed to recognize). Several NGOs present indicated that they had conducted workshops for raising local public awareness and had included local representatives from the SCA. Furthermore, NGOs serve an important watchdog function, alerting the SCA, the Governorate, and other agencies to actions that threaten Egypt's cultural heritage. For example, an Alexandria-based NGO was instrumental in saving the house of author Lawrence Durrell from destruction. It is not clear whether Egyptian NGOs can get a concession for a cultural heritage site (like the American Research Center in Egypt has done) or whether they have the capacity and requisite skills to manage one. To collaborate effectively with the NGO community, the SCA should form a Steering Committee for NGOs active in the area of antiquities preservation much like the EEAA has done for NGOs active in environmental issues.

C. Other Issues Discussed

Public Awareness - Generally, public awareness concerning antiquities is velow, and, in some cases, the local community does not appreciate (and even resents) the presence of the monuments. There is agreement on the need to develop public awareness campaigns, as well as education and training programs on antiquities. This is a function that NGOs can and do perform effectively. Several of the NGO representatives present indicated that their organizations are active in this effort.

Media - The media, particularly television, have not been used effectively to promote understanding and support for preservation and management of Egypt's antiquities. Too little television time is devoted to the cultural heritage of Egypt, and this medium is the key to raising public consciousness on antiquities.

Adaptive Reuse - Adaptive reuse represents a practical alternative for preserving historic buildings in Egypt. The SCA does not encourage the use of this tool to the extent that it should. It is not clear to what extent adaptive reuse is recognized and encouraged under the laws protecting cultural heritage. Successful adaptive reuse depends on the economic viability of the converted structure.

Cultural Resource Management Panel
List of Participants

Name	Position
Adly Beshai	Friends of the Environment and Development Association
Gamil Fouad	Cultural Heritage Specialist
Feryal Hassan	Supreme Council of Antiquities
Samir Abdel Halim	Supreme Council of Antiquities
Bernard O'Kane	The American University in Cairo
Mark Easton	The American Research Center in Egypt (ARCE)
Ala'a Habashy	ARCE
Ibrahim Saleh	ARCE
Mohamed Awad	Alexandria Preservation Society
Zeinab Mounir	Cairo Wastewater Organization
Ezzat Naeem	The Association for the Protection of the Environment

Annex F

Policy Roundtables

Annex F

Policy Roudtables

From the outset, it has been the EESA team's objective to conduct this assessment in a broadly participatory manner in order to involve potential stakeholders and build consensus early on in the process. During the course of the research and fact-finding phase of the assessment the team organized meetings, field trips and public participation panels to ensure that gathered data are objective and reflect a diverse and comprehensive range of perspectives.

During the analysis and policy development phase of the assessment the team considered it imperative to continue the participatory process by organizing thematic policy roundtables. The objective of these roundtable discussions was to present the results of the constraints analysis and the proposed policy reform measures to potential stakeholders and counterparts in each sector and to obtain feedback on the validity and acceptability of the results.

Four roundtable discussions were held on the following topics:
Energy/Energy Efficiency;
Industrial Pollution;
Solid Waste Management; and
Environmentally Sustainable Tourism.

Each roundtable was hosted by a major stakeholder and included participants from government agencies, public and private sector entities and NGOs (see attached lists).

Prior to each roundtable, the assessment team prepared background material outlining policy strengths and weaknesses, options for policy reform and proposed project ideas to support policy initiatives. Comments received from participants during the course of the roundtable discussions were incorporated by the assessment team into the policy reform programs for these sectors (Chapters 7-10). As such, the roundtable discussions were invaluable in helping ensure the validity of the policy reform strategies within the Egyptian context.

Energy/Energy Efficiency Roundtable Discussion

Date: Tuesday, July 22, 1997
Time: 10:00 a.m. - 3:00 p.m.
Location: Organization for Energy Conservation and Planning (OECP)

Hosted by:
Dr. Ibrahim Abdel Gelil, Chairman
Organization for Energy Conservation and Planning

Participants:

Mostafa Kamal Sabry	Chairman, Energy Committee of the Specialized National Councils
Fayek Farid	Consultant, Ministry of Electricity and Energy
Ahmed Amin	Energy Conservation and Environmental Protection Project, Tabbin Institute for Metallurgical Studies
Mary El Bahgoury	Consultant, Ministry of Petroleum
Mohamed Kamal	Energy Conservation and Environmental Protection Project, Federation of Egyptian Industries
Taher Bishr	Vice Chairman, Federation of Egyptian Industries
Hani Al Nakeeb	Organization for Energy Conservation and Planning
Tarek Genena	Director, Technical Cooperation Office for the Environment (TCOE)
Dalia Lotayef	TCOE/EEAA
Inas Tewfik	TCOE/EEAA
Khaled Karara	TCOE/EEAA
Ragi Farid	New and Renewable Energy Authority
Azza Abdel Hadi	Egyptian Electricity Authority (EEA)
Thoraya Nessim	EEA
Manal Roushdy	EEA
Richard Smith	Energy Conservation and Environmental Protection Project (ECEP)
Stephen Kline	ECEP
Lane Krahl	Environmental Health Project (EHP)
Bastiaan Schouten	USAID Consultant
George Deikun	USAID
James Goggin	USAID
Salwa Wahba	USAID

Industrial Pollution Roundtable Discussion

Date: Wednesday, August 6, 1997
Time: 12:00 p.m. - 2:30 p.m.
Location: Federation of Egyptian Industries (FEI)

Hosted by:
Mr. Hussein Motawe, General Manager
Federation of Egyptian Industries

Participants:

Hazem Bashat	Secretary General, Committee of Environment, FEI
Abdel Moneim Bekhit	FEI
Nabil Ismail	Technical Consultant, ECEP/TIMS
Mohamed Kamal	Executive Director, ECEP
Galila Ahmed	General Organization for Industrialization
Fayza Ali Nour	National Research Center, Water Pollution Control Dept.
Fatma El Gohary	National Research Center, Water Pollution Control Dept.
Mary El Bahgoury	Consultant to the Minister of Petroleum
Hani Al Nakeeb	OECP
Tarek Genena	Director, TCOE/EEAA
Dahlia Lotayef	Industry Unit, TCOE/EEAA
Inas Tewfik	TCOE/EEAA
Emad Hassan	Overseas Bechtel, Inc.
Louis Bishara	BTM Chairman
Abdel Halim Mahmoud	Seoudi Group
Ahmed Gaber	Chairman, Chemonics Egypt
Jack Farmer	EP3
Richard Stern	EP3
Leo Pastore	Development Training II Project (DT2)
David Foster	DT2 Project
Bastiaan Schouten	USAID Consultant
George Deikun	USAID
James Goggin	USAID
Salwa Wahba	USAID

Solid Waste Management Roundtable Discussion

Date: Sunday, August 10, 1997
Time: 10:00 a.m. -2:00 p.m.
Location: Technical Cooperation Office for the Environment/ EEAA

Hosted by:
Dr. Tarek Genena, Director
Technical Cooperation Office for the Environment/EEAA

Participants:

Gamal Zakaria	Coptic Evangelical Association for Social Services
Shadia Ragheb	National Research Center
Ahmed El Dardir	Cairo Cleansing and Beautification Authority
Mohamed Fawzy	EEAA
Mokhtar El Halwagi	First Undersecretary, Min. of Scientific Research
Mary El Bahgoury	Consultant to Minister of Petroleum
Hazem Bashat	Sec. General, Committee of Environment, FEI/AEEC
Adel Emara	Managing Director, Care Service
Sabry Taha	Cairo Local Popular Council
Ezzat Hassan	OECP
Amal Riad	Ba'r Asal Co.
Mohamed Kamal	FEI
Dalia Nakhla	TCOE/EEAA
Ahmed Wagdy	TCOE/EEAA
Leila El Baradei	TCOE/EEAA
Inas Tewfik	TCOE/EEAA
Tom Cook	EHP
Millie Garcia Surete	EHP
Alan Loeb	EHP
Douglas Krieger	EHP
Lane Krahl	EHP
Leo Patsore	DT2
George Deikun	USAID
James Goggin	USAID
Salwa Wahba	USAID

Environmentally Sustainable Tourism Roundtable Discussion

Date: Wednesday, August 13, 1997
Time: 12:00 p.m. - 2:30 p.m.
Location: Tourism Development Authority

Hosted by:
Eng. Adel Radi, Chairman
Tourism Development Authority (TDA)

Participants:

Magdy Saleh	Advisor, TDA
Tarek Abou El Atta	GEF Project
Mohamed Fawzi	EEAA
Hazem Bashat	Oriental Resorts/AEEC
Mary El Bahgoury	Consultant to Minister of Petroleum
Hani Al Nakeeb	OECP
Ahmed Balba'a	Sharming Sharm Co.
Mohamed Hassanein	TDA
Baha'a Bakri	Prof. of Environmental Planning, Cairo University
Ghada Farag	Investor/TDA Advisor
Cary Yanny	Hurghada Environmental Protection and Conservation Association
Mindy Baha'a El Din	Advisor, EEAA
Inas Tewfik	TCOE/EEAA
Khaled Karara	TCOE/EEAA
Leila El Baradei	TCOE/EEAA
David Smith	Winrock/EST Project
Lynette Wood	EHP
Tom Cook	EHP
Lane Krahl	EHP
Bastiaan Schouten	USAID Consultant
Seifallah Hassanein	USAID
James Goggin	USAID
Salwa Wahba	USAID

Annex G

List of Meetings and Field Trips

Annex G

List of Meetings and Field Trips

A. Government Agencies

Name	Title	Department/Unit
Ministry of Agriculture and Land Reclamation		
Adel Mostafa	Policy Advisor	Monitoring, Verification and Evaluation Unit
Mamdouh Riad	Undersecretary of State for Afforestation	
Ministry of Culture		
Zahi Hawas	Director, Giza Plateau	Supreme Council of Antiquities
Ministry of Electricity and Energy		
Anhar Hegazi	R&D Sector Director	New and Renewable Energy Authority (NREA)
Amina El Zalabani		NREA
Mohamed El Qarmalawy	Vice Chairman	NREA
Fawzia Abou Neima	Managing Director, Planning and Economic Studies	Egyptian Electricity Authority (EEA)
Azza Abdel Hadi	Planning, Economic Studies & Statistics Deptartment	EEA
Ministry of Health & Population		
Wagida Anwar, M.D.	Advisor	Minister for Scientific Research
Ministry of Industry and Mineral Wealth		
Galila El Bouhy	General Manager, Department of Environment	General Organization for Industrialization
Ahmed Amin	Executive Director	Tabbin Institute of Metallurgical Studies
Abdel Basset El Sibai	President	Egyptian Organization for Standardization & Quality Control
Ministry of Interior		
Abdel Wahab El Wateedy	President	Inland Water Police
Ministry of Petroleum		
Ibrahim Abdel Gelil	Chairman	Organization for Energy Conservation and Planning (OECP)
Hani Alnakeeb	General Director for Energy Planning	OECP
Mary Bahgoury	Consultant	Minister of Petroleum
Fouad Abdel Azim	Vice Chairman for Natural Gas	Egyptian General Petroleum Co. (EGPC)
Nasr Egiza	Vice Chairman for Production	EGPC
Ministry of Public Works and Water Resources		
Mona El Kady	Director	Water Research Center

Zenab El Garabely	Under Secretary for Public Works	
Ministry of Scientific Research		
Nader Ragheb Mitry	Professor Chemical Engineer and Pilot Plant Department	National Research Centre
Ministry of Tourism		
Magdy Saleh	Senior Advisor	Tourism Development Authority
Ministry of State for Environmental Affairs/ Egyptian Environmental Affairs Agency		
Mohamed Fawzy	Head	Environmental Management Sector
Mohamed Zarka	Head	Environmental Quality Sector
El-Sayed El Sharkawy	Head	Branch Affairs Department
Magdy Allam	Director	Greater Cairo Regional Branch Office
Ahmed Hamza	Senior Technical Advisor	Egyptian Pollution Abatement Project
Mohamed Ibrahim	Geologist	Natural Protectorates Management
Hurghada Rangers		Hurghada Regional Branch Office
Tarek Genena	Director	Technical Cooperation Office for the Environment (TCOE)
Dahlia Lotayef	Program Manager, Industry & Urban Air Pollution Unit	TCOE
Inas Tawfik	Coordinator	TCOE
Mohamed Kandeel	Program Officer	TCOE
Adham Ramadan	Program Manager Hazardous Substances Unit	TCOE
Leila El Baradei	Program Manager, Donor Coordination Unit	TCOE
Khaled Karara	Donor Coordination Unit	TCOE
Ahmed Wagdy	Program Manager	TCOE
Dahlia Nakhla	Senior Program Officer, Solid Waste Unit	TCOE
Ayman Khodeir	Program Manager	TCOE
Governorates		
Abu Akada Akada	Chairman	Local Popular Council of Alexandria Governorate
Adel Sha'aban	Chairman	Cairo Cleansing and Beautification Authority
Fatma Abou Shouk	Senior Member	Environmental Management Unit (EMU), Alexandria Governorate
Seif Allah Moussa	Director	EMU, Minya Governorate
Fathy Hegy	Director	EMU, Fayoum Governorate
Mahmoud Awad	Director	EMU, Port Said Governorate
Mosad El Sayed Soliman	Manager of Sanitary Drainage Utility Dept.	Port Said Governorate
Zeinab Nabih Monir	Technical Office Manager & Environmental Specialist	Cairo Wastewater Organization

B. Non Governmental Organizations

Name	Title	Organization
Gamal Zakaria Asaad	Head of Administration, Agricultural/Environmental Development	Coptic Evangelical Organization for Social Services (CEOSS)
Medhat Ayad	Deputy Director-Development Sector	CEOSS
Hani Kamal		CEOSS
Sameh Seif		CEOSS
Adel Abou Zahra	President	Friends of the Environment Association, Alexandria
Mohamed El Guendy	Committee Member	Friends of the Environment Association, Alexandria
Laila Iskandar Kamel,	Board Member	Association for the Protection of the Environment
Hazem Bashat	Treasurer	Association of Enterprises for Environmental Conservation
Randa Fouad		Society of Writers on Environment and Development
Cary Yanny	Executive Director	Hurghada Environmental Protection and Conservation Association
Ezzat Saleh Zayan	Development Officer	National NGO Commission for Population and Development
Gamal Abu Taleb	Board Member	Baladi Community Development Association

C. Public Sector

Name	Title	Company
Mohamed Marwan	Head of Development Authority	Minya Industrial Zone
Rophael Zaki Abdelhalim	Director of Utilities Dept.	Transport & Engineering Co. Smouha - Alex.
Yehia Al Mokadem	Chairman	El-Nasr Tanning Co.
Mohamed M. Abdella	General Director -	Alexandria Petroleum Co.
Aly Abdel Ghaffar	Chief Director - Technical Sectors	Egyptian Copper Works
Samir Fraig Nada	Research Manager	Abu Qir Fertilizer & Chemical Industries Co. - Alexandria

D. Private Sector

Name	Title	Company
Louis Bishara	President	Bishara Worsted Wool Manufacturing
Youssef Genena	Tech. Dept.	Arab Motor Corporation
A. Halim Mahmoud	International Marketing Director	Seoudi Group
Ahmed M. Osman	Chairman	Modern Paints & Chemical Products
Montaser A. Zahran		Environmental Engineering Systems Group
Mohamed Kamel	Department Head	Upper Egypt Pharmaceuticals
Ahmed Tewfik	Chairman	Water Technology & Engineering Co.
Taher Bishr	Chairman	Chemical Industries Co.
Amr Asal	Executive Director	Dreamland, Member of Bahgat Group
Sherif Barsoum	Executive Manager	Egyptian Glass Co.
Hamed Badr	General Manager	Ahram Metals Co.
Frank Chapel	Director	AMOCO Egypt
Larry N. Emmons	Environment, Health & Safety Manager	AMOCO Egypt
Adel Emara	Managing Director	Care Services Ltd.
Tarek Habib	Owner	Fish Farming Operation, Lake Manzala
Hamdi Abdel-Salam	General Manager	Engineering, Environmental Design & Consultations Office
Galal Osman	General Secretary	Nile Delta Businessmen & Investors' Association
Hala El Barkouky		Allied Business Consultants
Nadia Lamloum	Manager	American Chamber of Commerce in Egypt
Amaal Reyad	Asst. Chairman & Managing Director	Al-Massya for Touristic & State Projects
Antoine Farrah	Manager	Conrad International, Hurghada
Peter Ely	Executive Chief Engineer	Conrad International/ Hurghada Resort
Thomas Noll	General Manager	Contrad International/ Hurghada Resort
Ayman Abdel Aziz	Sales & Cogeneration Eng.	Waukesha/Dresser
Axel Sauer	Manager	Sofitel Hurghada
Essam Bahgat		Arabia Hotel Hurghada
Robert Zogbi		Intercontinental Hurghada
N.K. Akers		Orascom Touristic Development
Filip Hoffman		Movenpick El Gouna
Merchants		Islamic Cairo
Dive Boat Captains		Hurghada

E. Academic Institutions

Name	Title	Institution
Abdel Monem El-Bassuoni	Dean Faculty of Engineering	Minya University
Omar Abdel Azim	Consultant to the Dean	Minya University
Fikry I. Khalaf	Prof. of Environmental Geology Chairman of Environmental Science Department	Mansoura University
M. El-Raey	Professor of Environmental Physics and Remote Sensing	Alexandria University
Magdy El-Messiery	Vice Dean for Community Development and Environment Affairs	Faculty of Engineering - Alexandria University
Shacker Helmi	Department of Environmental Studies	Alexandria University
Salah E. Hassouna		Alexandria University
Osama El Bahhar	Executive Director	Development Research and Technological Planning Center, Cairo University
Sohair Mehanna	Research Associate, Social Research Center	The American University in Cairo

F. Donor Agencies/Project Units

Name	Title	Department/Project
Canadian International Development Agency (CIDA)		
Ms. Iman Radwan	Project Assistant	
Mazen Bouri	Project Manager	EIA Project
Danish International Development Agency (DANIDA)		
Khaled Fahmy	Associate Project Manager Organization Support Program	Danida Danish Environmental Protection Agency DEPA
Magdy Zaki	Associate Consultant	Danida Environmental Education and Training Program (EETP)
David Kerrison	Project Manager	Environmental Education and Training Program (EETP)
Jan Hassing	Team Leader	Environmental Information and Monitoring Program (EIMP)
Omnia Nabil Hussein	Technical Coordinator	Environmental Edand training Program (EETP)
Lis Jespersen	First Secretary	Royal Danish Embassy
Dina El Naggar	Project Officer	Danida
Alison Simpson	Consultant	Danida
European Union (EU)		
Mr. Akram El Hosseiny	Manager Mediterranean Environmental Technical Assistance Project	EU
Food and Agriculture Organization (FAO)		
Ibrahim Abu El Zahab		
FINNIDA		
Alec Estlander	TA Project Manager	Egyptian Pollution Abatement Project
Italian Cooperation		
Alice Perlini	Project Officer	Environment Program
Japanese International Cooperation Agency (JICA)		
Ms. Sakamoto	Assistant Resident Representative	JICA
Hisatoshi Naito	Deputy Resident Representative	JICA
Mr. Masahiko Morita	Project Manager	Compost plant project
Mr. Medhat Mahmoud	Engineer	Compost plant project
Kreditanstalt fur Wiederaufbau (KfW)		
Diethard Hubatsch	Resident Representative	
Martin Dorschel		
Department for International Development (DFID)		
John Warburton	Advisor to EEAA/TCOE	DFID
Phil Jago	Director and SEAM Project Manager	DFID
Swiss Development Fund		
Randa Helmi	Program Coordinator	
United Nations Development Program (UNDP)		
Samia Guirguis	Assistant Resident Representative	UNDP/Egypt

Karim El-Nagdy	GEF Climate Change Officer	UNDP/ New York
UNICEF		
Reda Haggag		
World Bank		
Yasser Sherif	Project Manager Egyptian Pollution Abatement Project	World Bank
Douglas Graham	Project Specialist	World Bank
Rouchdy Saleh	Senior Natural Resources and Environment Specialist	World Bank
USAID		
Adel Halim		USAID/Egypt
Ali Kamel	Office of Agricultural Credit and Economics	USAID/Egypt
Art Lammerzahl	Commodity Import Program	USAID/Egypt
Carlton M. Terry	Finance and Investment	USAID/Egypt
Mickey Feldt	Office of Water and Wastewater	USAID/Egypt
Raouf Youssef	Office of Power and Telecommunications	USAID/Egypt
Sam Sweitzer	Chief Energy, Innovation & Private Sector Division	USAID/Washington
Emad A. Hassan	ESCO Program Manager	Energy Conservation & Environmental Protection Project (ECEP)
Eng. Nabil H. Ismail	Environment Consultant	ECEP
Richard D. Stern	Technical Director	ECEP
Ali El Naggar	Conference General Secretary	ECEP
Richard P. Smith	Bechtel - Resident Project Manger	ECEP
Terry Fry	Consultant	ECEP
Brian Wood	Consultant	ECEP
Steve Klein	Consultant	ECEP
Bob Hinkle	Consultant	ECEP
Ramses S. Khalil	Bechtel Consulting, Egypt, Africa & Middle East Manager	ECEP
Jack Farmer	Program Director	Environmental Pollution Prevention Project (EP3/Egypt)
Sherif Kandil	Consultant	EP3/Egypt
Peter Illig	Consultant	EP3/Egypt
Jack Schramm	Consultant	EP3/Egypt
Mostafa Abdo		EP3/Egypt
Vahid Alvain		EP3/Washington
David Smith	Chief of Party	Environmentally Sustainable Tourism (EST) Project
Don Hawkins	Professor, George Washington University	EST Project
Mark Easton	Director	American Research Center in Egypt (ARCE)
Robert Vincent	Egyptian Antiquities Project Director	ARCE
Michael Jones	St, Anthony's Project Director	ARCE

John Priest		EPIQ Water Resources Project
Zhongping Zhu		EPIQ Water Resources Project
Stasys Rastonis	Chief of Party	Cairo Air Improvement Project
Leo A. Pastore	Technology Transfer & Institutional Development	Development and Training II Project
Joe Skroski		IDEEA Project
Louis Marcello	CDM International	Secondary Cities Project
Tom Cook	Team Leader, Monitoring and Indicators Team	Environmental Health Project (EHP)
Lane Krahl	Consultant	EHP
Millie Garcia Surete	Consultant	EHP
John Schuster		Hagler Bailly
Jeanne Clinton		Hagler Bailly
Gilbert Richard	Principal	Hagler Bailly
Hassan Hussein	Int. Investment Advisor	Bechtel Inc.
Susan S. Russell	Monitoring & Evaluation Manager	International Executive Service
Karen Muir	Managing Director	Manufacturing Technology Center

G. Other Organizations, Field Trips and Workshops

Name	Title	Organization
Financial Institutions		
Maher Abu Steit		United Bank of Egypt
Nabil Hakam	Chairman	Nasser Social Bank
Hoda Sabry		Banque Misr
Federation of Egyptian Industries		
Hussein Motawe	General Manager	Federation of Egyptian Industries
Mohamed Kamal	Executive Director	ECEP/Federation of Egyptian Industries
Media		
Salama Ahmed Salama	Columnist	Al-Ahram
Mohamed Islam	European Service	Egyptian Radio and Television Union
Hany El Banna	Journalist	
Omaima Kamel	Head of Cultural Network	Egyptian Radio and Television Union
Other		
Father Maximus		St. Anthony's Monastery

Field Trips

·Abu Rawash Wastewater Treatment Plant
·Alexandria Copper Works
·Alexandria:
Ezbet Debana Village
JICA Composting Plant
·Damietta Wastewater Treatment Plant
·El Obour Dump Site
·Hurghada
·Lake Manzala and Fisheries
·Manshiyet Nasser Garbage Collectors' Settlement
·Mansoura:
Municipal Dump Site
Toukh El Aklam Village
·Minya:
Cement Plant
Village Solid Waste Projects
New Industrial Zone
·Motamadiya Garbage Collectors' Settlement
·Port Said Co-composting Plant
·Qarun Protectorate
·Wadi El Rayyan Protectorate
·Zagazig Composting Plant
·Zeinein Wastewater Treatment Plant

Workshops

·Lead Exposure Abatement Plan Workshop II
·Second National Conference on Water Conservation
·Environmentally Sustainable Tourism Strategy Workshop
·Environmentally Sustainable Tourism Conference on ESCOs