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Assessment of Environmental Training Needs in Egypt

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Contents

Acronyms

CEDARE	Centre for Environment and Development for the Arab Region and Europe
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Agency
D-EPA	Danish Environmental Protection Agency
ECEP	Energy Conservation and Efficiency Project
EEAA	Egyptian Environmental Affairs Agency
EIA	Environmental Impact Assessment
FEDA	Friends of Environment and Development Association
FEI	Federation of Egyptian Industries
GIS	Geographic Information System
GOE	Government of Egypt
GTZ	German Agency for Technical Cooperation
IRP	Integrated Resources Planning
MOI	Ministry of Industry
MPWWR	Ministry of Public Works and Water Resources
NGO	Nongovernmental Organization
ODA	Overseas Development Administration, United Kingdom
OSP	Organizational Support Program
SIDA	Swedish International Development Agency
TCOE	Technical Cooperation Office for the Environment
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WRC	Water Research Center

Executive Summary

This report is the result of work conducted in late 1993 in anticipation of the proposed Law No. 4 for the Year 1994 Concerning the Protection of the Environment and the increasing responsibilities of the Egyptian Environmental Affairs Agency (EEAA) and other public- and private-sector organizations for implementation and enforcement of improved environmental management practices. [Law No. 4/1994 was approved on January 27, 1994.] This institution-building activity focuses on enhancing the capability of these organizations to develop and implement effective environmental management policies. Its purposes are to: 1) assess the environmental management training needs of the EEAA and Egypt's other governmental and private-sector organizations with environmental policy and management responsibilities and, based on this assessment, 2) design a series of in-country seminars and workshops to provide key government and private-sector staff the skills required to implement the new environmental legislation quickly and effectively.

While the assessment identified much environmental training activity by other donors, there remains considerable need for environmental training over a broad range of issues. The assessment's general findings result in the following recommendations: 1) Egyptian counterpart institutions should be involved in the design, planning, and implementation of the training courses; 2) representatives from private industry and nongovernmental organizations (NGOs) should be sought as participants in the training program; and 3) to the extent possible, oral presentations should be made in Arabic or simultaneously translated. Seven specific training courses are recommended: Environmental Impact Assessment, Market-Based Incentives for Pollution Prevention and Control, Evaluating the Economics of Investments in Pollution Prevention in State and Private Enterprises, Geographic Information Systems for Environmental Management, Environmental Project Management, Management Information Systems for Environmental Management, and Skills and Strategies for Private Environmental Organizations.

Acknowledgements

This training needs assessment required extensive input from representatives of the Egyptian government, NGOs, and private firms involved in environmental protection, as well as the United States Agency for International Development (USAID) Mission in Cairo and other donors.

The author would particularly like to thank Siefalla Hassanein, Development Assistance Specialist in USAID/Egypt's Environment Office, whose insights into Egyptian environmental matters and assistance in scheduling and conducting meetings with key individuals in the environment sector were crucial in completing this activity. Director Richard Rhoda and Special Projects Officer Marc Madland of the Environment Office and Development Officer Gary (Flynn) Fuller of the Agricultural Resources Office also provided expert advice and guidance.

1. Introduction

In May 1992, the Government of Egypt (GOE) issued an ambitious Environmental Action Plan and proposed new legislation to create a strong central environmental agency. Law No. 4/1994 and a strengthened EEAA were a direct response to the Government's recognition that the country is facing serious environmental degradation and that existing environmental laws and agencies were inadequate to address these problems effectively.

In anticipation of the law's passage, the Environmental and Natural Resources Policy and Training (EPAT) Project undertook an assessment of training needs for environmental policy and management in Egypt for USAID/Egypt's Environment Office in July 1993. The objective of the assessment was to identify a series of short-term training seminars and workshops to be conducted in Egypt that would provide the key staff from EEAA and other Egyptian agencies, as well as from private industry and NGOs, the needed skills to implement the new environmental legislation effectively. The assessment was also aimed at reviewing the environmental training programs of other donors in Egypt so that the proposed USAID training would complement, rather than duplicate, those efforts.

The general findings and the recommended training courses in this report reflect the results of dozens of interviews with officials from Government, industry, and NGOs. As indicated, the environmental training needs within EEAA and other Egyptian institutions are considerable and varied. Final planning of the logistics for the recommended training courses, including the identification of local collaborators, must be arranged well in advance of the training sessions.

2. Training Needs Assessment

Approach

The approach used in this effort included a literature search and review, as well as a series of extensive interviews with relevant GOE ministries and institutions, other donors, and private-sector industries and environmental organizations. Based on the literature reviewed and the interviews, the author prioritized a set of seminars and workshops designed to address key training needs and provided recommendations regarding the logistics of such activities.

The literature review focused on the new Law No. 4/1994 and related documents concerning implementation mechanisms and schedules, as well as materials concerning the environmental training activities of other donors. In coordination with USAID/Egypt's Environment Office, the author developed a list of relevant institutions and individuals to interview in each sector (e.g., GOE, other donors, industry, nonprofit environmental). He then visited the relevant parties to conduct interviews. Notes from these meetings were then synthesized and training gaps identified. Preliminary findings were discussed with the Environment Office before finalizing recommended training activities.

Activities

The tasks included in designing the short-term training program were as follows:

- Review Law No. 4/1994 and anticipated implementation mechanisms and schedules;
- Meet with key officials in EEAA, GOE counterpart institutions, and private-sector organizations to identify and prioritize critical technical, policy, and managerial skills required as Law No. 4/1994 is implemented and the new EEAA is launched;
- Review ongoing and proposed training programs available to EEAA, other GOE agencies, and private industry, including those from other donors;
- Identify with EEAA and counterpart institutions the critical gaps from other donors requiring additional technical, policy, and managerial training;
- Develop a program of seminars and workshops designed to address priority training needs quickly and effectively, identifying the training approaches and the critical skills to be taught;
- Identify counterpart participants and trainers from Egypt's agencies and private sector; and
- Prepare related schedules and required levels of effort to develop and deliver the training program in a timely and effective manner.

In accordance with discussions with the Environment Office, the current effort does not finalize the identification of counterparts and the development of specific schedules.[1] Rather, it has begun these tasks and, as indicated in the recommendations described below, their completion will require further efforts. Once Egyptian counterpart institutions are identified, the precise structure and substantive details of the identified courses will follow.

Institutional Review

Assessing the training needs referred to above requires developing an understanding of the key Egyptian governmental, private-sector, nongovernmental, and university institutions responsible for or interested in environmental policy and management. To this end, a series of interviews was conducted with a broad spectrum of actors in the environmental field.

[1] The Director of USAID/Egypt's Environment Office suggested that these tasks be included as part of a subsequent EPAT delivery order (comments of July 12, 1993).

Key Agencies and Organizations

Institutions identified as having a role in environmental policy-making, management, and training in Egypt are as follows:

In-Country Institutions:

- Academy of Scientific Research and Technology
- American University of Cairo
- Arab Office for Youth and Environment
- Centre for Environment and Development for the Arab Region and Europe (CEDARE)
- Central Society for Environmental Protection
- Development Research and Technological Planning Center (DRTPC), Cairo University
- Egyptian Chamber of Commerce
- Egyptian Environmental Affairs Agency (EEAA)
- Environmental Institute, Ain Shams University
- Federation of Egyptian Industries (FEI)
- Friends of Environment and Development Association (FEDA)
- High Institute of Technology, 10th of Ramadan
- Ministry of Health (MOH), Department of Environmental Health
- Ministry of Industry (MOI)
- Ministry of Planning (MOP)
- Ministry of Public Works and Water Resources (MPWWR) Training Center
- National Organization for Potable Water and Sanitary Drainage (NOPWASD)
- Reconstruction and Development of Egyptian Villages Agency (ORDEV)
- Tabbin Institute Metallurgical Studies (TIMS)
- University of Alexandria
- Water Research Center (WRC)
- Zagazig University

USAID Projects (ongoing):

- Energy Conservation and Efficiency Project (ECEP)
- Project in Development and the Environment (PRIDE)
- Science and Technology Cooperation (STC) Project

International Donors:

- Canadian International Development Agency (CIDA)
- Danish International Development Agency (DANIDA)
- German Agency for Technical Cooperation (GTZ)
- Overseas Development Administration (ODA), United Kingdom
- Ministry for Development Cooperation, The Netherlands
- Swedish International Development Agency (SIDA)

This preliminary list is not comprehensive. Because of time and resource constraints, as well as the dynamic and robust nature of the environmental sector in Egypt, EPAT Project personnel and USAID staff should view this as a working list to be updated and modified frequently.

This list emphasizes national government entities and does not adequately reflect current or future importance of governorate-level (i.e., regional) agencies, public and private industry, and NGOs in environmental planning and management. While some review of these entities is included, extensive identification and interaction are beyond the scope of the current training needs assessment. Future activities that include such interactions can help refine the need for and ultimate content of particular training courses. Despite its limitations, this training needs assessment includes input from high-level representatives of key constituencies and, to the extent possible, extrapolates environmental policy and management training needs based on input from these representatives. For example, discussions were held with the FEI to gain a broad understanding of training needs for the private industrial sector.

Based on discussions with the staff of the USAID/Egypt Mission and the author's understanding of the existing Egyptian environmental sector, several governmental and nongovernmental institutions were identified as particularly relevant to the current training needs assessment. The author met with staff of many of these agencies over the course of this assessment to solicit their input concerning environmental policy and management training needs. Their input has been key to prioritizing the training needs described below.

Summary of Input from Key Agencies and Organizations

The key entities can be divided into the following groups: 1) national government agencies, 2) governorate level and subnational government agencies, 3) nongovernmental environmental organizations, and 4) private industry and industrial trade associations. The limited resources of the current training needs assessment prevented extensive investigation at the governorate level or with individual private industries. For information on these entities, the author relied on input from other knowledgeable sources, including government agencies, private consultants, and such industrial trade organizations as the FEI. Findings from key interviews are summarized below.

National Government Agencies. The EEAA was established in 1982 to form links between the Cabinet of Ministers and other ministries and organizations concerned with the environment. EEAA's present role is essentially one of coordination. Now that Law No. 4/1994 has been approved, EEAA will have increased powers and responsibilities and will remain as the coordinator of major GOE environmental activities. Three interviews were conducted with key EEAA officials, including those in the Technical Cooperation Office for the Environment (TCOE). Focus was on the specific training needs in environmental policy for the staff of the EEAA and other key actors, plus the roles of various donor agencies in supplying environmental training and other assistance to EEAA and other GOE agencies. The TCOE is coordinating substantial donor activity in the environmental area, including several training programs. As

such, a potential role for USAID assistance to EEAA must be coordinated carefully within the context of broad-based donor efforts.

EEAA staff identified specific needs for environmental training courses. The most important is to build national capacity in the area of environmental impact assessment (EIA). Such training should correspond to two groups of trainees: private-sector consultants, research institutes, and universities who will conduct EIAs; and EEAA and other GOE agency officials (national and governorate) who will evaluate the results of EIAs for decision-making. EEAA staff anticipate that this need will be large since Law No. 4, 1994 requires EIAs. The importance of training GOE officials in evaluating and applying the results of EIAs should be emphasized. Experience in the United States and elsewhere has demonstrated that when decision makers do not fully understand the results of EIAs, poor decisions likely follow.

In addition, EEAA staff identified three related topics for which environmental policy training would be useful: 1) market incentives for pollution prevention and control, 2) "polluter pays principal," and 3) applicability of the "win/win" concept to pollution prevention to achieve environmental compliance/protection. Based on the author's discussion, it appears that a single training course incorporating all three closely related policy issues would be ideal.

EEAA staff indicated a strong desire to involve NGOs as participants in the training program, as it is anticipated that NGOs will play an increasingly important role in Egyptian environmental affairs. Their involvement in the early stages of environmental review and regulatory processes can enhance the credibility of such processes. This important point implies that these should be substantial efforts to include NGO participation in any training courses that USAID sponsors.

Note that EEAA identified these topics prior to reviewing the course listing in EPAT's *Directory of Training and Human Resources Opportunities*, in which many of these topics appear. The needs identified by EEAA and the focus of EPAT's training program match well. However, the degree to which other donors are meeting these needs must be assessed carefully. In any case, EEAA will be a key agency from which to receive feedback in the design of the environmental training program.

The WRC expressed strong support for environmental policy and management training. WRC plays a key role in water policy development, as it prepares drafts policies for the MPWWR. According to WRC officials, such training is necessary for institution building, as well as for retaining a competent research staff by providing professional development opportunities to WRC employees. Based on a cursory review of the EPAT course listing, WRC prioritized the training courses in which it would be most interested, as follows:[2]

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[2] It appears that WRC reviewed only one of the two pages of EPAT course titles and chose from among them. The author asked that WRC review the entire list, including the brief descriptions, and provide him a modified list of priority courses.

1) Environmental Project Management

2) Geographic Information Systems for Environmental Management

3) Environmental Impact Assessment

4) Management Information Systems for Environmental Management

5) Risk Communication and Environmental Management

After further discussion, WRC identified Integrated Resources Planning (IRP) for water as being "at the top of the list" in terms of training needs. (Note that there may be a need to clarify the meaning of IRP in the course title as this terminology has different contextual meanings. In the U.S. context, IRP has been used in energy planning as a means to integrate supply, demand, and environmental analyses, as well as public policy and participation concerns. IRP approaches are relatively new to the water sector [in the United States] and generally less comprehensive and not as well developed as in energy planning. WRC has not fully articulated how it defines water IRP in the Egyptian context. Nonetheless, this is an important topic for consideration as a training course for which EPAT could field strong instructors and material.

WRC indicated that, with assistance from the United Nations Development Programme (UNDP), the WRC has considered how best to incorporate environmental policy and management concerns into the Center's research activities. Two options have been considered: 1) establishing a new institute at WRC with an environmental focus or 2) strengthening the environmental capabilities in each of WRC's existing 11 institutes, possibly through creating environmental units within each institute. According to WRC officials, the Center has chosen the latter approach and is in the process of building environmental functions at the institute level. EPAT short-term training courses could play a role in WRC's capacity-building process.

In terms of coordinating environmental training requests between WRC and the MPWWR Training Center, WRC would likely take the lead with new courses, particularly the first few times the courses are offered. Once a course is found valuable and useful to provide on a regular basis, the MPWWR Training Center would then take the lead.

The MPWWR established its Training Center in 1982 with USAID funding. The Center conducts regular training courses on behalf of the Ministry in the areas of irrigation, drainage, computers, mechanical/electrical operations, inspection, and related public works. In 1992, the Training Center provided more than 95 courses to more than 2,000 participants. It also coordinates and assists Ministry personnel in selecting training courses outside Egypt. The Center moved its facilities from Shoubra to 6 October City in early 1994.

As a follow-up to a meeting with senior officials from the Training Center, the author has received a letter from the Executive Director (see Appendix C), which indicates the following

training priorities (in no particular order) based on the Center's review of the EPAT course listings:

- Environmental Awareness Seminars (three days each for government ministries of public works, health, industry, and interior, followed by public and private industries)
- Environmental Policy, Regulation, and Management (one-month EPAT core course for select group of planners and managers from ministries and the private sector)
- Environmental Project Management
- Management Information Systems for Environmental Management
- Geographic Information Systems for Environmental Management
- Development and Implementation of National Environmental Strategies

In addition, Training Center officials indicated interest in hosting an international seminar for Nile River countries entitled Environmental Management of the River Nile. Further exploration of this idea is needed to avoid duplicating existing efforts by other donors.

Governorate Level. Although no regional officials were interviewed, environmental training needs at this level were discussed with several national-level officials, as well as with private consultants who have provided governorates technical assistance in the environmental area. The following training needs were consistently identified:

- Environmental Impact Assessment: how to conduct and critically evaluate its results for decision-making
- Comparative Risk Assessment: how this approach can be used to help prioritize environmental problems at the governorate level
- Environmental Information Management: once environmental data are generated and a baseline characterization is completed, how to track environmental conditions over time and manage the data on an ongoing basis.

Private Industry.[3] To obtain a general understanding of the environmental training needs of private industry, discussions were held with FEI staff, as well as with private consultants to industry. FEI itself is actively involved in the ECEP, a USAID-supported effort that works

[3] The Egyptian industrial sector comprises both private industry and state-owned and operated industrial companies. While privatization has been discussed for some time within GOE and with multilateral and bilateral aid agencies, the public sector still dominates many important industries.

directly with private companies to identify opportunities to improve energy use and overall efficiency. ECEP not only identifies technical feasibility of process improvements, it also assesses economic feasibility and finances the purchase and installation of the required capital equipment. Recently, ECEP incorporated a more environmentally sensitive focus into its project assessments.

FEI training for Egyptian industries focuses primarily on technical courses that help industrial managers assess the technical feasibility of process improvements, with a particular emphasis on improved energy management. ECEP's courses are short (usually three to five days), with one-day programs for top officials. ECEP officials stressed the importance of providing participants with top-quality training materials to which they can refer after the training ends. ECEP courses are planned and advertised about three months in advance; they draw participants from throughout the country, including public-sector companies.

In discussions with FEI staff, ECEP officials and private consultants, the following environmental training needs were identified for the Egyptian industrial sector:

- Environmental Impact Assessment
- Economic Analysis of Pollution Prevention Investments
- Environmental Project Management

FEI and ECEP are interested in collaborating with EPAT, if possible, to develop and implement these and possibly other short-term training courses. Several private environmental consulting firms are also interested in serving as collaborators or Egyptian counterparts. Two such firms with relevant experience in the environmental impact assessment area are Environmental Quality International and Dr. Ahmed Abdel-Warith Consulting Engineers (see Appendices A and B). These and other firms can play an important role as local counterparts in the implementation phase of the training program.

Nongovernmental Organizations. As discussed above, NGOs have begun to play an increasingly important role in the Egyptian environmental arena. Unlike U.S. NGOs, they are legally constrained in terms of lobbying and political activity; however, the press and public officials recognize their growing importance. In the course of this assessment, the environmental training needs were discussed with officials from several leading NGOs, including the Central Society for Environmental Protection, Arab Office for Youth and Environment, CEDARE, and FEDA. One NGO official expressed frustration with USAID's effort, indicating that, while training is necessary, implementation and action (e.g., closing down a major polluter) is more important in terms of mobilizing the NGO sector.

NGO representatives identified broad environmental training needs, ranging from NGO institution building and management, including fund-raising and public participation skills, to

technical training on specific environmental issues. Training courses of particular interest are as follows:

- Skills and Strategies for Private Environmental Organizations
- Environmental Impact Assessment

Review of Other Donor Training

In addition to a variety of scientific and technology-based training,[4] the majority of the donors' efforts in the environmental training area have focused on EEAA. Active bilateral donors include the following countries:

- Denmark (DANIDA)
- Canada (CIDA)
- Germany (GTZ)
- Italy (Department for Development Cooperation)
- Japan International Cooperation Agency (JICA)
- The Netherlands (Ministry for Development Cooperation)
- Sweden (SIDA)
- United Kingdom (ODA)

In addition, the European Economic Community, UNDP, and The World Bank have environmental programs in Egypt.

The donors have attempted to coordinate their efforts through the establishment of the Donors' Environment Committee. The Committee has met infrequently (once in the past six months). Several donor representatives expressed the view that such coordination is inadequate. Active coordination of bilateral assistance is taking place in EEAA's TCOE, successor to the International Cooperation Unit. To a large extent, the TCOE is organizing donor assistance to address directly the needs identified in the Environmental Action Plan of May 1992. TCOE itself is a United Nations' funded effort begun in August 1992. It currently has approximately 25 staff members. UNDP funding for TCOE is expected to continue for approximately five years, by which time the Office or its functions are expected to be well integrated into EEAA. TCOE's major role is to avoid duplication among donor efforts and to maximize the usefulness of donor expenditures. TCOE also plays the important role of coordinating donor programs with such GOE agencies as the ministries of industry and agriculture, as well as with the industrial sector and NGOs.

[4] The primary focus of such training, particularly from USAID, has been on the operation and maintenance of wastewater treatment plants.

In discussions with TCOE staff, it was clear that several other donors have already established environmental training and assistance programs. Nonetheless, there appears a willingness to work with USAID to identify an appropriate role that complements the many ongoing donor activities in this area. As of late August 1993, prior to formal approval of Law No. 4/1994, EEAA had not fully considered even the outlines of such a role; it remains unclear to what degree the specifics of such a role would be consistent with USAID priorities. As EEAA staff assume added responsibilities under Law No. 4/1994, the absorptive capacity of the Agency to administer additional foreign assistance projects may be limited.

Descriptions of the largest and most active donor programs follow.[5]

Denmark: DANIDA

With respect to environmental assistance to EEAA, including training, Denmark has been the most active donor.[6] Based on meetings in September 1992 and a Danish mission in January 1993, DANIDA and Egypt developed a list of priorities for environmental assistance. This was formalized in a summary record of discussions signed by the two parties (see Appendix D). A key component of the Danish program involves DANIDA establishing a twinning arrangement between EEAA and the Danish Environmental Protection Agency (D-EPA) to help build institutional capabilities at EEAA. In addition, DANIDA is providing the funding for a full-time in-house advisor to EEAA's TCOE.

The DANIDA environmental assistance program is large (approximately $200 million over five years). In general, DANIDA's approach is to maximize Egyptian local involvement and control of projects, often through institution-building activities, and to minimize Danish involvement over time. This appears to contrast with the approach of the Ministry for Development Cooperation (The Netherlands), where significant ongoing involvement of Dutch consultants is the norm, such as in the Egyptian city of Fayum. Of the many programs agreed upon to date, DANIDA has established three distinct ones: 1) Organizational Support Program (OSP), 2) Environmental Education and Training Program, and 3) Information and Monitoring Program.

OSP is an institution-building effort that anticipates considerable growth in EEAA staff size now that Law No. 4/1994 has been approved. In May 1993, the Danes established a twinning arrangement between EEAA and D-EPA. DANIDA considers the TCOE as separate from the EEAA because it receives special funding from UNDP. Another part of OSP focuses on developing the executive regulations required to implement Law No. 4/1994. Only a six-month period is allowed for promulgating such regulations, so the EEAA and Denmark agreed to move

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[5] Time and resource constraints prevented complete analysis of all donor programs.

[6] As of 1990, DANIDA's efforts have been under the auspices of the Danish Embassy; DANIDA no longer has a separate administrative structure, such as USAID.

forward with regulatory development prior to passage to ensure adequate time to develop appropriate and effective regulations, including the setting of emission standards. This effort involved the establishment of topic groups comprised of representatives from other ministries, state companies, and consultants. Though a large project, DANIDA believes OSP will not meet all the institutional needs of EEAA but will help identify unaddressed needs.

DANIDA's *Environmental Education and Training Project* primarily focuses on human resources development within EEAA. DANIDA emphasizes the training needs of other ministries considerably less, as EEAA's TCOE has indicated that the United Kingdom's ODA would play the lead environmental training role outside EEAA. DANIDA has prepared a proposal for the education and training project, including a training needs assessment, that the Ministry of International Cooperation recently accepted. In considering EPAT's role in environmental training in Egypt, EPAT should review the terms of reference and results of DANIDA's training needs assessment if they become publicly available. Moreover, the results of USAID's current EPAT needs assessment may be of interest to EEAA and DANIDA. Perhaps an offer to share these results and a request for the results of DANIDA's assessment could be made in the context of improving donor coordination.

Through a joint information and monitoring project with CIDA, DANIDA is assisting EEAA in the development of an environmental monitoring database and a related network. Part of DANIDA's effort will identify which environmental parameters should be monitored and how the monitoring data linkages between EEAA and the other GOE agencies can be achieved. In this project, DANIDA is responsible for establishing monitoring programs for air pollution while CIDA is responsible for water and land monitoring systems.

In addition to the above-mentioned projects, DANIDA funded the development of environmental profiles and action plans for two governorates: Aswan and North Sinai. These efforts represent two of about seven that are either completed or under way with various sponsors at the governorate level throughout Egypt [another one is Ismailiya]. In Aswan, the TCOE has been involved in coordinating donor activities. Based on a preliminary review, the Aswan profile and plan appear useful, providing a broad overview of baseline environmental conditions in the governorate. The Aswan Environmental Profile and Action Plan project was initiated with a workshop, which included the governor and senior governorate staff, senior Egyptian officials with environmental responsibilities (including Salah Hafez, head of EEAA, and Mostafa Tolba, former head of the United Nations Environment Programme), as well as the consultants involved in the work. Guidelines for prioritizing environmental problems were identified at the workshop but, according to DANIDA officials, were not adhered to and a freer discussion took place.

In the case of the North Sinai Environmental Profile and Action Plan, two workshops were held: a technical one identifying conditions and problems followed by a political one aimed at grounding the project in the political reality of the governorate. The governor in North Sinai has been involved in these workshops and development of the plan and continues to play an active role. In this regard, it is important to note that governorates are unlikely to be interested in

environmental issues over which they have no authority (e.g., industrial emitters, such as Keena and Kumbumbo in North Sinai).

In terms of workshop logistics, DANIDA officials suggest holding such activities outside Cairo aimed at the governorate level, maintaining a 9:00 a.m. to 3:00 p.m. schedule, and conducting the workshop in Arabic. The Danes were pleased with the workshop support they received from Chemonics International's Cairo office (Chemonics Egypt) and recommended speaking with Chemonics staff about logistical matters.[7]

Other ongoing DANIDA environmental efforts include a pilot project focusing on the management of medical waste, plus consideration of the need for hazardous waste landfills and management facilities for oily waste. Various ongoing Danish projects are in the area of alternative energy, such as a windmill project; these have significant environmental components or benefits.

Canada: CIDA

Unlike many donors, CIDA assistance focuses on private companies and NGOs as its executing agencies. Five policy papers produced to guide CIDA in its new mission statement, which focuses on sustainable development in developing countries, center on economic, environmental, cultural, and social sustainability, as well as good governance. CIDA has developed a five-to-ten-year cooperation strategy called the Country Policy Development Framework for Egypt, which identifies two windows through which CIDA assistance will provide support for: 1) economic reform and 2) new environmental management.

To operationalize the strategy, CIDA developed background papers and conducted a project planning mission in the fall of 1993. Working with the Egyptian Ministry of International Cooperation, CIDA identified key GOE stakeholders to participate in a November 1993 conference to develop the details of implementing their assistance projects. CIDA will address a broad range of environmental issues but not wastewater treatment or air pollution.

United Kingdom: ODA

ODA has a three-year environmental program under way in Egypt. Conducted in conjunction with a private consortium, the program includes five representatives stationed in Egypt. A major focus of this program is EIA, including conducting such assessments in two governorates and building institutional capabilities in this area. ODA has recently undertaken two projects in the private industry and NGO sectors, respectively. In the former, the Administration is providing technical assistance in anticipation of structural reform. In the latter, it is supporting environmental awareness programs in schools.

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[7] Note that Chemonics Egypt produced a 1992 project report for USAID/Egypt called "The Transferability and Institutionalization of Training Courses."

Findings and Recommendations

Before detailing the recommended training program, several general findings are emphasized concerning the logistics of most courses. These findings synthesize input from the many officials, both governmental and nongovernmental, interviewed over the course of the training needs assessment.

Language

According to the vast majority of those interviewed, holding the training sessions in Arabic facilitates participants' comprehension of the training material.[8] This preference relates primarily to oral presentations and is generally less problematic for written materials. [Several officials mentioned that technical engineering materials are usually in English, not Arabic.] In many cases, the trainer can identify Arabic-speaking instructors (e.g., Egyptian counterparts) or hold courses at locations with simultaneous translation facilities. For some training courses involving state-of-the-art methods or specific software tools, it may be difficult to identify Egyptian counterparts who possess the required expertise and English competence required. For those courses, simultaneous translation will be the preferred approach. Numerous simultaneous translation facilities are located in Cairo and Alexandria, including the new MPWWR Training Center in 6 October City. Courses for which total Arabic or simultaneous translation are unavailable should supplement English with at least some Arabic presentations.

Value of Counterpart Institutions

Closely related to the language issue is the need for and benefits of using Egyptian institutions and individuals to help in all aspects of course design, planning, and implementation. In most cases, such institutions will be invaluable in identifying potential course participants, developing local case-study examples or applications, and bringing the local perspective to the training program, thereby increasing its relevance. Such institutions and individuals can also play the lead role in making required logistical arrangements. Counterparts might include public-sector agencies, private companies, or NGOs. In fact, during the assessment, both public agencies and private companies expressed an interest and willingness to serve as counterparts.

Training Location

Many of those interviewed expressed their opinions regarding the location of training. To attract senior-level participants, high-quality facilities and accommodations should be used. In addition, to maintain attendance of senior-level participants, locations outside Cairo should be considered

[8] For courses with senior participants, English may often be acceptable.

so that these participants are not easily distracted by ongoing office responsibilities. Advantages of other locations must be weighed against the possibility that some participants will be unable to attend courses outside Cairo and the probability of increased costs due to lodging. Specific training locations are not identified here, but many major hotels offer suitable conference and training facilities, including the Nile Hilton (Cairo), Cairo Marriot, Mena House Oberoi (Giza/Cairo), Palestine Hotel (Alexandria), Sheraton Montazah (Alexandria), and the Etab Hotel (Ismailiya). Other possible training centers include the new MPWWR Training Center in 6 October City, and such university facilities as the American University of Cairo.

Course Material Preparation

Based on training experience in the United States, as well as the input from many Egyptian officials, considerable time and care should be spent developing written materials prior to the workshop. To the extent possible, course materials should be developed in conjunction with Egyptian counterparts, and examples or case studies should refer to the Egyptian context.

Course Duration

Training courses seeking to attract middle- and senior-level managers should be limited to 2-5 days. Courses for more junior participants can last longer.

Participation of Private Sector and Nongovernmental Organizations

Private industry and NGOs have begun to play an increasingly important role in Egyptian environmental affairs. The credibility of environmental review and regulatory processes will be enhanced by the early involvement of both sectors. Thus, representatives from each should be sought as participants in the training program.

Marketing Training Courses

Unless there is a predetermined group of participants, training courses should be advertised widely among government agencies, private industry, and the NGO community. Announcements should be made at least 10-12 weeks in advance of the course.

Cost Implications

Though a short-term training course may last only a few days, considerable time and expense are usually required to identify appropriate counterparts, develop the specific course content customized for the Egyptian context, and prepare effective presentation materials. While the use

of Egyptian counterparts is viewed as extremely important and cost effective, it does add managerial and coordination burdens. Lodging (if required) and per diem for up to 25 participants at quality hotels are approximately $100/day/person.

Recommended Courses

Based on the interviews with GOE and other officials summarized above (see Appendix A for addresses), the author identified training needs and developed a preliminary training program, as described below. For each short-term training course, he identifies target agencies and suggests numbers of participants, course duration, and required preparation time. Note that all logistics concerning course location, schedule, cost, and other matters must be decided well in advance of the actual training.[9]

Three broad areas of environmental training needs were identified:

1) environmental policy development,
2) institutional and project management, and
3) analytical tools and models (e.g., environmental impact assessment methods and emissions monitoring/modelling).

In most cases, the training courses recommended below reflect needs identified by more than one institution. While EEAA staff can participate in these training courses, they are not necessarily the primary target, given the other training programs being developed for EEAA by other donors and the lack of full understanding of the Agency's ultimate role in environmental policy and regulation. While the author identifies targeted agencies, in general, the courses would be offered to a range of institutions: local/regional/national agencies, private-sector companies, and NGOs. Such broad participation should serve to enrich the training program by involving multiple perspectives and constituencies.

Environmental Impact Assessment

EIAs can contribute to development options that are environmentally sound and sustainable. Such assessments examine the environmental consequences of project or policy implementation and typically require remediation or mitigation of such consequences in project design. To date, few assessments have been conducted in Egypt. Now that Law No. 4/1994 has been approved, the need to conduct, interpret, and implement EIAs will grow significantly. The EIA course emphasizes analysis and identification of pressing local environmental and development issues, interpretation of statistical data, and natural resources management. Course topics will cover the

[9] As indicated above, the Director of USAID/Egypt's Environment Office suggested that identification of the final logistical arrangements should be included as part of a subsequent EPAT delivery order (comments of July 12, 1993).

full EIA process: scoping an EIA, characterizing baseline conditions, identifying and quantifying project impacts, assessing impacts vis-à-vis regulatory standards and consequences for human and ecological health. Attention will also be given to the EIA process, including public participation and interagency cooperation. Examples from Egypt and the United States will be discussed, with the major focus on the design, implementation, and use of environmental assessments under Egypt's new Law No. 4/1994.

EIA training should target two groups of trainees: private-sector, consultants, research institutes, and universities who conduct EIAs; and EEAA, WRC, and other GOE agencies (national and governorate) who evaluate the results of EIAs for decision-making. Participants should be mid- and senior-level project planners and reviewers with responsibility for development related projects. This is a five-day course, requiring approximately three-months notice for delivery. A maximum of 25 trainees should attend.

Economics of Pollution Prevention

Market-Based Incentives for Pollution Prevention and Control. Experience in the United States and elsewhere has demonstrated the limitations of end-of-pipe solutions to pollution control. As a result, pollution prevention has received increased attention recently both by policymakers and regulators and private industry. The major emphasis has been to develop economic incentives to encourage pollution prevention, including tax policies and subsidies. Pollution prevention, by emphasizing a systematic method for minimizing waste, diminishes the environmental costs associated with growth in the urban and industrial sectors. Major themes in this course include the applicability of pollution prevention approaches to achieve environmental compliance and protection in Egypt, the "polluter pays principal," and alternative market incentive mechanisms to promote pollution prevention.

This course should target senior-government policy analysts, economists, and regulators at the governorate and national level, including EEAA, WRC, MOI, especially those involved in development of the implementing regulations for Law No. 4/1994. Other senior participants representing private industry, such as the FEI and NGO community, should be encouraged to attend because they are important actors in moving towards a market-driven, pollution prevention strategy. This is a five-day course, requiring approximately three-months notice for delivery. A maximum of 25 trainees should attend.

Evaluating the Economics of Investments in Pollution Prevention in State and Private Enterprises. Data constraints, regulatory and cost uncertainties, self-imposed requirements to recoup investments in short-term horizons, and a lack of overall analytical frameworks for financial analysis often hinder state and private enterprises in their efforts to evaluate effectively the economics of investments in pollution prevention. Using specially designed software, Pollution Prevention/Financial Analysis and Cost Evaluation (P2/FINANCE), the course introduces participants to a tested and systematic approach to the assessment of investments in pollution control. Use of P2/Finance requires participants to utilize IBM-compatible 286 computers (386 preferred), with a minimum of 10 MB hard disk space and 1 MB memory.

This course should be designed for financial officers of state and private corporations, GOE financial analysts, plus government officials and members of NGOs working to encourage pollution prevention investments. Familiarity with capital budgeting and computer spreadsheet analysis is highly recommended. This is a three-day course, requiring approximately two-months notice for delivery. A maximum of 20 people should participate. (See Appendix E for sample course description and outline.)

Geographic Information Systems for Environmental Management

Economic and industrial development usually lead to vast changes in environmental quality. While some of these changes are monitored, others are not. Even when data on environmental effects are available, these are often displayed in tables rather than visually. Geographic Information Systems (GIS) provide a spatially explicit method of displaying and manipulating data and can offer a new look at existing problems. This course introduces GIS and focuses on data acquisition, management, and analysis. Specific themes include data collection and manipulation, land-use models, inventory assessment, and environmental management. Case studies will demonstrate the use of GIS for EIA in the Egyptian context. Suitable IBM-compatible computers will be necessary.

This course should attract mid-level government planners and private-sector project managers. This is a five-day course, requiring approximately three-months notice for delivery. A maximum of 20 trainees should attend.

Environmental Project Management

Effective project management necessitates the efficient use of time, materials, and human resources. This course addresses several fundamental components of effective environmental management: project mechanics and managing people to maximize productivity and performance. Specific themes include problem definition, project planning, cost/budget estimation, implementation, and directing multidisciplinary teams. (Emphasized also are communication skills, supervision techniques, and standard operating procedures.

The course should be designed for mid-level government planners and private-sector project managers. This is a four-day course, requiring approximately three months notice for delivery. A maximum of 25 trainees should attend.

Management Information Systems for Environmental Management

In recent years, issues relating to the environment have received significant attention and have required the collection, analysis, and storage of vast amounts of disparate information. In the Egyptian context, the flow of environmental data is expected to increase dramatically, as implementing Law No. 4/1994 requires considerable air- and water-quality monitoring, the generation of data and analyses for environmental impact assessments, and other activities. Consequently, this course should be designed to provide participants with an overall appreciation of the need for and desirability of effective systems for managing environmental information. The course, which includes computer work, will also describe the general domain of relevant environmental information and how to access, organize, process, and use it. Case examples will be developed based on Egyptian data.

The target participants are mid- to senior-level administrators responsible for organizing and implementing national or subnational environmental programs. Private sector and NGO project managers should also be included to gain an understanding of the types of data available and how to access them. This is a three-day course, requiring approximately three-months notice for delivery. A maximum of 20 people should attend.

Skills and Strategies for Private Environmental Organizations

Private environmental organizations can provide a critical link between governments and local communities. Such organizations can assist in training and the delivery of services and can be valuable sources of information for government decision makers. Despite these possibilities, many NGOs in developing countries lack the skills and experience necessary to operate effectively and to contribute to environment planning and decision-making. Consequently, this course seeks to transfer relevant experiences from successful environmental organizations in the United States and elsewhere to their counterparts in Egypt. Topics include communications, training, research, fund-raising, public participation, and innovative financing for environmental projects. Collaboration with environmental and development agencies will also be discussed.

The course should aim at private environmental and NGO officials. This is a five-day course, requiring approximately three-months notice for delivery. A maximum of 25 trainees should attend.

Appendices

Appendix A: Contacts[1,2]

U.S. Agency for International Development (USAID)/Egypt

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Development Resources Office
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Cooperation Office
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Marc Madland (7/5-6)
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Program Assistant
Environment
Program Development and Support Office
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Glenn Whaley (7/12) (left office 9/93)
Project Development Officer
Project Support
Program Development and Support Office

Sami Yacoub (7/8)
Engineer
Engineering
Development Resources Office
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Government Agencies and Supporting Projects

Egyptian Environmental Affairs Agency (EEAA)

Mohamed Fawzi (7/11)
17 Teiba Street
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Director
Technical Cooperation Office for the Environment
16 Lebnan Street
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[1] Indicates individual was not interviewed as part of this training needs assessment.
[2] Country and city codes for Cairo, Egypt are 20-2.

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Chairman-in-Charge
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Niels Thygesen (7/15)
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Energy Conservation and Efficiency Project (ECEP)

Samer El Haw (now in France)[1]
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Dar El Oloum Building
Cairo University
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Executive Director, ECEP
Federation of Egyptian Industries
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Ramsis Khalil (7/6)
USAID Chief of Party and
Resident Project Manager, ECEP-Bechtel
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Ministry of Public Works and Water Resources (MPWWR) Training Center

Shore Protection Building
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Eng. El Hussein Abdel Hamid Elkholy (7/8)
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MPWWR
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National Organization for Potable Water and Sanitary Drainage (NOPWASD)

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Training Director
Eng. Mohamed Negm El Din Mohamed (7/12)
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Ahmed Samih El Nockrashy (7/11)

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Abu Zeid, Chairman (7/10)

Egyptian Nongovernmental Organizations (NGOs)

Arab Office for Youth and Environment

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Mohamed A. Nour (7/15)
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Mai El Remeisy (7/15)
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Alice Bouman[1]

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Adli Bishay (7/11)
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The Central Society for Environmental Protection

Laila Takla (7/13)
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The Reconstruction and Development of Egyptian Villages Agency (ORDEV)

Ragaa Abdel Rassoul (7/15)
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United Nations Development Programme (UNDP) Sustainable Development Project

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Consultants

Project in Development and the Environment (PRIDE)

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Kamal Ewida (7/8, 7/13)
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Eng. M. Hassaan Morsi (7/15)
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Other Donors

British Council

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Canadian Embassy

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Robert Frazier (7/14), First Secretary
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Rushdi Saleh[1]
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Hanne Hubertz (7/12), Attache-Environmental
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Embassy of the Federal Republic of Germany

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Heike Hofmann, Second Secretary
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Friedrich Ebert Stiftung[1]
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French Embassy

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Giza, Cairo

Etienne Maraval[1]
Herve Lecoq[1]
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The Netherlands Embassy

18 Hassan Sabri Street
Zamalek, Cairo
Ron Muyzert[1]

Swedish Embassy

Swedish International Development Agency
(SIDA)
13 Mohamed Mazhar Street
Zamalek, Cairo

Per Saland, Counsellor
tel: 341-4132, -1484

Universities

Ain Shams University

Environment Institute

Mohamed Hewehy[1]
Director
tel: 835-594, 243-4259

Adli Yassin[1]
Professor of Planning and Deputy Director
tel: 825-594, 863-140

Alexandria University

High Institute of Technology

10th of Ramadan
(technical training, mostly for private industry nearby, focusing on hands-on technical training and pollution prevention)

The American University of Cairo

Zagazig University

Other Organizations

National Research Center

(part of Ministry of Scientific Research;
conducts mostly scientific [not policy] research)

Organization of Energy Conservation and Planning

(low priority given extensive, ongoing training
in energy conservation already being conducted)

Ibrahim Galil[1]
Mohie Salim[1]

Appendix B1: Relevant Documents (Reviewed)

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Mubarak, Hosni, President of Arab Republic of Egypt. 1986. Decree no. 197 of year 1981 for the establishment of the National Organization for Potable Water and Sanitary Drainage, as amended by decree no. 20 of year 1986. January.

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RCG/Hagler, Bailly, Inc. 1991. Energy management for companies. Energy Conservation and Efficiency Project. Sample training course document, February.

_____. 1992. Profile of the environmental business sector in Egypt. Project in Development and Environment (PRIDE) and USAID Near East Bureau, October.

Rhoda, Richard and Kevin Krause. 1993. Lead pollution in Cairo: Review of available information. USAID/Egypt, Environment Office, June.

Regional Water and Wastewater Training Center. n.d. National Organization of Potable Water and Sanitary Drainage (NOPWASD). Brochure. Damanhour, Beheira.

Summary record of discussions between the Arab Republic of Egypt and Denmark on development cooperation in the field of environment. n.d. (See Appendix D.)

Technical Cooperation Office for the Environment, Egyptian Environmental Affairs Agency (with assistance from Friedrich Ebert Stiftung, GTZ). 1993. Directory for the non-governmental organizations in the field of environment. May.

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Appendix B2: Relevant Documents (Not Yet Reviewed)

Overseas Development Administration. 1993. Report on afforestation in and green area development in Egypt. Great Britain. February.

Public Enterprise Office. 1993. General procedures and guidelines for the Government's programs of privatization, restructuring and reward system. Government of Egypt. February.

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MINISTRY OF PUBLIC WORKS
& WATER RESOURCES
TRAINING CENTER

Appendix C: Letter from Training Center Director, MPWWR

Mr. James Goldstein
EPAT
c/o Hilton Hotel, Cairo
FAX No. 760874

July 11, 1993

Dear Mr. Goldstein:

Thank you for your visit of July 8 and faxed letter of July 10, 1993.

We have reviewed the course listings offered by EPAT, and tender the following observations/comments:

1. While our new Training Center will not be operational until o/a January 1, 1994, we have our excellently appointed conference room here at Shoubra which can be scheduled for use prior to that date. When our new facility is open we will also be happy to cooperate in hosting training courses that EPAT may schedule in Egypt.

2. Per our discussion, we feel that a series of the three day seminars on environmental awareness should be offered to officials of GOE Ministries - Public Works, Health, Industries, Interior, to alert them to the problems. This could be followed by similar seminars for Public/Private Enterprise representatives as policies and legislation emerge.
Or, perhaps, a combined seminar (s), could be held to help Government to become aware of private sector issues influenced by public sector policy formulation.

3. Following these awareness seminars, it would seem logical to offer in Egypt the one month course presented in 1993 in Arlington, VA. for a select group of planners and managers from ministries and the private sector.

4. As the environmental management movement continues, it would appear that many of the courses in the catalogue would be needed:
    - Environmental Project Management
    - MIS for Environmental Management
    - GIS for Environmental Management
    - Development and Implementation of National Environmental Strategies

5. At some point in the series, the Training Center would be pleased to host a specific International Seminar for Nile River countries, "Environmental Management of the River Nile".

We appreciate the mention of the course "Comparative Risk: Methods and Applications for Setting Environmental Priorities" in your Fax. At this stage of the Center's development, it would appear more likely that this course would be better suited to members of the Water Research Center who have a more active role in this area than Training Center staff members. However we would be interested in having one of our staff members obtain the methodology of comparative analysis.

The above suggestions, of course, should be discussed with the Water Reearch Center, the EEEA, and USAID.

Our facilities and staff are available to assist in any approved training programs, as we did recently with the WEAP course.

We will be most pleased to hear of the final results of your needs assessment.

Sincerely,

A. Allam

Abdel Aty Allam
Center Director

c.c. Dr. M. Abou Zaid, WRC

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Appendix D: Summary Record of Discussions Between the Arab Republic of Egypt and Denmark on Development Cooperation in the Field of Environment

In the period 27-29 September 1992 an Egyptian delegation headed by H.E. Dr. Atef Ebeid visited Denmark, and met with Dr. Per Stig Moller, Minister of the Environment.

Further talks took place with a Danish delegation from the Ministry of Foreign Affairs/DANIDA headed by Acting State Secretary, Ambassador Ellen Margrethe Loj.

The discussions centered on the ongoing and planned cooperation in the environmental field.

The two delegations reviewed the status of the preparation of the Environmental Action Plan for Egypt and the proposed new United Environmental Law [Law No. 4/1994, approved January 27, 1994].

The two delegations further reviewed the possible areas for Danish technical assistance in order to implement the Action Plan and strengthen the management of environmental affairs in Egypt.

The following is a summary record of discussions:

Background

There is a growing recognition in Egypt that economic development and the health and welfare of the population are closely linked to the proper management of natural resources and environment. From this basic conviction, the Government of the Arab Republic of Egypt, in collaboration with the World Bank, UNDP, DANIDA, and several other donors, prepared an Environmental Action Plan, with the objective of identifying problems, suggesting solutions, and setting priorities. All to strengthen the management of environmental affairs and sustainable development in Egypt.

The Action Plan outlines a far-reaching programme envisaging investments of 300-500 mio. USD in the first 5-year phase.

Danish development assistance to Egypt is expected to amount to approx. 1.000 mio. DKK over the next 5-year period. A significant portion of this amount could be allocated to assist in implementing the Environmental Action Plan, provided that feasible and relevant project proposals are prepared.

In view of the commitments of the Government of Egypt to the enhancement of environmental management and sustainable development, and in view of the Danish Government's commitment to support Egypt's efforts, a programme of future cooperation between the two countries is being agreed upon. The following areas of cooperation area agreed to be of high priority for Egypt, and preparations to implement these projects should therefore be initiated at an early stage.

A. Institutional support to the Egyptian Environment Affairs Agency:

In its efforts to combat the serious pollution problems facing the country, the Government of Egypt has drafted a new unified environmental law, which is now being discussed in Parliament with a view of its enactment in the very near future. As an important part of the new law, it is proposed to establish a Central Environmental Affairs Agency (CEA) to replace the existing Egyptian Environment Affairs Agency (EEAA). The new agency will be given increased authorities and duties.

As the agency will play a key role in the implementation of the Environmental Action Plan, the Government of Egypt and the Government of Denmark have agreed upon a comprehensive cooperation programme with the objective of strengthening the capabilities and capacities of the EEAA/CEA. The detailed planning of the complete programme will start immediately, and its implementation will be initiated as soon as possible. The programme agreed upon consists of several interdependent projects, which will be implemented as a coordinated effort.

1. EEAA/CEA Organizational Support Programme:

To make the maximum benefit from the vast Danish experience in environmental management, a key component of the support programme will be a general organizational development programme for EEAA/CEA in cooperation with the Danish National Agency for Environmental Protection (NEAP). This arrangement could include study tours for Egyptian experts to the NEAP and other relevant Danish and European environmental institutions, as well as the provision of expertise from NEAP and other institutions to support EEAA/CEA in different areas. This programme could be envisaged as an umbrella programme for the cooperation in the institutional field.

2. Environmental Education and Training Project:

The objective of this project is to establish a fully functioning Environmental Education and Training Unit within EEAA/CEA, to establish training plans in key environmental ministries and increase environmental awareness among the general public by pilot projects in rural governorates, in the public school system, with non-governmental organizations, with women's and religious groups and involving the mass media. The next step in the project preparation will be appraisal.

3. Hazardous Waste Project:

The amount of hazardous waste in Egypt is expected to increase five to ten times in the coming years. As the uncontrolled disposal of hazardous waste is causing immediate short-term public health problems as well as long-term environmental problems, it is agreed to establish a National Control System for Hazardous Waste Management. Possible Danish support will include institutional support for the department of hazardous waste management, within EEAA/CEA, as well as the building of legislation and a strategy for treatment and control. According to the proposal a pilot project for hazardous waste management will be implemented. It is further agreed to explore possibilities for carrying out a pilot project for the handling and treatment of hospital waste.

4. Environmental Impact Assessment and Clean Technology Project:

According to the proposed unified law it will be the responsibility of EEAA/CEA to approve environmental impact assessments on new investment projects within Egypt. Also, the use of clean technology is today an important element in any advanced environmental management system. To strengthen the capabilities and capacities within EEAA/CEA to carry out environmental impact assessments and develop clean technology principles and alternatives, the support will include establishment of a department for EIAs and clean technology in EEAA/CEA as well as comprehensive training and demonstrations of EIAs. Support for the establishment of a clean technology development fund has been suggested. A demonstration project for cleaner technologies will also be formulated.

5. Economic Incentives Studies:

Economic instruments are used all over the world as an efficient tool to enforce environmental policies. It is the purpose of this project to study the feasibility of using economic instruments as an aspect of environmental management in Egypt. The project will also include preparation of a workshop on

economic instruments and environmental management for representatives from relevant ministries and organizations.

6. Environmental Information Center:

The Government of Egypt is in the process of establishing an environmental information and monitoring network to coordinate and facilitate the collection of environmental information. The collection of reliable and relevant data on the environment and the sustainable use of natural resources will be improved, as well as the methods of data processing and analysis, and the capability to present environmental issues. It was agreed that coordination with other donors will be needed in order to avoid duplication. Copies of relevant documentations on other support programmes, including a planned CIDA project, will be made available prior to future project preparations.

An important part of this will be the establishment of reference laboratories for quality control of data, an air pollution monitoring system, a pollution source database and a coastal water monitoring system.

7. NGO Support Programme:

As involvement of the public in environmental management is given high priority all over the world as well as in Egypt, a support programme for NGOs will be carried out, including several specific pilot projects.

8. Aswan and North Sinai Environmental Action Plans and Environmental Departments:

In the efforts to implement the Egyptian Environmental Action Plan it is agreed to develop an environmental action plan for each of the Aswan, North Sinai and possibly Qena governorates. Each plan will include a description of the environmental problems in the governorate, as well as the necessary institutional support and proposals of specific investment projects. Of major importance in the context of the governorates' action plans will be the establishment of fully functional environmental departments, acting as arms of EEAA/CEA in the governorates, as outlined in the proposed unified environmental law. The projects shall function as general models for the development of local environmental administrations and the relation between the local and central authorities. Included will be training in all aspects of environmental management, awareness campaigns and specific demonstration projects.

B. Pollution Control in the Helwan Cement Factories:

One of the most serious pollution problems facing Egypt is the air pollution of the Helwan industrial area. The pollution, especially from the cement factories, is causing serious health problems for the inhabitants of the surrounding areas. To meet the urgent need for solutions to these problems the Government of Egypt has, in cooperation with DANIDA, GTZ and the World Bank, prepared a proposal for a comprehensive programme for pollution control on the Helwan cement factories. The governments of Egypt and Denmark are committed to seeking approval for this important environmental project as soon as project preparations have been finalized and agreements on pre-conditions have been reached.

C. Freshwater Resources:

The Egyptian Environmental Action Plan pointed out different human activities as major sources of pollution and causes for unsustainable development of freshwater resources. These activities include the discharge of untreated sewage and industrial wastewater into the Nile, canals, and irrigation systems, pesticides and fertilizers in runoff waters from agricultural waters and solid waste dumping in the canals. To meet these serious problems it is agreed to develop several projects in this area.

1. Combating Industrial and Municipal Wastewater Pollution of the Nile:

The Egyptian Environmental Action Plan has identified some of the major polluters of the Nile in the Aswan governorate. In continuation of the ongoing cooperation between DANIDA and the Governorate of Aswan, the parties have agreed, as a part of the Environmental Action Plan for the Aswan governorate to investigate further the possibilities for supporting pollution combatment in the local industries and other major polluters as may be identified.

2. Water Supply and Sanitation:

Presently, a team of experts is visiting Egypt to identify and prepare a project proposal for additional Danish support to Water Supply and Sanitation in Qena Governorate in Upper Egypt. A proposal for the implementation of an integrated water and wastewater project similar to the project in Edfu supported by DANIDA is being reviewed.

D. Marine Resources and Coastal Zones:

The Egyptian Environmental Action Plan identified marine pollution as one of the areas of most serious concern, pointing out several problem areas, caused mainly by human activities, and threatening tourist development. Among these are the discharge of untreated sewage and industrial wastewater into the lakes and coastal waters, oil spills and slicks caused by ships, oil platforms and refineries, and coastal erosion problems. It is agreed to develop various projects to deal with these severe problems.

1. Coastal Zone Management Plan for the Mediterranean Coast:

To meet the erosion problems along the Mediterranean Coast, DANIDA and the Egyptian Shore Protection Authority have cooperated to develop a plan for protecting that coast. It has been agreed to prepare a proposal for a project to develop a coastal zone management plan for parts of the Mediterranean Coast. The plan will include recommendations for building activities along the coastline wastewater pollution, sewage discharge, oil pollution, etc., and will propose the necessary institutional strengthening as well as specific investment projects.

2. Establishment of Shore-Based Oily Water Treatment Facilities in Suez and Alexandria:

Since Egypt has ratified the international convention for the prevention of pollution from ships, the port authorities are actively considering taking effective measures to comply with this most ambitious international treaty. Previous measures taken were found in practice to be inadequate due to the increasing scope of the problem. Therefore, its is proposed to establish shore-based treatment facilities, to treat oily water collected offshore. It is proposed to establish these facilities at Suez and Alexandria, both being major ports.

3. Updating of Oil Contingency Planning:

In response to the national consensus that Egyptian coasts and waters should be kept clean and unpolluted, the National Oil Spill Contingency Plan has been developed and approved by the prime minister in 1986. In order to achieve effective implementation, there is a need to review and update the National Contingency Plan to give maximum benefits to cope with the ever-increasing shipping and offshore oil activities in both Mediterranean and Red Sea coastal areas.

4. Lake Manzala:

Lake Manzala is the most important of the large Egyptian lakes in relation to fisheries. The lake is under pressure from sewage and industrial pollution, sea level rise, change in water supply and different construction activities. To secure a balanced and sustainable development of the lake, it is agreed to develop a management plan for it. In parallel, cooperation will take place for the implementation of the necessary immediate actions.

E. Solid and Hazardous Waste:

1. Hazardous Waste

Implementation of the national control system for the management of industrial hazardous waste, as developed under A.3 above, in a pilot sector or area to be agreed upon. This would include pilot and demonstration projects and new facilities for the treatment and safe disposal of hazardous waste. (Refer to A.3 above.)

2. Hospital Waste:

Hospital waste are mostly disposed of with municipal waste with no precautions taken. This poses a serious hazard for the spreading of infectious diseases among not only the collectors and site disposal workers but also the surrounding communities. Assistance to upgrade and modify existing collection and treatment/disposal systems and to establish new systems has been agreed upon (Refer to A.3 above.)

3. Biogas Production:

Municipal and agricultural waste could be used to produce biogas, thus developing a new and renewable source of energy for Egypt, as well as utilizing great amounts of waste; the compost obtained as a by-product can also be used as fertilizer or soil conditioner. As included in the National Environmental Action Plan, a plan for the development of biogas production from agricultural and municipal waste for energy generation is needed. Implementation of pilot/demonstration projects in the Qena/Aswan and North Sinai sectors will be an integral part of this action.

Conclusions

The Government of the Arab Republic of Egypt, as represented by the Egyptian Environment Affairs Agency, is committed to develop the necessary project proposals. The Government of Denmark based on the proposals will send experts to develop the projects in cooperation with Egyptian experts.

The two delegations agreed that the Egyptian-Danish Environmental Seminar taking place in connection with the visit provides a good opportunity for further enhancing the cooperation in the environmental fields, and in identifying other areas for Egyptian-Danish cooperation and suitable project proposals. As a result of this seminar, the two delegations agreed that a detailed programme for further preparation of projects should be developed.

The two delegations stated that all financial commitments made in the present Summary Record of Discussions are subject to the final approval by their respective Authorities.

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Arab Republic of Egypt

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For the Government of
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Appendix E: Sample Course Description and Outline

Evaluating the Economics of Investments in Pollution Prevention in State and Private Enterprises

Shifting from pollution control to pollution prevention in state and private industrial enterprises is essential to maintain both competitiveness and environmental quality. However, evaluating the profitability of pollution prevention investments is often impaired by conventional analytical methods that fail to capture all relevant costs and savings (both direct and indirect) to allocate them to specific process and product lines and to track them over a sufficiently long time horizon. Modifications to these methods will give enterprise managers a clearer view of both the real costs of current production practices and the potential profitability of a prevention-oriented environmental management strategy.

Course Description

This course introduces the general concepts of pollution prevention, specific prevention case studies, and basic capital budgeting and finance concepts. In addition, a spreadsheet software package, Pollution Prevention/Financial Analysis and Cost Evaluation (P2/FINANCE), is used to introduce participants to a tested and systematic approach to assessing investments in pollution prevention and waste minimization. Participants gain hands-on practice with actual case studies to familiarize themselves with the software and with project data they bring to experiment with the software. Copies of P2/FINANCE and a user's manual are made available to all participants.

This four-day course is designed for general managers, environmental managers and production engineers from state and private enterprises, government officials responsible for pollution prevention or reduction, and representatives of research institutions and NGOs interested in improved approaches to industrial pollution management. Minimal knowledge of financial analysis/capital budgeting and spreadsheet use is required. Participants should number approximately 20.

Course Outline

Day 1: Introduction. Review of course objectives and participants' background and expectations; introduction to basic concepts of industrial pollution management, both organizational and technical; definitions of and differences between end-of-pipe pollution control, reuse/recycling, pollution prevention, and toxics use reduction; introduction to case studies of pollution prevention in industries important to Egypt.

Day 2: Concepts of Finance and Capital Budgeting. Basic concepts of financial versus managerial accounting; compiling and managing data for investment decision-making; capital budgeting process; Total Cost Assessment (TCA) concepts; issues of cost inventory, cost allocation, time horizon, and profitability indicators in relation to pollution prevention investments.

Day 3: Introduction to P2/FINANCE. Further review of costs, savings, and revenues relevant to pollution prevention projects; comparison with conventional cost-accounting approaches; introduction to P2/FINANCE spreadsheet format; initial hands-on practice with spreadsheet, including data classification, entry, and indicator interpretation.

Day 4: Applications. Review of case studies of financial analysis of pollution prevention projects; entry of project-specific data for pending investments brought by participants; discussion of special analytical issues related to Egyptian economic and legal conditions; review and discussion of results; summary discussion and plans for next steps for applying TCA concepts at participants' enterprises.

Equipment Requirements

Participants need access to an IBM-compatible 286 computer (386 or higher preferred) or a PS2 with an 80286 or higher processor, with a minimum of 5.2 MB hard disk space and 2 MB RAM and a high-density (1.4 MB) floppy disk drive (preferably 5.25 inches). The operating system should be MS DOS or PC DOS version 3.10 or higher. The video adapter should be an IBM compatible EGA/VGA 8514/A or any video adaptor supported by Microsoft Windows 3.0 except for CGA. Each computer should also have a mouse. Ideally, there should be at least one computer for every two participants and one computer for the instructors. At least one graphics printer (such as an HP Laserjet) should be available. If possible, the following software should be installed on each computer: MS Windows Graphical Environment, version 3.0 or higher and Excel for Windows, version 3.0.

Other equipment requirements include a hand-held calculator for each participant and an overhead projector.