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**Options for Strengthening Egypt's Support for
Environmental Financing**

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Preface

The Options Paper team would like to express its appreciation and gratitude for the guidance and cooperation provided by Dr Ibrahim Abdel Gelil Chairman of the Egyptian Environmental Affairs Agency (EEAA), staff of the EEAA, staff of the Organizational Support Programme and Mr James Goggin and Ms Salwa Wahba from USAID/Egypt

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Acronyms

BLC	Bank Line of Credit
CAP	Compliance Action Plan
CEE	Central and Easter Europe
CEO	Chief Executive Officer
CGC	Credit Guarantee Company
CIDA	Canadian International Development Agency
CLP	Cooperative Loan Program
EEAA	Egyptian Environmental Affairs Agency
EESA	Egypt Environmental Sector Assessment
EPAP	Egyptian Pollution Abatement Project
EPF	Environmental Protection Fund
EPIQ	Environmental Policy and Institutional Strengthening Indefinite Quantity Contract
FDI	Foreign Direct Investment
GOE	Government of Egypt
ICU	Industrial Compliance Unit
LEF	Local Environmental Funds
NGO	Non-governmental Organization
PAAP	Pollution Abatement Action Plan
SLF	Soft Loan Facility
SME	Small and Medium-sized Enterprise
USAID	United States Agency for International Development
WTO	World Trade Organization

Executive Summary

The Government of Egypt (GOE) has made a strong commitment to mitigation of threats to its natural resources and environment. Law 4 enacted in 1994 established the Egyptian Environmental Affairs Agency (EEAA) and provided for regulation of air pollution, hazardous waste management and marine pollution. Key challenges facing the GOE will be to ensure compliance with new, stricter regulations and facilitate or directly support environmental investments.

Costs of Compliance

EEAA has estimated that industry would need to invest from LE 10 billion to LE 12 billion to meet Law 4/1994 compliance requirements. Some feel that these estimates, which were developed on the basis of survey responses, are underestimated. Whether the potential investment costs are higher or not, the **current** level of investment suggests slow progress in meeting the environmental compliance goal unless the demand for financing is increased.

Increasing the Demand for Environmental Investments

Demand for financing reflects the willingness of owners to undertake investments usually in response to the relative costs of the investment compared to the costs of non-compliance (such as penalties and other economic sanctions). Many environmental investments represent net costs to the facility, but there also may be some "win-win" investments that could be undertaken by facilities which simultaneously reduce pollution while lowering production costs. While there have been some promising developments in Egypt's efforts to increase demand, these efforts will need to be sustained and expanded. Factors driving environmental investment in Egypt include:

- ***Environmental compliance requirements*** - Most environmental violations go undetected and past enforcement programs have had only a minimal role in determining the level of investments. The EEAA is in the process of developing its compliance program through the Industrial Compliance Unit and targeted groups will be among the first to seek out environmental finance programs.
- ***Industry awareness of compliance requirements*** - There has been a lot of publicity about Law 4/1994 and industry awareness has increased significantly.
- ***Industry capacity to plan and implement compliance requirements*** - Anecdotal information suggests that the domestic environmental services industry is small relative to what demand might be with increased interest in compliance investments. Currently some donor programs provide technical assistance but they will most likely be inadequate to meet demand in the near future.
- ***Privatization and restructuring of industry*** - Egypt's public sector restructuring and privatization program can be expected to stimulate the demand for environmental investment because enterprises being prepared for privatization should be motivated to comply with Law 4/1994 so as to be more attractive to potential investors and newly privatized enterprises may be in a better financial situation to invest.

Availability of imported and domestic pollution control equipment - The generally higher cost and time involved in importing environmental equipment could act as a deterrent for industry to make environmental investments

Environmental performance requirements in the global market - Egypt's economy continues to restructure and open up trade increasing industry's desire to export. For some markets exporters will need to meet with international environmental requirements

Sources of Financing for Environmental Investments

In reviewing the existing and potential financial sources for environmental investments in Egypt there are a number of similarities to the experiences of developed countries -- particularly during the earlier stages of their compliance programs -- as well as the transition economies of Central and Eastern European (CEE) countries. Generally, although these countries adhere to the *Polluter Pays Principle* "soft" sources have played a significant role in environmental financing in both the public and private sectors.

Developed Countries

The majority of environmental investments in the private sector have been financed from the enterprise's own resources or from capital raised in the form of equity or credit. However concessional or soft financing or indirect subsidies such as investment tax credits were often used during the early stages of environmental compliance programs. For the public sector, subsidies have played an important role in the development of environmental infrastructure services such as drinking water, wastewater treatment and municipal solid waste, mostly in the form of grants from central regional or municipal governments. However, many subsidies have been reduced or eliminated over the last twenty-five years.

CEE Countries

In the transition economies financing of environmental infrastructure in recent years has relied to a great extent on concessional financing provided by environmental funds and international financial institutions rather than on expenditures from state and local government budgets. Although the private sector has had access to soft financing provided by environmental funds the largest share of fund resources has gone to public sector projects. In the more advanced transition economies (i.e., Poland, Czech Republic), there has been a gradual shift to smaller subsidies and greater reliance on the polluter's own resources.

Egypt

Public sector enterprises have historically sought financing either from their holding company or from one of the four major public sector banks. Today, public sector enterprises no longer qualify for special borrowing privileges from public banks and holding companies provide funds at their discretion. For the private sector small and medium-sized enterprises, in particular, may require soft financing. A recent study reports that Egypt's commercial banks are holding more than L.E. 189 billion in cash for loans (EPAP, 1998), and banks have expressed interest in supporting environmental "soft" loans, where interest rates are subsidized by another party and/or another institution serves as guarantor of bank loans. There are a few specific financing programs targeting environmental investments most sponsored by donors with funding levels that limit the number of enterprises they can assist.

Environmental Protection Fund (EPF)

The EPF authorized by Law 4/1994 has the potential to be a focal point for environmental finance in Egypt. The Minister of State for Environmental Affairs will appoint a nine-member Management Committee to supervise the EPF and take decisions on disbursement of the EPF's resources. EPF resources are earmarked for specific purposes and surplus EPF funds can be carried over to the following year. Among the spending objectives enumerated in the Executive Regulations are the following pilot projects: addressing pollution of unknown or non-specific source; co-financing of environmental protection projects undertaken by local administrations or NGOs; pollution prevention projects; and other environmental protection activities approved by the Management Committee and Minister. EPF resources have so far been used to defray capital and operating costs for the EEAA.

The Executive Regulations allows the EPF to accept several potential types of revenues. These include a variety of domestic fees, fines, and taxes; budget allocations; grants from national or foreign agencies; and revenues from demonstration projects undertaken by the EEAA. In addition, the unspent financial resources of the Protectorate Fund (established in 1983) were authorized for transfer to the EPF. To date, few of these sources have contributed to the EPF's working capital. Brief analyses of selected sources are provided below:

- *Fines or compensation for environmental damage* - Fines collected have been solely for marine damage, which is subject to a unique collection procedure. Fines could also be collected for other violations of Law 4/1994, but several legal and administrative procedures would need to be in place.
- *12.5 percent of airline ticket tax revenues* - To date, no revenues from the tax have been transferred to the EPF (or the EEAA). Such transfer requires action by the inter-ministerial committee that manages this fund.
- *Revenue from permits issued by the EEAA* - Legally, no permit can be issued or tax levied in Egypt unless it is specifically allowed in a law, and Law 4/1994 lacks any reference to permits that may be issued by the EEAA. Accordingly, this source of revenue is nonexistent and although mentioned in the law was excluded as a source in the fund regulations.
- *State budget allocations* - While the EEAA receives annual budget allocations from the central government, to date there have not been any central government allocations directly to the EPF.

EPF Policy and Management Issues

Potentially, the EPF can play a greater role in providing soft financing in support of environmental investments. To play this role, the EPF will need to consider a number of issues in designing such programs: strengthen its capacity to identify, assess, and select projects and identify, evaluate, and design disbursement mechanisms.

Policy Issues

The Fund's Management Committee could set priorities for different categories of spending, or establish spending priorities to respond to the needs of specific groups, such as SMEs. The EPF may want to consider targeting its financial support for projects which reduce specific pollutants or compliance requirements in certain industries, or address specific media or

geographical areas. Such priorities can be incorporated into project eligibility criteria or reflected in appraisal criteria. The EPF also can stimulate the expansion of domestic sources of financing by making commercial credit attractive to facilities by defraying some of their cost. Whenever possible, new programs should rely on existing channels to offer the program to the target audience. Finally, the EPF should plan to monitor the financial needs of polluters, and adjust the level and form of support to ensure public resources are used effectively.

Project Cycle Management

The need for the EPF to develop and implement project cycle management procedures depends on the type of program(s) adopted by the EPF. For a typical disbursement program, the Fund would receive applications for financial support, appraise and select the worthiest projects, negotiate contracts with recipients, and monitor implementation. The scope of appraisal may include technical and financial review depending on the type of disbursement mechanism. To the extent possible, project cycle management should be transparent to applicants and ensure a high level of accountability, reflected in the selection of projects based on clear, objective criteria, free from political influence. If procedures adhere to the *St. Petersburg Guidelines*, developed for CEE environmental funds (or other international standards), the EPF may be able to entice donors to provide future grants directly to the EPF instead of creating separate financing programs.

Selected Options for EPF Financing Programs

Five disbursement options are proposed for consideration by the EPF and EEAA. These can be implemented individually or in combination, depending on the Fund's priorities, financial resources, and staff capabilities.

Grant program

A grant program is the simplest type of program to implement and involves awarding subsidies (without repayment) to cover up to 100 percent of project costs. The EPF would require staff to receive and review applications, draft contracts, and monitor implementation of projects. A grant program can be implemented with a small staff provided the fund has access to technical expertise to appraise applications.

Soft loan facility

A soft loan facility (SLF) is a program that provides loans to qualified borrowers at terms and conditions that are attractive relative to those available from commercial sources. The borrower is still required to repay the principle and interest of the loan. SLFs are also known as "revolving" funds because the working capital is replenished as borrowers repay loans. The EPF is not legally empowered to make loans or to receive income from loan repayments, but the SLF could possibly be developed as a "pilot" project.

Cooperative loan program

Under a Cooperative Loan Program (CLP), the EPF would provide subsidies to soften loans managed and financed by participating banks. For example, the EPF might provide specific interest rate subsidies, a range of interest rate subsidies that vary according to project size or the applicant's financial situation, or payment of an administrative fee to compensate the participating bank for providing a grace period or longer repayment schedule than would be

typical for commercial loans of the size proposed. Under a CLP the technical and financial appraisals would be conducted by the EPF and participating bank, respectively.

Bank line of credit (and loan guarantees)

A variant of the CLP described above is a Bank Line of Credit (BLC). The EPF would not participate in evaluating individual projects, but would establish eligibility and technical criteria which the bank would consider in evaluating applications. The EPF could also provide loan guarantees for investments undertaken by SMEs or other investments which banks deem to entail unacceptable levels of risk.

Local environmental funds

Local environmental funds (LEFs) would apply to the EPF for a matching grant to co-finance projects selected by the LEF for support. LEFs have not been established in Egypt, however the 10th of Ramadan industrial city is considering such a program funded by local pollution charges. Although pollution charges have not been authorized at the national level, it appears they may be more easily implemented on a voluntary basis at the local level.

Options for EEAA Environmental Finance Support

There are a number of related activities that EEAA can pursue to improve the overall situation for environmental investments in Egypt including support for project preparation, awareness programs, compliance program development, and bank training. These are briefly described below.

Project Preparation Support

EEAA could work with donors to target technical assistance to support the preparation of environmental investments. To increase the availability of Egyptian technical expertise in project preparation a training program could be developed in association with a donor and perhaps also a certification program for environment specialists.

Availability of affordable technology

To encourage further development of a domestic environmental technology sector, financial programs may provide a catalyst to both existing and start-up environmental technology firms. An EEAA office could work with start-up or transitional consulting companies to help them identify a market niche and potential customer base to which they can market their services. In addition a financial incentive could be offered to vendors of environmental technology, either through the EPF or a donor program.

Compliance Financing and Monitoring

Enforcement could target industries according to environmental and financial criteria, and financial incentives (such as EPF concessional financing) could be used strategically in combination with the threat of non-compliance sanctions. To develop such targeted enforcement programs a background study could be conducted to estimate the potential cost of all investments that will be required to comply with environmental regulations and facilities' access to capital. As

an alternative to a large-scale study sector specific studies could be completed in coordination with upcoming compliance programs

Awareness Programs

The EPF and the EEAA can play a role in increasing facilities' awareness of financing programs offered by the EPF as well as by donors. Information could be compiled on all available sources of environmental finance and incentive terms published in a handbook for industry, or made available on the Internet.

Bank Training

To assist banks in developing mechanisms to evaluate environmental financing applications, training could be conducted and coordinated through one of the banking associations or established training programs.

Chapter 1

Introduction

The Government of Egypt (GOE) has made a strong commitment to mitigation of threats to its natural resources and environment. Law 4, enacted in 1994, established the Egyptian Environmental Affairs Agency (EEAA) and provided for regulation of air pollution, hazardous waste management, and marine pollution. In combination with previously enacted legislation concerning water pollution (primarily Law 48/1982), Egypt now has a full slate of legislation for addressing pollution problems.

In 1997, the United States Agency for International Development (USAID) requested the Environmental Policy and Institutional Strengthening Project (EPIQ) Consortium to conduct an assessment of the environmental sector in Egypt. Main findings of the report, titled *Egypt Environmental Sector Assessment* (EESA), related to the goal of reducing pollution included the need to strengthen institutional capabilities to develop and implement environmental policies, improve compliance incentives for polluters, and address deficiencies in industry's awareness of compliance requirements. These issues, if addressed, would result in a more effective compliance strategy. However, the potential success of such a strategy will depend importantly on the capacity of the regulated community to identify, plan, finance, and implement compliance investments.

This report is intended to assess the current state of environmental finance in Egypt, identify gaps in existing programs, and propose options for addressing areas that need improvement. It was prepared for the EEAA to help them strengthen existing programs and support new programs for environmental finance, both independently and in cooperation with donor programs. The findings and proposals included in this report are based on interviews with key individuals from the public and private sectors in Egypt, as well as review of relevant documents. It is intended that these options will provide a basis for discussion and eventual design of specific initiatives to improve the state of environmental finance. Those options ultimately pursued will require additional research prior to implementation, further specifying design details that will lead to maximum effectiveness.

To realize overall environmental improvement, it will be necessary to stimulate both the demand for environmental investments and expand the supply of available funds targeted for these types of investments. For this reason, we examine both demand- (Chapter 2) and supply-side issues (Chapter 3) in this report and identify existing or projected gaps between the two. These gaps represent the areas where new financing programs can be most effective.

Law 4/1994 also provided for the establishment of the Environmental Protection Fund (EPF) within the EEAA as a mechanism for financing environmental activities and programs of the EEAA. The EPF can potentially be used to provide concessional or "soft" financing for investments undertaken by facilities to meet compliance requirements. The EPF is described in Chapter 4.

In Chapter 5, a range of options for the EPF to provide soft financing for projects are presented. These include expanding the role of the commercial financing sector, and developing financing programs for specific sectors or local communities. This chapter draws on the experiences of Central and Eastern European (CEE) countries, which have utilized soft financing to increase the level of environmental investment. Finally, Chapter 6 describes complementary programs that EEAA could implement to encourage environmental investments.

Four annexes are provided with the main report. Annex 1 provides a more detailed discussion of demand and supply concepts and terminology. An overview of CEE experiences with environmental finance is provided in Annex 2, and Annex 3 describes specific environmental finance programs in Egypt, aside from the EPF. Annex 4 provides a list of meetings and the agenda and participant list for the workshop on "Best Practices in Environmental Finance Options for Egypt" held on April 28, 1998.

Chapter 2

Demand for Environmental Financing

The concept of demand for financing reflects the willingness of owners to undertake investments, usually in response to various financial incentives (see discussion of demand and supply in Annex 1) For most owners, the most important incentives relate to potential profits that the owner expects to earn from the investment For *environmental* investments, this incentive is typically weaker than for profit-motivated investments, except for “win-win” investments, which reduce pollution and reduce production costs (see Annex 1, Box 1) Generally speaking, the more important financial incentive to undertake environmental investments relates to the avoidance of non-compliance sanctions For example, an investment, which achieves compliance, will enable the facility to avoid penalties and other sanctions such as temporary closure and litigation costs For pollution that results in damages to other parties or natural resources, these sanctions could include third party compensation payments and clean-up costs In addition, there may be other financial and non-financial incentives that motivate facilities to undertake environmental investments including avoiding potential trade barriers, improved market access conveyed by ISO 14000 certification, and concerns about the facility’s image in the community

In many developing countries and economies in transition, demand for environmental financing is low, largely as a result of lax enforcement and ineffective financial penalties for non-compliance Even if financing for investments is abundant, a limited number of investments will be undertaken by facilities if there is no motivation for them to do so This chapter provides a general discussion of demand shifters and characterizes the factors driving demand for environmental investment in Egypt

2.1 Demand shifters

In any country, a number of factors can increase the demand for environmental financing Most important are those that alter the incentive structure of facilities, thereby increasing the benefits of undertaking investments Key demand shifters are briefly described below

2.1.1 Increasing the costs of non-compliance

From a facility’s viewpoint, the costs of non-compliance are a function of two primary factors the magnitude of the penalty and the probability the penalty will be levied Typically, penalties for non-compliance vary according to severity and duration of the violation and the facility’s history of violations In most countries, there is a maximum penalty for each type of violation, but there may be a range of penalties that are levied by the environmental authorities The probability that a penalty will be levied stems from several intermediate probabilities the odds that the violation will be detected, that the EEAA will decide to seek penalties, and that the penalties will be adjudicated, assuming the facility has recourse to, and decides to, challenge the sanction If the product of these

probabilities is close to zero, facilities will not view non-compliance as having a significant economic consequence, even if the potential penalty amount on paper is very large

Increasing the financial consequences of non-compliance depends importantly on the quality of the compliance monitoring (or enforcement) strategy implemented by environmental authorities. Components of an effective enforcement strategy include clear, unambiguous laws and regulations, authority to levy penalties, staff resources and capabilities to conduct inspections and detect violations, as well as political commitment to levy and collect penalties. In addition, facilities must have an adequate understanding of their compliance requirements and the potential economic implications of non-compliance.

2.1.2 Increasing the benefits of environmental investments

As noted earlier, there are certain types of environmental investments that reduce pollution and have positive rates of return. These include energy efficiency, waste minimization, and process change projects. In addition, even if investments do not have positive rates of return by themselves, it may be possible to minimize net costs through the adoption of improved and lower cost technology and through regulatory flexibility (i.e., through use of economic instruments) which allows the facility to consider a range of control options.

To increase demand for win-win investments, there are two primary demand shifters. First, government policies on pricing natural resources, especially energy, affect the magnitude of potential cost savings resulting from energy efficiency investments. If energy prices are artificially low because of subsidies, the potential savings from using less energy are reduced. Second, facilities must be able to identify, develop, and assess alternative investments. In developing countries and economies in transitions, lack of information and capacity to implement win-win investments is one of the major limitations in expanding demand for these investments.

Provisions for the use of economic instruments in environmental management can also increase demand for investments. For example, mechanisms such as emissions netting and bubbles¹ can provide facilities with the flexibility to minimize compliance costs by controlling some but not all sources. Pollution charges², if set appropriately, may

¹ Emissions netting involves facility-wide emission limits rather than limits on individual sources. For example, a facility might be required to limit particulate emissions to say 1000 tons from the facility rather than 200 tons for each of 5 sources. This enables the facility to *overcontrol* for some sources, *undercontrol* for others, so as to minimize total control costs. A bubble is similar to netting, but involves more than one facility. The critical assumption required for both emissions netting and bubbles is that there is adequate mixing of pollutants in air or water so that undercontrolling one source does not result in adverse environmental or health effects.

² Pollution charges are levied on pollution discharges and emissions and are usually levied as a charge per ton of pollutant. They are used in many countries, and especially in Central and Eastern European Countries to generate revenue for environmental funds (see Annex 2). Without exception, pollution charge rates are not set high enough to encourage facilities to reduce pollution to desired levels in the absence of regulations, but may encourage facilities to implement low cost controls.

encourage facilities to reduce pollution below levels mandated in regulations, provided the incremental costs of control is less than the charges on pollution

2.1.3 Other demand shifters

As developed countries have required higher and higher levels of environmental performance from their companies, concerns have emerged that companies engaged in international trade will not be competing on a *level playing field*. In the environmental context, a company that is not required to meet environmental standards in its country will, *ceteris paribus*, have lower production costs than a competitor required to meet standards. This disparity could lead to the imposition of trade barriers. Alternatively, on a voluntary basis, a company may obtain ISO 14000 certification, which has ramifications, both for the environmental performance of the company but also other companies that supply goods and services to the company. These demand shifters relate more to the overall environmental performance of the facility but have some relationship to specific compliance investments. In addition, to participate in international markets, facilities may need to achieve a higher standard of environmental performance than is currently required in their own country.

Another potential demand shifter relates to public awareness in the community where a facility operates. While the community may be unable to pressure environmental authorities to increase enforcement efforts, they may be able to put pressure on facilities to address environmental problems that threaten the health and environment for workers and members of the community. Certain industrial enterprises would take action to reduce pollution simply because it is the right thing to do. The aesthetic and health impacts of industrial pollution are obvious in many ways to those who live and work in the community, and responsible industrial leaders will seek ways of using available resources to reduce these impacts. Some see this role as a "moral responsibility."

2.2 Demand shifters in Egypt

In a report prepared by the Egyptian Pollution Abatement Project (EPAP), it is estimated that Egyptian industry is currently comprised of approximately 600 publicly held companies producing approximately 40 percent to 50 percent of industrial goods, and several thousand private companies producing the remainder (EPAP Finance Report). In total, there are about 26,000 industrial facilities with more than 45 percent located in Cairo and surrounding areas, about 40 percent in Alexandria, and the remainder in other parts of Egypt, including several new industrial cities. (The reader is referred to the EPIQ Egypt Environmental Sector Assessment for more detailed information on industry and its pollution problems.)

To date, there are only rough estimates of the potential cost to Egyptian industry to meet Law 4/1994 compliance requirements. A study conducted by the EEAA in 1997 surveyed 800 industrial enterprises about environment activities, including investment. Of the 250 replies, 150 provided investment figures. According to extrapolations by EPAP, industrial enterprises had invested about LE 3 billion during the period of 1994-1997. The same survey asked about future investment needs specifically the cost of achieving

compliance with Law 4/1994, and EPAP extrapolated from the responses that industry would need to invest from LE 10 billion to LE 12 billion to achieve compliance. By way of comparison, the estimated investment cost for CEE countries to achieve environmental quality similar to developed countries is US\$ 134 billion (EDC, 1997). It seems likely that the estimates for Egyptian industry to comply are significantly underestimated, particularly if wastewater treatment is included. In light of the difficulty in developing accurate cost estimates of industry demand, it is useful to instead examine the factors that will drive investment as a way of judging its significance.

2.2.1 Environmental compliance requirements

Beginning in 1962, Egypt has promulgated twelve environmental laws that govern the control of emissions and discharges harmful to the environment and human health (see Table 1). Standards for wastewater discharges are addressed in Law 93/1962 and Law 48/1982 while standards for air emissions, ocean dumping, noise pollution, hazardous substances and handling are covered in Law 4/1994.

To date, the GOE has had limited success in implementing environmental enforcement strategies. Most violations go undetected and strict adherence to requirements is not pursued. For example, the water laws create a system of wastewater discharge permits "but in reality no effective implementation or enforcement has ever taken place" (EPIQ, 1998). Responsibility for monitoring and enforcement is often fragmented, there is often a lack of inter-agency coordination and mechanisms to facilitate such coordination, and there is limited structure or capacity at the national or regional levels to undertake enforcement actions (EPIQ, 1998). While Egyptian law includes provisions for penalties and other sanctions such as facility closures, these tools have not been used extensively. Overall, past enforcement programs have had only a minimal role in determining the level of demand for investments in Egypt.

However, there are prospects for strengthening enforcement of compliance requirements in the future. Law 4/1994 required that industries comply with all existing regulations by February 28, 1998, although there were provisions for facilities to request extension of the compliance date. The EEAA, the government agency in charge of enforcing Law 4/1994, is in the process of developing its compliance program through the Industrial Compliance Unit (ICU) in EEAA. Initially, this program will involve a cooperative approach with industry by supporting them in the preparation of compliance action plans (CAPs) that describe measures facilities plan to implement to comply with Law 4/1994. The approach for the near term is to work with large facilities and the trade associations to encourage CAP development and subsequent investments. Supporting this process is the EPAP, a six-year program begun in 1997 by the EEAA in cooperation with FINNIDA, to provide technical and institutional support to industry for compliance with Law 4/1994 (EPAP, 1998). There are several diverse activities under this program. Select technical and institutional support activities include

Table 1 Principal Environmental Laws, Decrees and Regulations

Environmental Law	Date	Authority	Decrees/Regulations	Implementing Agency
Law No 4 on Environment	1994	Establishment of EEAA and Environmental Trust Fund, requirement of EIA, regulation of air pollution, hazardous waste management, and marine pollution	Decree No 338 of 1995 (Executive Regulations)	Ministry of State for Environmental Affairs EEAA
Law No 117 on Cultural Heritage	1983	Preservation and management of cultural heritage	Presidential Decree No 2828 of 1971 (cultural heritage)	Ministry of Culture SCA
Law No 102 on Natural Protectorates	1983	Designation and management of natural protectorates	Decrees designating sites	MOEA EEAA
Law No 124 on Fisheries	1983	Management and protection of fisheries and marine animals		Ministry of Agriculture and Land Reclamation
Law No 48 on Protection of Nile and its Waterways	1982	Control of pollution of surface waters	Decree No 8 of 1983 (standards for wastewater discharges to surface waters)	Ministry of Public Works and Water Resources
Law No 137 on Labor	1981	Control of work place safety and environment		Ministry of Manpower and Immigration
Law No 27 on Public Water Sources	1978	Protection of public water sources for drinking and domestic purposes	Decree No 27 of 1966 (Supreme Committee for Water) Annex IV of 1975 (Standards for potable water)	Ministry of Health and Population Supreme Committee for Water
Law No 31 on Public Cleanliness	1976	Control of solid waste management (amends Law No 38 of 1967)		Ministry of Housing, Utilities, and Urban Communities
Law No 66 on Transport Air Pollution	1973	Control of air pollution from transportation sources	Decree No 864 of 1969 (Supreme Committee) Decree No 470 of 1971 (ambient air standards)	Ministry of Health and Population Supreme Committee for Protection of Air
Law No 38 on Public Cleanliness	1967	Control of solid waste management (including hazardous waste)	Decree No 134 of 1968 (waste from domestic and industrial sources)	Ministry of Housing, Utilities, and Urban Communities
Law No 53 on Agriculture	1966	Regulation of purchase, importation, and handling of pesticides	Decree No 50 of 1966 (registration and licensing requirements)	Ministry of Agriculture and Land Reclamation
Law No 93 on Wastewater and Drainage	1962	Control of wastewater discharges and drainage to public sewers	Decree No 643 of 1962 (standards for wastewater discharges to public sewers)	Ministry of Housing, Utilities and Urban Communities

- Technical assistance to Regional Branch Offices in Greater Cairo, Alexandria, and Suez Canal Cities
- Developing a general inspection manual
- Developing pollution abatement action plans (PAAPs) with 50 major pollution industries
- Initially, targeting three categories of small and medium-sized enterprises (SMEs) iron foundries, tanneries, and brick kilns

The EEAA plans to maintain pressure at a stable level and to evaluate the progress of this approach by the end of 1998 to decide if there is any need to modify the approach. The groups targeted by the ICU program can be expected to be among the first to seek out environmental finance programs once they have completed the CAP (or PAAP) development process.

2.2.2 Industry awareness of compliance requirements

Familiarity with Law 4/1994 and its requirements is an obvious first step towards industry assessing their pollution sources and preparing CAPs. For this reason, demand will be impacted by the extent to which there are outreach activities to inform industry and the general public about Law 4/1994. In the last few months, there has been a lot of publicity about Law 4/1994 and there is general agreement among parties interviewed for this report that industry awareness has increased significantly. This point is validated by the fact that the EEAA has received several calls from facilities wanting to prepare CAPs.

In addition, the EEAA recently wrote to industrial enterprises concerning the deadline for compliance with Law 4/1994. This seems to have stimulated a great deal of interest and one result is that some industrial associations are taking the lead in helping their members develop CAPs.

2.2.3 Industry capacity to plan and implement compliance requirements

Before industry is in a position to invest in pollution control, they must first understand what is required to address their specific pollution problems. Industrial managers have indicated they need help with

- identifying pollution control needs,
- exploring options for pollution abatement including cleaner production and energy efficiency investments,
- completing a cost analysis of options, and
- preparing the project for financing

In addition to Egyptian environmental services companies working in this area, there are currently some donor programs designed to provide technical assistance, but they will most likely be inadequate to meet industry demand in the near future. In addition, support from current sources is most likely concentrated in the first two areas listed above, with the other two suffering from a lack of available assistance.

There are no hard data, but anecdotal information suggests that the domestic environmental services industry is small relative to what demand might be with increased interest in compliance investments. There are specialists in the environmental audit market which, according to some, are too "academic" and do not provide realistic, affordable options, but rather overly complex, expensive ones.

With respect to donor-funded programs, the Canadian International Development Agency (CIDA) is financing a new program to assist SMEs with environmental audits and implementation, as well as green business development. As discussed above, the EPAP program will provide technical support to 50 large industries and SMEs in certain industries. Also, the EPAP program recently conducted training sessions on CAP development that were well received. There are no immediate plans to do additional training sessions, but they are trying to incorporate such training into established general management training programs in Egypt, such as the Management Center for Industry.

2.2.4 Privatization and restructuring of industry

Egypt's public sector restructuring and privatization program, begun in 1991, involves privatizing dozens of public sector enterprises which, as discussed in Section 2.3, are among the largest contributors to pollution in Egypt. The GOE's privatization plan for 1998 consists of privatizing wholly or in part 50 affiliated companies in 10 Holding Companies, with an estimated 1991 book value of LE 9.3 billion (15 percent of the total 1991 book value of Law 203 companies). In 1997, Egypt's public sector banks rescheduled or forgave the debt for many public sector enterprises, thus improving their financial situation.

Privatization can be expected to stimulate the demand for environmental investment in two ways. First, those enterprises being prepared for privatization should be motivated to comply with Law 4/1994 so as to be more attractive to potential investors. International investors, in particular, may want enterprises to meet certain international and domestic environmental standards before they would invest. Second, newly privatized enterprises, which are not currently in compliance, may now be in a better financial situation for making investments. However, similar to the experiences in economies in transition, investing in modernization and restructuring of production processes may receive higher priority among new owners.

For some public sector companies, which are not slated for privatization, their access to capital has decreased as a result of the government's decision to cut their unlimited credit lines from public sector banks. These companies are less likely to undertake environmental investments as a result of this decision. Another factor, which may discourage facilities from undertaking environmental investments, relates to plans to relocate individual facilities or industries outside of urban areas to reduce threats to human health. While these plans have been discussed, there is no specific plan or time schedule, leading to uncertainty among affected facilities.

2 2 5 Availability of imported and domestic pollution control equipment

The significance of the availability of domestic versus imported environmental equipment relates primarily to issues of cost. The generally higher cost and time involved in importing environmental equipment will impact demand if it acts as a deterrent for industry choosing to make environmental investments.

Nonetheless, until a domestic manufacturing industry is developed, demand will be almost entirely for imported equipment. Therefore, an important issue is the expense, and sometimes time delay, involved in equipment clearing customs when it arrives in Egypt.

2 2 6 Environmental performance requirements in the global market

Yet another important determinant of demand as Egypt's economy continues to restructure and open its trade will be industry's desire to export. Egypt joined the World Trade Organization (WTO) in 1995 and there are plans to phase out trade barriers over the next few years.

Industry representatives have indicated that exporting is an important consideration for a majority of Egyptian enterprises, not just the largest firms. Companies of all sizes see the development of export markets as the key to their future survival because of the opening up of trade in the next few years.

However, the EPAP financing study found that only a few select companies are major exporters to markets that require they meet with international environmental requirements. Others export to markets such as North Africa, the Middle East, Asia, and Eastern Europe, where compliance with strict environmental standards is not a requirement for importing goods (EPAP, 1998).

Chapter 3

Sources of Financing for Environmental Investments

This chapter characterizes the different types of sources currently used to finance environmental investments. For background purposes, the first section provides an overview of trends in environmental financing in developed countries (Additional elaboration of the experiences of Central and Eastern European Countries is provided in Annex 2.) The next section provides general information about the types of financing sources available in Egypt.

3.1 Financing trends in other countries

In examining environmental financing in developed countries, it is useful to distinguish between enterprise and public sector financing, because the sources and methods of financing are quite different.

3.1.1 Enterprise sector

In the private or enterprise sector in developed countries, the majority of environmental investments have been financed from the enterprise's own resources or financed from capital raised by the enterprise in the form of equity or credit. In many developed countries, concessional financing or indirect subsidies such as investment tax credits were often used during the early stages of environmental compliance programs, particularly in the 1970s. Most often, concessional financing was in the form of "soft" loans, which involved terms and conditions (e.g., lower interest rates, grace periods, or longer repayment periods) that were more favorable than those available from commercial banks. In a few countries, such as Sweden, environmental funds provided grant co-financing, albeit only for a couple of years. Subsidies in the form of investment tax credits or allowances for accelerated depreciation of investment capital are the most common form of financial support for enterprise sector investments in developed countries.

For the enterprise sector in CEE countries during the 1990s, subsidies have played a much larger role than in Western Europe and the United States. With the exception of Romania, all CEE countries have established one or more environmental "funds" to provide concessional financing in the form of grants or soft loans for environmental investments. These funds account for approximately 20 percent of all financing for environmental investments in CEE countries (see Annex 2). Concessional financing available from environmental funds is typically combined with the resources of the enterprise. CEE countries have not utilized tax credits to the extent that their neighbors in Western Europe have. In addition, commercial credit has played only a minor role in environmental financing, largely because the banking sector in CEE is still in transition and does not offer terms that are attractive to enterprises. While state-owned enterprises have relied historically on subsidies from central government, most CEE countries have now eliminated government support for enterprises, even if they have not been privatized.

Although CEE countries such as Hungary, Poland, and the Czech Republic have attracted foreign direct investment (FDI), only a small proportion of FDI has gone to heavy polluting industries, most FDI flows to the service, banking, retail, and light manufacturing sectors. Therefore, many highly polluting industries remain government owned.

3.1.2 Public sector

In developed countries, subsidies have played an important role in the development of publicly managed environmental infrastructure services such as drinking water, wastewater treatment, and municipal solid waste. Capital investment projects in the public sector have received subsidies ranging from 50-75 percent, mostly in the form of grants from central, regional or municipal governments. However, in many developed countries, subsidies for infrastructure investments have been reduced or eliminated over the last twenty-five years. Many countries now finance public sector investments out of user fees. In addition, in countries, which still provide subsidies for infrastructure investments, grants have been phased out in favor of soft loans (e.g., US replacement of the Construction Grants Program with State Revolving Funds to finance wastewater treatment).

In CEE countries, financing of environmental infrastructure in recent years has relied to a greater extent on user fees and concessional financing provided by environmental funds and international financial institutions (IFIs), than on grants from the domestic government. Many CEE countries have faced large budget deficits during the transition period, forcing municipalities to develop alternative sources of financing. In most CEE countries, the largest share of disbursements from environmental fund has gone for public sector investments. Although there is an incipient municipal bond market in Poland, alternative sources of public sector financing are developing slowly in CEE countries.

Although CEE countries have benefited from donor grants and IFI credits, these sources have accounted for less than 10 percent of environmental investment expenditures for the region.

3.2 Financing sources in Egypt

There are a few specific financing programs targeting environmental investments in Egypt and these are described in Annex 3, with the exception of the EPF which is the focus of the next Chapter. Most of these programs are donor sponsored with funding levels that limit the number of enterprises they can assist. These financing programs expect their funds will be exhausted in the next 1-2 years.

In this section, we discuss in broad terms the general categories of financing that are available in Egypt. Most information presented in this section (and Annex 3) is derived from interviews with enterprises, banks, donors, or government officials as well as comments by participants at the Best Practices Workshop.

3.2.1 Credit available to public sector enterprises

Historically, Egyptian public sector enterprises have sought financing either from their holding company or from one of the four major public sector banks. Today, when public sector banks lend to public sector companies, they are required to apply the same standard of credit analysis as they would to a private sector entity. In other words, public sector enterprises no longer qualify for special borrowing privileges regardless of their financial condition. This is a recent development that will affect the ability of some public sector enterprises to obtain financing for any type of investment, including those for environmental improvement.

Public sector enterprises still have an option of requesting funds from their holding companies, which provide funds at their discretion. With plans for continued privatization, one can assume that holding companies will be less likely to provide funds to those enterprises whose future viability is questionable. However, the policy is not entirely clear. Nonetheless, holding companies do represent a potential source of funds for environmental investments that can be further developed.

3.2.2 Commercial bank credit

A recent study (EPAP, 1998) reports that Egypt's commercial banks are holding more than LE 189 billion in cash for loans. However, several representatives in the banking sector and donor community have indicated that there has been virtually no demand for commercial credits for environmental investments. Bank officials indicated in interviews that they apply the same company creditworthiness criteria for environmental loans as for other loans, but that other project-related financial criteria may be too difficult for environmental investments to meet. In particular, bank requirements that investments achieve positive internal rates of return suggest that conventional commercial credit may only be suitable for win-win investments. However, banks have expressed interest in supporting environmental investments involving soft loans, where interest rates are subsidized by another party and/or another institution serves as guarantor of loans provided by the bank.

Some of the advantages of bank participation include

- many of the larger enterprises and SMEs have existing relationships with banks
- banks are familiar with their financial and business status and as a result, these banks are in the best position to evaluate the ability of borrowers to repay loans
- banks have ready access to capital
- Some of the obstacles to bank participation include
- banks lack experience in evaluating the technical and environmental merits of proposed projects
- borrowers may be unable to meet bank requirements for collateral or other means of securing the loan

3 2 3 Concessional financing programs

At the present time, most environmental financing activity in Egypt centers on soft loans and grants provided by donors. Some observers have noted that the volume of applications for donor loan programs has increased recently, largely in response to Law 4/1994 deadlines. Donor grant programs are less common than soft loan programs, and are usually provided for technical assistance support for environmental audits and project preparation, and acquisition of specific types of equipment or technology available from vendors in the donor country. Also, grants may be subject to a 37 percent windfall profit tax unless the recipient obtains a waiver.

The EPF has the potential to be the primary vehicle for concessional finance programs in Egypt and this role is discussed in depth in the next chapter.

3 2 4 Own resources

While a facility always has the option to entirely fund an environmental investment from their own financial resources, the more likely scenario is that they will use their own resources in conjunction with another source of financing. Recent economic indicators suggest a favorable investment climate and potential for facilities to earn profits that could be used to cover all or a portion of investment costs. The potential for combining own resources with concessional financing could stimulate investments. With most commercial credit and concessional financing programs, the program requires that the applicant co-finance the project from another source. Typically, the source of co-financing is the financial resources of the applicant, such as cash reserves or capital that the enterprise can raise in the capital market. Additionally, own resources are likely to be the major source of financing for low cost investments for which the costs of preparing applications are large relative to the amount of money required for the investment.

Chapter 4

Environmental Protection Fund

The EPF, established in 1994 by Law 4/1994, has the potential to be a focal point for environmental finance in Egypt, particularly because of its direct link to the EEAA which will oversee industrial compliance with environmental regulations. To date, its resources have been used to supplement annual funding that the EEAA receives from the central budget, but with the recent hiring of the EPF's first manager, the EPF is preparing to expand its scope and develop new programs. This section describes the legal and management structure of the EPF, its relationship to the EEAA, sources of revenue, and the range of activities it can support financially.

4.1 Legal structure

The EPF was established under Article 14 of Law 4/1994. The EPF is independent of the State Treasury and its resources are earmarked for specific purposes. The EPF has a budget independent of the general state budget, with its fiscal year coinciding with that of the government. Unlike budgets for many government ministries and agencies, surplus EPF funds do not revert to the treasury and can be carried over to the following year. The EPF is subject to monitoring by the Ministry of Finance and the General Accounting Authority and documentation must be provided for all transactions.

All EPF activities and financial arrangements are subject to the control and oversight of the Central Auditing Agency. As such, the Fund has the same status as any government body or institution. All EPF resources are considered public money and are subject to the regulations of the penal law (Chapter 4 of Volume II of Law 58/1937) that specifically protects public money from embezzlement through the use of severe criminal sanctions.

Executive regulations governing the EPF have been developed, as well as EPF bylaws, which were last amended in March 1998. Relevant information from these documents is referenced below.

4.2 Management structure

The recently updated EPF bylaws address the management of the fund and describe many operational details that were not previously specified. They state that the Minister of State for Environmental Affairs shall issue a decree for the formation of a committee to supervise the EPF. According to these new guidelines, the Management Committee is comprised of nine members. The Chief Executive Officer of the EEAA will serve as the Chairman of the Committee. The Fund Manager, who will be responsible for the day-to-day operations of the fund (see discussion below), will serve as Secretary of the Committee. The remaining seven committee positions will be filled by three senior EEAA staff members and four environmental specialists from outside the EEAA. The committee has the following responsibilities:

- Issuing decrees and regulations for the internal function of the EPF, including technical, financial, and administrative areas
- Approving the annual budget and financial status report
- Reviewing progress reports and financial statements
- Reviewing proposals put forward by the Minister of Environment or the Chief Executive Officer (CEO) of the EEAA

The committee is responsible for ensuring that the EPF fulfills its objectives and for approving disbursements. The committee is to meet once every month or as the need arises. It may delegate responsibilities to subcommittees comprised of its members or to its chairman. It may also select a committee member to undertake specific assignments and report back to the committee on the results of the assignment. Committee decisions shall be made by a majority vote of those present, and in the case of a draw, the chairman casts the deciding vote. Other specialists may be invited to attend committee meetings in a non-voting capacity.

Decisions for disbursements from the EPF are taken by the Management Committee. The Chairman of the Management Committee of the EPF presents decisions approved by the committee to the Minister of State for Environment for ratification. Disbursements are by means of checks signed by the Chairman (or designee) and countersigned by the designated representative of the Ministry of Finance appointed to the EPF accounting unit.

A fund manager was recently appointed by the Minister of State for Environment. She will be responsible for all financial, organizational and technical functions carried out by the EPF on a day-to-day basis. There are presently no other staff working directly for the EPF.

4.3 Fiscal relationship to the EEAA

According to Article 14 of Law 4/1994, the EPF is to have a separate budget, organized into three chapters according to the standard format for government budgets:

- Chapter 1 Salaries and Remuneration
- Chapter 2 Operational Costs
- Chapter 3 Investments/Projects

Additionally, the EPF bylaws state that the annual EPF budget should include revenue and disbursement projections, and disbursements shall be reflected in Chapter 1 and Chapter 2 of the EEAA budget and designated as EPF expenditures. (It is unclear where EPF Chapter 3 expenditures are to appear.) For EPF spending to exceed the EPF budget for any fiscal year, due to receipt of higher than projected EPF revenues, approval is required from the Ministry of Finance for Chapters 1 and 2 spending and from the Ministry of Planning for Chapter 3.

Because the EEAA budget includes several references to EPF funds, it does not appear that the EPF budget is strictly independent from that of the EEAA, as stipulated in

Law 4/1994 The EPF is closely linked to the EEAA on a fiscal, policy, and management level, including provisions in the bylaws for participation by the chief executive officer and senior members of the EEAA on the Management Committee

4 4 Revenue sources

Article 14 of Law 4/1994 and Article 7 of the executive regulations endowed the EPF with several revenue sources that are described below, along with an assessment of how significant each source has been to date The addition of new revenue sources would require a prime ministerial decree

The financial resources of the Protectorate Fund

The Protectorate Fund, first established in 1983, was fully incorporated into the EPF by Law 4/1994 All unallocated resources of the fund were transferred to the accounts of the EPF and the revenues previously accruing to the Protectorates Fund are now earmarked for the EPF These include funds, grants and budget support for the protectorates, visitor fees from the protectorates, and fines levied on violators of Law 102/1983

Fines or compensation for environmental damage

There have been limited EPF revenues from fines or compensation Those fines collected have been solely for marine damage, which is subject to a unique procedure that may account for the fact that it has been the only source of revenues from fines received to date For marine damages under Law 4/1994, a minimum fine can be collected immediately from the ship's captain prior to his departure from Egyptian waters This amount is held in trust until the court has issued its sentence, after which it becomes revenue to the EPF Fines can also be levied under Law 102/1983 for damage to protectorates These fines are administrative and can be levied and collected on the spot

Fines could also be collected for other violations of Law 4/1994, but for this source of revenue to be functional, several legal and administrative procedures need to be in place to organize collection of the fines According to the law, violation of Law 4/1994 is a criminal rather than administrative offense When a violation is identified, a formal complaint must be filed with the police and legal procedures undertaken to try the case in a court of law This requires extensive training for those responsible for enforcing the law in identifying violations, filing the complaints, following-up on cases being tried and those that have been decided It also requires follow-up in making sure that fines have been collected after sentences have been handed down and obligating the enforcement authorities (district attorneys office and police department) to forward collected fines and compensatory charges to the EPF This effort requires cooperation and coordination between the EEAA and the District attorney's office, which undertakes charging violators in criminal cases and oversees enforcement of court sentences

12.5 percent of airline ticket tax revenues

According to Article 7 of the Executive Regulations for Law 4/1994, no less than 12.5 percent of the revenues from the airline tax should be allocated to the EEAA (This amends a previous Ministerial Decree from 1986 which initially distributed the revenue from the airline tax to various government agencies) This share of the airline tax is half of the total revenue deposited in the Tourism and Environment Fund To date, however, no revenues from the tax have been transferred to the EPF (or the EEAA) Such transfer requires action by the inter-ministerial committee that manages this fund

The airline tax was composed of a 25 percent tax on first class tickets and a flat charge of L E 100 for economy class tickets issued to Egyptian citizens for foreign travel Recently, legislation has been enacted to modify the airline tax as follows the tax levied would be 5 percent of all ticket prices (including free tickets) up to a maximum of L E 400 for first class tickets and L E 200 for economy class tickets This legislation is designed to stimulate the domestic travel industry and would reduce tax revenues received by the Tourism and Environment Fund and consequently, the EPF

Revenue from permits issued by the EEAA

Legally, no permit can be issued or tax levied in Egypt unless it is specifically allowed in a law Law 4/1994 lacks any reference to permits that may be issued by the EEAA In fact, the law states that permits/licenses should be issued by the executive agencies responsible for various activities and states that these agencies should coordinate with the EEAA Accordingly, this source of revenue is actually nonexistent and presently has no legal basis except for permits issued by the EEAA in its capacity as the administrative agency responsible for enforcing Law 102/1983³ As such, the EEAA may issue permits to construct buildings, roads, etc, or undertake any commercial, agricultural, or industrial activities within the boundaries of the natural protectorates or in adjoining areas as specified by the appropriate minister

State budget allocations

While the EEAA receives annual budget allocations from the central government, to date there have not been any central government allocations directly to the EPF

Other potential sources of revenues

There are other potential sources of revenue legally specified for the EPF, which have not been utilized The EPF may receive funds from national or foreign agencies, revenues from demonstration projects undertaken by the EEAA, and revenues received by the EEAA for services rendered by the agency

³ Although permits are identified as a potential source of revenue in Law 4/1994, this source is not listed in the bylaws

4.5 Expenditures

Law 4/1994 did not specify the exact activities that may be funded by the EPF. Article 15 simply states that EPF resources should be used to fulfill its objectives without specifying what these objectives are, besides the implicit one of protecting the environment. This oversight was corrected in the Executive Regulations, which lists the following objectives in Article 8:

- Addressing environmental emergencies
- Pilot projects in natural resource preservation and protection of the environment from pollution
- Transfer of low-cost technology that has proven effective in environmental protection
- Funding of the production of prototypes of waste management equipment
- Construction and operation of environmental monitoring stations
- Establishment and management of natural protectorates
- Addressing pollution of unknown or non-specific source
- Funding of research for environmental programs and environmental impact assessments as well as for the setting of standards and specifications for environmental protection
- Co-financing of environmental protection projects undertaken by local administrations and non-governmental organizations (NGOs). Financial contributions to these activities should also be made by the beneficiaries (i.e. public participation)
- Awards for outstanding achievements in the field of environmental protection
- Pollution prevention projects
- Support for the EEAA's activities
- Other environmental protection activities approved by the Management Committee and Minister

The last bullet provides considerable flexibility to the EPF, provided proposed disbursements are sanctioned by the Minister.

Although we have been unable to obtain specific information on either fund revenues or expenditures (by budget chapters or categories described above), interviews conducted for this paper indicate that the EPF resources have so far been used for purchase of buildings and equipment, and to augment salary and operating costs of the EEAA.

Chapter 5

Options for EPF Environmental Financing Programs

In this chapter, we provide an overview of options for expanding the role of the EPF in financing environmental investments. Because existing environmental finance programs are expected to be inadequate to meet anticipated demand, the EPF could be a powerful agent for leveraging private sector funds directed toward environmental investment in Egypt.

Program design issues and project cycle management issues are first discussed followed by presentation of various models of cooperation or co-financing between the EPF and other entities.

5.1 Program design issues

The experience of environmental finance programs in other countries as well as programs already developed in Egypt has shown that there are a number of different issues that must be considered when designing a new program. These include:

- Types of financial assistance and incentives that will be provided
- The level of funding that will be provided for different target groups (for example, based on company size, geographic area, or public/private status)
- The level and forms of cooperation between banks, donors, other funds
- How the program will be marketed
- Criteria that will be used to determine if a project is “environmental”
- How the financial status of the applicants will be assessed
- How the future economic viability of the applicant will be assessed
- What type of procurement process will be required for equipment purchases
- How projects will be monitored during implementation
- The potential for sustainability and replication of the program

These program design issues can be grouped into two sets of issues: funding policies, priorities and project cycle management.

5.1.1 Funding policies and priorities

When considering spending options for the EPF, one of the most important goals is for EPF funds to leverage private capital and complement, rather than duplicate, existing programs. The Executive Regulations for the Fund lay out a wide array of objectives for use of the Fund’s resources. To maximize the impact of limited resources, the Fund’s board should decide, prior to the start of each fiscal year, what the year’s priorities will be and how the fiscal year budget will be allocated for different categories of spending. Also, given the likely constraints on revenues expected during the next few years, it may be more practical to concentrate the EPF’s resources into one or a few key programs. The discussion of alternative strategies is provided in the following section.

Complement existing programs

As previously discussed, a number of donor programs have been established, mostly involving soft loans provided through domestic banks, and demand for support from these programs has been increasing recently. Eventually, these programs will be unable to meet the demand. The EPF might develop similar soft loan programs that could handle projects that other donor programs are unable to support. Thus, the EPF could develop a soft loan facility or cooperate with banks in providing soft loans. Given that many of the donor programs are just starting or will be active for only a couple of years, the EPF has adequate lead-time to develop soft loan capabilities.

As pointed out in Chapter 3, some analysis of the potential financing needs of Egyptian facilities is needed to determine the typical sizes of loans that might be requested by facilities of different sizes and with different environmental requirements.

Catalyze domestic financing

One role the EPF could play is to stimulate the expansion of domestic sources of financing. For example, a grant program paying for a minor share of project costs would require facilities to identify and secure other sources of financing. Facilities might find commercial credit to be attractive if they are able to defray some of their costs through an EPF grant. Cooperative programs with banks provide an opportunity to expand the use of private capital markets for environmental investments. Similarly, financial support to possible local environmental funds (LEFs) can stimulate local financing of projects.

A key challenge in stimulating the development of domestic financing sources is determining the appropriate level of co-financing the EPF must provide to ensure that investments are undertaken. This is a difficult task since the EPF has limited capacity to study whether a facility can secure other types of financing. For example, if the EPF provides grants to cover 100 percent of project costs, demand will likely overwhelm the fund. If grants cover only 10 percent, there may be considerably fewer applications if sources of financing to fund the other 90 percent are limited. In the early 1990s, many CEE funds provided generous levels of support, which have been reduced over time. For example, until 1997 the Polish National Fund would provide 70 percent of project financing through soft loans. The maximum level of support now has been reduced to 50 percent.

Prioritize financing for target groups

In discussions with industry, banks, donors, and government, many observers offered the opinion that there will be groups of facilities for which concessional financing will be critically important while others will be able to raise the funds necessary to undertake investments. The EPF could establish spending priorities to respond to the needs of specific industrial sectors or companies of certain sizes such as SMEs. For example, the EPF's grant or soft loan program might be targeted to very small facilities or industries where the expected costs of compliance are high, relative to other industries. In addition, a bank soft loan program could favor certain groups by offering varying levels of interest rate reduction.

Prioritize financing to address specific environmental problems

Many environmental funds set financing priorities that are narrower than those elaborated in national environmental action plans or other policy documents. For example, while the State Environmental Policy for Poland elaborates a broad array of environmental priorities, wastewater treatment and reduction of air pollution from the burning of coal receive over 75 percent of the National Fund's disbursements. Also, the Polish EcoFund concentrates on environmental problems with international or regional significance. In most cases, environmental fund spending priorities are coordinated with or approved by the relevant environmental authorities. Thus, based on consultations with EEAA staff, the EPF might want to concentrate resources on specific pollutants or media, address hot spots in urban areas, which affect large populations, or target certain industries or geographical regions. Once decided, such priorities can be incorporated into project eligibility criteria or reflected in appraisal criteria.

The EPF could also sponsor or co-sponsor special competitions with LEFs or donors. For example, the EPF might target a specific pollutant and develop a competition to support projects that reduce the pollutant. The EPF might be able to interest donors in providing technical assistance for project preparation or to provide co-financing for projects, either through grants to the EPF or as matching awards. Alternatively, a donor might have interest in supporting cleaner technologies through a combination of technical assistance and financial assistance, provided additional co-financing can be mobilized to ensure a larger number of projects can be supported.

Other considerations

There are also some general operating principles that should be considered by the EPF when designing programs. Whenever possible, new programs should rely on existing channels to offer the program to the target group, rather than requiring enterprises to become acquainted with a new institution which may deter investment. For example, a program, which enables facilities to borrow from their local bank, will be more attractive than the creation of a new financing institution. Programs should also be designed so that the level of financial incentive is reduced or phased out over time. The experience of developed countries has been to provide concessional financing on a temporary basis, with the subsidy reduced or phased out over a period of years. Not only does this promote sustainability of the program, but also it encourages enterprises to act quickly in order to take advantage of incentives that will later be reduced. In addition, each program should have a marketing plan that is designed to provide program information to the target audience in a timely manner.

5.1.2 Project cycle management

The need for the EPF to develop and implement project cycle management procedures depends on the type of program(s) adopted by the EPF. For some types of financing programs, the EPF would not evaluate individual projects but would primarily evaluate proposals for program financing from other entities that would be responsible for individual projects. If the resources of the EPF are extremely limited, the EPF

management may want to give preference to financing programs that do not necessitate the development of a large staff

Based on the experiences of funds in CEE countries, there are many ways that project cycle management can be organized. It is, however, a crucial element in determining how efficiently a fund operates and how it is perceived by the international and domestic communities. If the EPF develops project cycle management capabilities that meet international standards, they may be able to entice donors to provide future grants directly to the EPF instead of creating separate project financing programs.

A description of various project cycle stages appears below. The process should be tailored to the specific needs of a financing program.

Project identification

Funds employ a range of proactive and reactive measures to identify projects and encourage facilities to prepare and submit applications. Funds will announce deadlines for submitting applications (since many funds review applications on a quarterly or semi-annual basis), provide information and applications at workshops and trade shows and work in conjunction with environmental officials, NGOs, and trade associations to familiarize facilities with financing programs. Fund staff may hold training sessions to acquaint facilities with the application forms and process. The application process might involve one or two stages (see Annex 2). While most CEE funds employ a single application, the Polish EcoFund and some regional Polish funds utilize a "pre-application" which is essentially an information sheet requiring considerably less time to prepare or review. The fund can determine if the project proposed in the pre-application meets the general eligibility requirements and merits consideration. If the pre-application is accepted, the applicant is encouraged to prepare a full application. If the pre-application is rejected, the applicant receives a written (typically) explanation for the rejection. For example, the project may not be a priority for the fund, may request an amount of financing that is beyond the fund's capabilities, or a share of project costs that exceeds the limits established by the fund.

Project appraisal and selection

The approach to appraisal and selection varies considerably among established environmental funds. Appraisals may be conducted by fund staff, outside consultants, or a combination. For funds that provide soft loans or interest subsidies, bank staff or financial consultants may also review parts of the application. While most funds consider similar criteria in evaluating applications such as environmental benefits, consistency with national priorities, potential to achieve compliance, technical merits of proposed controls, a variety of approaches are used to determine the ranking of projects. Some funds use numerical criteria and calculate a score for each project while others simply determine if a project should receive financing (pass-fail approach). Generally, the fund's staff manages the evaluation process. For nearly all CEE funds, final selection decisions are made by supervisory boards or ministers, based on recommendations of the fund manager and staff. This stage of the project cycle management process is the most critical in

establishing the fund's transparency and accountability to the public and applicants. If the fund establishes and utilizes clear criteria and bases decisions on the merits of projects *vis a vis* these criteria, and provides explanations for rejecting projects, the process will be viewed as transparent. By ensuring the selection process satisfies the requirements of transparency and accountability, funds may be able to attract donor support to capitalize the fund initially. Interestingly, all of the CEE funds, which have received financial support from donors, have strong project cycle management procedures.

Negotiations and implementation

All CEE funds enter into formal agreements with successful applicants to ensure that the fund's resources are utilized for the purposes proposed by the applicant. These agreements include implementation schedules, provisions for repayment of the fund's share of project costs if the project is abandoned, requirements for inspections and reports, and disbursement schedules. They may also specify conditions for conducting competitive tenders or restrictions on procurement of equipment. For soft loans, the agreement would also cover terms and conditions of the loan, repayment schedule, and other standard financial clauses.

Monitoring

During the implementation phase and at the conclusion of construction or installation of equipment, funds will often inspect the project to determine if the project complies with the proposal. Ideally, funds should also attempt to determine if the project achieved the environmental benefits described in the application. This can be an important factor in improving the fund's ability to evaluate applications in the future.

5.2 Selected options for EPF programs

Five EPF program options have been selected and are presented below, referred to by the type of financing mechanism that is used. The five programs are (1) Grant Program, (2) Soft Loan Facility, (3) Cooperative Loan Program, (4) Bank Line of Credit, and (5) Local Environmental Fund Co-Financing Program. Table 2 provides a brief summary of each option. These five selected options provide a good illustration of the range of program opportunities. They are, however, only representative suggestions of the various programs that could potentially be implemented by the EPF.

TABLE 2 OPTIONS FOR THE EPF TO SUPPORT ENVIRONMENTAL INVESTMENTS

Financing Mechanism	Type of Program	Type of Disbursement by EPF	Project Cycle Management			
			Project ID & Preparation	Selection & Appraisal	Negotiation	Monitoring & Implementation
Grant Program	Grant	Grants to individual investment projects	EPF	EPF	EPF	<ul style="list-style-type: none"> • EPF
Soft Loan Facility Window (SLF)	Soft loans	Soft loans through SLF window	SLF	SLF	SLF	<ul style="list-style-type: none"> • SLF monitors project implementation
Cooperative Loan Program (CLP) with Bank	Soft loans	Interest subsidy or other type of grant disbursement to Bank on project-by-project basis	EPF	EPF – environmental & technical Bank – financial	Bank, EPF	<ul style="list-style-type: none"> • Bank manages loan • EPF or Bank monitors implementation
Bank Line of Credit	Soft loans Commercial loans	Grant to Bank for interest subsidies Loan Guarantees	Bank	Bank	Bank	<ul style="list-style-type: none"> • Bank monitors individual projects • EPF reviews periodic Bank report
Local Environmental Fund (LEF)	Grants, soft loans	Matching grant to LEF	LEF	LEF	LEF	<ul style="list-style-type: none"> • LEF monitors individual projects • EPF reviews periodic LEF report

5 2 1 Grant program

The EPF is authorized to provide grants to support a range of environmental activities including investments to reduce pollution. To operationalize a grant program, the EPF would need to develop project cycle management procedures to identify, assess, and implement projects that would receive grants. In addition to project cycle management, the major policy decisions for the EPF would involve determining spending priorities, eligibility requirements, the maximum size of individual grants, and the share of project costs that would be covered by grants.

Experience in other countries, which have established environmental funds, suggests that a grant program is the simplest type of program to implement. In CEE countries, many environmental funds disbursed only grants when they were first established. As the economies improved, several funds shifted to soft loans providing smaller subsidies with payback of some capital, thus enabling the funds to "revolve" (see discussion below).

To operate a grant program, the EPF would require staff to receive and review applications, draft contracts, and monitor implementation of projects. Although most funds in CEE countries rely on staff to carry out these tasks, outside experts are often retained to review the technical aspects of proposed projects. The use of outside consultants allows funds to circumvent civil servant salary levels that would undermine efforts to recruit staff with the necessary technical backgrounds. In addition, a grant program can be implemented with a small staff, provided the fund has access to technical expertise. This is especially important if the working capital and/or the number of projects that will be supported by the grant program is expected to be small.

5 2 2 Soft loan facility

A soft loan facility (SLF) is a program that provides loans to qualified borrowers at terms and conditions that are attractive relative to those available from commercial sources. The borrower benefits from lower service charges and interest payments, but is still required to repay the principle and interest of the loan to the facility. SLFs are also known as revolving funds because the working capital is replenished as borrowers repay loans. If the SLF has a sustainable source of revenues, the working capital of the SLF will increase over time. This principle is illustrated in the Polish National Fund for Environmental Protection. In 1995, 25 percent of the fund's revenue was derived from loan repayments.

According to Law 4/1994, the EPF is not empowered to make loans or to receive income from loan repayments. However, the EPF can receive income from "demonstration" projects, so the SLF could be developed as a demonstration project. The SLF entity (separate from the EPF) would request funding from the EPF for loans, provide a project cycle management plan, provide a proposed financial plan that outlined a schedule of grants from the EPF to the SLF, planned program of SLF soft loan disbursements, proposed terms and conditions of the loans, and planned transfer of funds from the SLF back to the EPF at specified dates. For example, the SLF might be set up as a 10-year demonstration, with grants made from the EPF in the first five years. Soft loans

would be structured so that all loans would be paid back by the end of the tenth year, at which time all working capital would be transferred to the EPF. The SLF would provide frequent reports to the EPF on project selection, implementation, and loan activities.

Even if it were possible from a legal perspective for the EPF to directly disburse loans, there are certain drawbacks of such a scheme. In particular, to evaluate financial aspects of applications and applicants, the fund may encounter difficulty in recruiting staff with the required skills. However, the EPF could retain the services of financial analysts or cooperate with a bank or banks to cover a range of financial services (including financial appraisal of loan applications and management of loans).⁴ In contrast, the SLF as a separate entity would presumably be able to recruit staff at salaries, which are commensurate with the skill requirements. Or, alternatively, the SLF could also cooperate with a bank or banks.

5.2.3 Cooperative loan program

A third option is the Cooperative Loan Program (CLP) involving cooperation between the EPF and participating banks. Under the CLP, the primary role of the EPF would be to provide subsidies to soften loans that would be managed and financed by participating banks. To establish a CLP, the EPF would first establish criteria for the types of environmental projects eligible for EPF assistance, decide any limitations on the types of facilities, which would be eligible, and determine types and sizes of subsidies to be provided. For example, the EPF might provide specific interest rate subsidies (e.g., 5 percent below commercial rates), a range of interest rate subsidies that vary according to the size of the project and financial situation of the applicant, or subsidies to compensate the lender for providing a grace period or longer repayment schedule than would be typical of commercial loans of the size proposed.

The second step in establishing the CLP would be to pre-qualify participating banks. It is desirable to pre-qualify several banks to provide applicants with greater choice, including the opportunity to apply for loans from a local bank, and to encourage competition among the banks. The EPF would solicit proposals from banks to participate in the CLP that would describe the bank's loan appraisal procedures, proposed terms and conditions for soft loans (in the solicitation, the EPF would provide guidelines), and any administrative fees that would be charged by the bank and paid by either the EPF or applicant.

Once participating banks have been pre-qualified, the EPF would publish a list of participating banks and cooperate with trade associations and NGOs in advertising the program. The EPF would provide information on the types of environmental projects and facilities, which are eligible, the application process, and the criteria that would be applied in the technical and financial appraisals of projects.

⁴ Several CEE environmental funds cooperate with commercial banks. In most cases, the fund provides the capital for soft loans, which in turn, are managed by the banks. To provide an incentive for banks to carefully appraise loan applications and ensure that the fund recovers, the funds have negotiated with banks to bear the risk of loan defaults. Thus, the bank "guarantees" the fund will receive payment. Banks have shown a willingness to take on this risk for small management fees.

The application process could be structured in one of two ways. First, the borrower could submit a technical project description to the EPF (including some basic financial information such as the amount of the loan). EPF staff would evaluate the technical applications. Those applicants meeting EPF criteria would be advised that the EPF is prepared to support their soft loan. The applicant would then submit a complete loan application to the participating bank of choice. If the bank approves the loan application, it would request the EPF to provide the subsidy for the soft loan. The alternative application process would involve submission of the loan application (including the technical description) to one of the participating banks. The bank would screen the technical description based on EPF criteria. If the bank determines the project meets the criteria, it would carry out the financial appraisal and determine whether to provide the loan. For approved loan applications, the bank would submit a request to the EPF for payment that would describe the proposed project, including an analysis in terms of EPF criteria. Under either application process, grants to the bank would be disbursed on a project-by-project basis. The bank would provide the capital and manage the loan. Either the EPF or the bank could carry out monitoring of project implementation under the CLP. If the bank monitors implementation, it would provide reports to the EPF for each individual project.

5.2.4 Bank line of credit (and loan guarantees)

A variant of the CLP described above is a Bank Line of Credit (BLC). The EPF would pre-qualify participating banks and cooperate with banks by providing financial support which would enable banks to provide soft loans to finance environmental projects. However, for the BLC, the EPF would not participate in evaluating individual projects. The EPF would establish eligibility and technical criteria, which the bank would consider in evaluating applications, but the EPF would not review each application or monitor project implementation. Disbursements to the bank from the EPF for interest subsidies could be made in one of two ways. The bank could be required to request support on a project-by-project basis to ensure there are adequate resources available from the EPF. Alternatively, the EPF could provide interest subsidy allocations to banks on a quarterly or monthly basis. The banks would request EPF funds for multiple projects, not to exceed the bank's periodic allocation. Unused allocations could be rolled over to the next period or redistributed to other banks. Such an allocation scheme would allow the EPF to better manage the financial resources allocated for interest rate subsidies. The major advantage of the BLC over the CLP is that it reduces delays in processing applications because the EPF is not required to review every application. However, the bank would be expected to provide periodic reports to the EPF, which include project descriptions, implementation status, etc. for the loans managed by the bank.

The EPF could also support bank lines of credit by providing loan guarantees. Loan guarantees would be provided for loans at commercial rates (or combined with interest subsidies). For investments undertaken by SMEs or other investments which banks deem to entail unacceptable levels of risk, the loan guarantee could play a role in expanding private sector financing. The Credit Guarantee Company (CGC), based in Cairo and supported by donor funds, could potentially be the mechanism through which the EPF provides loan for SMEs. As the program currently works, banks assume a portion of the loan risk, and this motivates them to appropriately study projects and assess the

credit worthiness of applicants. The program currently targets other types of investments, but they have expressed an interest in establishing a special program, or "window," specifically for environmental loans. Such a program could utilize the existing network of banks associated with the CGC and also utilize the CGC marketing staff, which is in place to aggressively promote the program.

5.2.5 Local environmental funds

A final option would involve cooperation between the EPF and LEFs in co-financing projects. The LEF would apply to the EPF for a matching grant that would then be used to co-finance projects selected by the LEF for support. For example, the EPF might provide a lump sum grant with a specified matching requirement (e.g., 30 percent) for each project supported by the LEF. The EEAA would need to provide substantial input in establishing LEFs and providing capacity building for them.

At the current time, LEFs have not been established in Egypt. However, the 10th of Ramadan industrial city is considering a broad-based pollution abatement incentive program that would be mandated and managed at the local level. This program is unique for Egypt in that it plans to use pollution charges to capitalize a local environmental fund that would provide partial grant financing for environmental investments by local industry. The proposal has received support from key parties, including the EEAA, and there are plans to go forward with establishment of the fund after the legal details are worked out.

EPF co-financing of LEF projects has a few important advantages over the grant program described earlier. First, co-financing allows the EPF to leverage its resources. By taking on a smaller share of project costs, the EPF can support more projects. Second, EPF can better direct its resources to pollution "hotspots," provided there is a strong local commitment to the LEF or other financing mechanisms. Third, co-financing provides a catalyst for mobilizing local resources. Although pollution charges have not been authorized at the national level, it appears they may be more easily implemented on a voluntary basis at the local level, particularly in the industrial cities. Conceivably, LEFs could be established as soft loan programs, using the EPF contribution to defray the cost of interest subsidies and the locally generated revenues to cover the capital that would be loaned out. Finally, a co-financing program does not require the EPF to develop project cycle management capabilities necessary to evaluate individual projects. The EPF would have to evaluate the LEF proposal and monitor reports prepared by the LEF, but would not participate on a project-by-project basis.

Chapter 6

Options for EEAA Environmental Finance Support

In Chapters 2 and 3, we described the demand and supply of financing for environmental investments. Demand will increase primarily as a result of more effective enforcement of environmental requirements and new sources of financing will be required to meet this demand. Facilities will need to utilize their own resources and the domestic capital market should meet some of the increased demand, most likely for those investments that generate profits, rather than for traditional end-of-pipe pollution controls which provide no payback.

Expansion of concessional financing sources is attractive to facilities and is also a way of increasing the involvement of the commercial banking sector. EEAA can take proactive measures to increase donor support for concessional programs: clear articulation of environmental priorities, targeted compliance assistance for donor-supported investments (fast tracking), and development of better information on the types of facilities that will need assistance, as well as the amounts and forms of assistance that would be most attractive. Concessional financing could also come from domestic revenues. Two potential sources are increased revenues earmarked for the EPF and revenues generated by local environmental funds that could be established.

As discussed in Chapter 4, the legislative and regulatory provisions for the operation of the EPF create opportunities for the EPF to play an important role in environmental financing. The key element is that the EPF would need to mobilize sufficient, reliable resources to provide concessional financing.

In addition to the specific EPF financing programs discussed in Chapter 5, there are a number of related activities that EEAA can pursue to improve the overall situation for environmental investments in Egypt. These activities are geared toward stimulating the demand for investments, ensuring that there is an adequate supply of funds, and making sure facilities take advantage of available programs.

6.1 Project preparation support

Many facilities have expressed the need for reliable outside expertise to assist in identifying needed environmental investments and in preparing CAPs. SMEs, in particular, are not likely to have in-house staff that can perform these tasks and will need assistance. The pool of available consultants will need to be expanded as demand for this expertise increases. The key challenge will be to expand the consultant base in order to meet the demand for these services at a cost that is affordable to these facilities. A training program could be developed in association with a donor, and perhaps also a certification program for environment specialists, building on EEAA's existing program of registering consultants in particular fields.

6.2 Availability of affordable technology

Until a domestic environmental goods and services industry is further developed in Egypt, industry will need to rely on imported environmental technology. Removal of barriers to imports, exemptions for customs and tariffs on imported equipment and measures to reduce costs will all contribute to increased demand for investments for which domestically produced equipment is not available.

To encourage further development of a domestic environmental technology sector, financial programs may provide a catalyst to both existing and start-up environmental technology firms. The EEAA could assign an office to work with start-up or transitional enterprises that will help them identify a market niche and potential customer base to which they can market their product or service. In addition, to promote sales, a financial incentive could be offered to vendors of environmental technology, either through the EPF or a donor program.

6.3 Compliance financing and monitoring

One of the key needs in expanding the supply of financing is a greater understanding of level of environmental financing needs and capabilities of facilities. At the present time, it is difficult to determine how much financing is needed and the type of financing (e.g., concessional vs. commercial financing). A study should be conducted to attempt to answer some of these questions. A study might examine the following: First, it could estimate the potential cost of all investments that will be required to comply with environmental regulations. Such information could be useful in the EEAA's development of their compliance monitoring program. Ideally, these cost estimates would be developed for different industries as well as companies of different sizes within industry. Second, the study could include a survey on facilities' access to capital, expanding on the previous survey conducted by the EEAA. The survey might pose hypothetical questions to elicit the level of concessional financing that might be required for facilities to undertake investments before required under Law 4/1994. This study could provide useful input into the EPF's decision about options for supporting environmental investments. As an alternative to a large-scale study, sector specific studies could be completed in coordination with upcoming compliance programs.

At the present time current staffing levels at the EEAA are inadequate to implement an effective compliance monitoring program. Even if there is a commitment to recruit more staff, there will be time lags in providing new personnel with adequate training to review CAPs and conduct inspections. The EEAA should be encouraged to consider strategic approaches to enforcement, targeting industries according to environmental and financial criteria, and combining financial incentives (such as concessional financing) with the meaningful threat of enforcement sanctions. However, the *Egypt Environmental Sector Assessment* report found that there are a number of coordination issues that must be addressed by the EEAA and other national and regional authorities before effective enforcement actions can be taken.

6.4 Awareness programs

As new environmental finance programs are initiated, many people interviewed expressed the concern that enterprises would either be unaware of the programs or confused by the myriad of different programs available. While an enterprise may receive specific financing information from a particular source, such as an environmental technology vendor, there is no central place for an enterprise to contact for comprehensive advice or information. This may deter some enterprises from investing, if they are not able to effectively compare programs and are not sure they are getting the best financing deal possible. Similarly, local environmental authorities, such as environmental management units or industrial associations, including investors groups of the industrial cities, lack information on available financing sources to provide to local enterprises.

Since most of the EPF options presented in this chapter will not cover all project costs, facilities will need to secure other sources of finance. To assist facilities in identifying these sources, it would be useful to compile and periodically update information on all available sources of environmental finance and incentive terms and publish a handbook for industry. Such a handbook could be featured on a web page. In Poland, a sourcebook was prepared by USAID contractors and subsequently reprinted and developed as a web page by the Ministry of State for Environmental Affairs.

The EPF and the EEAA can play a role in increasing facilities' awareness of financing programs offered by the EPF as well as those provided by donors. The financing sourcebook described above would be a good start. In addition, the EPF could be instrumental in organizing training sessions and working with donors to target technical assistance to support the preparation of environmental investments.

6.5 Bank training

The EPAP program plans to assist banking institutions in the identification of mechanisms to evaluate environmental financing applications and develop financing procedures and opportunities. Several other donors, including USAID, have also expressed an interest in supporting bank training. It has been suggested that this training could be coordinated through one of the banking associations or established banker training programs. If future EPF programs involve cooperation with banks, the training could specifically cover these programs.

References

Anderson, Glen, *Concessional Financing of Environmental Investments in OECD Countries*, Report prepared for the Municipal Development Agency, Warsaw, 1998

Anderson, Glen and Tomasz Zylicz, *Maximizing Leverage of Poland's Environmental Funds Too Generous or Too Restrictive*, under review by Environment and Development Economics, 1998

Anderson, Glen and Tomasz Zylicz, *The Role of Environmental Funds in Environmental Policies of Central and Eastern European Countries*, In Environmental Funds in Economies in Transition, Centre for Co-Operation with the Economies in Transition, OECD, Paris, 1995

COWI Consulting Engineers and Planners, *Pollution Abatement and Control Expenditures in Central and Eastern Europe - Overview Report*, prepared for Danish Environmental Protection Agency and the EAP Task Force, OECD, February 1998

EAP Task Force, *Review of the Polish EcoFund*, prepared for OECD, Document No CCET/ENV/EAP(97)110, Paris, 1997

EDC Ltd and EPE asbi, *Compliance Costing for Approximation of EU Environmental Legislation in the CEEC*, Report prepared for the European Commission, Directorate-General XI, Dublin, 1997

EPAP, *Financing Component Draft Report*, 1998

EPIQ, *Egypt Environmental Sector Assessment*, 1998

OECD, *Managing the Environment - The Role of Economic Instruments*, Paris, 1994

OECD, *Pollution Abatement and Control Expenditures in OECD Countries*, Paris, 1998

Annex 1

Demand and Supply Concepts and Terminology

In most countries, air and water quality goals are specified as ambient standards to be achieved by setting appropriate emission limits for pollution sources. For solid and hazardous waste, a variety of discharge limits and regulations for storage, treatment and disposal are utilized to meet air and water pollution goals associated with these sources. In response to this range of environmental requirements, facilities develop compliance strategies comprised of a mixture of end-of-pipe emission or discharge controls and changes in production processes that contribute to reduced pollution or waste. Generally, end-of-pipe controls involve net private costs (although presumably net social benefits) to the facility while process changes, waste minimization, and energy efficiency may result in net private benefits to the facility (so-called "win-win" approaches). The different types of environmental investments are described in Box A1.1.

Box A1.1 - Types of Environmental Investments

Pollution Control Investments	"End-of-pipe" controls - treatment of pollutants prior to discharge into the environment.
Process/Production Technology Investments	Investments in pollution prevention and cleaner production including waste minimization, process modifications, or modernization of production equipment (potentially win-win*)
Resource Recovery Investments	Reprocessing of waste from industrial wastewater streams, slag piles, or use of wastes for energy recovery. These are also win-win investments.
Energy Efficiency Investments	Could be viewed as cleaner production or resource recovery. These are also typically win-win investments.
Contamination Cleanup Investments	These cleanups involve removal of contaminated material from current disposal site, treatment and/or subsequent disposal at approved facilities.
Environmental Equipment and Services Investments	Local capacity to provide environmental equipment and services (e.g., project preparation assistance) contributes indirectly to environmental improvements by lowering costs of these services.
* "Win-win" investments increase profits and yield environmental benefits. Enterprises should be expected to undertake win-win investments, provided they have adequate information and expertise to identify and evaluate these options.	

Compliance strategies involve two types of costs: *capital costs* and *O&M costs*. Capital costs include initial investment outlays for construction, purchase and installation of equipment plus subsequent outlays to replace depreciated capital equipment. O&M costs are recurring costs to operate and maintain control equipment. Since these costs are incurred at different times, the total or *life cycle* costs are the sum of capital and O&M costs, appropriately discounted to allow intertemporal comparisons. The facility's problem is to select a compliance strategy, which minimizes the present value of life cycle costs of meeting environmental

requirements. If win-win investments are an important component of the compliance strategy, it is conceivable that the compliance strategy could even yield net benefits to the enterprise. However, win-win investments may yield 20-30% of the pollution reductions required for compliance, a further 20% in reductions can be achieved at low cost with the remainder resulting from more expensive end-of-pipe controls.¹

The *practice* of developing compliance strategies may be quite different from the hypothetical case of minimizing costs because of capital constraints, imperfect access to and costs of information about control options, and compliance schedules that do not provide flexibility to depreciate existing process equipment prior to investment. Greater importance may be attached to the magnitude of initial capital expenditures rather than life cycle costs, leading facilities to invest in less durable but less costly capital, select strategies with lower initial capital costs but higher O&M costs (and higher life cycle costs), and overlook or delay investments in process changes because of high initial capital costs. Thus, in characterizing environmental investment activity, it should be noted that the observed levels are not necessarily those associated with a least cost strategy.

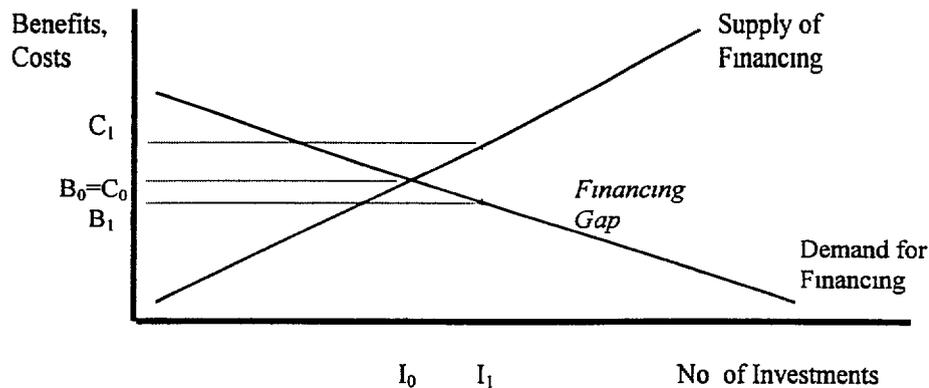
The observed number of investments in environmental improvements can be viewed as the nexus of *demand* for and *supply* of financing (See Figure A1.1). The concept of demand for financing focuses on the willingness of facilities to undertake environmental investments yielding a certain level of environmental quality. This willingness to invest reflects the private benefits accruing to the facility in the form of cost savings resulting from win-win process changes plus the non-compliance costs avoided by making the investment. The demand for financing can be viewed as "downward-sloping" to reflect the fact that each additional investment yields less benefits than previous ones and is consistent with the notion that a small amount of pollution reduction is achieved through process changes, but that as larger pollution reductions are required, cost savings decline and then reach zero. The demand for financing is not the same as the demand for environmental improvements, the latter being a concept that is used to represent the incremental benefits to society of environmental improvements.

A shift in demand for financing would involve a movement of the demand curve up and to the right. Policy changes such as stronger enforcement, improved information on win-win investments, or incentives related to avoiding trade barriers could all contribute to a shift in demand.

The supply of financing represents the willingness of investors to provide capital to environmental investment projects. The supply curve can be viewed as "upward-sloping" to reflect the fact that the more financing required, the higher "price" or opportunity cost to divert this capital from other uses. It doesn't matter whether the source of capital is the facility's own resources or commercial credits,

¹ For example, see World Bank, *Pollution Prevention and Abatement Handbook*, September 1997 and NEFCO, *NEFCO Revolving Facility for Cleaner Production Investments*, unpublished, 1997. Process integrated investments in Finland accounted for 32% and 45% of total pollution abatement and control expenditures in 1992 and 1993, respectively (Statistics Finland, 1995).

Figure A1 1 - Demand for and Supply of Financing



the notion of increasing opportunity cost is valid, for the facility, capital for environmental projects could be used for other investments that would presumably have a positive rate of return. A shift in the supply curve down and to the right might result from macroeconomic policies that lower interest rates and the growth of capital resulting from higher incomes. Expansion of the amount of concessional or “soft” financing would also lead to this supply shift.

In Figure A1 1, I_0 is the number of investments that would be undertaken given the supply and demand as depicted in the graph. The costs of investment expenditures that would be undertaken is given by the area of the triangle bounded by the supply curve, the vertical line between I_0 and the intersection of the demand and supply curves, and the X-axis. However, from a policy perspective, a greater number of investments, say I_1 , might be desirable to achieve policy objectives. At this level of investment, facilities would be unwilling to undertake investments beyond I_0 because the costs are greater than the benefits. The popular notion of a *financing gap* relates to this difference in benefits and costs and can be defined in one of two ways²

- (1) on an investment-by-investment basis, it is the difference between costs and benefits at the points of intersection of the vertical line from I_1 with the supply and demand curves (C_1 and B_1). To close the financing gap for this investment, the facility would have to be compensated the amount $C_1 - B_1$.
- (2) for all investments ($I_1 - I_0$), the financing gap is the total amount of compensation that would be required. This is represented by the area of the triangle between I_0 and I_1 , bounded by the supply and demand curves.

The perceived existence of a financing gap has provided the motivation for expanding the availability of concessional financing in CEE countries. There is also a temporal dimension to the financing gap, because it is assumed that demand and

² A more complete presentation of the notion of a financing gap is provided in Anderson and Zyllicz (1998)

supply are fixed during the timeframe during which there is interest in increasing the level of investment, so that the financing gap can only be closed through concessional sources. During the current period of transition in the CEE region, demand and supply have shifted slowly in most countries. Over time, the desired level of investment could be achieved without closing the financing gap if demand and supply both shift to the right with the point of intersection associated with I_1 instead of I_0 .

Annex 2

Environmental Financing: Experiences of CEE Countries

A2 1 Environmental funds

Since the beginning of the transition to market economies, environmental funds have been a mainstay of CEE countries' efforts to address the legacy of environmental damage and misallocation of natural resources. Nearly all countries in the region have at least one environmental fund and a few countries (Poland, Lithuania, Latvia, Bulgaria) have two or more. The funds share a common goal – assisting in the co-financing of environmental activities – but differ in their size, organizational structure, procedures for selecting projects, sources of revenue, and methods of disbursement.

This section provides a brief description of environmental funds in the CEE region. It is organized into three sections. The next section provides an overview of environmental expenditure activity and discusses the likely shifts in demand in the next few years. The subsequent section provides an overview of key features of environmental funds. The final section includes a series of questions that serve as a framework for analyzing the role and performance of environmental funds.

A2 1 1 Environmental expenditures

To provide some context for examining the role of environmental funds, it is useful to review the level of environmental investment and the likely changes in activities in the next few years. Although there are large differences in the quality of investment data and methods of categorizing expenditures in the CEE countries, expenditure data have been developed for several CEE countries using the Organization for Economic Cooperation and Development's (OECD) Pollution Abatement and Control (PAC) methodology. PAC expenditures are composed of two types of expenditures: (1) *investment expenditures* and (2) *current expenditures*, the latter representing O & M.

Table A2 1 presents PAC expenditures for selected CEE and OECD countries as a percentage of gross domestic product (GDP) and as a percentage of gross fixed capital formation. As a percentage of GDP, environmental expenditures for CEE countries are comparable to those for OECD countries. In Poland and the Czech Republic, PAC expenditures on investment are a larger percentage of GDP than total PAC expenditures in OECD countries. For the other CEE countries in the table, PAC expenditures, although significantly lower than for Poland and the Czech Republic, are comparable to several OECD countries. When PAC expenditures on investment are expressed as a percentage of gross fixed capital formation (one measure of overall investment levels), levels observed in Poland and the Czech Republic are significantly higher than in all OECD countries. Given the fact that *private* internal rates of return on environmental investments are typically negative or, if positive (e.g. for "win-win" investments), smaller than for economically motivated investments, these statistics suggest that CEE countries are willing to address environmental concerns, even if the opportunity cost is slower economic development.

Table A2 1 - PAC Expenditures (capital + current)*

Country	Year	% of GDP	% of Gross Fixed Capital Formation
Czech Republic	1994	2.7	9.0
Hungary	1996	0.61	-
Lithuania	1996	0.46	-
Poland	1996	1.7	6.5 (1995)
Slovenia	1995	0.44	-
Australia	1994	0.8	1.4
Finland	1994	1.1	3.0
France	1995	1.4	2.0
Germany	1994	1.4	2.8
Portugal	1994	0.7	1.7
Spain	1993	0.5	-
United States	1994	1.6	3.5

* CEE expenditures only include PAC investment expenditures
 Source: OECD, Summary Table 1, 1998, COWI, 1998

Current demand for environmental investments is considerably lower than levels of expenditure that will be required for CEE countries to meet EU environmental requirements. Table A2 2 presents estimates of the total investment that will be needed to meet requirements for water, air, and waste. Even if these investments are implemented over a 10 year period, they represent a substantial increase in expenditures compared to current levels. For example, current per capita expenditures in Hungary, Lithuania, and Poland are \$26, \$12, and \$58 respectively (COWI, 1998).

Table A2 2 - Estimated Total Investments in CEE Countries

Country	Water (BECU)	Air (BECU)	Waste (BECU)	Total/Capita (ECU)
Bulgaria	4.9	5.1	1.8-5.1	1668
Czech Republic	3.3	6.4	0.8-3.8	1427
Estonia	1.5	-	-	-
Hungary	6.6	2.7	2.1-4.4	1306
Latvia	1.71	-	-	-
Lithuania	2.38	-	-	-
Poland	18.1	13.9	2.2-3.3	927
Romania	10.1	9.1	1.0-2.7	943
Slovak Republic	1.9	1.9	0.3-1.6	760
Slovenia	-	0.69	1.15	-
Total	50.5	48.2	9.7-22.7	-

Source: EDC, 1997

A2.1 2 Overview of CEE Funds

Environmental funds are institutions which are endowed with working capital that is allocated to environmental activities. Environmental funds can support investments in environmental improvements, research, education, and environmental management.

expenditures such as purchase of monitoring equipment and outfitting of laboratories. The primary functions of the fund is to decide which activities should receive support and monitor implementation of supported activities. Nine CEE countries have established thirteen national environmental funds. In addition, there are regional funds in Poland and municipal funds in Poland and Lithuania. Although some environmental funds existed in the 1980s, most CEE funds have operated in their current form only since 1989 (Polish National Fund) or the 1990s. Key features of CEE environmental funds are described below. In addition, information on revenues, sources of revenue, and disbursement mechanisms is provided for selected CEE funds in Table A2.3.

Table A2.3 - Environmental Funds in CEE Countries

Country and Fund	1996 Revenues	Major Sources of Revenue (% of revenue)		Major Disbursement Mechanisms (% or funds)	
		Leading Source	Second Source	Major Mechanism	Second Mechanism
Bulgaria National Environmental Protection Fund	8.9 mill USD	Carryover - 31%	Import Duty on Used Cars - 21%	Grants - 46%	No interest loans - 45%
Bulgaria National Trust Fund	5.5 mill USD	Debt Swap - 74%	Profits/financial operations - 23%		
Czech Republic State Environmental Fund	197 mill USD	Env Fees - 49%	Privatization proceeds - 37%	Grants - 55%	Soft loans - 43%
Estonia National Environmental Protection Fund	6.7 mill USD	Env Fees - 50%	Water use charge - 21%	Grants - 95%	Soft loans - 1%
Hungary Central Environmental Protection Fund	93 mill USD	Fuel charges - 47%	Product charges - 29%	Grants - 51%	No interest loans - 17%
Poland National Fund for Environmental Protection and Water Management	433 mill USD	Env Fees - 49%	Loan repayments - 30%	Soft loans - 64% in 1995	Grants - 18% in 1995
Poland EcoFund	31.3 mill USD	Debt Swap - 89%	Profits/financial operations - 10%	Grants - 100%	-
Poland Cracow Regional Environmental Protection Fund	17.2 mill USD	Env Fees - 61%	Profits/financial operations - 28%	Soft loans - 73%	Grants - 24%
Slovak Republic State Environmental Fund	42.7 mill USD	Env Fees - 67%	State budget - 22%	Grants - 100%	-
Slovenia Environmental Development Fund	24.5 mill USD	Carryover - 38%	Privatization proceeds - 23%	Soft loans - 100%	-

Source: OECD and Regional Environment Center, 1998.

Institutional Structure

CEE environmental funds take one of two forms. Most of the national environmental protection funds are either a part of or under the supervision of the Ministry of Environment (MoE). For these funds, the Minister plays an important role in determining the expenditure policies and priorities of the funds and may even make the

final decision on which activities receive support. The remaining environmental funds are independent, although the linkages between the MoE and the environmental fund may be quite strong (e.g., MoE participation on supervisory boards, approval of annual budget, ministerial powers to select fund managers and supervisory board members). Organization of environmental funds as independent entities has been the favored approach for *debt-for-environment swaps* in Poland and Bulgaria, and investment funds capitalized by donors or IFIs (Latvia and Slovenia). Among environmental funds that rely on domestic revenues, only the national and regional funds in Poland are independent (although the Polish Minister of Environment selects all supervisory board members for the national fund).

Project Cycle Management

The process by which funds make decisions on and implement disbursements is referred to as project cycle management. Project Cycle involves the following steps:

- Project identification and preparation
- Appraisal and Selection
- Negotiation and award of financing
- Monitoring of implementation
- Post-implementation evaluation

All CEE environmental funds have formal or informal procedures for identifying, assessing, and selecting projects to receive financial support. The *St Petersburg Guidelines*, developed in 1994 as part of the EAP Task Force activities, enumerates criteria for evaluating fund performance and describes best practices. While the *Guidelines* document acknowledges a wide variety of project cycle management approaches, it emphasizes transparency and accountability as essential attributes. The Polish EcoFund (debt-for-environment swap) was acknowledged as having the best project cycle management among CEE funds at the time of the St Petersburg Conference. The EcoFund's approach to project cycle management is summarized in Table A2.4. Since then, a number of Polish regional funds and all of the environmental funds established since the *Guidelines* were developed have included adoption of formal project cycle management procedures.

Revenues

There are a number of very large environmental funds in CEE countries (Table A2.3) led by the Polish National Fund and the Czech State Environmental Fund. With the exception of the debt-for-environment swaps, environmental investment funds in Latvia and Lithuania, and the environmental development fund in Slovenia, all of these funds rely on domestic sources of revenue. The major sources of revenue are environmental fees.

Table A2 4 - Project Cycle Management at the Polish EcoFund

Illustration of the Project Cycle: Polish EcoFund		
Stage of Project Cycle	Applicant Action	Fund Action
Project Identification and Preparation	Prepare Project Questionnaire Submit to Fund If accepted prepare Application	Review Questionnaire in terms of eligibility criteria and fund priorities Advise applicants, provide explanations for rejected projects
Appraisal and Selection	Submit Application Respond to additional information requests	Review applications for completeness Evaluate in terms of selection criteria Make recommendations to Supervisory Board Select projects
Negotiation and Award of Financing	Review proposed contract terms Sign contract	Prepare and revise contract Disburse funds
Monitoring and Implementation	Implement project Provide progress reports	Inspect project Review progress reports
Post-implementation Evaluation	No current requirements	No current requirements

(and fines) and various product charges. Since the majority of these fees and charges are paid by facilities, the role of the funds can be characterized as *recirculating* revenues, albeit to priority projects. Other sources of revenues include proceeds from privatization transactions, loan repayments (see discussion in next section), and profits from financial activities (primarily interest on bank deposits). Table A2 5 provides additional detail on revenue sources for Polish environmental funds.

Disbursements

Almost all disbursements are in one of three forms: grants, soft loans, or interest subsidies. Grants are the most common type of disbursement and the most desirable from the perspective of the project proponent, since there is no requirement to pay back the amount of the award. Soft loans refer to credits that have terms and conditions that are not available in commercial credit markets: lower interest rates, allowance for grace periods, and longer repayment periods. As loans are repaid, the working capital of the fund increases and the fund *revolves*. For example, loan repayments represent 30% of annual fund revenue of the Polish National Fund. Interest subsidies are used by the Polish national and regional funds. The fund pays the subsidy to the bank so that the interest rate received by the borrower can be reduced. This mechanism encourages capital market

participation in environmental financing and increases the fund's ability to *leverage* its resources. Additional detail on disbursements from the Polish environmental funds is provided in Table A2.6

Table A2.5 Revenues - Polish Environmental Funds

	National Fund	49 Regional Funds	Polish EcoFund
1995 Revenues	US\$ 428 million	US\$ 306 million	US\$ 31 million
Environmental Fees & Fines	53%	79%	-
Lending Operations	25%	14%	-
Capital Markets & Interest	9%	6%	-
Mining Fees	12%	-	-
Debt-for-Environment Swaps	-	-	100%
Other	1%	1%	-

A2.1.3 Performance of CEE Environmental Funds

The brief analysis of CEE environmental funds below focuses on a few key issues: the role of funds in the transition, funds as subsidy instruments, potential for funds to crowd out capital markets, management of funds, and strategic value of funds.

The role of funds in the transition to market economies

Revenues recirculated by CEE environmental funds are an important source of revenue, accounting for 32% of all environmental investment expenditures in Poland and more than 20% in other CEE countries (COWI 1998). During the transition period, CEE countries are in various stages of strengthening environmental management and enforcement capabilities, overall enforcement is weak and financing from funds serves as a catalyst for investments that would not voluntarily be undertaken by project proponents. In addition, funds provide a response to capital market failures, providing a source of "gap" financing.

Much ado about subsidies

The *Polluter Pays Principle* (PPP) states that the polluter is financially responsible for meeting environmental standards set by government authorities (OECD, 1994). Fund disbursements which have a subsidy element violate this principle since the polluter does not pay the full cost of achieving the goal. There has been much discussion of the provision of subsidies by CEE environmental funds in various policy fora. The UNECE Committee on Environmental Policy supports the use of earmarked environmental funds and eco-banks during the period of transition or for special purposes such as remedying past contamination. In addition, some OECD countries acknowledge that environmental

funds do not violate the PPP if the revenues disbursed are collected from fees on pollution (Anderson and Zyllicz, 1995)

Table A2.6 Disbursements - Polish Environmental Funds

	National Fund	49 Regional Funds	Polish EcoFund
1995 Revenues	US\$ 428 million	US\$ 306 million	US\$ 31 million
Disbursements by Environmental Problem			
Water Pollution	30%	44%	-
- Baltic Sea	-	-	24%
Air Pollution	48%	35%	-
- Transboundary	-	-	23%
- Global	-	-	37%
Waste Management	5%	9%	-
Nature Protection	3%	2%	15%
Mining & Geology	10%	-	-
Other	4%	10%	-
Disbursements by Mechanism			
Grants	27%	33%	100%
Soft Loans	64%	59%	-
Interest Subsidies	4%	1%	-
Equity Investments	3%	3%	-
Other	2%	5%	-

The attention that the subsidy issue has received is somewhat puzzling given the legacy of subsidies in both the public and private sectors in OECD countries (Anderson, 1998) Many OECD countries still provide subsidies for public sector environmental infrastructure, although these have been reduced in recent years During the 1970s, when OECD countries were beginning to address environmental problems, infrastructure investments received subsidies in most countries of over 50%, mostly in the form of grants Some of the inefficiencies that have been associated with the construction grants program in the United States are less likely to result in the CEE because the financial support available from funds is more limited and competitive

Funds and capital markets

Environmental funds have also been criticized because they represent a potential barrier to the formation of capital markets for environmental investments By providing subsidized or concessional financing, fund discourage applicants from arranging finance from banks and other financial or capital institutions There appears to be no compelling evidence to support these claims Given the low level of demand for investments, which largely results from lax enforcement of environmental regulations, project proponents can "shop"

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for the best deal. In most CEE countries this means securing concessional financing. When concessional financing is not available, there is evidence from a study in Poland that the project proponents either postpone investments or use own resources to close the financing gap (Anderson and Zyllicz, 1998). Commercial credits rates are not yet attractive to facilities and lax enforcement allows facilities to delay compliance decisions. In addition, interest among banks in supporting investments in the environmental field is currently limited as well. Most CEE banks lack the expertise to evaluate environmental investments, in part because there is not adequate demand for credit to provide incentives for banks to develop these capabilities.

One positive development in fostering a greater role for capital markets in the environmental sector has been the cooperation between CEE environmental funds and banks in Poland, Latvia, and Lithuania (proposed). Banks can perform the financial appraisal of applications for soft loans, manage loans for the funds, or issue loans where the fund provides an interest subsidy or guarantees the loan.

Management

One of the major concerns about CEE funds has been the lack of adequate procedures and checks and balances to ensure transparency and accountability. In the absence of transparent criteria for selecting projects, provisions for informing applicants of rejected projects of the reasons for rejection, and reporting requirements, environmental funds have the potential to be misused and manipulated for political purposes or personal financial gain. This has been a very difficult issue to address in the CEE because of low public salaries and a level of cynicism leftover from years of living in a political meritocracy. The Polish National Fund, which is often held up as the shining star among CEE funds because of its size, innovations, and independence, has not adopted selection criteria and is controlled by a supervisory board where all the appointments are made by the Minister of Environment, who in turn is a political appointment. Whether it happens or not, such a system invites corruption among fund staff and board members for supporting projects. While there have been a few scandals surrounding environmental funds in the region, funds for the most part operate in a responsible way even without appropriate formal project cycle provisions. And some funds are exemplary in their management practices. Last year, the OECD and EU-PHARE jointly conducted a management review of the Polish EcoFund. In assessing EcoFund's additionality, the review stated

Much of EcoFund's additionality stems from rigorous project cycle management procedures based on a strict framework of clearly defined environmental priorities and project eligibility criteria, clear requirements for, and strictly professional relations with, applicants, clearly defined appraisal criteria emphasizing environmental benefits and cost-effectiveness, and careful monitoring of projects to ensure proper use of funds and achievement of environmental effects (EAP Task Force, 1998, p 3)

Strategic role of funds

As demand for investments increases in response to EU compliance schedules, there is likely to be keen competition for fund support. Some funds have already experienced an increase in demand for financing and have revised co-financing rates (i.e., reduced the level of support provided for individual projects) and explored the expanded use of mechanisms which have smaller subsidy components than traditional grants. As discussed earlier, funds should be encouraged to cooperate with banks and to effectively utilize banks comparative advantage in financial appraisal and ability to raise capital. A critical need is for funds to develop a greater appreciation for cost-effectiveness and to develop criteria to ensure projects achieve their goals at least cost. The potential of using funds as strategic partners of ministries in initiating compliance programs, attracting donor technical and financial assistance, encouraging the transfer of technology, and developing domestic capabilities to produce environmental control equipment and provide services is largely untapped.

A2.2 Special-purpose Financing Facilities

A2.2.1 National Pollution Abatement Facility in Russia

The National Pollution Abatement Facility (NPAF) was created in Russia, financed by a \$55 million loan from the World Bank augmented by \$13 million in grants from Switzerland. The NPAF provides loans for 70% of project costs on terms that are attractive compared to those available from Russian commercial banks (9.4 to 11% nominal interest rates, up to three year grace period and 8-year payback period vs 25 to 40% interest rates and 2-3 year payback period on commercial markets). The NPAF supports win-win investments yielding positive net economic benefits and pollution control investments (if the enterprise can demonstrate adequate financial resources to repay the loan). Through 1997, the NPAF had received 450 applications, of which 39 have satisfied NPAF selection criteria and have been recommended for further development or detailed appraisal studies (Averchenkov, 1997). The World Bank loan has been secured by a sovereign guarantee and the Ministry of Finance (MoF) on-lends on behalf of the NPAF facilities. While this approach has advantages (applicant confidence in the lender, transparent procedures and MoF monitoring), the effective cost of loans is increased because MoF requires the applicants to secure bank guarantees or to deposit loan payments for six months in advance in escrow accounts.

The second stage of the NPAF under development will involve a more region-oriented approach, with loans on-lended through financial intermediaries acceptable to MoF (commercial banks, regional environmental fund, or other institutions) and with repayment guarantees required by MoF made by regional government. Commercialization of existing environmental funds or creation of new pollution abatement facilities capitalized by IFI loans may be a promising approach in the NIS region provided there is adequate capacity to prepare projects and manage the project cycle, demand for financing, and adequate supply of co-financing. Funds might be able to meet IFI financial appraisal requirements through cooperation with commercial banks or other financial

intermediaries Technical assistance provided by donors could be essential to develop the institutional capacity to operated funds on a commercial basis

A2 2 2 NEFCO Cleaner Production Facility

The Nordic Environmental Finance Corporation (NEFCO) has set up a revolving facility for cleaner production investments The Facility will be initially capitalized with 15 million DKK for projects in northwest Russia (10 million DKK) and Lithuania (5 million DKK) The Facility is designed to provide financing for up to 90% of project costs (in exceptional cases, up to 100%) for investments between \$50,000 and \$200,000 with short payback periods of up to three years Priority for financing will be given to customers who have participated in programs provided in Lithuania and Russia through the Cleaner Production Centres NEFCO plans to cooperate with the Russian NPAF and Lithuanian Environmental Investment Fund, which can support larger projects The Facility's operating expenses will be covered from an up-front loan processing fee

A2 2 3 Commercial Credit Facilities

As noted earlier commercial banks have not played a significant role in financing environmental investments in the region Partly, this is the result of low demand among project proponents for commercial credit as well as non-environmental lending opportunities which are more attractive to banks In the case of environmental win-win investments, banks may simply lack familiarity or experience in assessing these types of projects There are some promising developments in the role of banks in environmental financing, including cooperation with environmental funds, IFIs, and donors

Cooperation with environmental funds may include the following management of the fund's loan portfolio and/or preparation of financial appraisals of projects or providing capital for loans where the fund provides an interest subsidy and/or administrative fee Environmental funds may encounter difficulty in providing competitive salaries for highly skilled staff that can conduct financial appraisals and manage a loan portfolio This is particularly true if salaries are based on rates for civil servants Some environmental funds in CEE countries have contracted with commercial banks to provide these services One of the critical issues of this type of cooperation is the allocation of risks of default on loans between the environmental fund and the participating bank If the goal of the environmental fund is to revolve, shifting the risk to the bank is preferred, provided the administrative fee is not too burdensome In addition, the bank could be expected to carry out its management responsibilities more effectively if it bears the risks The National Fund in Poland employs interest subsidies to finance a portion of approved loans The National Fund pays an interest subsidy to the Bank of Environmental Protection, which lends the Bank's resources and manages the Fund's loans

The high costs of project appraisal, monitoring and evaluation required for IFI loans typically precludes small loans In addition, IFIs may require sovereign guarantees to provide loans for public sector investment projects To assist with financing of smaller loans, IFIs can cooperate with commercial banks on credit lines and on-lending arrangements The credit lines can be for specific types of investments and involve a loan

to the participating bank at IFI terms. If prevailing interest rates in the country are substantially higher than rates available from the IFI, the credit line can be an attractive financing facility for the commercial bank. Often, staff at the commercial bank receive environmental due diligence training before the credit line is initiated. A related approach is illustrated by cooperation between EBRD and Hrvatsk Bank in Croatia (Municipal and Environmental Infrastructure Project). Through a loan to Hrvatsk Bank, EBRD is able to direct its resources to a number of smaller municipal infrastructure projects. Since the local bank assumes the risk of the loan, EBRD doesn't have to require a costly financial appraisal of the municipalities. A third related financing mechanism involving cooperation between banks, IFIs and donors are energy efficiency funds (EEFs) that have been established in CEE countries since 1995. Eight EEFs have been established in six countries to support energy efficiency investments in the industrial and/or municipal sectors. The average fund size is 5.8 million ECU (Stratford, 1997) with capital provided by EU-PHARE, the World Bank, and EBRD. Generally, the EEFs provide 70-80% of costs for projects in the range of \$100,000 to \$400,000. The commercial bank, which serves as the fund manager, underwrites the commercial risk of lending but is compensated by a negotiated margin of 5-8%. The loans have a 2 to 3 year grace period and must be paid back over 3 to 7 years. The EEF mechanism not only supports energy savings and reduced pollution but also has made commercial banks aware of a potential market niche.

A2.2.4 Loan Guarantees

A loan guarantee is a mechanism by which a third party assumes a legal responsibility to compensate a lender if the borrower defaults on a loan. Theoretically, loan guarantees can be provided to any legal entity with the necessary financial resources which is acceptable to the lender. Sovereign guarantees are provided by national governments. Banks and other financial institutions may also provide guarantees. Loan guarantees have been evaluated for potential use by environmental funds to leverage fund resources and increase the involvement of commercial lenders in environmental investment. Depending on the credit risk associated with the proposed loan, the guarantor may be required to reserve or hold only a portion of the loan amount. From an environmental fund's perspective, the provision of guarantees might enable the fund to support a volume of investments that is four to five times the amount of resources required for the guarantee. Loan guarantees have been provided by the Czech State Environmental Fund, but other funds have not yet utilized this mechanism.

IFI requirements that loans be secured with sovereign guarantees is a potential impediment in the CEE/NIS region, particularly when the loan is to be used for municipal projects. The sovereign guarantee represents a liability which central governments are increasingly unwilling to take on for projects with localized benefits. For the St Petersburg Water and Environmental Services Improvement Project, EBRD will allow project proponents to secure a loan using a municipal guarantee. Whether guarantees by sub-national governments are acceptable will be evaluated on a case-by-case basis with consideration given to country-specific factors and the legal setting. Another approach to sovereign guarantees that might be acceptable to central governments is to negotiate an agreement between the regional or local government and the central government that effectively shifts the liability from the central government. This approach may be

particularly useful where a large loan includes a number of regional components (e.g., the proposed \$200 million World Bank loan to Russia for the Environmental Investment Project)

Annex 3

Other Financing Programs

A3.1 Tourism and Environment Fund

In addition to the EPF, a possible domestic source for environmental investments is the Tourism and Environment Fund, which receives 25 percent of the revenues from the tax on airline tickets issued in Egyptian currency, levied since 1986. The airline companies are responsible for collecting this tax and revenues are then deposited in a special account in the Central Bank of Egypt. The fund can be used for the following: to develop tourism areas, improve hotel and airport services, beautify antiquity sites, and finance pollution prevention and environmental preservation projects, based on guidelines prepared by the Minister of Finance and approved by the Prime Minister. The Minister of State for Environmental Affairs is a member of the inter-ministerial committee that oversees this fund. The committee also includes several other ministers, whose decisions regarding funds disbursement must be endorsed by the Prime Minister.

The committee overseeing the fund has met within the last few months, after being inactive for a long period. Funding was voted for several projects from the existing backlog of projects (At the time of this report drafting, a list of the approved projects was not available.) There are no guidelines on how the fund's resources are spent on the various types of projects covered by the fund, but to the extent that environmental projects are approved, it does represent a potential source of financing for environmental projects. While the fund is available for projects initiated by the government, it does not appear to be suitable for co-financing of environmental compliance investments proposed by facilities. As noted earlier, revenues for this fund are expected to decline as a result of changes in the airline tax.

A3.2 Donor-Supported Programs

Although there are many donor-funded programs in the field of environment in Egypt, only a few of these programs include explicit financing components available to industry. Most focus on providing technical assistance coupled with direct financial assistance in the form of equipment or machinery. An example of this type of project is the USAID-funded Energy Conservation and Environmental Protection Project (ECEP), which has undertaken energy audits in industrial and commercial enterprises and subsequently has provided some of these enterprises with energy efficiency equipment.

In contrast, the programs detailed below have established, or are in the process of establishing, financing programs to provide soft financing for environmental projects. In some cases, financing is offered in conjunction with technical assistance for project preparation. Most of the donor programs mentioned here offer only partial financing in the hope of leveraging resources and maximizing the benefits of available funds. It is also worth noting that almost all programs end within the next five years with no plans for extensions.

A3.2.1 KfW Financing Facility for Private Sector Industry

This facility, with a total volume of DM 64 million, is extended by the KfW

within the framework of Egyptian-German financial cooperation and aims to improve investment in the Egyptian private sector. Particular emphasis is given to investments related to environmental protection (both pollution prevention and end-of-pipe treatment). Such investments are eligible for a grant of 25 – 50 percent of the investment cost. Of the total, DM 49 million is provided as loans and DM 14 million as grants. In addition, a DM 1 million grant is provided for consultancy services for applicants. Financing is available through three local private sector banks and applicants apply through them. Maximum funding per project is DM 4 million.

The DM 49 million credit component covers financing of imported equipment but is not tied specifically to German products. The fixed interest rate loans are medium- to long-term (5-8 years) and repayment starts after an initial grace period of twelve months.

The DM 14 million grant facility is only available to loan applicants and may be utilized to finance both imported and locally produced equipment. Projects that incorporate pollution prevention components may receive grants covering up to 25 percent of total investment costs whereas end-of-pipe projects are eligible to receive grants of up to 50 percent of total investment costs. In addition, grant financing is available for consultants to perform environmental audits and studies necessary to prepare project applications.

All projects have to be reviewed and approved by each of the following: (1) one of the participating banks, (2) an Egyptian consultant who verifies project compliance with local environmental regulations and standards, and (3) the KfW.

The facility has been operational since December 1994. Although financing is currently still available, funds are expected to be exhausted soon due to increased interest by investors in the program in the past year. The participating banks have attributed the recent level of interest in the program to increasing public awareness of Law 4/1994 compliance requirements and deadlines.

A3 2 2 KfW Financing Facility for Public Sector Industry and Public Utilities

A newer program, the KfW Public Sector Facility is also part of Egyptian-German Financial Cooperation agreements and consists of a DM 50 million grant to finance environmental investment in the public sector in addition to a DM 6 million grant for technical assistance. Financing is available through five local banks with project technical support provided by the EEAA, independent consultants and the KfW.

For the time being the program is limited to funding wastewater projects in four industrial subsectors: pharmaceuticals, food processing, engineering and chemical manufacturing. In the case of end-of-pipe projects, grants for 50 percent of total project costs are available. For environmental projects the grant component is for 25 percent of total project cost. The ceiling for the grant portion per project is DM 3 million. In both cases, grants are coupled with commercial loans extended by the participating banks at minimum market interest rates. Loans are for 3-5 year periods with an initial 12-month grace period.

Facility staff has undertaken pre-screening activities to identify enterprises

eligible for financing in each of the four subsectors To date, 116 facilities have been identified as eligible of which 48 have submitted applications to the participating banks for financing A three-step review process follows initial project acceptance First, the bank assesses the creditworthiness of the firm Subsequently, the project application is examined by KfW to assess the future viability of the enterprise Finally, a joint Egyptian-German group of consultants assesses the technical feasibility of the project

Pre-screening activities started in 1996 To date, no funds have been disbursed, however, based on project applications received, it is expected that funds will be exhausted in three years

A3 2 3 Egyptian Pollution Abatement Program (EPAP) Financial Component

This recently initiated program, which includes investment, institutional and industrial components, aims to strengthen compliance monitoring and enforcement capabilities of the EEAA Assistance is concurrently provided to industrial establishments in the preparation of Compliance Action Plans (CAPs) and Pollution Abatement Action Plans (PAAPs) In addition, the US\$ 35 million investment component will provide industry with opportunities to finance compliance initiatives The EPAP is funded from the following sources a US\$ 5.9 million grant from the Finnish government for the institutional and industrial components and loans for US\$ 35 million from the World Bank The Government of Egypt has secured additional financing from the European Investment Bank (ECU 15 million) The World Bank loan will be used to finance industrial pollution abatement projects in Cairo, Alexandria, Suez and Ismailia The EIB loan would be unrestricted in terms of potential beneficiaries

The World Bank funds will provide funding for specific projects in the form of a 20 percent grant component and 80 percent loan, whereas the EIB loan will provide interest subsidies coupled with long loan repayment periods Both facilities will be managed by the National Bank of Egypt (NBE) or any other bank that reaches an agreement with the NBE The EIB loan is operational and negotiations are currently underway to determine the details of the financial package GOE ratification of the World Bank loan is expected in the next parliamentary session

A3 2 4 Egyptian Environmental Initiatives Fund (EEIF)

The US\$ 20 million EEIF is a new program funded by the CIDA under the framework of Egyptian-Canadian financial cooperation The seven-year project has three target groups existing SMEs, NGOs and "Green Businesses"

Disbursements for individual projects will be managed by one or more public sector banks and will be in the form of a combination of grants and soft loans The credit component will be designed to form a revolving fund, which could later be managed by a NGO after the project ends Public sector banks with their large number of branches throughout the country have been selected as more appropriate partners to ensure accessibility of funds to a wider group of potential applicants Total maximum funding that may be disbursed in either grant or loan form to any one project is US\$ 0.5 million

The initial design of the project requires applicants to submit a preliminary application form to the project office, which if accepted is referred to a technical review committee. Subsequently, the application is assessed for financial soundness by one of the participating banks. After approval of the preliminary application, the project is eligible to receive technical assistance to help prepare the full-scale project application.

Initially, a pilot project for each target group will be undertaken in Ismailia in July 1998 to test project cycle procedures and determine whether the project will be limited to certain geographical areas.

A3 2 5 International Finance Corporation/Global Environment Facility SME Program

The SME program is a joint initiative of the Global Environment Facility (GEF) and the International Finance Corporation (IFC). US\$ 20.8 million in funding has been provided by the GEF with IFC acting as the executing agency. The objective of the program is to encourage greater private sector involvement in addressing two specific GEF objectives – the sustainable use and conservation of biodiversity and the reduction of greenhouse gases. Institutions experienced in working with SMEs in GEF eligible countries may apply for long-term low interest loans which are then used to provide debt or equity financing to SMEs working in the target areas. Maximum loan size to intermediaries is US\$ 1 million with a loan ceiling of US\$ 250,000 for SMEs.

Although not specifically targeted towards Egypt, several Egyptian enterprises have applied for funding through this facility. To date, the only Egyptian project that has received funding is a project promoting the use of energy efficient light bulbs.

A3 2 6 Social Fund for Development

The Social Fund for Development (SFD) was established by Presidential Decree in 1991 to alleviate the effects of the government's Economic Reform and Structural Readjustment Program (ERSAP) on low-income segments of the population. It is an autonomous governmental agency working under the direct supervision of the Prime Minister and financed by the Government of Egypt (GOE) in cooperation with the European Union, the World Bank, Arab funds and other donors. Resources committed to Phase II of the SFD in the form of both grants and loans are US\$ 700 million. These funds are administered according to GOE laws and regulations with disbursements made according to project appraisal and financing mechanisms defined under bilateral agreements with individual donors.

The SFD has five core programs: the Public Works Program, the Community Development Program, the Enterprise Development Program, the Employment and Retraining Program, and the Institutional Development Program, in addition to one independent unit, the Gender Unit. In general, loans are directed towards income-generating activities, while grants are used to finance infrastructure development. Although none of the programs is specifically targeted towards environmental projects, the Public Works Program does consider environmental impacts of proposed projects during the appraisal process. In addition, the Public Works Program also has financed

solid waste management projects as well as potable water and sanitary drainage projects under its social infrastructure window

Currently, the SFD is considering options for the provision of financing for environmental investments in collaboration with the Ministry of State for Environmental Affairs as well as private sector banks and environmental service providers. In fact, EEAA and the SFD are currently preparing a cooperation protocol



Annex 4

Interviews and “Best Practices” Workshop

List of Interviews.

Mamdouh Thabet Mekky
El Shark Group for Leather
Chairman of FEI Chamber for Tanneries
Member of Parliament

Walid Gamal El Din
Terra Environmental Consultants

Yasser Sherif
Project Manager
Egyptian Pollution Abatement Project
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**BEST PRACTICES IN ENVIRONMENTAL FINANCING:
OPTIONS FOR EGYPT**

Agenda

9:00 – 9:15 Opening Remarks

9:15 – 10:30 Presentation

- The Costs of Environmental Improvement
- The Demand for Environmental Investment
- The Supply of Financing for Environmental Investment
- The Environmental Financing Gap
- Options for Increasing the Supply of Financing for Environmental Investments in Egypt

10:30 – 12:00 Open Discussion

Presented by:

**Dr. Glen D. Anderson
Consultant to Harvard Institute for International Development**

**Ramses Hilton, Heron Room
April 28, 1998
Cairo, Egypt**

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