

6 Issues on and Measures Taken for Natural Environment and Development

6.1 Natural Environment

(1) Issues on and Measures Taken for Biodiversity Protection

There is a lack of system in Egypt for collecting scientific data on its rich biodiversity and protecting natural heritage management, as well as degradation of natural environment from tourism, development and waste dumping.

In order to fulfill the obligation of a signatory country for the Convention on Biological Diversity, EEAA established NBU, or National Biodiversity Unit, within its Department of Nature Protection. NBU formulated National Biodiversity Action Plan in 1992 and began implementing National Strategy and Action Plan for Biodiversity Conservation in 1997. Furthermore, NBU established biodiversity bank to promote monitoring and management of biological resources, genetic bank to promote growth of and preserve genetic resources of endangered species, and project for developing Natural History Museum to conduct study and education on Egypt's rich biodiversity.

Proper management of hunting activity is also an important part of protecting biodiversity. There is variety of hunting in Egypt, including sports hunting, tourism, commercial and for living. Excessive hunting is threatening wild life in Egypt. Since 1992, some improvements are seen as to organize sports hunting for game birds in desert and monitoring system for hunting activities.

Other notable efforts include collection of ecological information using GIS and/or remote sensing technologies, management system in the nature protectorates, and introduction of charging fees to enter the protectorates to raise necessary fund for management cost in the protectorates.

These efforts need further improvement in their implementation/enforcement. Constraining factors include lack of funds and expert/dedicated staffs who are well trained in the area. Equally, environmental awareness is fairly weak among general public, which needs quantity of fund and staffs. For example, in the nature protectorates in Red Sea, facility like berthing facilities for patrol boats, and navigators for patrolling airplane body are inadequate.

EEAA has formulated five-year plan for 2000-2005 for achieving proper management of natural environment and protecting biodiversity.

Table 6.1: The Main Programs of the Five Year Plan (2000-2005)

Main Programs	Term
Improving the natural protectorate networks for urgent ecological systems	2000-2005
Using up to date technologies in improving, administrating, managing and conserving the natural protectorates	2000-2005
Upgrading the economics activities inside the protectorates	2000-2005
Establishing the Egyptian natural history museum	2000-2010
Establishing a national genetic center for inherited resources	2000-2005
Establishing a center for increasing the number of rare plants and animals, specifically those threatened by extinction	2000-2005
The national program for research and monitoring in the field of biodiversity	2000-2005
Encouraging eco-tourist projects according to the recent tourist criteria	2000-2005
Participating in the regional development for South Sinai in collaboration with the European Union	2000-2005
Developing medical plants adapted to arid ecological systems in collaboration with the UNDP	2000-2005
Other including programs	
Prepare an inventory of national biodiversity and natural heritages, and start a monitoring programs	2000-2005
National program for managing hunting	2000-2005
Program for managing natural heritages and resources	2000-2005
Program for international conventions compliance	2000-2005
Program for public awareness, education and training on the issue of natural heritages	2000-2005
Program for managing national wetland	2000-2005
Program for managing national marine and coasts	2000-2005
Program for managing national arid land	2000-2005
Program for managing and developing nature-based tourism	2000-2005

Source: The National Environmental Action Plan of Egypt 2002/17

(2) Issues on and Measures Taken for Forest Protection

1) Issues on and Measures Taken for Afforestation

Followings are main activities in afforestation projects.

- Use of treated wastewater in existing man-made forest.
- Research in seeding of trees (improving germination rate and preserving genetic characteristics)
- Introduction of new species (for higher economic yield)
- Enactment of afforestation legislation (clarify the importance of plantation in safeguarding food safety)
- Use of latest technologies such as drip irrigation and sprinklers in afforestation site.
- Introduction of new technologies for wastewater treatment, farming in salty land, and seed production.

Lack of sufficient fund is one of constraining factors contributing for afforestation project.

Examples of international assistances / projects:

- Afforestation projects are carried out with financial support from following institutions: ITTO, USAID, UNDP, WB, GTZ, WFP, FAO, MALR and other institutions.

Table 6.2: Major International Donors and Their Projects

Donors/Aid Institutions	Projects
Food and Agriculture Organization (FAO)	Egypt is a member of Near East Forestry Commission of FAO.
International Tropical Timber Organization (ITTO)	Afforestation of Serabium and Al-Kharga with Japanese support.
	Assessment and management of mangrove forests in Egypt for sustainable utilization and development
Japan (Private companies)	Utilization of sewage treatment technology with Effective Microorganisms (EM).
	Utilization of cultivation system for soil with high salinity content from fertilizer and biological agrochemicals.
France	Utilization of seed producing technology by nitrogen fixation.

6.2 Ambient Air Quality

Following section mainly discusses EEAA's effort to tackle issues on air quality degradation in Egypt.

Air Pollution

Regarding air pollution, following actions were listed in the National Environmental Action Plan of Egypt 2002/17.

1. Forming a strategy for controlling pollution and preventing smog episodes
Formulate a comprehensive strategy for controlling pollution and episodes with the results of two major projects: CAIP by USAID and EIMP by DANIDA.
2. Managing auto exhausts in urban and rural areas
Development of vehicle emission testing facilities and promotion of the use of CNG as a vehicle fuel. Lead-free gasoline has been introduced in Egypt.
3. Protecting air quality in rural area
Minimize open burning of agricultural waste and reduce exposure to pesticides and herbicides.
4. Reducing pollution from industrial activities within human settlements

Upgrading the industrial process and fuel combustion processes in small industrial businesses using cleaner production.

5. Managing and controlling air pollution from existing large industrial facilities and electricity power stations

Reduce air pollution in huge industrial area include Shoubra El-kheima, Helwan, Kafr El Zayat, Ameria, Max, Abu-Qier.

Establish an environmental friendly industrial zone

Major contributors of air pollution in urban area of Egypt are both stationary sources, like factory, and mobile sources, like vehicles. In Greater Cairo, automobile source is playing vital role. For dealing with mobile source, CNG fueled public buses and subsequent maintenance facilities were introduced in alternative fuel program under Cairo Air Improvement Project (CAIP). Also, as a vehicle emission testing program, furnishing testing equipment in private gas stations and testing on road (as a pilot project) were carried out. As for the stationary sources, on the other hand, CAIP focused on lead and implemented relocation of secondary lead smelters originally located in city of Cairo and upgrading the smelters. CAIP's activity is only a part of comprehensive actions for air pollution control, and there is a need to implement broad measures as noted in National Environmental Action Plan of Egypt. In addition, a severe air pollution episode known as 'Black Smoke (or Black Cloud), which resulted from open burning of solid waste and agricultural waste in harvest season, coupled with a metrological situation –was started to appear since fall of 1999. With support form DANIDA, EEAA developed national air quality monitoring network in Environmental Information Management Program, and developed pollution source monitoring system by transferring emission monitoring data of cement factories to EEAA. It could be said that EEAA has focused on monitoring activities.

6.3 Water Environment

Water Resource Management / Water Contamination

Many authorities are involved in issues on water resource management / water contamination in Egypt. According to National Environmental Action Plan of Egypt 2002/2017, following actions will be taken for water supply and pollution.

- 1) Water Quantity and Quality
 - a. Optimal use of available water resources
 - b. Groundwater development strategies

- c. Reuse of sewage water
- d. Water resources development
- e. Water quality protection and pollution abatement

2) Managing Lakes

- a. The Ministry of Water Resources and Irrigation and the EEAA have developed a program listed in National Strategy for Lakes rehabilitation and conservation

3) Protecting Coastal Water Quality

- a. Coastal Water Management Scheme of the MWRI

4) Drinking Water

- a. The MWRI has developed a program to improve the quality of drinking water.
- b. Introduction of drinking water fees

5) Wastewater and sewage water Management

- a. The Ministry of Agriculture and Land Reclamation has implemented a program for safer use of treated wastewater to plant timber trees.
- b. Impose fees on discharges of wastewater
- c. The Ministry of Health and Population in collaboration with the Ministry of Housing, Utilities and Urban Communities and other local administrations have developed a comprehensive and integrated program for wastewater collection and treatment.

Sewage system has been fairly well developed in urban areas like Cairo with cooperation with international donors; however, the sewage is not readily available in smaller cities and rural areas where people have no adequate wastewater treatment system. Agricultural canal for irrigation, drainage canal for agricultural waster, sewage, factory effluent, and illegal dumping of municipal waste, all of these situations are contributing to the degradation of water quality in brackish lakes in Northern Delta and Mediterranean Sea. There is an urgent need to tackle those pollution sources for improving agricultural canals. Effluent standards for industrial effluent have been established, and MWRI, MoHP, and EEAA are all conducting inspections and issues improvement orders. However, the overall enforcement capacity is said to be rather weak in Egypt.

6.4 Waste Management

In the National Environmental Action Plan of Egypt 2002/17, established by Egyptian Environmental Affairs Agency, the Government of Egypt stated that they recognize waste management as a first priority to create modern Egypt for the 21st century. In this action plan, following action plans were mentioned in the chapter of Environmentally Sound Management of Solid Wastes. Solid waste includes municipal wastes, non-hazardous wastes from commercial facilities, street sweepings and construction debris.

a. Managing Municipal Solid Waste

Establish the solid waste management program

User charges for solid waste collection and disposal

Deposit Refund schemes on certain containers

Table 6.3 shows the budget for solid waste management program of the National Environmental Action Plan of Egypt 2002/17.

Table 6.3: Budget Planned for MSW

Project	Investment cost (million LE)	O/M cost (million LE/yr)
Accumulation Removal	55	-
The integrated system in urban communities	-	-
1st stage (11 Governorates)	-	543
2nd stage (8 Governorates)	-	145
3rd stage (8 Governorates)	-	96
Construction of Landfills	70	-
Improvement of open dumping areas	20	-
Integrated systems in rural areas	-	72
Total	145	856

Source: Environment at the Center of Developing Egypt, 'The National Environmental Action Plan of Egypt 2002/17', 2002

b. Agricultural Waste

The Ministry of State for Environmental Affairs has prepared planned actions of agricultural waste management and recycle, especially focusing on rice straw.

Introduction of economic incentives

Table 6.4: Budget for Agricultural Waste Management Program

Project	Investment cost (million LE)	O/M cost (million LE/yr)
Compact and transfer 2.5 million tons of rice straw	25	25
Private sector implementation	-	-
Total	25	25

Source: Environment at the Center of Developing Egypt, 'The National Environmental Action Plan of Egypt 2002/17', 2002

c. Medical Waste

Establish the medical waste management plan

Introduction of economic incentives

Table 6.5: Budget for Medical Waste Management

Project	Investment cost (million LE)	O/M cost (million LE/yr)
Integrated waste management systems in hospitals	30	-
Private sector implementation	300	-
Total	330	-

Source: Environment at the Center of Developing Egypt, 'The National Environmental Action Plan of Egypt 2002/17', 2002

d. Construction Waste

Introduction of economic incentives.

Table 6.6: Budget for Construction Waste Management Program

Project	Investment cost (thousand LE)	O/M cost (million LE/yr)
Integrated system of construction waste	50	-
Design and produce containers and trucks	250	-
Prepare maps for suitable places of final disposal	50	-
Waste transportation by the private sector	-	35
Total	350	35

Source: Environment at the Center of Developing Egypt, 'The National Environmental Action Plan of Egypt 2002/17', 2002

Even with the development of above-mentioned measures, actual status of solid waste management in Egypt, as discussed in section 5.5 Waste Management, page 85, solid waste, especially municipal waste are serious problem, that include illegal dumping of municipal waste and unsanitary disposal of waste like open dumping. To tackle these problems, the Government of Egypt has developed 'The National Strategy for Integrated Municipal Solid Waste Management' in 2002. Based on this strategy and Polluter Pays Principle (PPP), waste management fee was started to be charged with electricity bill. The fee is proportional to the amount of electricity used. Furthermore, financial incentives (favorable tax for five years) has introduced for MSW collection and treatment services. Similarly, privatization of waste management practices for MSW has been promoted to achieve efficient and modern waste management system by private resource. Successful cases remained in large cities like Cairo and Alexandria, whereas smaller cities in rural area do not generate enough garbage to private sector to invest in this area. Agriculture is main activity in the Nile Delta region where as desert area is spread across in Western region. These characteristics restrict availability of land for municipal waste disposal site, which is leading to illegal dumping.