

Chapter 10: Industry

Introduction

Egypt has been suffering from industrial pollution for a period which is not short, negatively affecting the society and national economy. Undoubtedly, industrial development has been a major feature in Egypt during the last 50 years as a result of development and construction movement during this period. In addition, interest in industry role in achieving national development policy has increased.

However, interest in achieving standard rates for industrial development without previous environmental planning lead to natural resources deterioration and increased losses and consumption of raw material. This has basically contributed to ambient environment (water, air, and soil) pollution.

MSEA Achievements

Egyptian Pollution Abatement Program EPAP (First Phase). Achievement from 2004 to 2006

Egyptian Pollution Abatement Program EPAP (first phase 1997–2005) started with USD 35 million fund composed of a loan from the International Bank for Reconstruction and Development IBRD and a soft loan form the International Development Agency.

EPAP supports industrial facility to complying with environmental laws through providing soft loan packages including 20% grant to public and private sector enterprises. It also targets building capacities of inspection officials in EEAA RBOs and EMUs in four governorates: Cairo, Qaluibeya, Alexandria, and Suez. Environmental awareness on the importance of industrial pollution abatement raised, and industrial facilities encouraged to follow more procedures to comply with environment laws through adopting new strategies to reduce pollution, e.g., Cleaner Production and Integrated Pollution Prevention and Control.

First: Funding Component

- EPAP provided 35 Million USD to fund several industrial facilities.
- EPAP funded 14 sub-project in 11 companies within different industrial sectors (cement, fertilizers, metallurgy, petrochemicals, etc.) in Greater Cairo, Alexandria, Suez, Qena, and Sharqeya Governorates.

Environmental Success Stories Funded during EPAP First Phase

1. Egypt Aluminum Company (Egyptalum), Naga Hamady:

The project targeted changing gas purification stations which worked with the wet method to work with the dry method. In addition, the station collects gases emitted from aluminum production cells, removes suspended particulates, and recovers fluorides and

ammonia. This target was achieved through implementing gas purification station working using the dry method. The project investment cost is \$ 4.9 million.

2. Egyptian Petrochemicals Company:

The company funded two projects: installation of a gas absorption unit in chlorine plant to prevent chlorine emissions, and replacement of sulfuric acid concentration unit to prevent pollution originating from the old unit. The first project targeted eliminating poisonous chlorine gas emission to the ambient environment to comply with permissible limits stipulated in Law No. 4/1994 and to prevent wastewater pollution with sodium chloride resulting from sodium hypo-chloride cracking to comply with standards stipulated in River Nile Protection Law No. 48/1982 on discharging into water stream, in addition reducing chlorine gas losses.



Picture (10-1) Egyptian Petrochemicals Co.

The second project targeted preventing discharging diluted acid into industrial wastewater treatment plant and complying with standards and specifications of River Nile Protection Law No. 48/1982 on discharging into water stream and preventing acid vapor emission into work environment.

3. Egyptian Salts and Minerals Company (EMISAL) Fayoum:

The project benefited from treating raw sodium chloride precipitated in the evaporation ponds and reducing accumulated salts by 40,000 ton/year. Thus, solid waste problem and the associated dust emissions are reduced. This has been realized through establishing a sodium chloride refining plant. The project was financed by an investment cost of \$ 3.044 millions.



Picture (10-2) Egyptian Salts and Minerals Co.

4. Al-Ahram Beverages Company:

The project targeted treating wastewater to comply with the standards and specifications stipulated by law on protection of the River Nile and waterways against pollution, improving production process, rationalizing water and energy consumption rates after introducing modifications, control devices, and recovery systems for condensed vapor, inverted washing water from sand filters, and machine washing water. The project also targeted reducing pollution load from production units and applying CP techniques.

The project included providing technical support from the Ministry of Foreign Affairs of Finland. The company was supported during developing tender document, tendering procedures, selection of best evaluated offer and contracting.

The project investment cost is LE 6.2 millions. The project has been operating since August 2005.

5. Mansoura for Resins and Chemical Industries Company:

The company installed chemical treatment systems for wastewater discharged from phenolic resins department and for wastewater discharged from formaldehyde resins department. In addition to that, the company installed 560 m³/day wastewater biological treatment plant and the associated measurement laboratory. The company used to discharge industrial liquid wastes into an agricultural drainage; these contained high loads of BOD and COD, precipitated solid matter, oils, lubricants, phenol, and formaldehyde with concentrations exceeding permissible limits of discharging into the Nile, according to Law No. 48/1982.



Picture (10-3) Mansoura for Resins and Chemical Industries Co.

Second: Technical and Institutional Support Component

This component is targeting strengthening and raising the awareness of all project's stockholders to carry out their duties towards contributing to eliminating industrial pollution .

The GOE contributed to this component by LE 13 million grant, while the Finnish Government contributed by € 6.065 million grant.

Achievements of this component:

1. Staff training in EMUs and subordinate districts in Alexandria, Cairo, Qalubieya, and Suez on basic environment principles.
2. Development of sectoral manuals on industrial facilities environmental inspection in the following industrial sectors: paper, food, spinning and weaving, metallurgy, engineering, oils, soap, and detergents, construction materials, ceramics and cement, fertilizers, and paints. Development of sector manuals on environmental inspection of hazardous wastes, power stations, industrial wastewater treatment plants through local and Finnish experts. RBOs and EMUs staff training on using these manuals.
3. Development of sectoral manuals on self-monitoring of the following industries: paper, food, metallurgy, engineering, and paints. Development of sector manuals on self-monitoring of hazardous waste management, power stations industrial wastewater treatment plants.
4. Establishment of "Industry Unit" in EEAA to coordinate all industry-related activities, to place them in EEAA organizational structure, and to determine their assigned duties and action plan.
5. Amendment of the Executive Regulations of the Law on Environment Protection No. 4/1994, within the study prepared by institutional support project.
6. Development of compliance action plans for 55 industrial facilities.

Egyptian Pollution Abatement Project-Second Phase (EPAPII 2007–2012)

Preparation of this project started in March 2005 through attracting funding agencies to share in project funding. Practical project execution started in January 2007. The budget of this phase is about LE One Billion.

EPAP Objectives:

1. Reduction of pollution load originating from industrial facilities, to improve air quality and put an end to sever pollution episodes.
2. Development of sustainable mechanisms to effectuate pollution abatement projects, increase environmental compliance capability, and encourage Egyptian industry to conform production with the requirements of exporting and competing in international markets.
3. Enhancement of CP projects, these environmental projects contribute to decreasing raw material use and reducing wastes which leads accordingly to production increase.

Projects Recommended to be Funded:

1. End-of-pipe investments: such as air emission treatment and wastewater;
2. Resource conservation: water and energy
3. Integrated measures: such as adoption of clean technology, processing/recycling of industrial waste), industrial waste minimization, pollution prevention, and resource recovery and fuel substitution.
4. Work place environment: Sub-projects, which improve working conditions and work place safety.

Funding Component:

Soft loans provided to industrial facilities, re-lent through the National Bank of Egypt (80% as a loan, 20% as a grant). Funding value of this component amounts to:

- **20 \$ Millions USD** provided by the International Bank for Reconstruction and Development (IBRD).
- **40 \$ Millions USD (Equivalent)** provided by Japan Bank for International Cooperation (JBIC).
- **40 € Millions Euro** provided by the European Investment Bank (EIB).
- **40 € Millions Euro** Provided by the French Agency for Development (AFD).

Technical support component:

Technical Support is provided grants to the industrial enterprises which are funded through the financial component. Funding is provided by:

- **3 € Millions Euro** provided by the EIB
- **0.9 € Millions Euro** provided by the Finnish Government.

Third: Integrated Management Program for Lake Mariout Area (Global Environment Facility)

This program focuses on Lake Mariout protection and development and elimination of pollutants discharged into the Mediterranean Basin through a \$ 7.5 million grant.

Fourth: Project Executive Status

1. Total funding of \$ 80.5 millions has been made available to 13 companies in different industrial sectors.
2. Field survey has been developed; and investments required for compliance of industrial facilities – about 200 companies – have been calculated.
3. In this EPAP phase, focus is on Greater Cairo and Alexandria. This phase also included high-density areas concerning huge industrial facilities producing large loads of air and water pollutants, e.g. cement and steel factories, chemical industries, and tanneries. These areas include the following:
 - a. Cairo Governorate: Helwan, Tebeen, and Maadi (cement, steel, and coke plants).
 - b. Giza Governorate: Hawamdeya (sugar refineries), El-Saff, and Atfeih.
 - c. Qaluibeya Governorate: Shubra El-Kheima, Qaluib, Abu Zaabal, Qanater, El-Khanka.
 - d. Alexandria Governorate: Abu Qeir, Mariout, El-Max.