



4- Ozone Layer Protection

Introduction

Ozone is formed in the upper layers of the atmosphere (the Stratosphere) by the natural reaction between oxygen molecules and atoms. At the same time, Ozone molecules are split into oxygen molecules and atoms by absorption of ultraviolet rays (UV-B). Such reactions (i.e. ozone formation and decomposition) are natural, constant and balanced governed by atmospheric factors and chemical composition of the stratosphere. However, it was found that some chemical compounds emitted by human activities (such as nitrogen oxides, chlorofluorocarbons (CFCs) and Halons) help in accelerating the process of ozone molecule decomposition, hence, disturbing the existing natural balance leading to depletion of the ozone in the stratosphere (known as the ozone layer).

It is known that the reduction of 1% in the ozone layer leads to an increase of about 2% in the UV-B amount reaching the Earth surface. Such increase causes disorder in the human body immunity system resulting in increased exposure to the different infectious diseases, eye diseases, particularly cataract, and increased skin cancer incidents. On another hand, the increase in UV rays is accompanied by harmful impacts on a large number of plants including crops such as vegetables, soybeans and cotton.

Ozone layer protection being a global issue, the international community has taken preventive action by concluding the Vienna convention in 1985 (the Vienna Convention on Ozone Layer Protection) emanating from which the Montreal Protocol (on Substances that Deplete the Ozone Layer) was signed in 1987. The Protocol (with several amendments introduced thereon after) had developed a timeframe for reducing the

production and consumption of ozone-depleting CFCs and Halons.

Halons, refrigerant gases (Freons), methyl bromide, Carbon tetrachloride and Trichloroethane (Methyl chloroform) are major ozone-depleting substances. Though Egypt is not one of the countries producing such compounds stipulated upon in the Montreal Protocol and annexes thereof, however it imports these necessary substances many industries rely upon, and used in a cluster of daily practices by all people, regardless of their groups, races or places of living, worldwide.

Eliminating ozone-depleting substances require much coordinated effort among all governmental/private institutions and civil society organizations and full cooperation among the different international community groups at all the national and regional levels.

Egyptian environmental policy strived to facilitate compliance with the provisions of the Montreal Protocol on the Protection of Ozone Layer without prejudice to developmental programs or impact on State priorities for achieving sustainable development.

Egypt is keen on regional cooperation and coordination with Arab and African countries through exchanging information and data to ensure communication and exchange of experiences with other countries. Egypt is committed to submit required reports and data to the Protocol Secretariat with utmost accuracy and in a timely fashion.

During 2006, the Ministry of State for Environmental Affairs (MSEA), in cooperation with agencies concerned, had overseen the implementation of projects for introducing alternatives to ozone-depleting

substances, modern technology transfer activities and the replacement of old equipment and devices with new ones running on ozone-friendly substances in the different sectors, in addition to the implementation of awareness programs.

Full replacement of ozone-depleting substances (ODS) with ozone-friendly substances has been realized in the following sectors:

Foam Production Sector:

Full elimination of the use of ozone-depleting substances (CFCs) has been fully accomplished in 36 industrial facilities producing all types of foam. Worth noting, this sector used to consume 1302.8 tons of ozone-depleting substances.

Household Refrigerators Production Sector

Total elimination of the use of ozone-depleting substances (R-11, R-12) has been implemented in 28 industrial facilities producing household, commercial and industrial refrigerators as well as the introduction of new insulation and mechanical cooling circuit technologies. Ozone friendly products are currently widely marketed, particularly those based on R-134a in mechanical circuits and R-141B cooling gas in refrigeration insulation.

Industrial Solvents Sector

Full compliance of 9 national companies has been achieved, where annual consumption of depleting substances was reduced by 440 tons that were replaced by ozone

friendly substances. By the end of June 2007, the remaining 5 companies consuming 41 tons/year of Carbon tetrachloride and Trichloroethane as solvents for cleaning surfaces in optics industry, electronic products, metal industries and some plastic products will be phased-out.

Halons Sector

A national strategy has been developed for encouraging the use of Halons' alternatives. Hilwan Company for Engineering Industries is nominated for the management of the Halons Bank Project under UNDP and MSEA supervision. By the end of 2007, equipment needed for the Halons Bank Establishment and Management Project in Egypt will be fully installed and operational. The Bank's purpose is to provide vital sectors in Egypt with Halons used in fire fighting equipment and systems through recovery and recycling of Halons the importation of which will be banned by 2010.

Medical aerosols Sector

By the end of 2006, the Egyptian Pharmaceutical Sector Strategy had been developed aiming at transforming medical aerosols production lines using CFCs as propellants in manufacturing Meter Dose Inhalers (MDI) used in asthma and allergic respiratory diseases treatment. The Multilateral Fund (MLF) had approved funding the strategy in cooperation with the Ministry of Health and Population (MoHP) to phase-out consumption of these substances, given that this sector consumes 163 tons of CFCs. Full transformation of pharmaceutical companies' production lines is expected by 2009.

Refrigerant and Conditioning Equipment Servicing Sector

During 2006, MSEA had completed the implementation of the Egyptian Refrigeration Management Plan (RMP) Strategy for the Refrigerant and conditioning Servicing Sector. This eliminated the use of 162 tons of CFCs (R-11, R-12, R-113, R-114 and R-115) that were consumed annually during maintenance and repair operations.

The strategy included:

- Implementing a National Plan for meeting the needs of CFC Refrigerant and Conditioning Servicing Sector through adopting a standardized technology for the recovery and recycling of these ozone-depleting Freons.
- Developing a database on government and private sector maintenance and repair centers.
- Implementing a training program for maintenance workshop staff as well as for secondary industrial school Technical Higher Institutes students to prepare cadres trained on CFCs recovery and recycling systems.
- Distributing recovery and recycling equipment for free to air conditioning and refrigeration workshops and Mobile Air Conditioning (MAC) service centers.

Work at centers and workshops receiving free equipment will be monitored to ensure their compliance with the program terms and conditions aiming at eliminating the importation of CFCs by 2010.

Methyl Bromide Sector:

During 2006, MESA, in cooperation with the Ministry of Agriculture, had implemented research and field experiments for identifying suitable alternatives for the Egyptian environment to eliminate the use of methyl bromide in soil sanitization, fumigation of agricultural crops and commodities warehouses, silos and treatment in agricultural quarantine and pre-shipment of commodities (QPS) .

MSEA Strategy for in the coming phase

1. Gradual progress in the use of ozone-depleting alternatives as well as making them available at competitive prices to ensure Egyptian products and market stability.
2. Continuing the implementation of ozone-depleting substances recovery and recycling program besides providing maintenance workshops and service centers with free equipment and training technicians on their use.
3. Intensifying awareness campaigns on eco-friendly alternatives and directing them to all community categories.
4. Cooperating with all state control authorities and providing them with refrigerant gas analyzers and identifiers and providing training programs on their use for addressing illegal cooling gas trade and tightening the control over markets.