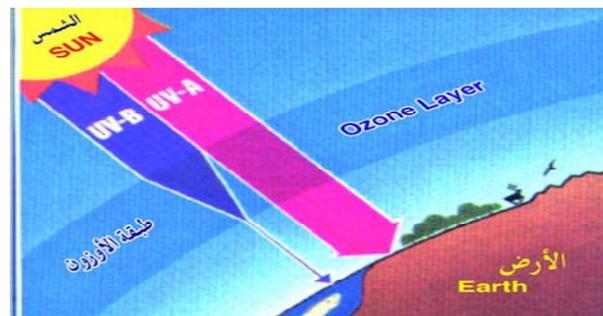


# Chapter 3: Ozone Layer Protection

## Introduction

National Ozone Unit (NOU) has been established on 1/11/1993 within the Institutional Support Project of Montréal Protocol. NOU institutional support project aims at finding a national unit specialized in the development and implementation of Ozone Depleting Substances (ODSs) disposal programs and projects at the national level in coordination with all line governmental entities, NGOs, and the private sector to survey and control the use of ODSs in different sectors. NOU cooperates with foreign and local agencies experienced in the development and implementation of different projects necessary to fulfill the Egyptian commitments to Montreal Protocol and implements informational and educational awareness programs at all levels.

### Ozone Importance and Impact on the Environment



Picture (3-1) Ozone Layer Impact on the Environment

## First: Egyptian Achievements in Ozone Layer Protection

Within the framework of Montréal Protocol implementation and the membership of the A.R.E to Montreal Protocol Convention on Ozone Layer Protection, the Government of Egyptian (GoE) has set the Egyptian Ozone Layer Protection Program including industrial and agricultural activities which have to implement alternative technologies. It also includes proposed decisions and general rules to fulfill the Egyptian obligations under Montreal Protocol.

Within the scope of implementing the Egyptian Ozone Layer Protection Program approved by Ozone Fund executive committee in October 1992, a scenario similar to that presented by countries to implement Montreal Protocol rules owing to the fact that Egypt is not a ODS producer but using such in different industrial and agricultural sectors.

Avoiding adverse impacts which result from the gradual impact of ODS gradual reduction, a national ozone committee representing all ministries and entities concerned to fulfill Egyptian obligations under Montreal Protocol was formed as per the Ministerial Decree 93/1993 amended by Decree 26/1998. Another technical and legal sub-committee was composed to follow up the program during its phases. Moreover the Decree of the Minister of State for Environmental Affairs No. 77/2000 on the lists identifying ODSs subject to control was issued according to Montreal Protocol and its amendments.

The following are some of the Egyptian Ozone Layer Protection Programs for various industrial and agricultural sectors.

### 1. Foam Production Sector:

During 2006, full elimination of the use of ozone depleting substances (CFCs) has been fully accomplished in 36 industrial facilities producing all types of foam. Additionally, the Ozone Fund approved on funding such facilities to use the alternative technology as well as replacing equipment besides training on modern technology. Accordingly, 1302.8 tones of ODSs consumed by such sector are reduced.

### 2. Domestic Refrigerators Production Sector:

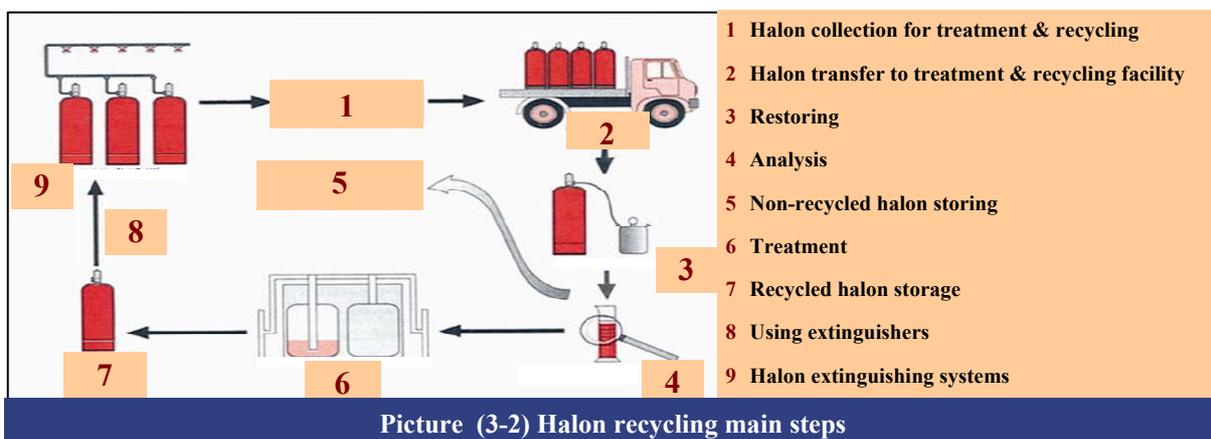
Total elimination of the use of ozone depleting substances (R-11, R-12) has been implemented in 28 industrial facilities producing domestic, commercial, and industrial refrigerators as well as the introduction of new insulation and mechanical cooling circuit technologies. Ozone-friendly products are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

### 3. Industrial Solvents Sector:

By the end of 2005, total elimination of the use of ozone depleting substances “CTC & TCA” (Carbon Tetrachloride & 1-1-1 Trichloroethane) has been implemented in 9 national companies where annual consumption of depleting substances was reduced by 439.9 tons and replaced by ozone-friendly substances. During 2006, the work was assumed in 5 industrial companies of the sector. By the end of 2007, the use of ODSs was entirely phased-out putting an end to the consumption of ODS 40.8 tons used as solvents for cleaning in electronic production, metal industries, and some plastic products besides a special use for aluminum purification.

### 4. Halon Sector:

A national strategy has been developed to put an end to the use of ODSs used in fire extinguishing operations. MLF has funded the strategy and Egyptian Halon Bank establishment. The Halon Bank aims at the recycling halons to be used in necessary requirements in different vital sectors. A cooperation protocol is signed between MSEA and the Ministry of Military Production on 16 September 2006. Helwan Engineering Industries Co. (Military Factory 99) has been chosen to manage Halon Bank Project under UNDP and MSEA supervision. By the end of 2007, equipment installation and operation besides personnel training on halon recycling are fully accomplished.



Picture (3-2) Halon recycling main steps

## 5. Medical Aerosol Sector:

By the end of 2006, the development of Egyptian Pharmaceutical Sector Strategy is accomplished aiming at transforming medical aerosols production lines using chlorofluorocarbons CFCs as propellants in manufacturing Meter Dose Inhalers (MDI) used in asthma and allergic respiratory diseases treatment. 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 to be fulfilled by 2009.

## 6. Maintenance and Repair Sector of Cooling and Conditioning Sets, Refrigeration Management Plan (RMP):

The implementation of the Egyptian Strategy for maintenance and repair sector of cooling and conditioning sets began in 2004. Implementation phase II of this strategy (RMP) has been accomplished by the end of 2006.

The strategy aims at eliminating 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 in order to confront the adverse effects of banning the production and importation of CFCs by 2010.

The strategy implementation included various activities and achievements, the most significant of which are the following:

- a. Providing competent entities and maintenance and repair centers (workshops) of cooling and conditioning sets with devices and equipment operated with modern technology for recycling cooling gas.
- b. Conducting training programs for qualifying official and non-official staff on modern technology to use recovery and recycling devices as well as modern technology for cooling and conditioning devices maintenance and repair.



Picture (3-3) Recovery and recycling device of automotive conditioning devices

## 7. The Egyptian Strategy for Final Elimination of ODSs Use (National Phase-out Plan NPP):

The Egyptian Strategy for the Final Elimination of ODS Use aims at eliminating the use of 822 tones of CFC consumed in cooling and conditioning devices by 2010 according to Table (3-1). By the end of 2006, Phase I and all planned objectives: the reduction of 582 tones of CFCs without affecting the national economy, have been accomplished. The following are the most important activities and achievements of NPP, Phase I:

- a. Selecting the best recovery and recycling equipment for cooling and conditioning devices and distributing them over service centers aiming at seizing and reducing the consumption of CFC.
- b. Organizing a national training program for training and qualifying 1240 trainees on maintenance and repair of modern technology applied on Cooling and Conditioning Sector devices.

- c. Disseminating awareness and information over cooling service sector on applying modern technology in the maintenance and repair of cooling and conditioning devices (alternatives – recovery and recycling – modification of old cooling equipment to be replaced by environment-friendly alternatives).

It is expected to fully accomplish the rest of NPP phases by 2009.

**Table (3-1) illustrates the gradual reduction in CFC consumption from 2005 - 2010**

Sr.	Year	Consumable amount (ton)	Targeted reduction (ton)
1	2005	822	227
2	2006	595	355
3	2007	240	127
4	2008	113	64
5	2009	49	49
6	2010	--	--

## 8. Methyl Bromide Sector:

The implementation of the Egyptian strategy aims at step-by-step reduction of methyl bromide in agriculture and storage sectors and reducing ODS quantities consumed in soil sterilization and agricultural crops storage. By the end of 2006, Phase I has been completed. It has encompassed many activities and accomplishments, the most important of which are the 10 training courses held on the use of methyl bromide alternatives, and some field visits and experiments for the use of alternatives in cooperation with Agricultural Research Center.

It is expected to fully implement the other phases of the Egyptian strategy for final consumption of 317 tones of methyl bromide (an ODS) by 2013.



**Picture (3-4) The use of methyl bromide in sterilization of agricultural soil**