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Implementation of the Montreal Protocol

Tenth Meeting
Montreal, 28–30 June 1993

**Addendum**

# 1993 UNIDO WORK PROGRAMME AMENDMENT

This addendum includes the comments and recommendations from the Fund Secretariat on the 1993 UNIDO Work Programme Amendment.

# COMMENTS AND RECOMMENDATIONS FROM THE FUND SECRETARIAT ON 1993 UNIDO WORK PROGRAMME AMENDMENT

1. UNIDO is requesting approval from the Executive Committee for 4 amendments to its 1993 Work Programme. They include two institutional strengthening projects for Egypt and Syria, project preparation proposals in the refrigeration and solvent sectors in India and in the refrigeration sector in Jordan. The project preparation proposal for Jordan is accompanied by the organization of a national awareness workshop. The total estimated cost of these projects is US $901,886 including project support cost of US $519,601.

2. Table 1 below provides a list of project proposals indicating the amounts requested and the amounts recommended.

3. The total allocations recommended by the Secretariat are US $873,071 including support costs.

Table 1: 1993 UNIDO Work Programme Amendments
Activities/Projects and Corresponding Funding Levels

| Country | No. | Activity / Project | Amount requested US $ | Amount Recommended US $ |
|---|---|---|---|---|
| India | 1. | Feasibility study for the recovery and recycling of CFC refrigerants | 55,000 | 55,000 |
| | 2. | Project Formulation for Phasing-out of ODSs in the unorganized sector | 55,000 | 55,000 |
| | 3. | Project formulation for the conversion of electronic cleaning processes to non-CFC cleaning | 74,000 | 74,000 |
| | | Sub-Total | 184,000 | 184,000 |
| Jordan | 4. | Organization of a national awareness workshop | 25,500 | 0 |
| | 5. | Preparation of investment projects for phasing-out CFCs in the refrigeration sector | 90,000 | 90,000 |
| | | Sub-Total | 115,500 | 90,000 |
| Egypt | 6. | Support for a National Coordination Unit for the Montreal Protocol related activities | 263,450 | 263,450 |
| Syria | 7. | Support to strengthen the General Commission for Environmental Affairs to implement Montreal Protocol related activities | 235,180 | 235,180 |
| | | TOTAL (excluding support costs) | 798,130 | 772,630 |
| | | 13% support costs | 103,756 | 100,441 |
| | | GRAND TOTAL | 901,886 | 873,071 |

**General Comments :**

Although the projects being submitted as amendment to the 1993 UNIDO Work Programme were within the category of projects below US $500,000, substantially detailed information was provided to facilitate their review. The Secretariat had consultations with UNIDO, other implementing agencies and government officials as appropriate.

The issues of co-ordination of implementing agencies activities and funding levels have been discussed. Recommended funding levels are based on these discussions. The justifications on recommended funding levels are provided under specific project-by-project comments below.

**Specific Comments**

The following comments relate to the activities listed in Table 1 above, where necessary.

**INDIA**

**Project No. 1: Feasibility study for the recovery and recycling of CFC refrigerants and**

1. One of the targets of the project is to investigate the feasibility of local manufacturing of recovery and recycling equipment. The Fund Secretariat following the request of the Open-Ended Working Group, prepared the paper on Proposed Amendments to the Indicative List of Categories of Incremental Cost (UNEP/OzL.Pro/ExCom/8/26) which had been discussed at the Eighth Meeting of the Executive Committee.

   The issue of establishing facilities to produce equipment for recovery and recycling was addressed in the paper. The recommendations of the Executive Committee concerning this issue should be taken into consideration during the implementation of the project.

2. The allocations of US $184,000 under projects 1, 2, 3 for India are recommended for approval by the Executive Committee.

**JORDAN**

**Project No. 4: Organization of a national awareness workshop**

1. The objective of the workshop is to disseminate the information on non-CFC technologies in the refrigeration and air conditioning sectors and recovery and recycling of refrigerant during the repair and maintenance of refrigerators.

2. The Secretariat does not support the allocation of US $25,000 to UNIDO since Project 5: Preparation of Investment Projects for Three Major Refrigerator and Air-conditioning Manufacturing facilities and Establishment of recycling systems for CFC-12

at main refrigerator repair and maintenance centres (US $90,000) provides the framework for dissemination of necessary information during the project preparation process.

The dissemination of information and public awareness activities are part of UNEP clearing-house function.

3. The allocations of US $90,000 under project 5 are recommended for approval by the Executive Committee.

## EGYPT

**Project No. 6: Support for a National Coordination Unit for the Montreal Protocol related activities.**

1. The Secretariat has reviewed the project proposal in consultation with UNIDO and the Government of Egypt.

2. The allocations of US $263,450 are recommended under Egypt's project 6 for approval by the Executive Committee.

## SYRIA

**Project No. 7: Support to strengthen the General Commission for Environmental Affairs to implement Montreal Protocol related activities.**

1. The Secretariat has reviewed the project proposal in consultation with UNIDO.

2. The allocations of US $235,180 are recommended under Syria's project 7 for approval by the Executive Committee.

# AMENDMENTS TO THE 1993 WORK PROGRAMME

# OF THE

# UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Prepared for Presentation to

**The Tenth Meeting of the Executive Committee of the Interim Multilateral Fund for the Implementation of the Montreal Protocol**

May 1993

# I. INTRODUCTION

UNIDO's 1993 Work Programme was approved in March 1993 in the Ninth Meeting of the (then Interim) Multilateral Fund for the Implementation of the Montreal Protocol. The programme included outline and description of projects for five countries, viz. Egypt, Syria, China, Brazil and Iran. Since then UNIDO has interacted with a few other countries and has received requests from the Governments of India and Jordan to formulate certain project proposals related to the implementation of the Montreal Protocol, and additional project proposals have been formulated for institutional strengthening in Egypt and Syria. The 1993 Work Programme has to be amended accordingly to incorporate the project proposals for India and Jordan and the additional project proposals for Egypt and Syria.

The qualifications of UNIDO, the general strategy for the 1993 Work Programme, sector-based strategy, the use of consultancy services for sector projects and the project summaries and expected outcomes, as described in UNIDO's 1993 Work Programme, have not undergone any change. It, therefore, does not seem necessary to repeat them in this document. The revised budget summary of the Work Programme and the project outline and description for India and Jordan are presented in this amendment. The project proposals for institutional strengthening in Egypt and Syria are also attached (Attachment 1 to 6).

## II. BUDGET SUMMARY

| | Country | Sector | Project title | Amount, US |
|---|---|---|---|---|
| ***Additional project proposals for the 1993 Work Programme*** | | | | |
| 1 | India | Refrigeration Solvents | Feasibility study for the recovery and recycling of CFC refrigerants US $55,000 (**Attachment 1**)<br><br>Project Formulation for Phasing-out of ODSs int he unorganized sector US $55,000 (**Attachment 2**)*<br><br>Project formulation for the conversion of electronic cleaning processes to non-CFC cleaning US $74,000 (**Attachment 3**) | 184,000 |
| 2 | Jordan | Refrigeration | Organization of a national awareness workshop US $25,000 (**Attachment 4**)<br><br>Preparation of investment projects for phasing-out CFCs in the refrigeration sector US $90,000 | 115,500 |
| 3 | Egypt | Institutional strengthening | Support for a National Coordination Unit for the Montreal Protocol related activities (**Attachment 5**) | 263,450 |
| 4 | Syria | Institutional strengthening | Support to strengthen the General Commission for Environmental Affairs to implement Montreal Protocol related activities (**Attachment 6**) | 235,180 |
| | | | TOTAL (excluding support costs) | 798,130 |
| | | | 13% support costs | 103,756 |
| | | | GRAND TOTAL | 901,886 |

* This project proposal has been prepared in the light of discussions with the Government of India and the World Bank. Final confirmation that the GOI will include it in its programme is awaited.

**Project proposal for Multilateral Fund for the Elimination of ODS financing**

**INDIA** **REFRIGERATION (RECOVERY & RECYCLING)**

| | |
|---|---|
| COUNTRY | India |
| PROJECT TITLE | Feasibility study for the recovery and recycling of CFC refrigerants |
| SECTORS COVERED | Refrigeration and air-conditioning |
| ODS USE IN SECTOR | 2,937 MT of refrigerants in 1992 (3,489 MT of total CFC-12 use in 1992) |
| PROJECT IMPACT | Identification of projects aiming at reducing the consumption of CFC-12 |
| PROJECT DURATION | 4 months |
| PROJECT ECONOMIC LIFE | NA |
| TOTAL PROJECT COST | US$ 62,150 |
| PROPOSED MF FINANCING | US$ 62,150 |
| IMPLEMENTING AGENCY | UNIDO |
| COORDINATING MINISTRY | Ministry of Environment and Forest (MOEF) |

PROJECT SUMMARY

This project aims at carrying out a study to, first, investigate the feasibility of recovering CFC's from refrigerators, air-conditioners and mobile air-conditioners, and if the result of this part is positive, then to check the individual and combined feasibility of the following::

- strategies of recycling CFC's: centralized versus distributed;
- local manufacturing of recovery and recycling equipment;

– reducing CFC consumption through training of repair and maintenance technicians.

Project will have three phases:

a) *Preparatory phase:* recruitment of consultant(s) and consulting firm(s); design of work programme; design of questionnaire for workshop survey and consumption data collection; etc.

b) *Data collection and analysis phase:* data collection in two selected cities, New Delhi and Bombay.

c) *Preparation of final report and project proposals:* based on the outcome of (a) and (b), preparation of follow-up project proposals.

## BACKGROUND

India is a signatory to the Montreal Protocol and is taking immediate action to limit the use and production of controlled substances, i.e., CFC's, halons, carbon tetrachloride (CTC) and methyl chloroform (MCF). India qualifies for assistance from the Multilateral Fund as it has a per capita consumption of ODS's below 0.3 kg. The consumption of ODS's in India is given in the table below (1992 and 1993 figures are estimates).

As the table also reveals, the CFC consumption in India in refrigeration and air-conditioning sectors is in the rise. The demand for CFC's (and HCFC's) as refrigerant in these sectors is for:

a) Initial charging of the equipment at the time of production, and

b) Recharging of the operational equipment, either after repair works or after the equipment looses the refrigerant because of leaks. In both cases, the "old" refrigerant is normally vented out to atmosphere.

Recovery and recycling of the used refrigerants can reduce the ODS emissions and as well as can be commercially attractive.

| Types of ODS | Consumption in ODS tonnes in years | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 |
| CFC-11 | 985 | 1,127 | 1,290 | 1,478 | 1,501 |
| CFC-12 | 2,493 | 2,783 | 3,107 | 3,469 | 3,518 |
| CFC-113 | 585 | 650 | 772 | 802 | 891 |
| CFC-114 | 0 | 0 | | | |
| CFC-115 | 0 | 0 | | | |
| Sub-Total | 4,063 | 4,560 | 5,169 | 5,749 | 5,910 |
| Halon-1211 | 196 | 240 | 294 | 340 | 389 |
| Halon-1301 | 170 | 200 | 235 | 260 | 287 |
| Sub-Total | 366 | 440 | 529 | 600 | 676 |
| CTC | 289 | 310 | 332 | 318 | 282 |
| MCF | 2,406 | 2,800 | 3,259 | 3,793 | 4,416 |
| T O T A L | 7,124 | 8,110 | 9,289 | 10,460 | 11,284 |
| Sectoral distribution | | | | | |
| Aerosol | 865 | 1,000 | 1,156 | 1,336 | 1,325 |
| Foam | 455 | 513 | 578 | 650 | 700 |
| Refrigeration | 2,166 | 2,397 | 2,653 | 2,937 | 2,994 |
| Solvent | 3,278 | 3,760 | 4,313 | 4,951 | 5,589 |
| Halon | 366 | 440 | 529 | 600 | 676 |
| T O T A L | 7,130 | 8,110 | 9,229 | 10,474 | 11,284 |

Source: Multilateral Fund Secretariat

This project will incorporate results from ongoing recovery and recycling work by the implementing agencies:

- The World Bank projects in Malaysia, Philippines and Thailand;
- Global CFC recycling project, prepared by the World Bank for UNDP execution; and

- Projects formulated by UNIDO in, among others, Egypt, Kenya, Nigeria, Tunisia, and Zambia

## PROJECT OBJECTIVE

The project ultimately targets at eliminating ODS's in general and at reducing the CFC's used in refrigeration sector through recovering and recycling in particular. As the immediate objective, the project aims at carrying out a study to, first, investigate the feasibility of recovering CFC's from refrigerators, air-conditioners and mobile air-conditioners, and if the result of this part is positive, then to check the individual and combined feasibility of the following::

- strategies of recycling CFC's: centralized versus distributed;
- local manufacturing of recovery and recycling equipment;
- reducing CFC consumption through training of repair and maintenance technicians.

## PROJECT STRATEGY AND ACTIVITIES

The success of the project is dependent upon a number of factors. Some of them are:

- Identification of a competent and dedicated local counterpart to sponsor the project during its span and beyond;
- Establishing an operating system and a set of procedures which would guarantee the long-term sustainability of the project; and
- Linking the project to an incentive system to be developed under the Country Programme.

Provided that the above are satisfied, implementation of the project will have three phases:

a) Preparatory phase:

- Initially selecting of two cities for studies: New Delhi and Bombay;
- Recruiting an international consultant;
- Selecting and contracting a local consulting company;
- Designing a detailed work programme with participation of all involved parties;
- Designing of a questionnaire for workshop survey and consumption data collection.

b) Data collection and analysis phase:

- Collecting data in two selected cities, New Delhi and Bombay;
- Compiling the data;
- Analyzing the data in order to check the individual and combined feasibility of the following:

  i] recovering CFC's from refrigerators, air-conditioners and mobile air-conditioners;
  ii] recycling CFC's (including checking the viability of collection networks, centralized versus distributed recycling, etc.);
  iii] local manufacturing of recovery and recycling equipment;
  iv] reducing CFC consumption through training of repair and maintenance technicians.

c) Preparation of final report and project proposals:

- preparing a final report covering the activities and outcome of all above-mentioned phases;
- based on the outcome of (a) and (b), preparation of follow-up project proposals using the formats acceptable to Executive Committee of the Multilateral Fund.

## PROJECT COSTS

| Item | Description | Duration, w/m | US$ |
|---|---|---|---|
| 1 | International consultant | 1.5 | 30,000 |
| 2 | National consulting company | 3.0 | 12,000 |
| 3 | UNIDO staff member | 0.5 | 7,000 |
| 4 | Mission costs | | 6,000 |
| | TOTAL | 5.0 | 55,000 |
| 5 | Agency overhead (13%) | | 7,150 |
| | GRAND TOTAL | | 62,150 |

## PROJECT ROADMAP

| Description | Responsible | 1993 | | | |
|---|---|---|---|---|---|
| | | July | August | September | October |
| Recruitment of international EXPERT | UNIDO, MOEF | | | | |
| Contracting national consulting FIRM | UNIDO, MOEF | | | | |
| Work programme and questionnaire | UNIDO, MOEF, EXPERT, FIRM | | | | |
| Data collection in two cities | FIRM | | | | |
| Data analysis | FIRM | | | | |
| Draft report and proposals for follow-up project | EXPERT, FIRM | | | | |
| Review meeting | UNIDO, MOEF, EXPERT, FIRM | | | | |
| Final report including project proposals | UNIDO, EXPERT, FIRM | | | | |

**Project proposal for Multilateral Fund for the Elimination of ODS financing**

**INDIA** **REFRIGERATION (UNORGANIZED SECTOR)**

| | |
|---|---|
| **COUNTRY** | India |
| **PROJECT TITLE** | Project formulation for phasing out of ODS's in unorganized sector |
| **SECTORS COVERED** | Refrigeration, air-conditioning, aerosols, solvents and foams |
| **ODS USE IN SECTOR** | Not available (pls. see table below for all-India figures) |
| **PROJECT IMPACT** | Identification of projects aiming at phasing out of ODS's |
| **PROJECT DURATION** | 4 months |
| **PROJECT ECONOMIC LIFE** | NA |
| **TOTAL PROJECT COST** | US$ 62,150 |
| **PROPOSED MF FINANCING** | US$ 62,150 |
| **IMPLEMENTING AGENCY** | UNIDO |
| **COORDINATING MINISTRY** | Ministry of Environment and Forest (MOEF) |

BACKGROUND

India is a signatory to the Montreal Protocol and is taking immediate action to limit the use and production of controlled substances, i.e., CFC's, halons, carbon tetrachloride (CTC) and methyl chloroform (MCF). India qualifies for assistance from the Multilateral Fund as it has a per capita consumption of ODS's below 0.3 kg. The consumption of ODS's in India is given in the table below (1992 and 1993 figures are estimates).

India has a very large unorganized sector which employs big numbers and consumes ODS's in many sectors. Unfortunately, the lack of information is one of the difficulties in dealing with projects in the unorganized sector.

However, the projects for the unorganized sector will be co-ordinated with the projects designed for the small-scale industries. Through such co-ordination, it is expected thaat all segments of the industry will be reached.

| Types of ODS | Consumption in ODS tonnes in years | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 |
| CFC-11 | 985 | 1,127 | 1,290 | 1,478 | 1,501 |
| CFC-12 | 2,493 | 2,783 | 3,107 | 3,469 | 3,518 |
| CFC-113 | 585 | 650 | 772 | 802 | 891 |
| CFC-114 | 0 | 0 | | | |
| CFC-115 | 0 | 0 | | | |
| Sub-Total | 4,063 | 4,560 | 5,169 | 5,749 | 5,910 |
| Halon-1211 | 196 | 240 | 294 | 340 | 389 |
| Halon-1301 | 170 | 200 | 235 | 260 | 287 |
| Sub-Total | 366 | 440 | 529 | 600 | 676 |
| CTC | 289 | 310 | 332 | 318 | 282 |
| MCF | 2,406 | 2,800 | 3,259 | 3,793 | 4,416 |
| T O T A L | 7,124 | 8,110 | 9,289 | 10,460 | 11,284 |
| Sectoral distribution | | | | | |
| Aerosol | 865 | 1,000 | 1,156 | 1,336 | 1,325 |
| Foam | 455 | 513 | 578 | 650 | 700 |
| Refrigeration | 2,166 | 2,397 | 2,653 | 2,937 | 2,994 |
| Solvent | 3,278 | 3,760 | 4,313 | 4,951 | 5,589 |
| Halon | 366 | 440 | 529 | 600 | 676 |
| T O T A L | 7,130 | 8,110 | 9,229 | 10,474 | 11,284 |

Source: Multilateral Fund Secretariat

## PROJECT DESCRIPTION

This project aims at formulating projects dealing with the phasing out of ODS's in unorganized sector in India. Lack of technological and commercial

information on the one hand, and the large number and very small size of the enterprises on the other are the main impediments to project formulation. Accordingly, the following sampling/demonstration approach will be adopted:

a) Sampling process:

- Geographical selection: Initially, two states will be selected, for example (U.P. and Tamil Nadu?)
- Sectoral selection: in each state, two or three set of shops representative of sectors such as manufacture and/or repair of refrigerators and air-conditioners; metal cleaning, electronics (solvents); foam making, etc. will be identified.

b) Demonstration units:

- Final selection of about 10 counterpart small enterprieses for ODS phase-out projects, preferably covering different sectors.
- Formulation of projects aiming at creating demonstrations units at the selected 10 shops.
- Establishing the a-m 10 demonstration units.

c) Proliferation of appropriate non-ODS technologies:

- Using the experience to be accumulated at the demonstration units, a continuous technical awareness programme will be run.
- Training of owners and/or technical personnel of as many as possible shops will be carried out.
- Generic technology packages will be prepared for easy transfer to unorganized sector.

## PROJECT STRATEGY AND ACTIVITIES

Project will cover the following phases:

a) Preparatory phase (sampling process):

- Geographical selection: Initially, two states will be selected, for example (U.P. and Tamil Nadu?)

- Sectoral selection: in each state, two or three set of shops representative of sectors such as manufacture and/or repair of refrigerators and air-conditioners; metal cleaning, electronics (solvents); foam making, etc. will be identified.
- Recruiting an international consultant;
- Selecting and contracting a local consulting company;
- Designing a detailed work programme with participation of all involved parties;
- Designing of a questionnaire for workshop survey and consumption data collection.

b) Data collection and analysis phase:

- Collecting data in two selected states;
- Compiling the data;
- Analyzing the data in order to make the final selection of counterpart small enterprieses for ODS phase-out projects, preferably covering different sectors.

c) Project formulation phase:

- Formulation of projects aiming at creating demonstrations units at the selected shops.

## PROJECT COSTS

| Item | Description | Duration, w/m | US$ |
|---|---|---|---|
| 1 | International consultant | 1.5 | 30,000 |
| 2 | National consultants | 3.0 | 12,000 |
| 3 | UNIDO staff member | 0.5 | 7,000 |
| 4 | Mission costs | | 6,000 |
| | TOTAL | 5.0 | 55,000 |
| | Agency overhead (13%) | | 7,150 |
| | GRAND TOTAL | 10.0 | 62,150 |

## PROJECT ROADMAP

| Description | Responsible | 1993 | | | |
|---|---|---|---|---|---|
| | | July | August | September | October |
| Recruitment of international EXPERT | UNIDO, MOEF | | | | |
| Contracting national consulting FIRM | UNIDO, MOEF | | | | |
| Work programme and questionnaire | UNIDO, MOEF, EXPERT, FIRM | | | | |
| Data collection in two cities | FIRM | | | | |
| Data analysis | FIRM | | | | |
| Draft report with selected shops and project proposals | EXPERT, FIRM | | | | |
| Review meeting | UNIDO, MOEF, EXPERT, FIRM | | | | |
| Final report including project proposals | UNIDO, EXPERT, FIRM | | | | |

**Project proposal for Multilateral Fund for the Elimination of ODS financing**

**INDIA** **SOLVENTS**

| | |
|---|---|
| COUNTRY | India |
| PROJECT TITLE | Project formulation for the conversion of electronic cleaning processes from CFC-113/alcohol blended solvents and 1,1,1 Trichloroethane to non-CFC cleaning |
| SECTORS COVERED | Solvent cleaning |
| ODS USE IN SECTOR | 802 MT of CFC-113 in 1992<br>318 MT of CTC in 1992<br>3,793 MT of MCF in 1992 |
| PROJECT IMPACT | Eliminate/reduce the annual consumption of CFC-113 and 1,1,1 Trichloroethane |
| PROJECT DURATION | 4 months |
| PROJECT ECONOMIC LIFE | NA |
| TOTAL PROJECT COST | US$ 83,620 |
| PROPOSED MF FINANCING | US$ 83,620 |
| COUNTERPART ENTERPRISE | About four demonstration projects in the electronics industry enterprises |
| IMPLEMENTING AGENCY | UNIDO |
| COORDINATING MINISTRY | Ministry of Environment and Forest (MOEF) |

## BACKGROUND

India is a signatory to the Montreal Protocol and is taking immediate action to limit the use and production of controlled substances, i.e., CFC's, halons, carbon tetrachloride (CTC) and methyl chloroform (MCF). India qualifies for assistance from the Multilateral Fund as it has a per capita consumption of ODS's below 0.3 kg. The consumption of ODS's in India is given in the table below (1992 and 1993 figures are estimates).

| Types of ODS | Consumption in ODS tonnes in years | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 |
| CFC-11 | 985 | 1,127 | 1,290 | 1,478 | 1,501 |
| CFC-12 | 2,493 | 2,783 | 3,107 | 3,469 | 3,518 |
| CFC-113 | 585 | 650 | 772 | 802 | 891 |
| CFC-114 | 0 | 0 | | | |
| CFC-115 | 0 | 0 | | | |
| Sub-Total | 4,063 | 4,560 | 5,169 | 5,749 | 5,910 |
| Halon-1211 | 196 | 240 | 294 | 340 | 389 |
| Halon-1301 | 170 | 200 | 235 | 260 | 287 |
| Sub-Total | 366 | 440 | 529 | 600 | 676 |
| CTC | 289 | 310 | 332 | 318 | 282 |
| MCF | 2,406 | 2,800 | 3,259 | 3,793 | 4,416 |
| T O T A L | 7,124 | 8,110 | 9,289 | 10,460 | 11,284 |
| Sectoral distribution | | | | | |
| Aerosol | 865 | 1,000 | 1,156 | 1,336 | 1,325 |
| Foam | 455 | 513 | 578 | 650 | 700 |
| Refrigeration | 2,166 | 2,397 | 2,653 | 2,937 | 2,994 |
| Solvent | 3,278 | 3,760 | 4,313 | 4,951 | 5,589 |
| Halon | 366 | 440 | 529 | 600 | 676 |
| T O T A L | 7,130 | 8,110 | 9,229 | 10,474 | 11,284 |

Source: Multilateral Fund Secretariat

Referring to the table, solvents used in electronic and precision cleaning constitute a sizable portion of the ODS consumption in India. Recognizing this importance, the World Bank is also developing solvent projects in co-operation with TERI (Tata Energy Research Institute). The efforts of the Bank and UNIDO are being co-ordinated.

The World Bank is also implementing a global solvents project in co-operation with ICOLP with India as an identified country. The applicable outputs of the global project will also be incorporated in the present project.

## PROJECT DESCRIPTION

This project aims at formulating projects dealing with the phasing out of ODS's in electronics industry. The electronics industry in India is one of the fast growing sectors and includes public and as well as private enterprises. Four projects will be formulated, two each for public and private sector companies respectively. Accordingly, the following selection/demonstration/dissemination method will be adopted:

a) Selection process:

- Geographical selection: Initially, two states will be selected.
- Enterprise selection: in each state, two enterprises will be selected with the assistance of the Department of Electronics.

b) Demonstration units:

- The products, manufacturing processes and the cleaning methods utilized at the selected enterprises will be analyzed.
- Alternative cleaning technologies will be selected to meet the requirements of each enterprise.
- Four projects will be formulated aiming at establishing non-ODS cleaning processes at the selected companies.
- New cleaning processes will be created as demonstration units and ODS solvents will be phased out.

c) Dissemination of non-ODS cleaning technologies:

- Using the experience to be accumulated at four companies and using the new cleaning set-ups as demonstration units, a continuous technical awareness programme will be run.
- Training of owners and/or technical personnel of as many as possible companies will be carried out.

- Generic technology packages will be prepared for easy adoption by other companies.

With regard to project development activities in the solvents sector in India, a Solvent Workshop will be organized jointly by the World Bank and UNIDO. Technical inputs to the Workshop will be provided by TERI (India) and Swedish EPA. UNIDO is requested to address the workshop on a topic which will be agreed upon later. Furthermore, UNIDO will prepare itself to embark a minimum two-week project formulation programme, immediately after the workshop.

## SECTOR BACKGROUND

Solvent cleaning processes represent the largest use of ozone depleting substances (ODS) in India (including CTC and MCF). In 1992, the solvent cleaning sector consumed 802 MT of CFC-113. The rapid increase in the use of ODS in India is a result of an expansion of the electronics industry.

ODS consumption in the solvents industry is split almost equally between electronics and metal cleaning processes. Electronic cleaning processes include printed circuit board (PCB) and electronic part cleaning. Metal part cleaning includes mostly gross cleaning processes of large or heavily soiled parts such as sheet metal cleaning, cleaning prior to painting or surface finishing, and cleaning to remove machine oils from manufactured parts. The cleaning of high-reliability precision parts, such as aircraft parts and avionic instruments also contributes to total solvent consumption.

In the solvents sector, especially in the case of electronics cleaning, there are many options to phase out the ozone depleting solvents. Usually the choice of the alternative cleaning process is dependent upon the type of market served by the solvent user. Most commercial applications have more flexibility in the use of new technologies, because of the inherent need for commercial entities to maintain their competitiveness in the world market. However, many organizations manufacture products known for their high degree of reliability for use in military aircraft or satellites. These organizations spare no cost to ensure that products made by their organizations are dependable and reliable.

Switching from CFC-113 or TCA cleaning applications to the use of aqueous based processes is the most practical for organizations that prefer to eliminate organic solvents from their cleaning process. The use of aqueous cleaning processes over other processes requires the availability of ample quantities of water and the ability to treat the effluent so that the waste from the cleaning process does not contribute to environmental damage. Changing to aqueous based processes also requires that the materials used in the production of the product are not damaged by water or aqueous based residue.

Prior to final selection of the cleaning process and machinery, material compatibility testing and reliability/quality testing must be performed in order to choose the best equipment and to decide if modifications (such as water additives) are necessary to achieve the desired cleaning results. The process development work and the reliability testing should be documented with graphs, charts, and data.

## PROJECT STRATEGY AND ACTIVITIES

Project will cover the following phases:

a) Preparatory phase (selection process):

- Geographical selection: Initially, two states will be selected.
- Enterprise selection: in each state, two companies will be identified.
- Recruiting an international consultant.
- Selecting and contracting a local consulting company or a focal point/centre capable of carrying out the required tasks.
- Designing a detailed work programme with participation of all involved parties.
- Designing of a questionnaire for company survey.

b) Data collection and analysis phase:

- Collecting data in two states and at four companies;
- Compiling the data;
- Analyzing the data in order to make the final selection of new cleaning technologies.

c) Project formulation phase:

- Formulation of projects aiming at establishing new cleaning processes using non-ODS cleaners.

d) Implementation phase will follow the approval of projects by the Multilateral Fund and will establish non-CFC cleaning processes in four enterprises.

## PROJECT COSTS

| Item | Description | Duration, w/m | US$ |
|---|---|---|---|
| 1 | International consultant | 2.0 | 40,000 |
| 2 | National consultants | 3.0 | 12,000 |
| 3 | UNIDO staff member | 1.0 | 14,000 |
| 4 | Mission costs | | 8,000 |
| | TOTAL | 6.0 | 74,000 |
| | Agency overhead (13%) | | 9,620 |
| | GRAND TOTAL | 12.0 | 83,620 |

# PROJECT ROADMAP

| Description | Responsible | 1993 | | | |
|---|---|---|---|---|---|
| | | July | August | September | October |
| Recruitment of international EXPERT | UNIDO, MOEF | | | | |
| Contracting national CONSultants (firm or a focal point) | UNIDO, MOEF | | | | |
| Work programme and questionnaire | UNIDO, MOEF, EXPERT, CONS | | | | |
| Data collection in two states and four firms | CONS | | | | |
| Data analysis | CONS | | | | |
| Draft report with project proposals | EXPERT, CONS | | | | |
| Review meeting | UNIDO, MOEF, EXPERT, CONS | | | | |
| Final report including project proposals | UNIDO, EXPERT, CONS | | | | |

**Multilateral Fund for Implementation of the Montreal Protocol**

**PROJECT COVER SHEET**

| | |
|---|---|
| Country or Region: | JORDAN |
| Sector(s) covered: | Refrigeration |
| ODS Consumption in Affected Sectors: | About 350 tonnes per annum |
| Project Title: | Organisation of a National Awareness Workshop on Technologies for Phase-out of ODS in Refrigeration Industry in Jordan |
| Project Duration: | One week (end 1993) |
| Project Impact: | ODS phase-out Nil Others Facilitate the implementation of investment projects for phase-out of ODS in refrigeration industry and promote recycling of CFC-12 in the repair and maintenance or refrigerators in Jordan |
| Proposed Budget: | Multilateral Fund US $ 25,500 (excluding support costs)<br>Government contribution in-kind |
| Implementing Agency: | UNIDO |
| National Co-ordinating Agency: | Ministry of Municipals, Rural Affairs & the Environment/ Department of Environment |

**PROJECT SUMMARY**

The project provides for technical services proposed to be rendered by UNIDO to assist the Hashemite Kingdom of Jordan to reduce the consumption of ozone depleting substances (ODS) in the refrigeration industry by organising for about 25 to 30 participants a workshop on new and alternative technologies to generate national awareness for phasing out the use of ODSs in the refrigeration sector and for establishing recycling systems for CFC-12 at the main centres for refrigerator repair and maintenance.

## 1. SECTOR DATA

1.01 Jordan ratified the Montreal Protocol on Substances that deplete the Ozone Layer on 31 May 1989. Under the Article 5 of the Montreal Protocol, Jordan may phase out the use of ozone depleting substances (ODS) by the year 2010 and it qualifies for technical assistance and funds from the Multilateral Fund for the Implementation of Montreal Protocol. The World Bank assisted Jordan with the preparation of the draft of the Country Programme. On its approval, assistance will be available from the Multilateral Fund.

1.02 ODS are not manufactured in Jordan. However, ODSs are consumed by industries which manufacture refrigerators, air conditioners, foam, aerosols and fire suppression systems. To a small extent, ODS are also consumed as solvents. The units which service the refrigerators and air conditioning systems also use and release ODS. The demand for use of ODSs is increasing faster than the population. In 1991, it was assessed that the total consumption of ODS was 625 tonnes which had an ozone depletion potential (ODP) of 779 tonnes including 77 tonnes of halons for fire suppression systems which had an ODP of 231 tonnes, as detailed below.

**ODS Consumption in Jordan (1991)**

| | ODS tonnes | ODP tonnes |
|---|---|---|
| CFC-11 | 163 | 163 |
| CFC-12 | 375 | 375 |
| CFC-114 | 20 | 20 |
| Total CFC | 548 | 548 |
| Halon 1211 | 77 | 231 |
| **TOTAL** | **625** | **779** |

1.03 The draft Country Programme proposes an integrated set of policies to form the National Ozone Policy which include announcement of the proposed phase-out schedule; expeditious implementation of activities to reduce the use of ODS; enhancement of public awareness; price adjustments as necessary; licensing ODS use; monitoring ODS import, and creation of a project implementation unit. The draft Country Programme shows with detailed economic analysis that a prompt ODS phase-out will be beneficial to the Jordanian economy. It recommends an action plan based on the optimum phase-out scenario in which action is initiated in 1993, the phase-out will be mostly completed by the year 2000, while some ODS uses will continue until the year 2010.

1.04 The Hashemite Kingdom of Jordan has requested UNIDO on April 28, 1993 to initiate action for the formulation of the

following projects:

a. National Workshop (25 to 30 participants) on new and alternative technologies for phase-out of ODS in refrigeration industry (end 1993)

b. Phase-out of ODS at -
- Middle East Electric Co. (Refrigeration)
- Petra Engineering Co. (Air conditioning)
- Hamco Refrigeration Co. (Refrigeration)

c. Establishment of recycling systems for CFC-12 at the main refrigerator repair and maintenance centres

## 2. Project Description

2.01 The project comprises the technical services for the organisation of a national awareness workshop to be held near the end of 1993 in Jordan. The objective of the workshop is to disseminate the need and feasibility of reduction in the consumption of ODSs by converting the existing CFC-based technologies to non-CFC technologies in the manufacture of refrigerators, air conditioning systems etc. and by recovering and recycling the refrigerants ( which at present are CFCs) during the repair and maintenance of refrigerators.

2.02 The participants of the national awareness workshop may number about 25 to 30 and will be drawn from the refrigerator production and service industries, the government and the non-governmental organisations. The services of an international expert in the conversion to non-CFC technologies in refrigeration sector, both in the manufacture of compressors and insulation foam and in the servicing the refrigerators and air conditioning systems, will be availed to expose the participants to new technologies in this sector.

2.03 The project provides for the services of the international expert for two weeks-- one week for preparation of workshop background papers and information kit and one week for interaction with the participants and post-workshop recommendations. Provision is also made for making adequate sets of the background papers and information kits for distribution among the participants as also other interested parties which may seek them on after the workshop. The local travel of the participants is also included in the budget for the workshop. The Government of Jordan will contribute in-kind by making arrangements for the venue of the workshop and in co-ordinating the activities for organising it, including publicity of the event, selection of the participants and follow-up actions for dovetailing the outcome of the workshop with the other components of the Country Programme. The budget excludes the staff costs of
the implementing agency.

2.04 The workshop is expected to generate considerable interest in the manufacturing and service industries in the refrigeration sector in Jordan which shall facilitate expeditious implementation of the investment projects aimed at reduction in the consumption of ODSs in the refrigeration sector. It will help in convincing the government, the industries and the people that activities directed towards accelerated conversion to non-CFC technologies should also be taken up in other sectors such as the foam industry, production of the aerosols and the fire suppression systems.

## 3. BUDGET for Multilateral Fund Assistance

| | US $ | | | |
|---|---|---|---|---|
| Personnel | Year 1 | Year 2 | Year 3 | Total |
| International expert (2 weeks) | 10,000 | - | - | 10,000 |
| International travel of UNIDO staff (two experts) | 5,000 | - | - | 5,000 |
| Local travel of participants (25 to 30 persons) | 5,000 | - | - | 5,000 |
| Sub-total | | | | 20,000 |
| Equipment | | | | |
| Background papers and information kits | 3,000 | - | - | 3,000 |
| Miscellaneous | | | | |
| Translation and printing of post-workshop documents | - | 1,500 | - | 1,500 |
| Hospitality and unforeseen | 1,000 | - | - | 1,000 |
| **TOTAL** | | | | **25,500** |

# PROJECT PROPOSAL

## INSTITUTIONAL STRENGTHENING UNIT FOR THE MONTREAL PROTOCOL RELATED ACTIVITIES

| | | |
|---|---|---|
| Title of the Request | : | Institutional Strengthening Unit for the Montreal Protocol related Activities. |
| Country | : | Egypt |
| Executing Agency | : | Egyptian Environmental Affairs Agency ( EEAA). |
| Implementing Agency | : | UNIDO |
| Duration | : | Three Years |
| Government Contribution | : | L.E. 600.000 (in kind) |
| Donor Contribution | : | US$ 263.45 |
| Submitted to | : | Interim Multilateral Fund of the Montreal Protocol |

## I. BACKGROUND

The Government of Egypt is one of the initial signatories of the Vienna Convention in 1985. It was also the seventh party to sign the Montreal Protocol (MP) which it has ratified as early as 1988.Egypt had representatives at all international meetings dealing with the Protocol. It is also represented on the Executive Committee of the Interim Multilateral Fund of the Montreal Protocol established to help developing countries with the costs of meeting the Protocol obligations.

The Egyptian government has shown commitment to reduce consumption of Ozone Depleting Substances (ODS). Its activities to protect the ozone layer started as early as 1986. Since then, it has moved aggressively to reduce CFC consumption. In 1989, the Ministry of Industry issued a decree banning the use of CFCs in aerosols starting 1991.

Egypt has prepared its Country Program for ODS phase-out in Egypt with the assistance of the World Bank. The Country Program is based on a comprehensive study conducted by the Egyptian Environmental Affairs Agency (EEAA) in 1989-90 which was complemented by a subsequent World Bank assessment of ODS in Egypt.

Egypt therefore qualifies under paragraph 1 Article 5 for a ten year delay in the phase-out of ODSs as well as financial assistance from the Fund. Six projects are already developed for initial consideration by the Executive Committee of the Interim Multilateral Fund. Most of these projects are part of the Country Program submitted in October 1992.

Egypt has a GNP/Capita of 660 US dollars and an HDI of 0.394 which indicates a need for assistance and for infrastructure strengthening. Egypt's need for economic growth by opening new markets for exports has helped in increasing awareness among business owners to take part of the Montreal Protocol and to phase-out ODSs.Industry in Egypt has fully cooperated with the assessment of ODS use and the generation of project concepts and feasibility studies for the phase-out program. The ministerial Decree banning the use of CFCs in aerosols was developed with industry cooperation.

Whereas this ministerial decree has helped reducing the ODS demand by 60%, ODSs are still used by several industries. Currently, the demand for ODSs is mainly concentrated in industries that manufacture and service refrigerators, air conditioning systems and in the foam industry. Although Egypt does not produce ODSs, they are imported for use by these industries that depend heavily on them and contribute to a higher standard of living. In 1990, Egypt's total consumption of ODSs was 1,830 tons (2170 tons ODP).

The consumption of ODS by sector and substance on 1991 was as follows:

| | |
|---|---|
| Refrigeration | 450 tons of CFC-12<br>420 tons of CFC-11 |
| Mobile ACs | 75 tons of CFC-12 |
| Chillers | 100 tons of CFCs |
| Foams | 722 tons of CFC-12 |
| Solvents | methyl chloroform<br>small quantities of CFC-113<br>carbon tetrachloride |

( statistics does not indicate their exact quantities )

Moreover,1,000 tons Halons were used in 1991 for fire extinguishing purposes. Although technologies are not at the stage of phasing-out Halons, the rationalization of use would decrease the yearly quantity consumed.

Alternative Scenarios for ODS phase-out

As part of the Country Program, two alternative scenarios were constructed and simulated in order to identify the optimum phase-out through the determination of the associated net incremental economic costs. The first strategy assumes that the transition to ODS substitutes is required by the Montreal Protocol. The second strategy, which is currently underway in Egypt, is more accelerated. Substitution would be encouraged at a rate consistent with the availability of technology and will be accomplished by 1998.

Depending on the speed of the phase-out and economic growth conditions up to the year 2010, the net incremental cost to Egypt will range from $ 26M to $ 129M. The more accelerated strategy was found to impose lower economic costs to the country.

The primary conclusion drawn from this analysis is that a prompt and orderly phase-out minimizes the economic cost to Egypt. This prompt and orderly ODS phase-out will require an effective institutional mechanism that will ensure coordination between the concerned parties and provide an effective information nexus on technology conversion to non-ODS alternatives.

## II. PROJECT DESCRIPTION :

### 1. Summary :

The execution of investment activities for the phase-out of ODSs would depend on an effective institutional machinery, that could coordinate and schedule them optimally within the period allowed by the MP taking into account the path of least disruption of economic activities and the welfare of the population.

The EEAA is requesting assistance from the Fund for setting up this effective institutional machinery as a part of its organizational structure. The assistance requested from the Fund would be directed towards a coordination unit. ( This unit will be directly affiliated to the Technical Bureau of EEAA ) to be responsible for effectiveness & speedy as well as ensuring effective liaison between parties concerned.

This assistance would cover capital and recurrent expenditures for a 3 year period and is detailed in Section "II.8. Budget", "Annex II" and "Annex III".

### 2. Objecties

Short term objective :

- To establish a national institutional mechanism within the EEAA structure for coordinating and promoting national and international efforts for the protection of the Ozone layer and for facilitating actions aimed at an optimal phase-out of ODSs within the country.

Long term objectives :

- Management and implementation of an optimal phase-out program effectively; and
- Building up local capacity for facilitating actions aimed at speedy phase-out of ODS in Egypt.

## 3. Activities & Scope of the Project :

To ensure that the unit will achieve its objectives, it would have to perform several activities which will include, but may not be limited to, the following :

Build and continuously update a data base about Egypt use of

ODSs through systematic gathering and processing of information (this database would form the basis for continuous monitoring and evaluation of the progress of implementation of phase-out actions, including project appraisal by the Multilateral Fund);

Collect and disseminate information on available technologies for conversion to non-ODS use;

Ease for the local industries the access to relevant technology and smooth technology transfer processes;

Facilitate the coordination of the phase-out program and that between the government and concerned industries as well as international organizations on issues related to the Montreal Protocol;

Exchange information with concerned parties whether national or international;

Formulate recommendations to policy makers on actions related to the ozone policy and make relevant information available to them;

Raise the level of awareness among the public, the industries and other related sectors in order to promote a smooth phase-out of ODSs;

Promoting & monitoring ODS phase-out projects and reporting regularly to the Executive Committee of implementation progress; and

Exchange relevant information with similar offices in other countries & with global information centres.

## 4. Justification and Rationale :

The EEAA is the central body responsible for pollution abatement and environment protection. The Agency coordinates between all ministries and organizations concerned with environmental issues. It is evident that the realization of the MP objectives falls within the scope of its responsibilities. The machinery facilitating the achievement of the commitment made by Egypt during the Protocol, coordinating the ODS phase-out projects and putting into action the Country Program for reducing the ODS emissions would be ideally located in the EEAA structure.

The optimal strategy for phase-out which undertakes the transition before the period allowed by the MP requires a more active and effective mechanism. It also requires, according to the Country Program, a higher level of expenditures in administration and facilities then those required if the phase-out is undertaken according to the period allowed by the MP for Egypt. A focal clearing house for emerging and evolving technologies will improve the efficiency of the transitions process.

Although the Egyptian industrialists have shown total cooperation with the prorgam set by the government, a coordinating mechanism capable of taking advantage of the available opportunities for phase-out projects would help relieve their financial burdens associated with the conversion of technology. Extending awareness to small industries is also needed to ensure a smooth transitional period.

Awareness among the general public concerning the importance of the upcoming technological transfer will further facilitate the smooth transition of concerned industries from use of ODSs.

Furthermore, insufficient resources and budget limitations could affect the country priorities and delay phase-out actions. Therefore, there is an urgent need to provide institutional strength for the coordination of activities related to the implementation of the Montreal Protocol.

## 5. Beneficiaries :

The direct beneficiary of the project is EEAA as its structure will be strengthened which will help it perform its role more effectively. The concerned industries will benefit greatly from the technology transfer and from a well coordinated conversion to clean technology both in terms of

output and process. The building of EEAA capacity in effective dealing with processes of conversion to clean technology would directly benefit other industries going through similar processes.

Although the benefits are obvious, they cannot be allocated in terms of the geographic areas. Due to their small size and large number, the ODS users are scattered all over the country's industrial zones. Several of these industries are in the Tenth of Ramadan city, in Cairo industrial zone, in Port Said and Alexandria industrial zones among others.

The Egyptian economy as a whole should benefit from a transition effectively carried out in an optimal period which would lessen the burden on the economy. It would also benefit from an optimal ODS phase-out as new export markets will be an open for Egyptian goods, especially refrigerators and air conditioners, during the international transition away from ODSs.

Finally, the ozone depletion is a universal problem that cannot be solved without international commitment and cooperation. The phasing-out of ODSs in Egypt will undoubtedly contribute its share in addressing this issue of international concern.

## III. Structure and Management :

The National coordinating unit will be a part of the EEAA structure. The unit will form a part of the "Technical Bureau" directly under the supervision of the EEAA Chairman. The Agency's organigram is attached in Annex I.

The senior professional staff assigned to this unit would be selected from those who are currently involved in the activities related to the ODS phase-out program, preferably currently employed by EEAA but possibly by other cooperating organizations. Other professionals would have a relevant background and reasonable experience in the specific sectors which are significant in Egypt for ODSs phase-out. These sectors includes refrigeration covering freezers and air-conditioners and also covering the refrigerant and the insulation; foams, both rigid and flexible; solvents and halon fire extinguishing. The Unit's senior staff would directly report to the Chairman of EEAA.

The EEAA was fully involved in the activities related to ODS phase-out since the second half of the 1980s. The Agency undertook a major study on ODS consumption in 1989-1990. It has also cooperated in the preparation of the Country Program and has assisted in identifying the projects submitted to the Executive Committee of the Fund for coordination of ODS phase-out related activities. These activities are undertaken by "Technical Bureau" staff in addition to their other responsibilities.

The EEAA is the main government central body responsible for the environment in Egypt. The EEAA was established under the Cabinet of Ministers in 1982 by the Presidential Decree No. 631 to form a link between the Cabinet and different Ministries to coordinate environmental protection, to safeguard Egypt's environment and fulfill the nation's global environmental commitments.

The environmental legislation currently discussed by the parliament expands EEAA's responsibilities to areas such as reviewing and ratifying Environmental Impact Assessments, supervising environmental monitoring activities and administering the fund for the protection of the Environment among other responsibilities.In general, however, the Agency keeps its nature as a coordinating body between the many actors involved in environmental activities in Egypt..

In consonance with the Agency's role, the Country Program projects recommends it to take the following responsibilities of the implementation of the Montreal Protocol:

Manage the activities of all the implementing agencies

Continue participation in all International conferences on the Montreal Protocol and related issues, and feed back information and data to interested ministries, particularly with regards to timing matters and proposed revisions to the Protocol.

Suggest needed legislation to the Ministry of Cabinet Affairs for consideration in the development of long range for the ODS phase-out.

Establish liaison with the Federation of Egyptian Industries (FEI) through the FEI "Ozone Panel".

## IV. Inputs

The inputs to develop this unit are to be provided by two main sources, namely the government budget and the assistance requested from the Fund. These inputs are allocated over a three-year period. The following paragraphs highlight the particular requirements and explain the nature of the needed contribution.

Personnel :

Considering the size of the country and consequently its program for phasing-out ODS, the strength of staff will be as follows :

a) Professional Staff:

In order to undertake its activities, the unit will be staffed by one senior professional with experience in ozone layer protection issues and the coordination of related programs, with two assistants with expertise in technical; economical & administrative fields related to the subject.

b) Supporting & Assisting Staff :

National or international experts will be needed for specialized tasks, such as design of data base, project management & information systems etc. Two administrative assistants.

c) Office Space, Equipment and Supplies :

The first two years will require significant outlays for expenditures to develop the necessary office infrastructure enabling the Unit to perform its role effectively. A computer will be procured for staff involved in data gathering, analysis and management. Moreover, additional hardware such as scanners, printers as well as a variety of software programs, will be required. Other equipment will be purchased depending upon the office requirements to function effectively.

d) Office Operations Costs :

Resources are needed to cover expenditures for office maintenance, such as utilities and communication costs, as well as the costs of producing documents related to the project.

e) Awareness Campaign and Information Dissemination :

As providing a suitable environment for the Country Program implementation is one of the main objectives of this unit, resources will be earmarked to cover the cost of several kinds of relevant activities and publications depending on the target group. It could be financed from the Contingency Item.

## V. Budget :

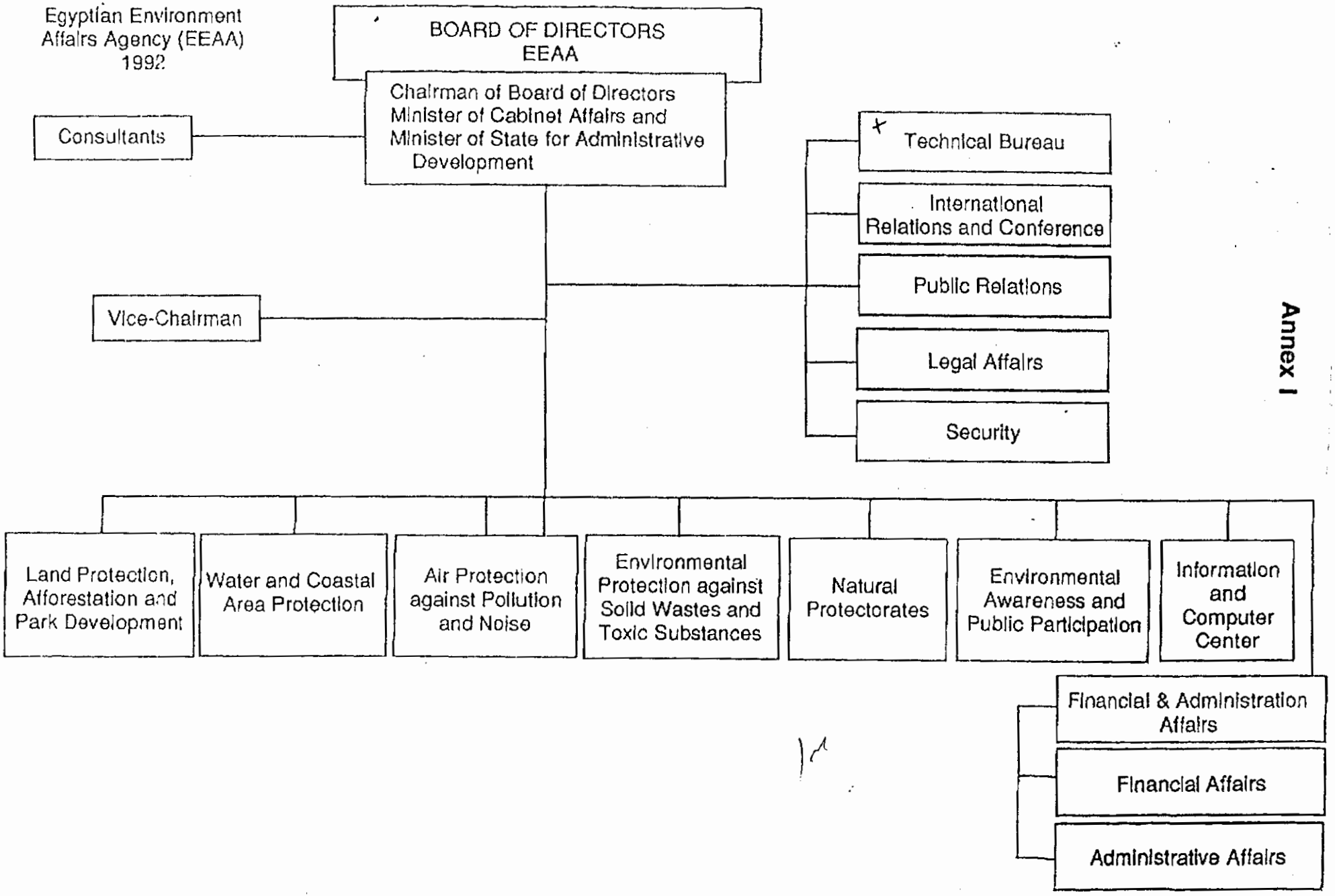
During the three duration of the project, the government contribution would amount to a total of LE 600,000. This should include office space and furniture, providing means of transportation, basic office equipment as well as basic salaries of professional staff and assistants. The assistance from the Fund during the same period would cover incentives for personnel, short-term consultants, specialized equipment, official travel, operation and maintenance and awareness campaigns. The Fund contribution is detailed in Annex II, which shows a breakdown according to time and major classifications of expenditures, and amounts to a total of US$ 263450 (based on an exchange rate of 1 US$ = L.E. 3.33).

## VI. Outputs :

- A competent and well-equipped unit within EEAA capable of undertaking the activities required to facilitate the fulfilling of all obligations.
- A sectoral and geographical information system combining the actions recommended in the country program for ODS phase-out and the progress accomplished in implementing these actions;
- A number of awareness and information dissemination activities directed, as needed, towards the various parties involved in the phase-out activities;
- A plan for optimal transition to non-ODS technology covering all concerned industries; and
- Completion of the phase-out program and achieving all its goals.

# ANNEXES

Egyptian Environment Affairs Agency (EEAA) 1992




Annex I

# Annex II

## TABLE 1 : ESTIMATED COSTS OF INSTITUTIONAL STRENGTHNING IN VARIOUS CATEGORIES OF ARTICLE 5 COUNTRIES

| Item | Per year | 3-Year Period |
|---|---|---|
| 1. CAPTIAL EXPENDITURE<br><br>Office Equipment<br>Personal Computer<br>Monitor,Printer & Software<br>Modem<br>Photocopier<br>Typewriter<br>Fax Machines | | 14.500 |
| Sub-Total | | 14.500 |
| 2. RECURRENT EXPENDITURE<br><br>2.1 Personnel<br><br>Incentives for :<br>a) Professional Staff<br>b) Supporting Staff | | <br><br><br><br>60.000<br>30.000 |
| Sub-Total | | 90.000 |
| 2.2 Operational Costs including :<br>Collation/dissemination of info.<br>Official Travel<br>Telecom. charges<br>Misc. Service charges<br>Office supplies<br>Maintenance of Equipment | 45.000 | 135.000 |
| **Total (2.1 and 2.2)** | 45.000 | 239.500 |
| Contingencies | | 23.950 |
| TOTAL | | 263.450 |

# Annex III

## TENTATIVE BREAKDOWN
## NON-EXPENDABLE SPECIALIZED EQUIPMENT

| ITEM | AMOUNT (in US$) |
|---|---|
| Interlinked Computer | 3.000 |
| Uninterrupted Power Supply | 2.000 |
| High Qulity Printer | 3.000 |
| Modem/E-mail | 1.000 |
| Fax Machine | 1.000 |
| Photocopier | 2.000 |
| Typewriter | 2.500 |
| TOTAL | 14.500 |

i. one computer
ii. Equipment prices free of taxes and customer duties
iii. Mass storage unit if needed it will be financed from contingencies

# Annex IV

## TABLE 1: CATEGORIES OF ARTICLE 5 COUNTRIES

### CATEGORY 1 - HIGH ODS CONSUMING (Greater than 10,000 Mton)

| | COUNTRY | YEAR | Mton ODP[1] | GNP/Capita US$ (1987) | HDI |
|---|---|---|---|---|---|
| 1. | China | 1991 | 63,667 | 330 | 0.614 |
| 2. | Brazil | 1989 | 11,720 | 2,160 | 0.759 |
| 3. | Mexico | 1989 | 10,136 | 1,760 | 0.838 |

### CATEGORY 2 - MEDIUM ODS CONSUMING (1,000 - 10,000 Mton ODP)

| | | | | | |
|---|---|---|---|---|---|
| 1. | Yugoslavia | 1990 | 7,466 | 2,520 | 0.893 |
| 2. | Thailand | 1990 | 5,580 | 1,000 | 0.713 |
| 3. | Venezuela | 1990 | 5,500[1] | 3,520 | 0.848 |
| 4. | Malaysia | 1989 | 5,127 | 1,940 | 0.802 |
| 5. | Argentina | 1991 | 4,000[1] | 2,394 | 0.854 |
| 6. | Iran | 1986 | 4,400[1] | 1,800 | 0.577 |
| 7. | Nigeria | 1990 | 4,000 | 290 | 0.242 |
| 8. | Turkey | 1990 | 3,599 | 1,280 | 0.694 |
| 9. | Philippines | 1990 | 3,476 | 630 | 0.613 |
| 10. | Guatemala | | 1,801[1] | 947 | |
| 11. | Egypt | 1990 | 1,830 | 660 | 0.394 |
| 12. | Syrian A.R. | 1986 | 1409 | 1,680 | |
| 13. | Chile | 1989 | 1,056 | 1,510 | 0.878 |

### CATEGORY 3 - LOW ODS CONSUMING (Less than 1,000 Mton ODP)

| | | | | | |
|---|---|---|---|---|---|
| 1. | Jordan | 1991 | 779 | 1,500 | 0.614 |
| 2. | Ecuador | 1990 | 742 | 1,120 | 0.695 |
| 3. | Tunisia | 1991 | 730 | 1,230 | 0.588 |
| 4. | Uruguay | 1986 | 430[1] | 2,470 | 0.905 |
| 5. | Kenya | 1989 | 420 | 370 | 0.399 |
| 6. | Trinidad & Tobago | 1990 | 380[1] | 3,350 | 0.876 |
| 7. | Panama | 1986 | 304 | 2,120 | 0.7965 |
| 8. | Costa Rica | 1986 | 300 | 1,690 | 0.876 |
| 9. | Togo | 1990 | 300 | 370 | 0.225 |
| 10. | Bangladesh | 1989 | 200 | 200 | 0.186 |

# Annex IV



| | | | | | |
|---|---|---|---|---|---|
| 11. | Cameroon | 1990 | 175[1] | 1,010 | 0.328 |
| 12. | Ghana | 1990 | 105 | 400 | 0.311 |
| 13. | Sri Lanka | 1990 | 100 | 420 | 0.665 |
| 14. | Fiji | | 70[1] | 1,520 | 0.689 |

1/ In metric tons (absolute), where indicated.

- Countries for which consumption data are not available [Per capita GNP figures in US$ (1988) are given in brackets]:

  Botswana (1010), Burkina Faso (210), The Gambia (200), Libya (5453), Malawi (170), Maldives (410), Uganda (280), Zambia (290).

- HDI - Human Development Index.
  HDI provides a composite measure of human progress. The higher the HDI value, the greater the socio-economic development. 0.8 and above denote high human development while 0.5-0.799 and less than 0.5 denote medium and low human development respectively.

# Multilateral Fund for Implementation of the Montreal Protocol

## PROJECT COVER SHEET

| | |
|---|---|
| **Country or Region:** | Syrian Arab Republic |
| **Sector(s) Covered:** | Institutional Strengthening |
| **ODS Consumption in Affected Sector(s):** | |
| **Project Title:** | Support to Strengthening the General Commission for Environmental Affairs to implement Montreal Protocol related activities |
| **Project Duration:** | Three years |
| **Project Impact:** | ODSs Phase-Out _____ Ohters _____ |
| **Proposed Budget:** | Fund Contribution: US$ 235,180<br>Government Contribution In-Kind: Syrian £ 2,500,000 |
| **Implementing Agency:** | UNIDO |
| **National Coordinating Agency:** | General Commission for Environmental Affairs |

### PROJECT SUMMARY

The project will strengthen the capabilities of the General Commission for Environmental Affairs in order to manage the implementation of the Country Program concerning the phase-out of ODS presently used in the different industrial and service areas. In this context, it is proposed that a competent unit would be established within the organization, whose primary concern is to plan, organize, manage and coordinate all necessary activities required for optimal implementation of the ODS phase-out program.

The Ozone Layer Protection unit (OLP unit) should also posses the capability to continue extending its services beyond the three years support period and endeavor to accelerate the ODS phase-out process.

## III. GENERAL

### 1. BACKGROUND

The Syrian Arab Republic ratified the Vienna Convention and the Montreal Protocol on March 12th 1990. Already in 1979 Syria's resolve to deal with environmental issues was manifested by the appointment of a Minister of state for Environmental Affairs. This concern was further reinforced by the creation of the General commission for Environmental Affairs in 1991 headed by the Minister. This Commission has its own budget, administration and is entrusted with environmental protection and pollution control. The Minister has the power to issue directives, decrees, policies and regulations related to the environmental matters through the Supreme Environmental Safety Committee whose members include twelve Ministers and is chaired by the Prime Minister.

In response to the Montreal protocol concerning the phase-out of Ozone Depleting Substances (ODS) the General commission for Environmental Affairs is currently investigating the possibility of strengthening its organization structure to enable it supervise and manage the implementation of the ODS phase-out process. The Country Program for the Syrian Arab Republic is being developed with the assistance of UNEP and is expected to be finalized in June 1993.

### 2. GNP/CAPITA

The annual GNP/capita in the Syrian Arab Republic is **1680 US$** and the HDI is **0.681**.

### 3. CONSUMPTION OF CONTROLLED SUBSTANCES

Syria imports all the ODS required to satisfy the national industries and service operations that depend heavily on them. The average total consumption per annum is in the vicinity of 1409 M tons, distributed by industrial/service domain as follows:

| | |
|---|---|
| Refrigeration manufacture (domestic, commercial, cold stores, etc. ) | 47% |
| Stationary Air conditioning units | 10% |
| Mobile Air conditioning units (refrigerated trucks, public & private vehicles) | 5% |
| Foam manufacture | 23% |
| Aerosols | 3% |
| Solvents (dry cleaning, etc.) | statistics are not available |
| Service and maintenance operations | 12% |

The level of consumption/annum (more than 1000 M ton), GNP/capita (below 4000 U$$ per annum) and HDI (between 0.5-0.799) places the Syrian Arab republic in category 2 (medium consumption of ODS, Human Development Index and GNP).of eligibility for institutional strengthening support by the Multilateral Fund.

## 4. OBJECTIVES

Short Term Objectives

The principal objective of the project is to strengthen the capabilities of the General Commission for Environmental Affairs in order to manage the implementation of the Country Program concerning the phase out of ODS presently used in the different industrial and service areas. In this context, it is proposed that a competent unit would be established within the organization, whose primary concern is to plan, organize, manage and coordinate all necessary activities required for optimal implementation of the ODS phase-out program.

The Ozone Layer Protection unit (OLP unit) should also posses the capability to continue extending its services beyond the three years support period and endeavor to accelerate the ODS phase-out process.

Long Term Objective

Effectively complete the ODS phase-out program and totally eliminate its use in the Syrian Arab Republic, through the introduction of clean technology and alternative chemicals.

## 5. SCOPE OF THE PROJECT

The OLP unit will extend its operations and activities to cover industries and services using ODS in all Governorates of the Syrian Arab Republic. This will be facilitated through liaising with the branches of the General Commission for Environmental Affairs and the relevant government authorities, institutions and NGOs in Syria.

## 6. PROJECT JUSTIFICATION

The General Commission for Environmental Affairs is charged with the responsibility of environmental conservation and protection, including implementation of ODS phase-out program in Syria.

In the process of ODS phase-out an effective institutional mechanism will be required to facilitate the achievement of commitments made by the Syrian Government to meet the targets set by the Montreal Protocol.

The provision of technical advisory services to industrial enterprises (in particular small scale industries) on clean and alternative technologies is of paramount importance during the phase-out process.

Similarly the creation of a focal point for collection and dissemination of pertinent information (both at the national and international levels) is essential during the transitional period of phase-out.

Awareness related to ODS and its far-reaching harmful effects particularly among the small scale industrial enterprises and the general public is a primary component of a successful implementation of the Government commitments to Montreal Protocol.

At present the Commission for Environmental Affairs lacks the adequate organizational ability to undertake activities and duties related to ODS phase out program and would require institutional strengthening support to manage and supervise the implementation of the program.

## 7. BENEFICIARIES

The primary direct beneficiary of the project is the Commission for Environmental Affairs, since it would receive support to enable it to perform its role of managing an effective phase-out for ODS in the Syrian Arab Republic in accordance with the time frame stipulated by the Montreal Protocol.

The secondary direct beneficiary is the indigenous public and private sector industries in the relevant sub-sectors presently using ODS in their processing facilities.

The Syrian economy will derive indirect benefits from increased efficiency in the implementation of the phase-out program.

## 8. CAPABILITIES OF BENEFICIARIES

The Commission for Environmental Affairs has the basic infrastructure in its central offices as well as branches covering all Governorates of the Syrian Arab Republic. Furthermore the Commission enjoys strong support and commitment of the government at highest levels. However it lacks the necessary capability to provide adequate support and services to the relevant industrial enterprises during the transitional period of ODS phase-out.

The industries using ODS in their production processes lack access to information and technical advisory services concerning alternative ODS free technologies, its sources of procurement and the comparative cost-benefit of various options.

The general public lack awareness of the hazards and effects of ozone depletion.

# II. STRUCTURE AND MANAGEMENT

The General Commission for Environmental Affairs is a governmental body established in 1991 and is headed by the Minister of State for Environmental Affairs. The Commission has the capacity to deal with all matters related to environmental conservation and protection in the Syrian Arab Republic. Furthermore the Commission is responsible for carrying out all the Government's commitments and obligations towards international organizations.

At present the Commission is staffed with a total of 28 employees; it is expected according to the Presidential decree currently being considered for approval to staff it with 100 employees according to the organogram attached in Annex 2.

The organizational structure of the Commission has no specialized unit to deal with matters and coordinate activities related to ODS phase-out. Such a unit when established, would be attached to the directorate for environmental protection ( see Annex 2 the organogram of the Commission). The unit will be solely responsible for the implementation of the phase-out process of ODS in the Syrian Arab Republic.

One senior professional with experience in environmental management and background in ozone layer protection issues would be appointed to head the Ozone Layer Protection unit (OLP unit). Two more professional staff would appointed. One industrial engineer preferably with experience from one of the main ODS consuming industries, and one chemical engineer with a background on ODS substitution processes and technologies. The support staff will consist of one bilingual secretary (Arabic and English) capable of operating the necessary computer software

applications (word processor, desk top publishing, etc.); and one computer technician for maintaining the information and installed computer systems.

## III. ACTIVITIES

The OLP unit would be responsible for the management of the ODS phase-out action plan in the Syrian Arab Republic.

Establish a data base to store collected information and attributes concerning ODS users in the Syrian Arab Republic. Regularly update the information. This data base enables monitoring analysis and evaluation of the current state of ODS phase-out projects.

Collect and store available information concerning techniques associated recycling, reduction and substitution of ODS. Regularly update the information. This information will facilitate the selection of appropriate methods and techniques to be adopted during the phase-out process.

Supervise and monitor the phase-out process in industries and services using ODS and ensure that implementation is carried out according to the country program.

Disseminate information related to the use of clean technology to ODS users by publishing regular newsletters and arranging information sessions, seminars and workshops.

Create public awareness about ozone layer depletion and its consequences through the national mass media such as television and radio programs as well as newspaper articles.

Coordinate and liaise with other government bodies, industries and international organizations on issues related to ODS phase-out.

Issue periodical reports on achievements and relevant milestones concerning phase-out projects carried out in ODS consuming industries and services. Circulate these reports to policy makers and other concerned parties.

Identify and define training needs for implementation of ODS phase-out program. Extend the necessary assistance to ODS users to develop training activities for their staff related to the adoption of different process required for phasing-out ODS.

Recommend suitable incentive schemes intended to offset financial losses incurred by the phase-out.

Supply ODS importers with adequate information on substitutes and the time frame of the phase-out program to enable them to synchronize their operations with the needs of ODS users implementing the phase-out.

Extend assistance and encouragement to potential ODS substitutes producers, by supplying them with information about alternative clean technologies and the chemicals required and the available sources for project funding. The unit will also assist in the technical and economic evaluation of the project.

## IV. INPUTS

The required inputs to establish the Ozone Layer Protection unit would be provided through in kind contribution by the Syrian Government and cash contribution by the Multilateral Fund.

The government will provide the following inputs:

a) **Infrastructure:**

i) The required office space to accommodate the unit, the necessary office furniture and the utilities (electricity, water, etc.).

ii) The government will provide a vehicle for official transportation necessary for expediting the daily duties of the unit.

b) **Personnel:**

i) One senior professional with experience in environmental management and background in ozone layer protection issues.

ii) One industrial engineer preferably with experience from one of the main ODS consuming industries.

iii) One chemical engineer with a background on ODS substitution processes and technologies.

iv) Two support staff: one bilingual secretary (Arabic and English) capable of operating the necessary computer software applications (word processor, desk top publishing, etc.); and one computer technician for maintaining the installed computer and information system.

The Multilateral Fund will provide the following inputs:

a) **Personnel:**

i) National and international short term consultants will be required to assist the project staff in specific issues ( i.e. design of information and data base system, advise on development of incentive system for ODS consumers design of national awareness strategy and campaign etc.).

ii) Incentive for the unit staff calculated; at the rate of 150% of the basic salary.

b) **Equipment:**

The initial outlay of funds to equip the unit with necessary two computers, mass storage media, printer, and software (word-processing, desk top publishing, data base, statistical analysis, etc.) will enable the unit staff to efficiently perform the required analysis and storage of the collected information. The equipment will also permit dissemination of the information early in the project.

c) **Travel**

Cost of internal travel of staff associated with the work program of the unit. A limited budget for international travel for participation in conferences, workshops and visits to technical fairs pertinent to the work of the unit.

d) **National Seminars and Workshops:**

The unit will organize three awareness seminars/workshops per year for participants from relevant industrial enterprises (public and private sectors)

and the concerned governmental authorities. The number of participants in each seminar/workshop would be about 25 participants.

**e) Consumables and other Miscellaneous:**

This includes the costs for office supplies telecommunication, dissemination and collection of information, subscription to periodicals and other sundries.

## V. BUDGET

### a) Government contribution

The Government of the Syrian Arab Republic will contribute in kind during the three year project a total of 2.5 million S £ . This covers the provision of adequate office space for the unit staff, the necessary office furniture, vehicle and associated operation costs, and the basic salary of professional and support staff.

### b) Multilateral fund contribution

The funding expected from the Multilateral Fund during the three years period covers mainly the cost of equipment, staff incentives, travel expenses, operation and maintenance expenditures and awareness seminars/workshops. The details of the Fund contribution and the estimated annual distribution are detailed in (Annex I ).

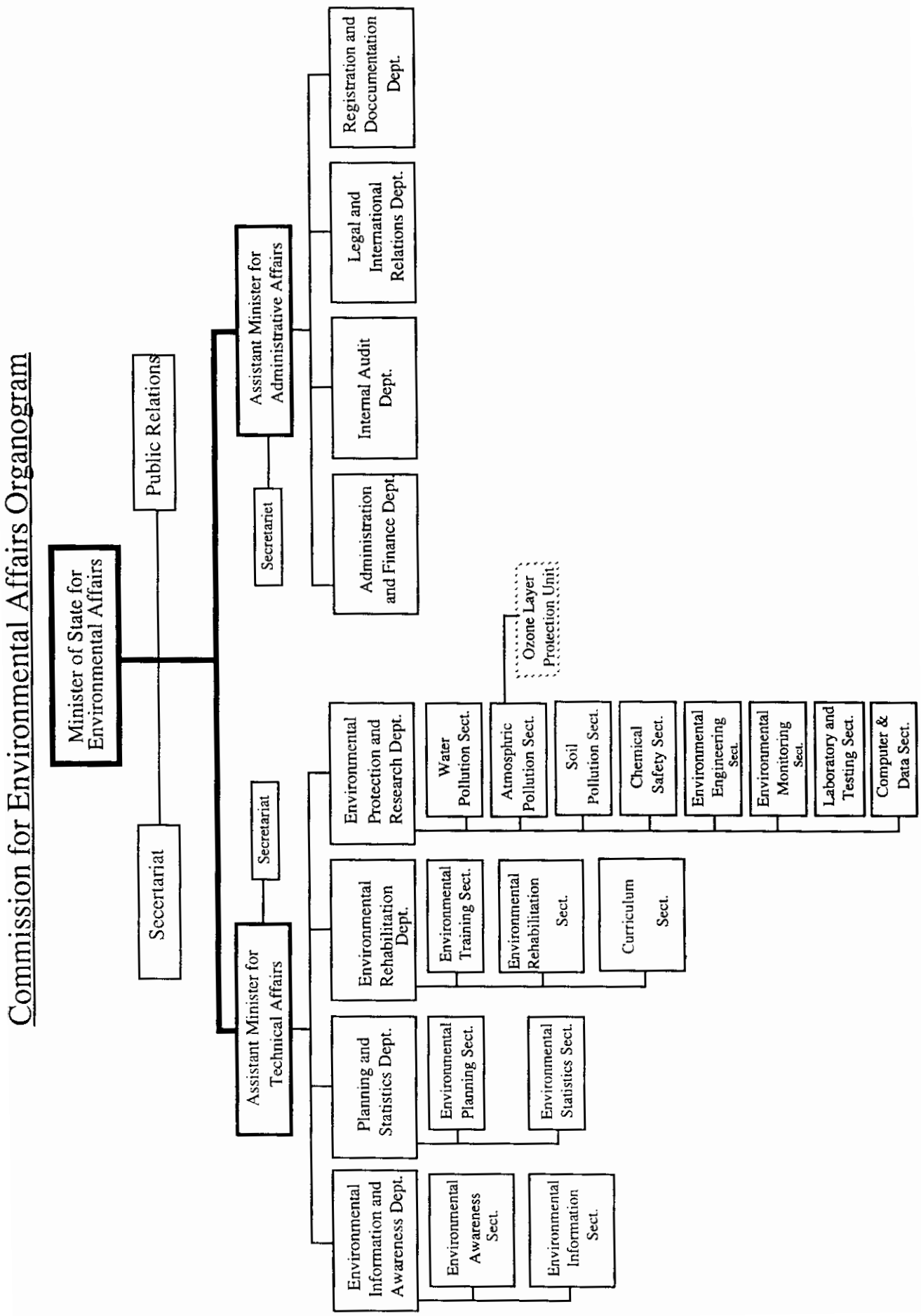
ANNEX 1

# Budget

| Item | Per year | 3-Year Period |
|---|---|---|
| **1. Capital Expenditure** | | 14,000 |
| Office Equipment | | |
| Personal Computer | | |
| Monitor, Printer & Software | | |
| Uninterrupted Power Supply* | | |
| Modem | | |
| Photocopier | | |
| Typewriter | | |
| Fax Machines | | |
| *Sub-Total* | | *14,000* |
| 2. Recurrent Expenditure | | |
| 2.1 Personnel, Incentives for: | | |
| Senior Professional Staff | | 9,000 |
| (US$ 3,000/year) | | |
| Professional staff (4) | | 24,000 |
| (US$ 2,000/year) | | |
| Support staff (3) | | 10,800 |
| (US$ 3,600/year) | | |
| Short-term national consultants | | 6,000 |
| (US$ 2,000/year) | | |
| *Sub-Total* | | *49,800* |
| 2.2 Operational Costs including: | 50,000 | 150,000 |
| Collation/dissemination of info | | |
| Official travel | | |
| Telecommunication charges | | |
| Miscellaneous service charges | | |
| Office supplies | | |
| Maintenance of Equipment | | |
| *Sub-Total* | *50,000* | *150,000* |
| *Total* | *50,000* | *213,800* |
| Contingencies (10%) | | 21,380 |
| TOTAL | | 235,180 |

* Due to frequent power failure in Damascus it will be indispensable to purchase an uninterrupted power supply to ensure efficient and proper use of the installed computer equipment. this will coast about US$ 1,500.

ANNEX 2


Commission for Environmental Affairs Organogram
Minister of State for Environmental Affairs
Secertariat
Public Relations
Assistant Minister for Technical Affairs
Secretariat
Environmental Protection and Research Dept.
Water Pollution Sect.
Atmosphric Pollution Sect.
Ozone Layer Protection Unit
Soil Pollution Sect.
Chemical Safety Sect.
Environmental Engineering Sect.
Environmental Monitoring Sect.
Laboratory and Testing Sect.
Computer & Data Sect.
Environmental Rehabilitation Dept.
Environmental Training Sect.
Environmental Rehabilitation Sect.
Curriculum Sect.
Planning and Statistics Dept.
Environmental Planning Sect.
Environmental Statistics Sect.
Environmental Information and Awareness Dept.
Environmental Awareness Sect.
Environmental Information Sect.
Secretariet
Assistant Minister for Administrative Affairs
Administration and Finance Dept.
Internal Audit Dept.
Legal and International Relations Dept.
Registration and Doccumentation Dept.