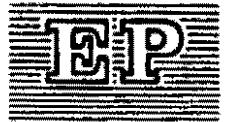




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Executive Committee of the
Multilateral Fund for the
Implementation of the Montreal Protocol

Eleventh Meeting
Bangkok, 10-12 November 1993

COUNTRY PROGRAMME: ALGERIA

This document consists of:

- a) Country Programme Evaluation Sheet (prepared by the Fund Secretariat);
- b) Country Programme Cover Sheet (prepared by the Fund Secretariat);
- c) Transmittal Letter from the Government of Algeria;
- d) Country Programme.

ALGERIA COUNTRY PROGRAMME EVALUATION SHEET

The Algeria Country Programme was revised in accordance with the "Procedures for Presentation of Country Programmes and Project Proposals to the Executive Committee"¹. It consists of:

- Letter of transmittal from the Government of Algeria;
- Country Programme Cover Sheet;
- Executive Summary;
- Criteria for calculation of growth and estimation of incremental costs;
- Current and forecasted ODS consumption, industry structure, institutional and policy frameworks, and government and industry responses to the Protocol;
- Strategy statement, action plan, and institutional support measure;
- Projects by sector;
- Institutional strengthening project proposal.

Algeria does not produce controlled substances. In 1991, the country's consumption of ODS was estimated at 2,144 tonnes (2,221 ODP weighted tonnes), which corresponds to a per capita consumption of 0.09 kg.

Distribution of ODS per sector, in 1991, was estimated as follows:

- 36 per cent in the refrigerator sector, used in manufacturing of domestic refrigerators and air conditioning equipment, and servicing;
- 29 per cent in the rigid foam sector;
- 25 per cent in the aerosol sector;
- 4 per cent in the solvent sector (cleaning); and
- 8 per cent for fire extinguishers.

The Government has already taken action to reduce the consumption of CFC, particularly in the aerosol sector. While in 1986 the total CFC used in this sector was about 5,560 tonnes, in 1991 this consumption had been reduced to only 539 tonnes. The Government has made investments to almost completely retrofit the aerosol-based pesticide and cosmetic plants.

The refrigeration and foams sectors accounted for most of the ODS consumption in 1991 (66%). The manufacturing of domestic refrigeration equipment is done by a single public company (ENIEM), with an annual production capacity of 635,000 refrigerators and freezers. It also produces 50,000 air-conditioner units using HCFC-22. Servicing and maintenance operations are carried out through a large network of refrigeration workshops.

Three public companies are the major producers of rigid foam products, namely, ENIEM (330 tonnes/year) manufacturing panels for domestic refrigerators and freezers; BATIMETAL (89 tonnes/year) manufacturing sandwich panels for industrial refrigeration (transport refrigeration

¹ UNEP/OzL.Pro/ExCom/5/5/Rev.2.

and cool chamber insulation) and building insulation; and PROSIDER (61 tonnes/year) manufacturing pressed sandwich panels for cool chambers and cabinet insulation.

A national commission for ozone matters headed by the Ministry of National Education (in charge of environment related affairs) has been established by the Government. It is responsible for the follow-up of the proposed action plan to comply with the provisions of the Montreal Protocol, and to propose actions for the implementation of the Protocol. The Ministry of Education has been designated as the official focal point for both the Executive Committee of the Multilateral Fund and the implementing agencies.

The technical, administrative and financial support for the implementation of the Montreal Protocol in Algeria will be provided by an Ozone Office staffed by two professionals and a secretary, under the supervision of the Ozone Commission. This Office will be responsible for identifying ODS users in order to assist them in developing phase-out project proposals; will determine the taxation levels and will prepare the banning criteria to be introduced in order to comply with the action plan. It will also establish an information programme to raise public awareness and will publicize the alternative technologies in association with the concerned sectors and NGO's.

The Government action plan has been developed on the basis of investment projects and training programmes in all sectors. The following ODS phase-out schedule is are being proposed:

- Phase I (1993-1996): 60 per cent reduction in the consumption of ODS (as ODP) compared to the consumption of 1991;
- Phase II (1997-1998): additional 20 per cent reduction in the consumption of ODS; and
- Phase III (1999-2004): complete ODS phase-out, except for essential uses.

The total phase-out costs for Algeria are estimated at US \$150 million. Incremental costs estimates to be incurred during phases I and II (1993-1998) are about US \$4.3 million.

Recommendations

The following recommendations are made for the consideration of the Executive Committee:

1. Approval of the country programme. Such approval does not denote approval of the projects listed therein or their funding levels;
2. Approval of US \$297,000 as funding for the institutional strengthening programme. This activity is to be included as amendments to UNEP's work programme, allocating an additional US \$38,610 as support costs.

COUNTRY PROGRAMME COVER SHEET

Country: ALGERIA

Lead National Agency: Ozone National Commission

Participating Implementing Agencies: UNEP

Phase-out schedule

Substance	Current consumption (1991) (ton x ODP)	Planned cumulative consumption till phase-out (ton x ODP)	
		Article 5 schedule (1)	Accelerated schedule (2)
CFC-11	781.0 x 1.0 = 781.0	13,607.8	4,069.6
CFC-12	1,109.0 x 1.0 = 1,109.0	19,322.7	5,778.7
CFC-113	75.0 x 0.8 = 60.0	1,045.4	312.6
CFC-114	61.0 x 1.0 = 61.0	1,062.8	317.9
CFC-115	20.0 x 0.6 = 12.0	209.1	62.5
Halon 1211	22.1 x 3.0 = 66.4	1,230.3	343.9
Halon 1301	11.0 x 10.0 = 110.0	2,050.5	573.2
MCF	50.0 x 0.1 = 5.0	106.0	26.1
CTC	15.3 x 1.1 = 16.5	291.4	86.0
TOTAL	2,220.9	38,926.0	11,570.4

(1) Projected at an annual growth rate of 3.0 per cent through the year 2010.

(2) The following ODS phase-out phases are being proposed:

- Phase I (1993–1996): 60 per cent reduction in the consumption of ODS (as ODP) compared to the consumption of 1991;
- Phase II (1997–1998): additional 20 per cent reduction in the consumption of ODS;
- Phase III (1999–2004): complete ODS phase-out, except for essential uses.

Government Action Plan

Year	Description of Action	Intended Effect	Sector	Estimated cost (US \$)			
				1994	1995	1996	Total
I. INSTITUTIONAL STRENGTHENING							
1994-1996	Establishment of the Ozone Commission	Co-ordination, control, follow-up, technical support, monitor	All	117,000	95,000	85,000	297,000
	Sub-total cost			117,000	95,000	85,000	297,000
II. INDUSTRIAL SECTOR ACTIVITIES							
1994	Substitution of CFC-12 with hydrocarbon. The following industries has been identified: ENGI, ENDALGI	Phase-out of 560 ton of CFC-12	Aerosol	350,000			350,000
1994	Manufacture of HFC-134a refrigeration, maintenance of domestic, commercial and industrial equipment, training. The following industries has been identified: ENIEM, ITF, RCA	Phase-out of 756 ton of CFC-12 Training	Refrigeration	1,850,000			1,850,000
1994	Reduction in halon consumption at Sonatrach	Phase-out of 10 ton	Halon	50,000			50,000
1994-1995	Replacement of CFC as a blowing agent in the manufacture of rigid foam at ENIEM, BATIMETAL and PROSIDER	Phase-out of 454 ton of CFC	Foam	120,000	40,000		160,000
1996	Replacement of CFC-113 at National Detergent and Cleaning Products Co.	Phase-out of 10 ton of CFC-113	Solvent			60,000	60,000
1997	Conversion and retrofitting of chillers (government offices and trains)	Phase-out of 20 ton of CFC	Refrigeration			1,500,000	1,500,000
	Sub-total cost			2,370,000	40,000	1,560,000	3,970,000
	TOTAL COST			2,487,000	135,000	1,645,000	4,267,000

Project Summary

Year	Type of Project	Project Description	Agency	Project cost (US\$)
1994–1996	Institutional strengthening	Establishment of appropriate institutional framework	UNEP Ozone Commission	297,000
1994–1997	Industrial sector activities	Investment projects in aerosol, refrigeration, foam and solvent sectors. Training in the refrigeration sector		3,970,000
TOTAL COST				4,267,000

The Government of Algeria proposes to phase-out ODS as follows: 60% reduction in ODS consumption in the period 1993–1996; additional 20% reduction between 1997 and 1998; and complete phase-out in the period 1999–2004 except for essential uses.

REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE

MINISTERE DE L'EDUCATION
NATIONALE

DIRECTION DE L'ENVIRONNEMENT

22 SEPT 1993

N° *260*/DE/S.DE/93

Docteur OMAR EL-ARINI
CHEF DU SECRETARIAT DU FONDS
MULTILATERAL AUX FINS
D'APPLICATION DU PROTOCOLE
DE MONTREAL
1800 MC GILL COLLEGE AVENUE
MONTREAL TRUST BUILDING
27TH FLOOR MONTREAL CANADA
H3A3J6

OBJET/ Programme de pays.

J'ai l'honneur de vous transmettre pour approbation et financement le programme de pays.

L'Algérie a ratifié le protocole de Montréal le 20 Octobre 1992. Sa consommation étant inférieure à 0,3 kg/habitant/an, il est donc visé par les dispositions du paragraphe 1 de l'article du protocole de Montréal.

Le programme de pays, réalisé sous la direction de la commission nationale OZONE, et avec l'assistance du PNUE IE/CAP, a permis l'élaboration d'une stratégie qui prévoit un plan d'action et par suite des projets. Ces projets vont permettre l'élimination totale des substances qui appauvrissent la couche d'ozone d'ici l'an 2005 et ce en conformité avec les dispositions prévues par le protocole de Montréal.

Le gouvernement a approuvé l'ensemble des actions contenues dans le programme de pays et s'assurera que leur mise en oeuvre se fera en accord avec les dispositions du protocole de Montréal.

Ainsi, il pourra être modifié et soumis une nouvelle fois à l'approbation du comité exécutif du fonds multilatéral si d'autres actions s'avéraient nécessaires au bon respect du protocole. Nous espérons que lors de sa 11ème réunion le comité exécutif du fonds multilatéral approuvera le présent programme de pays ainsi que les projets préparés suivant la procédure requise par le comité exécutif du fonds multilatéral.

Ces projets, dont la présentation est sommaire avec des coûts indicatifs, sont les suivants :

- 1./ Création d'un bureau "OZONE".
- 2./ Mise en place de production de gaz comprimés pour les besoins de PME du secteur des aérosols.
- 3./ Conversion de deux chaînes au GPL au niveau de l'entreprise ENAD.
- 4./ Introduction de nouvelles technologies au niveau du complexe, électro-ménagers de l'entreprise ENIEM.
- 5./ Mise en place de nouvelles méthodes pour l'entretien des réfrigérateurs domestiques, la récupération et le recyclage de substances SAO, et l'utilisation de substances non SAO, pour le rinçage et le nettoyage des systèmes.
- 6./ Mise en place de nouvelles méthodes pour la maintenance d'équipements commercial, industriel et climatisation.
- 7./ Essai de déclenchement des systèmes au CO2.
- 8, 9, 10 et 11./
Reconversion des équipements utilisant des CFC à d'autres fluides dans le secteur des mousses au niveau des entreprises ENIEM, BATIMETAL, PROSIDER et RCA/HCR/TECH.
- 12./ Substitution du CFC 113 au niveau de l'unité lames de ROUIBA de l'entreprise ENAD.
- 13./ Reconversion des équipements refroidisseurs de liquides au niveau de l'entreprise ERIAD, et des machines de production dans les installations de climatisation de voitures ferroviaires.

Il va sans dire que ces projets constituent une première série que la commission nationale "OZONE" a déjà identifié. Ils nécessiteront une expertise pour chacun d'entre eux afin d'en préciser les aspects techniques et financiers.

D'autres projets sont en cours d'identification pour une présentation ultérieure au comité exécutif du fonds multilatéral.

Nous sollicitons également du comité exécutif le financement du projet de renforcement institutionnel à travers la création d'un "BUREAU OZONE" pour un montant total de 260.500 dollars U.S..

Veuillez agréer, cher Monsieur, l'expression de mes salutations distinguées.



MT MOHAMED EL-HADI BENNADJI
DIRECTEUR DE L'ENVIRONNEMENT

DEMOCRATIC AND POPULAR REPUBLIC OF ALGERIA

MINISTERE DE L'EDUCATION
NATIONALE

DIRECTION DE L'ENVIRONNEMENT

No. 260/DE/S. DE/93

SEPTEMBER 22, 1993

DR. OMAR EL-ARINI
CHIEF OFFICER
SECRETARIAT OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE
MONTREAL PROTOCOL
1800 MCGILL COLLEGE AVENUE
MONTREAL TRUST BUILDING
27TH FLOOR
MONTREAL
H3A 3J6
CANADA

SUBJECT: Country Programme

I am honoured to send you our Country Programme for your approval and funding.

Algeria ratified the Montreal Protocol on October 20, 1992. With a consumption of less than 0.3 kg/person/year, our country is covered by the provisions of the Montreal Protocol's Article 5, paragraph 1.

The Country Programme, carried out under the direction of the commission nationale OZONE, with assistance from the UNEP IE/PAC, has made it possible to develop a strategy including an action plan, followed by projects. These projects will allow for the total phase-out of ozone-depleting substances by the year 2005, in compliance with the provisions of the Montreal Protocol.

The government has approved all measures contained in the Country Programme and will ensure that their implementation is carried out in accordance with the provisions of the Montreal Protocol.

Therefore, it may be modified and again submitted for the approval of the Multilateral Fund Executive Committee if additional measures prove necessary for rightful compliance with the Protocol. We hope that the Eleventh Meeting of the Executive Committee of the Multilateral Fund will approve the present Country Programme, as well as the projects prepared according to the procedures required by the Multilateral Fund Executive Committee.

These projects, including a brief presentation and preliminary estimates of costs, are as follows:

- 1./ Creation of an Ozone Board.
- 2./ Implementation of compressed-gas production for the needs of small and medium-scale businesses in the aerosol sector.
- 3./ Conversion of two production facilities to LPG at the ENAD company.
- 4./ Introduction of new technology at the ENIEM household-appliance company.
- 5./ Implementation of new methods for servicing household refrigerators, recovering and recycling ODS and using non-ODS in the rinsing and cleaning of circuits.
- 6./ Implementation of new methods for servicing commercial and industrial equipment and air conditioning.
- 7./ Testing tripping systems by using CO₂.
- 8, 9, 10, 11./
Retrofitting of CFC equipment for use with other substances in the foam sector at the following companies -- INIEM, BATIMETAL, PROSIDER and RCA/HCR/TECH.
- 12./ Replacement of CFC-113 at the ROUIBA blade unit of the ENAD company.
- 13./ Retrofitting of water-cooling facilities at the ERIAD company and of machines for installing air conditioning in railway cars.

Of course, these projects constitute a first series that has already been identified by the commission nationale "OZONE." They will individually require expert evaluation for the purpose of technical and financial specifications.

Other projects are currently being identified for later presentation to the Multilateral Fund Executive Committee.

We are also requesting that the Executive Committee consider funding for an institutional-strengthening project through the creation of an "OZONE BOARD." The total amount requested for this project is US\$260,500.

Sincerely,

Mr. MOHAMED EL-HADI BENNADJI
DIRECTEUR DE L'ENVIRONNEMENT
[SEAL AND SIGNATURE]

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EXECUTIVE SUMMARY

S.1 The Government of Algeria has shown its firm commitment to environmental protection, and particularly to the protection of the stratospheric ozone layer, by ratifying the Montreal Protocol on Substances that Deplete the Ozone Layer on 20 October 1992. Thus Algeria became a Party to the Montreal Protocol on 18 January 1993.

S.2 Algeria is a country operating under paragraph 1 of Article 5 of the Montreal Protocol, and as such is eligible for financial and technical assistance from the Multilateral Fund.

S.3 This document underlines the proposed programme for the implementation of the Montreal Protocol provisions. In addition, it provides provisional estimates of incremental costs to be incurred by Algeria for phasing out controlled substances. These costs will be reevaluated during the comprehensive studies of the proposed projects and will be Algeria's request for financial assistance from the Multilateral Fund.

S.4 For the time being, only a comprehensive evaluation of the Ozone Office operating costs has been put forward. This will be the government agency responsible for implementing and following-up the action plan designed by the National Ozone Commission that was created in February 1993.

S.5 The creation of the Ozone Office will take effect as soon as financial assistance from the Multilateral Fund is approved.

S.6 Algeria does not produce Ozone Depleting Substances (ODS), the country meets all its needs through imports.

S.7 In 1991, total ODS consumption in Algeria was 2221 ODP weighted tonnes. This figure is almost 70% lower than the maximum consumption observed in 1987.

S.8 This reduction is due to the substitution of ODS as aerosol propellants. In 1991, total ODS consumption in terms of ODP tonnes was as follows:

- 34% of CFC-11
- 50% of CFC-112
- 8% of Halons

S.9 ODS use by sector in Algeria is as follows:

- | | |
|---|-----|
| • Refrigeration (manufacturing and maintenance) | 34% |
| • Foam production | 29% |
| • Aerosol production | 25% |

S.10 A few public enterprises manufacturing domestic, commercial and industrial

refrigeration equipment, rigid foams, aerosols, and using Halons for fire-extinguishing purposes, account for 40% of total ODS consumption. The remainder is consumed by a great number of small and middle-sized private enterprises.

S.11 Assuming that ODS consumption in Algeria had not been limited by Montreal Protocol-related restrictions, it would have increased at a 3% rate between 1986 and 2010.

S.12 This growth rate is mainly based on economic and demographic growth forecasts. Preparation of Algeria's action plan for ODS phase-out was carried out in close collaboration with the concerned ministries, relevant professional associations, ecological associations and a great number of enterprises using ODS.

S.13 Estimates for the phase-out are based on:

- Priority actions that will ensure rapid reductions in ODS use at a minimum cost, through confirmed and well-established technology applications (e.g., aerosol sector);
- Additional priority actions for technically complex projects (as the introduction of a new fluid in the formulation of rigid foams or the manufacturing of refrigerators). These actions will be carefully implemented (technical assistance, tests....), whilst aiming for the nearest phase-out deadlines.
- Introduction in the long run of technology applications that are either transitional or at the experimental stage (such in the case of Halons).

S.14 An action plan was designed in accordance with the strategic framework, in order to achieve an appropriate, inexpensive and progressive phase-out. The plan comprises a combination of agreements to establish the necessary institutional support for facilitating and encouraging the phase-out, as well as a preliminary list of recovery, recycle and industrial transformation projects.

S.15 The main institutional actions proposed by the government are the following:

- The Ozone Office

Creation of a government agency under the authority of the National Commission (already established), in charge of planning, coordinating, financial assistance management, and supervising implementation of the phase-out programme.

- The Green Label:

Introduction of an ozone logo for all ODS-free products.

- Taxes and import restrictions:

The imposition of taxes and restrictions (as required) on ODS imports and products containing them in order to enable the phase-out timetable to be respected.

- Training and Technical Assistance

Introduction of training programmes, transfer of technology and other technical assistance in order to put the know-how for achieving the programme objectives at the industry's disposal.

S.16 The table on the following page summarizes the criteria for calculation of growth.

S.17 The second table on the following page summarizes and classifies the criteria for calculation of growth and presents by order of priority the lists of identified projects. It also indicates the preliminary estimates of incremental costs.

S.18 The actions and projects represent an integrated course of action, their implementation being essential for the completion of the planned ODS phase-out in Algeria. The timetable's objective will be the phase-out of ODS in accordance with the Copenhagen Amendments to the Montreal Protocol.

S.19 A three-phase programme is contemplated:

- Phase I (1993-96): 60% consumption reduction in terms of ODP weighted tonnes as compared to the consumption of 1991.
- Phase II: (1997-98) further reduction of 20%
- Phase III: (1999-2004) complete phase-out, except for essential uses.

CRITERIA FOR CALCULATION OF GROWTH

ITEM	VALUE	YEARS
POPULATION	24 500 000	1991
POPULATION GROWTH	3 %	1992-2010
POPULATION	32 498 000	2000
GNP PER CAPITA	US \$ 2 166	1991
GNP GROWTH	2%	1992-2010
REFRIGERATORS		
NUMBER	3 200 000 UNITS	1991
GROWTH RATE	3%	1992-2010
AVERAGE LIFE	15	YEARS
REFRIGERATOR RECHARGE	ONCE	EVERY YEAR
RIGID FOAMS GROWTH RATE	2 %	1992-2010
AEROSOLS GROWTH RATE	3 %	1992-2010
SOLVENTS GROWTH RATE	3 %	1992-2010
HALONS GROWTH RATE	3 %	1992-2010

ESTIMATION OF INCREMENTAL COSTS IN \$ US (1992)

PROJECT NUMBER BY ORDER OF PRIORITY	NAME OF RESPONSIBLE BODY	SECTOR	STARTING YEAR	REDUCTION OF ODS T*ODP	INCREMENTAL COSTS (CAPITAL) \$ US (*)
1	OZONE COMMISSION	ALL	1993		297 000
2	ENGI	AEROSOLS	1994	504	300 000
3	ENADALGI	AEROSOL	1994	56	50 000
4	ENIEM	REFRIGERATION	1993	130	650 000
5	ENIEM/ITF	REFRIGERATION	1993	350	700 000
6	RCA/ITF	REFRIGERATION	1994	270	500 000
7	SONATRACH	HALONS	1994	10	50 000
8	ENIEM	FOAMS	1994	274	40 000
9	BATIMETAL	FOAMS	1994	60	40 000
10	PROSIDER	FOAMS	1994	60	40 000
11	RCA/HCR/TECH	FOAMS	1995	60	40 000
12	ENADALGZ	SOLVENTS	1997	10	60 000
13	ERAID/CLIMAT	REFRIGERATION	1997	20	1 500 000
TOTAL				1 804	4 267 000

(*) Preliminary figures mainly based on "Source book of Benchmark Unit Abatement Costs" by the World Bank - October 1993. Incremental operational costs and savings will be taken into consideration.

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

COUNTRY PROGRAMME FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

**UNITED NATIONS ENVIRONMENT PROGRAMME
UNEP IE/PAC**

SEPTEMBER 1993

1.0 INTRODUCTION

OBJECTIVE

1.1 The present document, which constitutes Algeria's Country Programme, has been prepared according to a methodology recommended by the United Nations Environment Programme, Industry and Environment Programme Activity Centre (UNEP IE/PAC) to comply with the provisions of both the Vienna Convention and the Montreal Protocol, which were ratified by the Government of Algeria in October 1992 (Presidential decree 92 dated 13/09/92). The Country Programme is also consistent with Algeria's national environmental protection policy.

1.2 Considering that the environment cannot be dissociated from social and economic development and that the damage caused to either of them can have disastrous consequences for the other, Algeria intends to mobilize all economic operators, the non-government organizations (NGO) and the consumer associations of the country in the fight against factors threatening or affecting the environment/development balance.

1.3 In addition, Algeria has paid special attention to the ozone layer whose protection it considers essential.

1.4 However, it should be noted that Algeria has already taken actions. The country has reduced its CFC consumption as of 1990, by more than 4600 tonnes per year in relation to its 1986 consumption. It has made investments for almost complete retrofitting in the aerosol propellant sector for pesticides and cosmetics.

BACKGROUND

1.5 According to the provisions of the Vienna Convention and the Montreal Protocol, in 1993 Algeria operates under paragraph 1 of Article 5 country as its consumption of ODS is:

- Less than 0.3 kg of ODS per capita for Annex A products.
- Less than 0.2 kg of ODS per capita for Annex B products.

1.6 Therefore, Algeria is eligible for financial assistance for "Country Programme" design and implementation.

1.7 The present programme, which is submitted to Executive Committee of the Montreal Protocol for its approval, includes the basic elements of an Action Plan for the 1993-1990 period, which is the initial phase of the ODS phase-out process.

1.8 The programme defines the analytical elements that have governed strategic choices, as well as initial proposals required for investments to meet the Montreal Protocol deadlines.

1.9 The government intends to promote, supervise and strengthen the proposed Action Plan, as well as to monitor the progress being made.

1.10 Finally, it should be pointed out that both the technical support and the initial proposed targets for investment, were assessed on the basis of criteria of the Executive Committee (EC) meetings.

1.11 Algeria is presenting this Country Programme for approval to the 11th meeting of the Executive Committee scheduled for November 1993. Algeria is also requesting approval of the funding for the Institutional Strengthening project.

MAIN ELEMENTS

1.12 The present programme was prepared under the supervision of the Environment Directorate of the Ministry of Education that is in charge of environment related affairs.

1.13 A pilot study was submitted to governmental authorities, Ministries of Finance, Industry, Energy and Transports for approval. The present version summarizes the various relevant ideas that were put forward.

1.14 ODS consumption was assessed based on Customs statistics; sectorial adjustments having been made on the basis of data provided by potential consumers. These were invited to participate in the determination and forecast of data through newspaper advertisement. The consolidation of the data was carried out by ozone committee members, representing all of the relevant sectors.

1.15 ODS consumption unconstrained demand forecasts are based on national economic aggregates for 1990 according to the economic statistics of the Country provided by the United Nations. Extrapolations were made on both population growth and GDP sectorial trends.

1.16 With regard to the refrigeration and rigid foam sectors, it should be mentioned that a national study on refrigeration, which was conducted together with the International Institute of Refrigeration (IIR), was extensively used for the purpose of preparing the present document.

1.17 The National Chamber of Commerce, the Trade Register Center, and potential distributors of ODS (ENAPAT, ENGI, ADMIDAL.....) and equipment, contributed to the survey of manufacturers and service, repair and maintenance centers using controlled substances.

1.18 Finally, the Ministry of Continuing Education provided a list of forty-seven (47) training institutes and centers specializing in refrigeration and air-conditioning.

ASSISTANCE RECEIVED

1.19 Technical and financial assistance were received for the preparation of this document. UNEP IE/PAC and the Government of Finland through FINNIDA.

1.20 The Overseas Development Administration (ODA) of the United Kingdom, also provided financial and technical support.

1.21 The assistance comprised the provision of documents, procedures and guidance for the preparation of the country programme. Relevant recommendations and guidance was given to the local team for the preparation of the Country Programme Action Plan.

1.22 Several governmental bodies including the Ministries of Energy, of Industry, the Ministry of National Education, which is in charge of the environment, and the Customs General Directorate enabled the working group to collect relevant data on the different economic sectors involved.

1.23 Other agencies and professional associations were instrumental in laying the ground for the study of the situation and ODS reduction possibilities, the most important of which are: ASMIDAL, ENGI, Algerian Association of Refrigeration and Air-conditioning (AAFC).

1.24 Newspaper advertisements aimed at ODS resulted in responses that allowed the team to consolidate past, present and projected ODS consumption.

1.25 UNEP IE/PAC also gave financial support to the Algerian government to meet the expense of both Country Programme preparation and newspaper advertisements. UNEP IE/PAC also contributed to organize a national meeting with assistance from NGO, namely, the National Federation of Algerian Environmental Protection Associations (Fédération Nationale des Associations Algériennes pour la Protection de l'Environnement), as well as a forum on the technical and financial implications of the Montreal Protocol.

2.0 CURRENT SITUATION

CURRENT AND FORECAST CONSUMPTION

CURRENT CONSUMPTION

2.1 Consumption of controlled ODS in Algeria was estimated at 2144 tonnes in 1991, equal to 2204 ODP weighted tonnes, for a population of 24.5 Million, which corresponds to a per capita consumption of 0.09 kg.

2.2 There is no production of ODS in Algeria. All controlled substances are imported. It should be noted however that very minimal quantities of CFC are re-exported in domestic refrigeration equipment.

2.3 At the present time, Algeria neither recovers nor recycles ODS.

2.4 The total 1991 ODS consumption is broken down by Montreal Protocol classification and product type as follows:

Annex A group 1	CFC-11, 12 113, 114, 115	2046 T
Annex A group 2	Halons 1211 and 1301	33 T
Annex B group 1	CFC-13	< 1 T
Annex B group 2	CCl ₄	15 T
Annex B group 3	CH ₃ CCl ₃	50 T
Total		2144 Tonnes
Total		2144 Tonnes

2.5 1991 ODS user sector consumption is as follow:

User Sectors and substance in 1991	Quantities metric Tonnes	Percentage %	Quantities ODP weighted Tonnes	Percentage %
Refrigeration CFC 11, 12, 13, 115	762	36	754	34
Foams CFC-11	650	30	650	29
Aerosols CFC-11, 12, 114	559	26	559	25
Solvents CFC-113, CTC, MCT	140	6.5	84	4
Halons 1211, 1301	33	1.5	176	8
TOTAL	2144	100	2221	100

2.6 It is to be noted that the refrigeration sector refrigeration and foam insulation accounted for almost 66% of the ODS consumption in 1991.

UNCONSTRAINED FORECAST CONSUMPTION

2.7 Based on industry, consumption growth and assuming unconstrained forecast, the consumption of the 4 groups of controlled substances up to the year 2010 by sector and substance is shown on the following page.

2.8 As for commercial and industrial refrigeration sectors, foam production and fire protection, forecast is based on extrapolations using data on the country's economic growth potential of 2%, and the contribution of these sectors to the GDP.

2.9 Domestic refrigeration forecast considers that 90 % of the current refrigerator production capacity will be sold in the local market starting in 1993. This assumption is based on equipment needs of new households according to the government programme for housing development, and on the necessary quantities to replace discarded units. This represents a total of 6% of the 3200 existing units in 1991.

2.10 Since aerosol and solvent demand are mostly dependent on individuals purchasing cosmetics, pesticides and razor blades, consumption of these products will be closely linked to the population growth rate of 3%.

2.11 Between 1990 and 1992, some new equipment using Halons for fire protection was introduced in the hydrocarbon and computer sectors. Unconstrained demand within these sectors is expected to reach an annual rate of 3%. Halon consumption for the 1991 - 1992 period is based on real consumption.

2.12 The following table gives the unconstrained forecast demand of ODS consumption to the year 2010.

CONSUMPTION IN TONNES	1986	1991	1995	2000	2005	2010
SECTOR						
REFRIGERATION	475	762	874	965	1065	1165
FOAMS	441	650	749	894	1066	1273
AEROSOLS	5660	559	629	729	846	980
SOLVENTS	191	251	158	183	212	245
HALONS	1	33	37	43	50	58
TOTAL	6768	2144	2447	2814	3239	3721

2.13 Unconstrained consumption forecast that starts in 1988, which is the year in which ODS consumption in the aerosol sector started to decrease is shown in the Annex. The current consumption is the result of the important effort made by the country from 1988 to reduce CFC consumption. ODS consumption in 1986 - 1991 has decreased by almost 70%. This amounts to 1600 tonnes of CFC by changing the propellants used from CFC-11 and CFC-12 to liquid petroleum gas (LPG). These changes were made in two aerosol pesticide manufacturing plants whose production capacity is 15 Million aerosol cans per year. In 1989 compressed gas as an alternative propellant was introduced by another plant that manufactures 10 thousand cosmetic aerosol cans.

2.14 A large number of private sector cosmetic producers have adopted CFC free propellants as a result of their awareness of Montreal Protocol restrictions.

2.15 It is worth noting that the forecast of consumption led the country in the past to plan a joint Algeria-Tunisia CFC production project that was to be located in Skikda (Algeria). Although the cost benefit analysis proved to be positive, the project was eventually abandoned to protect the ozone layer.

INDUSTRY STRUCTURE

2.16 In 1991, refrigeration equipment production and maintenance consumed 762 Tonnes of CFC, of which 538 Tonnes are presently vented into the atmosphere during service, repair and maintenance operations.

2.19 Sensitization of technicians on the use of adequate recovery and recycling equipment would be a substantial contribution for the reduction of ODS consumption.

2.20 At present, the refrigeration manufacturing and maintenance industry encompasses two broad areas. These are:

- Domestic Refrigeration
- Industrial and Commercial Refrigeration

DOMESTIC REFRIGERATION

2.21 Equipment production is monopolized by a single public company (ENIEM), which has a production capacity of 635 000 refrigerators and freezers. The refrigerant used is CFC-R 12. ENIEM also manufactures 50 000 air-conditioner units, both autonomous and split systems using HCFC-22 as refrigerant.

2.22 The ENIEM complex consists of three production lines, which started operating at different times (1977, 1986 and 1992). A 5% share of the production is exported; ENIEM used 69 tonnes of CFC-12 in 1991 for the manufacture of 350 000 refrigerators.

2.23 The current overall number of domestic refrigerators and freezers in operation in the country is estimated at 3 200 000 units.

2.24 Service, maintenance and repair operations in this sector are carried out through a large network of refrigeration workshops that are often licensed by ENIEM.

2.25 A refrigeration service, maintenance and repair technician diploma is required to carry on this activity. In 1991, approximately 380 tonnes were used for service, maintenance and repair for domestic refrigerators.

COMMERCIAL AND INDUSTRIAL REFRIGERATION

2.26 This sector is characterized by some 40 workshops that form a network that assembles refrigerator cabinets and cold rooms. These workshops also do the service, maintenance and repair of food storage and air-conditioning systems following installation.

2.27 Nearly all of these units use CFC-12 and a small amount of R-502. In 1991, CFC consumption in this sector for manufacturing is estimated at 145 tonnes.

2.28 The manufacturer of mobile refrigeration units is a public company called ANVI. This company has an annual production capacity of 200 vehicles. It uses 6 tonnes of CFC-12 and R-502.

2.29 158 tonnes of CFC were used in 1991 for service, maintenance and repair. Service, maintenance and repair are carried out mainly by the manufacturers. Some specialized workshops such as ENAPAT, ENAPEM, ENITEC, ENAFROID, EDIED also do service, maintenance and repair of mobile refrigeration equipment.

THE FOAM SECTOR

2.30 Only companies blowing rigid foams using CFC-11 were surveyed. Three public companies and several private ones were found to be the main users:

- ENIEM: Used 330 tonnes of CFC-11 in 1991 for manufacturing domestic refrigerators and freezers;
- BATIMETAL: Used 89 tonnes of CFC-11 in 1991 for manufacturing sandwich panels either for industrial refrigeration (transport refrigeration and cool chamber insulation) or building insulation.
- PROSIDER: Used 61 tonnes of CFC-11 in 1991 for manufacturing pressed sandwich panels designed for cold chambers and cabinet insulation.
- Private Companies, such as RCA, is equipped with production lines for blowing commercial equipment panels (refrigerated display cabinets).

2.31 CFC-11 consumption in the private sector as a whole was 170 tonnes in 1991. The flexible foam sector was not surveyed as no major consumption was identified.

THE AEROSOL SECTOR

2.32 This sector is governed by two large public companies (ASMIDAL and ENAD) and about 90 small private companies.

2.33 The entire sector has begun using either LPG or compressed gases (CO₂, Nitrogen Oxide, Nitrogen) in place of CFC, thereby achieving a substantial reduction in consumption as of 1990. The reduction is of 4600 tonnes as compared with the consumption in 1986.

2.34 It should be pointed out that this early conversion was hastily carried out, without having taken into account the required safety regulations, particularly for LPG use. As a result, a severe accident occurred in 1991 at the ASMIDAL industrial complex in Mascara.

2.35 CFCs are still being used by small and middle sized private companies. This is primarily due to the poor supply of CFC substitutes (Nitrogen, CO₂ or LPG).

THE SOLVENT SECTOR

2.36 This sector uses only 6.5% of the national consumption of ODS. Apart from the razor blade production plant (ENAD), which imported about 5 tonnes of CFC-113 per year up to 1991, CTC and MTC are also used as cleaning agents in the private sector for degreasing.

THE HALON SECTOR

2.37 Halon use for fire protection in Algeria can be distributed in two main categories:

- Use of Halon 1301 during early emergency interventions by the personnel for equipment protection. Uses comprise the following:
 - Computer rooms (industry, administration)
 - Control rooms (economic units, air transport)
 - Revolving machines
- Use of Halon 1211 for the protection of large-sized hydrocarbons tanks.

INSTITUTIONAL FRAMEWORK

2.38 Having signed and ratified the Montreal Protocol, Algeria is committed to phase out ODS consumption. A national commission for ozone was thus created to harmonize ODS phase-out policies and establish a national strategy covering all sectors. The national commission, which is headed by the Ministry of Education in charge of environment related affairs, shall regroup the relevant ministries, institutions and organizations:

- Ministry of Education in charge of environment related affairs;
- Ministry of Foreign Affairs;
- Ministry of Defense;
- Ministry of Trade;
- Ministry of Budget;
- Ministry of Agriculture;
- Ministry of Industry and Mining;
- Ministry of Energy;
- Ministry of Transports;
- Ministry of Small and Middle Sized Enterprises;
- Customs General Directorate;
- Algerian Refrigeration and Air-conditioning Association, which represents the professional associations;
- National Federation of Algerian Environmental Protection Associations representing the environmental associations;
- National Chamber of Commerce representing the private sector.

2.49 This commission is designed to:

- Finalize and follow-up the action plan for ensuring that the Montreal Protocol provisions and amendments are respected.
- Propose the measures to be taken for the implementation of the Montreal Protocol

2.50 The commission will be assisted by a permanent secretariat called the "Ozone Office". The national commission will have full autonomy and will officially act on the government's behalf. The members of the commission will be responsible for both the implementation and follow-up of the measures to be taken within this respective activity sector. Periodic reporting by all members of the secretariat shall be done.

2.51 The Ministry of Education in charge of environment related affairs has been officially designated as the focal point for both the Executive Committee of the Multilateral Fund and the implementing agencies.

General Policy Framework

2.52 Algerian ODS phase-out policy is based in its own environmental protection policy, as embodied in the 1983 law on environmental protection. This law underlines the need for the economic development to take into account environmental concerns. As far as the public sector is concerned, the government is committed to establish adequate mechanisms for achieving ODS phase-out in accordance with the country programme.

2.53 An incentive policy to cover the private sector will be favored by the country to promote support to the proposed action plan.

2.54 The key elements of this policy are:

a) Imports

The need for imported ODS and products containing them will be reduced, in order to ensure compliance with the proposed action plan. The first measure will consist in banning ODS use in the aerosol sector from 1993 on.

b) Taxes

An adequate tax system will be introduced during the transitional phase, based on either tax cuts or exemptions for ODS-free products, together with tax increases for those that continue using them.

Tax concessions or exemptions will be granted to ODS recovery and recycling projects.

c) Incentive measures

The research centres of universities, industry and other institutions will be have government support and incentives to carry out development work on ozone-friendly technologies.

d) Information, training and public awareness.

The importance attached to protection of the ozone layer will be emphasized through the media (television, radio, newspapers). Training courses will be designed in order to improve the performance of both ODS and ODS substitute users. Technicians operating recovery equipment are also concerned by this training.

NGOs will be encouraged to organize campaigns for raising awareness of both the public and the users, particularly those within the private sector.

e) The green label

The government will make compulsory the use of an ozone logo "DOES NOT HARM THE OZONE LAYER" for all ODS-free products.

f) Regulations

Regulatory decrees will be issued by the government in order to enforce the 1983 law on environmental protection, in accordance with Montreal Protocol provisions; this concerns ODS and ODS substitute management, standardization of these substances, ban on disposable containers and the creation of a national halon bank.

**Government and Industry responses to the
Montreal Protocol**

2.55 Following the establishment of the Montreal Protocol, Algeria immediately proceeded to implement its provisions. In this context, the following essential actions must be mentioned:

- Several public companies within the aerosol sector, such as ASMIDAL and ENGI, have taken commendable steps towards the phase-out of ODS.
- Algeria has participated in a large number of international environment related events during which it has shown its total adhesion as well as its availability to contribute to all actions aiming to strengthen the fight against environmental damaging factors.
- Algeria also participated in the UNEP IE/PAC regional workshop and Regional Training

Course on Refrigeration, in Nairobi in December 1992, during which the required methodology for the preparation of a country programme and projects in the refrigerator sector were discussed.

- In order to raise the awareness of the different economic operators to start the associative movement and to move the public opinion in general, the National Federation of Algerian Associations for the Protection of the Environment organized in February of 1993 a forum on "Technological and financial impacts, linked to the implementation of the Montreal Protocol, on the national industry". This forum was organized with the support of UNEP IE/PAC.

2.56 The forum was preceded by a vast media campaign and was marked by strong participation of economic operators, equipment manufacturers and refrigerator manufacturers, professors, teachers, students....

2.57 To better sensitize the concerned players, a day long cycle of workshops was organized for the teachers and students of the Refrigeration Training Institutes.

2.58 The information supplied by the International Institute on Refrigeration as well as by UNEP IE/PAC, relative to the protection of the environment and the Ozone layer, are systematically disseminated to the concerned parties by the Algerian Refrigeration Association.

2.59 Finally, Algeria officially ratified the Vienna Convention and the Montreal Protocol on 20 October 1992.

3.0 IMPLEMENTATION OF THE PHASE-OUT

STRATEGY STATEMENT BY THE GOVERNMENT

3.1 The strategy of the Government is based on implementing, as soon as possible, an economic and practical programme for the phase-out of ODS. This programme is to respect the new schedules established in the meeting of the Parties in Copenhagen, in November 1992.

3.2 The adopted strategy aims for an early phase-out of ODS in applications for which relatively inexpensive technological alternatives exist such as the case of aerosols, foam blowing and solvents.

3.3 Complex technologies, such as the replacement of a refrigerant in the manufacture of refrigerators, which require major engineering modifications, will be introduced in the shortest possible time frame in order to master the technology and eventually allow for total ODS phase-out.

3.4 Since an accelerated phase-out has only minor economic repercussions, the phase-out calendar of the action plan considers this objective and takes into account the usefulness of the selected technologies and the experience that is required for their application.

PHASE-OUT CALENDAR AND CONSUMPTION IMPLICATIONS

3.5 The following programme was developed within the framework of this strategy:

PHASE I: 1993-1996

- ODS phase-out in aerosol propellants;
- 50% reduction of ODS for foam blowing.
- Recovery and recycle of ODS during refrigerator, air conditioning and fire extinguisher maintenance.
- Replacement of ODS by adequate substitutes in domestic refrigeration manufacture.
- Phase-out of ODS as solvents and fire extinguishing substances, with the exception of essential uses.

PHASE II: 1997-1998

- The replacement of ODS by adequate substitutes in the manufacture of commercial refrigeration units.
- Phase-out of ODS in the foam blowing industry.
- The continuation of the reduction and recycling programme.

PHASE III: 1999-2005

- Complete phase-out of ODS with the exception of ODS for essential uses.

3.6 PHASE III will probably be the most critical one for conversion and retrofit of equipment. It will be accompanied by discarding of equipment. This will generate considerable incremental costs for the country's economy. This situation could however be strongly modified if drop in substitutes were developed.

ACTION PLAN

3.7 The plan comprises; the provision of institutional support from government and other agencies, technical assistance, development of new technologies, advertising and promotion, industrial processes retrofitting projects, recovery and recycling of ODS.

3.8 A preliminary list of projects, in their order of priority, which must be implemented for the achievement of the national phase-out strategy is given below as well as the planned ODS reduction in ODP weighted tonnes.

3.9 The implementation of these actions at the institutional level as well as of these projects as planned and the achievement of the expected results are essential for the success of the national phase-out strategy. Other projects could be identified at a future date.

3.10 The proposals for institutional strengthening and the support measures, the important projects that are to be implemented within industry in order to undertake the phase-out programme are listed below.

INSTITUTIONAL SUPPORT MEASURES

3.11 In order to fulfill the objectives aimed at ODS phase-out, a specific strategy for this problem will be developed along six essential lines.

1. Creation of a coordination centre, the "Ozone Office"
2. Public awareness raising; setting up of an information network and standardization of the "Ozone" logo.
3. Control of the market.
4. Training and technical support.
5. Establishment of a financing mechanism.
6. Establishment of a control mechanism.

OZONE OFFICE

3.12 The Action Plan will be implemented with the participation of institutional agencies, ministries and NGO's, involved in the phase-out of ODS. It will also be necessary to create

specialized structures in order to carry out and follow up the actions.

3.13 The National Ozone Commission, which includes representatives of government, industry, and concerned NGO's, will be the main structure that will ensure coordination and follow-up of the Action Plan contained in the present document. This plan would have been adopted by all concerned. It covers; strategy, training, public awareness and financial management.

3.14 The technical, administrative and financial support will be provided by the Secretariat, Ozone Office, which will be staffed by a team of 2 professionals and a secretary. All will report to the Ozone Commission.

3.15 The Ozone Office will be active in the identification of ODS users. Mainly private users will be contacted in order to help them develop projects aimed at the use of alternative technologies. It will also help the government in the determination of taxation levels and will prepare the banning criteria according to the Action Plan.

3.16 The Ozone Office will establish a large information campaign to raise public awareness on ODS related problems. The campaign will publicize the alternative technologies that concern the different sectors and NGO's. The campaign's main aim is to phase-out of ODS.

3.17 In order to comply with the Montreal Protocol, the provision of human and material resources are required. Financial assistance from the Multilateral Fund is thus sought.

3.18 The budget sought for the Ozone Office is submitted for approval to the Executive Committee of the Multilateral Fund.

PUBLIC AWARENESS AND STANDARDIZATION OF THE "OZONE" LOGO

3.19 Each of the phases of the implementation of this country programme will include public awareness actions aimed at:

- Informing all concerned of the measures taken, while stating the regulatory framework and the objectives. This action will be carried out jointly by the concerned governmental structure and by other interested parties (AAFC, FNAAPE and others) through the media and interested association.

- Setting up of a system to follow up on conversion operations and to give implementation advice to the operators.
- Compiling and analyzing of the difficulties that might have been encountered and information dissemination towards the concerned parties.
- Promoting the manufacture of products containing ozone friendly substances and make the use of the "DOES NOT HARM THE OZONE LAYER" logo compulsory on these, in order to involve consumers in the protection of the environment by appealing to their sense of civic responsibility.
- Establishing standards for use of ODS and alternatives as they become commercially available. A working group will be set up, within the National Standards and Patent Rights Institute (INAPI) in order to determine standards and address related issues in accordance with existing international regulations.

MARKET CONTROL

3.20 In order to minimize the costs of technological mutation, the Government will introduce the adequate tax laws during the transition period and based on the financial mechanisms of the Montreal Protocol.

3.21 The following are some of the proposed measures:

- Ban on CFC as propellants in the aerosol industry and the compulsory use of the ozone logo on cans.
- Imposition of taxes on CFC chemicals and equipment containing CFC.
- Ban on the use of disposable cylinders that may contain about 5% ODS.
- Ban on imports of CFC containing equipment, new and used as well as recycled ODS .
- Creation of a national "Halon Bank."
- Introduction of a system of incentives for recovery through the delivery of licenses.

TRAINING AND ASSISTANCE

3.22 Training, technical assistance for the conversion and use of alternate substances, introduction of alternative technologies as well as recovery and recycling of ODS are essential for the action plan to succeed. The proposed measures mainly concern:

- Favor the information from countries whose technological options are based on non-organic substances such as NH_3 and Propane, which have successfully tested.

- Review the training programmes of the institutes specialized in refrigeration, taking into account the ecological dimension and the development of technology (absorption, blends...).
- Specific refrigeration courses in recovery and recycling in anticipation of a possible certification.

FINANCING

3.23 Financial management of the projects could be sub-contracted, if the case arises, by the Ozone Office to a specialized financial engineering office whose mandate will be to facilitate the financial operations between the banks and the companies investing in alternative technologies.

CONTROL MECHANISM

3.24 The Ozone Office will be in charge of developing and setting up an operational system for the effective control of ODS phase-out as per the Action Plan. The planned control system will include:

- Collection of information, available from the Algerian Customs, relative to ODS imports and to products containing them,
- Regular reports on consumption of ODS by type, quantity supplied, by user sectors as well as report on the progress made in implementing specific transformation processes and the other projects identified in this document.
- Identification of new projects.
- Independent and regular inspections and evaluations to verify the reports, review and determine the needs for financial and technical support within the sectors concerned by the Action Plan.

3.25 The Ozone Office will regularly report to the National Ozone Commission.

3.26 The Algerian Government will submit reports regularly to the Executive Committee of the Multilateral Fund on the use of the financial resources as well as on the state of advancement of the projects.

PROJECTS

3.27 Planned projects are categorized according to five sectors: refrigeration sector, rigid foam sector, aerosol sector, solvents' sector and Halons sector. These projects are described below:

REFRIGERATION SECTOR

3.28 Some large facilities that are presently using CFC-11, CFC-12 or CFC-13 are considering the conversion to substances that are less damaging to the ozone layer. The remaining facilities in this category are being identified.

3.29 The objective of these projects is to reduce the consumption of ODS or opt for their substitution in new equipment, and to reduce consumption through recovery, recycle and reclaim of ODS that are to be used for existing equipment. The projects in their order of priority are:

DOMESTIC REFRIGERATION:

PROJECT N°4 - REFRIGERATOR MANUFACTURE

3.30 This project will introduce new technologies to the ENIEM Company, a complex, which is the main producer of domestic refrigerators and freezers in Algeria. Its production capacity is 635 000 units per year on three separate production lines of 125 000 and 390 000 refrigerators as well as 120 000 domestic and commercial freezers.

3.31 Training, assistance in design and engineering with the objective of replacing CFC-12 by HFC-134a, or other alternatives has been planned. Compressor technologies for the new refrigerants are available. The introduction of these new technologies will require a testing period of prototype development, in order to confirm the cost effectiveness and reliability of the new compressor and new oils. Conversion of these facilities will start one year after the beginning of the test period.

3.32 This is a priority project due to the incremental costs to be incurred due to continuing production of CFC based domestic refrigerators, whose life is over 15 years. This means that the produced refrigerators must either be discarded before the 15 years or retrofitted at great expense.

PROJECT N°5 - DOMESTIC REFRIGERATOR MAINTENANCE

3.33 The objective of this project is the implementation of new and efficient methods for maintenance of domestic refrigerators, recovery and recycling as well as use of non-ODS substances for flushing and cleaning of the systems.

3.34 Given the large number of participants in this sector, over 890 repair shops throughout the country, information and training represents the leading element for the success of this

operation. Thus, training is planned for the trainers that will be specialized in ODS maintenance.

3.35 This training will be certified by a specific diploma "ODS...system." Appropriate programmes will also be integrated in all of the refrigeration training institutes (47).

3.36 In a first stage, the technology institutes of refrigeration (Alger ITF, Bel-Abbes institute and the Milo CFFA) will play the role of pilot centers, before generalizing the action to the other institutes of the country.

3.37 The second course of action to be taken will concern the commercial strategy designed to favor recovery and recycle through taxes on CFC-12, whilst making the required equipment available to refrigeration technicians (recovery units), in sufficient quantities.

COMMERCIAL REFRIGERATION:

PROJECT N°6 - MAINTENANCE AND MANUFACTURE OF COMMERCIAL/INDUSTRIAL AND AIR CONDITIONING EQUIPMENT

3.38 For this project the strategy for assistance and maintenance will be the same as that for the domestic refrigeration project, directing it towards commercial units (refrigerated cabinets), industrial units, refrigerated transport and air conditioning of buildings and mobile air conditioning. Furthermore, there is a plan to create throughout the industry, an ODS distribution and recovery network that will do recycling and reclaiming in a specialized center. A feasibility study will be done.

3.39 Setting up of this network will allow collection of fluids that are to be destroyed and the collection of disposable cylinders that account for 5% of ODS emissions to the atmosphere. Moreover, these companies will benefit from specific assistance in the design of the units in order adapt them to the new standards for the phase-out of ODS.

INDUSTRIAL REFRIGERATION:

PROJECT N°13 - CONVERSION AND RETROFITTING OF LARGE SIZE CRYOGENIC FACILITIES

3.40 A study at the national level will be conducted in order to identify the main industrial facilities using CFC. The study will direct the planning of the relevant conversions that are required to accelerate the decrease in the use of ODS and avoid the premature shutdown of these costly units. Such a project is based on the existing facilities of the refrigeration and air-conditioning sectors that are:

1. Centrifugal compressor type equipment (ERIAD, Ministry buildings)
2. The totality of the 350 air conditioners in refrigeration units on the trains.

RIGID FOAM SECTOR

PROJECTS N° 8, 9, 10 AND 11 - TECHNICAL ASSISTANCE AND INVESTMENT IN THE FOAM BLOWING SECTOR

3.41 This sector is a large CFC consumer in Algeria. It represents 29% of total ODS use. There are three large public sector rigid foam blowers and several small private sector ones.

3.42 The steps that will be followed to phase-out the ODS within this sector will consist in the provision of technical assistance together with demonstration for achieving a 50% decrease in consumption, without the introduction of blowing agents.

3.43 This phase, which will be completed in 1997 through the conversion of foam blowing equipment to non ODS, will entirely phased-out ODS consumption in this sector.

AEROSOL SECTOR

PROJECT N°2 - TECHNICAL AND FINANCIAL ASSISTANCE TO SMALL AND MEDIUM SIZED ENTERPRISES OF THE AEROSOL SECTOR AND

PROJECT N°3 - ENAD PROJECT

3.44 In order to progressively phase-out, in an effective manner, the use of CFC in the aerosol industry that consumed about 560 tonnes in 1991, financial and technical assistance is required to face all of the incremental costs that will be generated by the conversion operations.

3.45 Three alternatives exist to completely phase out ODS; acquisition of new fluids, hydrocarbon substitutes and compressed gas substitutes.

3.46 The adoption of these methods can be combined. Retrofitting of the existing facilities, valves, nozzle, etc. is necessary. The substitution will be covered in one operation to allow for

the complete phase-out of ODS in the aerosol sector before 1996.

3.47 The options which have been considered, taking into account the experience gathered in this field will use the following technologies:

- For small and medium sized enterprises of the aerosol sector considering retrofitting to compressed gases requiring the creation of a production unit for these gases whose equivalent CFC production is 504 tonnes.
- Retrofitting to LPG of two production facilities that have initial capacity of 800 Tonnes ODS.

SOLVENTS SECTOR

PROJECT N°12 - REPLACEMENT OF CFC-113 IN THE SOLVENTS SECTOR

3.48 CFC based solvents are widely used, mainly in dry cleaning, throughout the various branches of the Algerian industry. Nonetheless, national consumption, due to its diversity is not well quantified. A 5 tonne consumption for 1991 is attributed to the National Detergent and Cleaning Products Company, Lames-Rouiba Unit.

HALON SECTOR

PROJECT N°7 - MODEL TRIGGERING TESTS OF CO₂ SYSTEMS.

3.49 In the framework of a reduction in halon consumption for the fire extinguishing sector, it is planned to proceed with the substitute of this substance in the industrial protection systems and equipment that do not represent any danger for the operators (computer rooms...).

3.50 In the case of hydrocarbons, reduction measures for consumption will be taken at the level of:

- Flooding tests which will be carried out with non-ODS fluids (CO₂),
- Regular control of the systems in order to avoid unnecessary triggering.

FINANCIAL COST OF THE COUNTRY PROGRAMME

3.51 Preliminary estimates of the incremental costs, for the setting up the institutional support as well as for the above mentioned projects are presented in the following table.

3.52 The hypotheses on which the incremental costs are based are indicated in a World Bank document named "Source Book Of Benchmark Unit Abatement Costs", dated October 1992. The incremental costs for the projects are also estimated by the concerned enterprises.

3.53 The incremental cost will be recalculated on the basis of:

- avoiding double accounting
- investment costs and operational costs will be estimated and presented separately;
- incremental costs related to investment and operational costs will be calculated for 1993 to 1998;
- savings and benefits which are realized in the setting up of projects will be deducted
- Costs for earlier retirement of equipment using ODS will be calculated from 2000 to 2010.

3.54 Further detailed costs will be submitted to Executive Committee of Multilateral Fund after detailed evaluation of identified projects for the purpose of financial assistance.

3.55 The preliminary incremental costs to the national economy for the total phasing out up to 2010 are presently estimated at about US \$ 150 Million .

ESTIMATION OF INCREMENTAL COSTS IN \$ US (1992)

PROJECT NUMBER BY ORDER OF PRIORITY	NAME OF RESPONSIBLE BODY	SECTOR	STARTING YEAR	REDUCTION OF ODS Tx ODP	INCREMENTAL COSTS (CAPITAL) \$ US (*)
1	OZONE COMMISSION	ALL	1993		297 000
2	ENGI	AEROSOLS	1994	504	300 000
3	ENADALGI	AEROSOL	1994	56	50 000
4	ENIEM	REFRIGERATION	1993	130	650 000
5	ENIEM/TTF	REFRIGERATION	1993	350	700 000
6	RCA/TTF	REFRIGERATION	1994	270	500 000
7	SONATRACH	HALONS	1994	10	50 000
8	ENIEM	FOAMS	1994	274	40 000
9	BATIMETAL	FOAMS	1994	60	40 000
10	PROSIDER	FOAMS	1994	60	40 000
11	RCA/HCR/TECH	FOAMS	1995	60	40 000
12	ENADALGZ	SOLVENTS	1997	10	60 000
13	ERAID/CLIMAT	REFRIGERATION	1997	20	1 500 000
TOTAL				1 804	4 267 000

(*) Preliminary figures mainly based on "Source book of Benchmark Unit Abatement Costs" by the World Bank - October 1993. Incremental operational costs and savings will be taken into consideration during project formulation.

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

PROJECTS

COUNTRY PROGRAMME

FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

**UNITED NATIONS ENVIRONMENT PROGRAMME
UNEP IE/PAC**

SEPTEMBER 1993

PROJECT PROPOSAL: NUMBER 1

COUNTRY: ALGERIA

PROJECT TITLE: CREATION OF A CENTRE OF
COORDINATION
"OZONE OFFICE"

NATIONAL COORDINATING BODIES: THE NATIONAL OZONE COMMISSION
UNDER THE MINISTRY OF NATIONAL
EDUCATION ENVIRONMENT DIRECTION

EXECUTING AGENCY: UNEP

SECTORS COVERED: ALL SECTORS

**ODS CONSUMPTION BY SECTORS
COVERED:** 2144 ODP TONNES IN 1991

PROJECT DURATION: THREE YEARS

PROJECT IMPACT:

- PHASE-OUT OF ODS IN ACCORDANCE
WITH THE ACTION PLAN DESCRIBED
IN THE COUNTRY PROGRAMME
- IMPROVED CAPACITY OF STATE
STRUCTURES RESPONSIBLE FOR ODS
CONTROL AND USE
- CONTRIBUTION BY THE COUNTRY
TO THE PROTECTION OF THE OZONE
LAYER

CONTRIBUTION OF THE GOVERNMENT US \$ 250 000

**REQUESTED MULTILATERAL FUND
CONTRIBUTION:** US \$ 297 000

INTRODUCTION

THE ACTION PLAN RELATED TO THE COUNTRY PROGRAMME WILL BE IMPLEMENTED IN CLOSE COOPERATION WITH INSTITUTIONAL BODIES (MINISTRIES AND NGOS INVOLVED IN ODS PHASE-OUT). IT WILL ALSO BE NECESSARY TO CREATE SPECIALIZED BODIES TO PROVIDE FOR THE EXECUTION AND FOLLOW-UP ON PROGRAMME MEASURES. THE OZONE OFFICE WILL BE ONE OF SUCH BODY.

ORGANIZATION OF THE OZONE FOCAL POINT

THE CHART IN THE END OF THE DOCUMENT SHOWS THE RELATIONSHIP AMONG THE BODIES.

THE OZONE NATIONAL COMMISSION, WHICH IS COMPOSED OF REPRESENTATIVES FROM GOVERNMENT, INDUSTRY AND RELEVANT NGOS, WILL BE THE MAIN BODY FOR COORDINATION AND FOLLOW-UP ON THE ACTION PLAN DESCRIBED IN THE COUNTRY PROGRAMME. MEASURES IT WILL TAKE INCLUDE ADOPTION OF THE ACTION PLAN, STRATEGY, TRAINING, SENSITIZATION AND FINANCIAL MANAGEMENT.

OZONE OFFICE TEAM

TECHNICAL-ADMINISTRATIVE AND FINANCIAL SUPPORT WILL BE PROVIDED BY AN OZONE FOCAL POINT SECRETARIAT, MADE UP OF A TEAM OF TWO PROFESSIONALS AND ONE SECRETARY, UNDER THE AUTHORITY OF THE OZONE COMMISSION.

ACTIVITIES AND SCOPE OF PROJECT

THE OZONE FOCAL POINT SHALL ATTAIN THE ABOVE OBJECTIVES BY UNDERTAKING SEVERAL ACTIVITIES, COMPRISING THE FOLLOWING:

- IDENTIFY ODS USERS IN ORDER TO HELP THEM TO DEVELOP PROJECTS WITH ALTERNATIVE TECHNOLOGIES;
- TAKE PART IN SETTING TAX LEVELS AND PREPARE CRITERIA FOR BANS SO AS TO APPLY THE COUNTRY PROGRAMME'S STRATEGY TO THE ACTION PLAN;
- ESTABLISH A LARGE-SCALE INFORMATION PROGRAMME FOR PUBLIC AWARENESS REGARDING ODS PROBLEMS AND PRESENT

ALTERNATIVE TECHNOLOGIES, IN CONJUNCTION WITH RELEVANT SECTORS AND NGOS;

- TAKE MEASURES RELATED TO AWARENESS DURING EACH STAGE OF IMPLEMENTATION OF COUNTRY PROGRAMME;
- SET UP A DATA BANK, INCLUDING INFORMATION ON ODS USE IN THE COUNTRY;
- SUBMIT AN ANNUAL REPORT, AS REQUIRED, TO THE MONTREAL PROTOCOL SECRETARIAT ON ODS CONSUMPTION IN THE COUNTRY;
- BE RESPONSIBLE FOR SETTING-UP OF A WORKING GROUP ON THE NATIONAL INSTITUTE OF STANDARDIZATION AND INDUSTRIAL PROPRIETY IN ORDER TO DEFINE THE APPLICABLE STANDARDS IN RELATION TO THE INTERNATIONAL STANDARDS;
- BE RESPONSIBLE FOR THE IMPLEMENTATION OF TRAINING PROGRAMMES AND FOLLOW-UP ON THEM;
- MONITOR AND CONTROL PROJECTS THAT ACCELERATE ODS PHASE-OUT, INCLUDING THE CREATION OF THE OZONE LOGO PROJECT;
- BE RESPONSIBLE FOR EFFECTIVE USE OF FUNDING OBTAINED FROM THE MULTILATERAL FUND.

PROJECT RATIONALE

ALL THE NEW ODS PHASE-OUT MEASURES DESCRIBED ABOVE REQUIRE A NEW ORGANIZATIONAL INFRASTRUCTURE, AS WELL AS HUMAN AND MATERIAL RESOURCES. THEREFORE, FINANCIAL ASSISTANCE IS BEING REQUESTED FROM THE MULTILATERAL FUND SO THAT THE MONTREAL PROTOCOL CAN BE RESPECTED. PLANS ARE TO CREATE AN OZONE OFFICE AS SOON AS THE MULTILATERAL FUND'S EXECUTIVE COMMITTEE HAS PROVIDED THE SUMS REQUIRED FOR ITS FUNDING.

AN OPERATIONAL BUDGET HAS BEEN PROPOSED TO COVER THE ESTABLISHMENT OF THE OZONE OFFICE. IT SHOULD BE NOTED THAT THE GOVERNMENT'S CONTRIBUTION WILL ALMOST EQUAL THAT BEING REQUESTED THROUGH THE EXECUTIVE COMMITTEE.

PUBLIC AWARENESS AND STANDARDIZATION OF AN OZONE LOGO

AS THE COUNTRY PROGRAMME IS BEING IMPLEMENTED, EACH STAGE WILL INCLUDE AWARENESS MEASURES CONSISTING OF:

- INFORMATION ON STEPS TAKEN, WITH REMINDERS REGARDING THE REGULATORY FRAMEWORK AND TARGET OBJECTIVES; THIS COURSE OF ACTION WILL BE UNDERTAKEN IN ASSOCIATION WITH THE RELEVANT GOVERNMENTAL BODIES AND NGOS BY USING THE MEDIA AND OTHER MEANS OF INFORMATION DISSEMINATION;
- ESTABLISHMENT OF A FOLLOW-UP SYSTEM FOR CONVERSION BY APPROPRIATE ADVISES;
- AN INVENTORY AND ANALYSIS OF THE DIFFICULTIES ENCOUNTERED SO AS TO FIND SOLUTIONS AND INFORM THE PARTIES CONCERNED.
- ENCOURAGING THE PRODUCTION OF GOODS CONTAINING NON ODS AND IMPLEMENTATION OF COMPULSORY IDENTIFICATION OF PRODUCTS WITH THE "DOES NOT HARM THE OZONE LAYER" LOGO IN ORDER TO INVOLVE CONSUMERS IN THE PROTECTION OF THE OZONE LAYER, THROUGH THEIR CIVIC DUTY.

MARKET CONTROL

THE GOVERNMENT WILL SET UP AN APPROPRIATE TAXATION SYSTEM FOR THE TRANSITIONAL PERIOD AND WILL RECEIVE SUPPORT FROM THE MONTREAL PROTOCOL'S FINANCIAL MECHANISMS IN ORDER TO MINIMIZE THE COSTS REQUIRED BY THIS TECHNOLOGICAL TRANSFER.

THE FOLLOWING ARE SOME OF THE CONTEMPLATED MEASURES:

- A BAN ON CFCS AS AEROSOL PROPELLANTS, AND THE IMPLEMENTATION OF COMPULSORY IDENTIFICATION OF PRODUCTS WITH THE "OZONE FRIENDLY" LOGO ON PACKAGING;
- TAXATION ON ODS AND ON EQUIPMENT CONTAINING THEM;
- A BAN ON THE IMPORTATION OF USED OR RENOVATED EQUIPMENT THAT OPERATES ON CFCS OR RECYCLED SUBSTANCES;
- CREATION OF NATIONAL BANK OF HALONS, AND

- ESTABLISHMENT OF A RECOVERY INCENTIVE SYSTEM BY GRANTING OPERATING LICENSES.

MONITORING

THE OZONE OFFICE WILL BE RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING AN OPERATIONAL SYSTEM FOR EFFECTIVELY MONITORING ODS PHASE-OUT IN ACCORDANCE WITH THE ACTION PLAN. THE MONITORING SYSTEM THAT HAS BEEN CONTEMPLATED WILL BE COMPRISED OF A NUMBER OF COMPONENTS, SUCH AS:

- COLLECTING INFORMATION THAT WILL BECOME AVAILABLE FROM CUSTOMS IN RELATION TO THE IMPORTATION OF ODS AND ODS-CONTAINING PRODUCTS;
- REPORTING REGULARLY ON ODS CONSUMPTION (TYPES AND AMOUNTS), BROKEN DOWN BY USER SECTORS, AND ON PROGRESS IN THE IMPLEMENTATION OF SPECIFIC TRANSFORMATION PROCESSES AND OTHER PROJECTS IDENTIFIED IN THE ACTION PLAN;
- MAKING INDEPENDENT AND REGULAR INSPECTIONS AND ASSESSMENTS IN ORDER TO CONFIRM REPORTS AND REVIEW AND ESTABLISH FINANCIAL AND TECHNICAL SUPPORT NEEDS FOR THOSE SECTORS CONCERNED BY THE ACTION PLAN.

PROJECT BUDGET

BUDGET TO BE PROVIDED BY THE GOVERNMENT

THE BUDGET TO BE PROVIDED BY THE GOVERNMENT AMOUNTS TO US \$ 250 000. THIS THREE-YEAR BUDGET WILL COVER THE FOLLOWING COSTS:

- OFFICE SPACE, FURNITURE, BASIC EQUIPMENT, ETC.;
- VEHICLES, DRIVERS, GASOLINE, MAINTENANCE, ETC.;
- OTHER TRANSPORTATION COSTS;
- BASIC SALARIES FOR PROFESSIONALS AND SUPPORT STAFF;
- HONORARIUMS AND EXPENSES FOR SPECIALIZED ALGERIAN CONSULTANTS.

**BUDGET REQUESTED FROM THE
MULTILATERAL FUND**

THIS BUDGET, WHICH AMOUNTS TO US \$ 297 000, IS INTENDED TO COVER THREE YEARS. IT WILL INCLUDE THE ITEMS INDICATED ON THE FOLLOWING PAGE.

**BUDGET REQUESTED FROM THE
MULTILATERAL FUND**

1	CAPITAL EXPENDITURE	YEAR 1	YEAR 2	YEAR 3	TOTAL
	OFFICE EQUIPMENT	3 000			
	PERSONAL COMPUTER WITH DISK DRIVE	3 000			
	MODEM, STABILIZER	1 000			
	PRINTER AND SOFTWARE	2 000			
	PHOTOCOPIER	2 000			
	TYPEWRITER	400			
	FAX	600			
	SUBTOTAL	12 000			12 000
2	RECURRENT EXPENSES				
	PERSONNEL: INCENTIVES				
	MANAGERIAL STAFF				
	SUPPORT STAFF				
	SUBTOTAL	36 000	36 000	36 000	108 000
3	OPERATING COSTS				
	DISSEMINATION OF INFORMATION	32 500	25 000	15 000	
	TRAVEL	7 500	5 000	5 000	
	TELECOMMUNICATION	5 000	5 000	5 000	
	PUBLIC UTILITIES (ELECTRICITY, WATER, ETC.)	10 000	10 000	10 000	
	OFFICE SUPPLIES	2 000	2 000	2 000	
	SERVICING FOR EQUIPMENT	3 000	3 000	3 000	
	SUBTOTAL	60 000	50 000	40 000	150 000
4	CONTINGENCY	9 000	9 000	9 000	27 000
	GRAND TOTAL	117 000	95 000	85 000	297 000