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

Nineteenth Meeting
Montreal, 8-10 May 1996

COUNTRY PROGRAMME: TUNISIA

This document consists of:

- Country Programme Evaluation Sheet (prepared by the Fund Secretariat)
- Comments and Recommendations of the Fund Secretariat
- Transmittal Letter from the Government of Tunisia
- Country Programme Cover Sheet
- Country Programme (Executive Summary)

TUNISIA COUNTRY PROGRAMME EVALUATION SHEET

Ministry of the Environment, National Agency for Environmental Protection

Status of ratification of the Vienna Convention and the Montreal Protocol

	Signature	Ratification	Entry into force
Vienna Convention (1985)		25/Sep/89	24/Dec/89
Montreal Protocol (1987)		25/Sep/89	24/Dec/89
London Amendment (1990)		15/Jul/93	13/Oct/93
Copenhagen Amendment (1992)			

Production of controlled substances: No controlled substances produced

Consumption of controlled substances (1994) 516.3 metric tonnes
526.3 weighed tonnes (ODP)

(tonnes)	CFC-11	CFC-12	CFC-113	CFC-114	CFC-115	TOTAL	Halon1211	Halon1301	TOTAL	CFC	MCF	TOTAL	Me-Br
ODS	289.6	138.2		80.3		508.1	4.9		4.9	3.3		3.3	
ODP	289.6	138.2		80.3		508.1	14.7		14.7	3.6		3.6	

Distribution of ODP by substance: CFC 96.5% Halon 2.8% CTC and MCF 0.7%

Distribution of ODP by sector:	Aerosol	Foam	Halon	Refrigeration	Solvent	Other
Consumption (ODP tonnes):	180.3	138.5	14.6	189.3	3.7	
Percent of total:	34.3%	26.3%	2.8%	36.0%	0.7%	

Country Programme

Duration of country programme: 4 years (1994-1997)

ODS phase out target: Complete phase out by 2010

Phase out priority area: Aerosol, foam and refrigeration sectors

Cost of activities in country programme: \$2,264,300

Strategy:

Introduction of initiatives by the Government to regulate and control the utilization of ODS, in conformity with the directives of the Montreal Protocol. Design and implementation of ODS phase out investment projects in the various sectors. It will be revised as and when necessary in accordance with the amount of ODS phased out.

COMMENTS AND RECOMMENDATIONS OF THE FUND SECRETARIAT

COMMENTS

1. The Country Programme conforms to the format of the approved guidelines.
2. The total consumption of controlled substances in Tunisia decreased from 1,075 ODP tonnes in 1991 to 526.3 tonnes in 1994. Preliminary estimates by the Government of Tunisia, however, indicates a 20 per cent increase in ODS consumption in 1995 with respect to 1994 figures.
3. The Executive Committee has already allocated US \$3.2 million for ODS phase out investment projects, technical assistance programmes, project preparation and institutional straightening support to Tunisia. About 350 tonnes of ODS will be phased out once the projects become operational.
4. The Government of Tunisia is submitting for the consideration of the Executive Committee at its Nineteenth Meeting, three investment projects, two in the aerosol sector and one in the foam sector, with a CFC phase out of 146 tonnes.
5. Approval of the three projects by the Executive Committee would lead to elimination of the current (1994) ODS consumption in Tunisia except for 15 tonnes in the aerosol sector and 15 tonnes in the halon sector (halon 1211).

RECOMMENDATIONS

1. The Fund Secretariat recommends as follows:
2. To approve the Tunisia Country Programme. Approval of the Country Programme does not denote approval of the projects identified therein or their funding levels.
3. To request the Government of Tunisia to present annually information to the Executive Committee on progress being made in the implementation of the country programme, in accordance with the decision of the Executive Committee on implementation of country programmes (UNEP/OzL.Pro/ExCom/10/40, para 135). Using the approved format, the initial report, covering the period 15 May 1996 to 31 December 1996, should be submitted to the Fund Secretariat no later than 31 March 1997.



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Tunis le , 23 MARS 1996

**Le Président Directeur Général
de l'Agence Nationale de
Protection de l'Environnement**

A

**Monsieur OMAR EL-ARINI
Secrétariat du Fonds
Multilatéral
1800 Mc Gill College Ave.
27th Floor , Montreal , Quebec
Canada H3A 3J6**

N.Réf : HH/N°

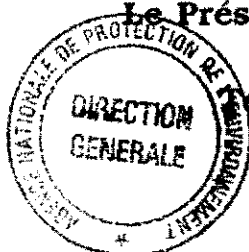
Objet : Soumission du rapport National à la 19ème réunion du
Comité Exécutif .

Monsieur ,

J'ai l'honneur de vous envoyer une copie du programme
national pour l'élimination des substances destructrices de la
couche d'ozone , pour soumission à la prochaine réunion du Comité
Exécutif (19ème Réunion) .

Veuillez agréer , Monsieur , mes salutations les plus
distinguées .

Le Président Directeur Général



Youssef HAMROUNI

Country: Tunisia

National Coordinating Agency: Agence Nationale de Protection de l'Environnement
Ministère de l'Environnement et de l'Aménagement du Territoire

Implementing Agency: Banque Mondiale

1. ODS PHASE-OUT SCHEDULE

	ODS Consumption in 1994 (Metric Tonnes)	ODS Consumption untill complete phase- out (Metric Tonnes)	Year of Complete ODS Phase-out
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ANNEX A				
Group I				
	CFC-11	289.6	3,085.4	2010
	CFC-12	138.2	2,344.4	2010
	CFC-113	0.0	563.4	2010
	CFC-114	80.3	241.3	2010
	CFC-115	0.0	108.8	2010
Total CFC Annex A, Group I		508.1	6,343.3	
Group II				
	Halon 1211	4.9	87.0	2010
	Halon 1301	0.0	166.8	2010
Total Halons Annex A, Group II		4.9	253.8	

ANNEX B				
Group I				
	CFC-113	0.0	0.0	2010
Group II				
	TCC	3.3	57.0	2010
Group III				
	MCF	0.0	0.0	2010

ANNEX C				
	HCFC	97.8	1,971.3	2010

ANNEX E				
Group I				
	CH3Br	9.6	165.7	2010

TOTAL ODS		623.7	8,791.0	
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2. ACTION PLAN

Period	Sector	Description of action	Expected effect	Agency	Cost
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PROJECTS					
95-97	Domestic Refrigeration	Installation of prototype test at Tabrid	Elimination of 30 ODP tonnes	World Bank	343.3
95-97	Rigid Foam	Financial assistance for the conversion of expansion machines for rigid foam	Elimination of 60 ODP tonnes	World Bank	402
95-97	Refrigeration	Training of service technicians in refrigeration and air conditioning	Elimination of 85 ODP tonnes	World Bank	440
95-97	Flexible Foam	Technical workshop, consultations and production trials in flexible foam	Elimination of 45 ODP tonnes	World Bank	171
95-97	Aerosol	Technical workshop and consultations in aerosol	Elimination of 50 ODP tonnes	World Bank	264
94-97	All projects	Project administration		World Bank	444
	All projects	Miscellaneous, contingency		World Bank	200

TOTAL			Elimination of 270 ODP tonnes		2,264.30
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Period	Sector	Description of action	Expected effect	Agency
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GOVERNMENT'S ACTIONS				
93-94	All sectors	Creation of Ozone Committee for the implementation of the action plan	Condition for effective implementation of ODS phase-out in Tunisia	ANPE
95	All sectors	Control system for ODS, by substance and sector	Control and basis for accurate and effective political action	ANPE and others
Current	All sectors	Introduction of legal measures	Control, encouragement and revenue	ANPE and others
Current	All sectors	Introduction of licensing system for ODSs and certification programme for refrigeration technicians	Control, encouragement for ODS recovery during maintenance of refrigeration equipment	ANPE and others

EXECUTIVE SUMMARY

Introduction

The Montreal Protocol is an international convention aimed at reducing the consumption of chlorofluorocarbons (CFCs) and halons. It was signed in Montreal, Canada, in September 1987 and later ratified by 149 countries. In June 1990, the Protocol was amended to include other ozone-depleting substances, including methyl chloroform (CH_3CCl_3 or 1,1,1-trichloroethane) and carbon tetrachloride (CTC). In Copenhagen (1992) the Protocol was amended a second time to include substances such as hydrobromofluorocarbons and methyl bromide. As amended, the Protocol requires that CFCs and halons be totally eliminated in 1994 and 1996, respectively. However, developing countries whose per capita consumption is less than 0.3 kg per year benefit from a ten-year period of grace for permanent elimination of ODS use.

In accordance with the Montreal Protocol, the Parties to the Protocol created the Multilateral Fund to finance incremental costs and comply with the conditions stipulated in the Protocol for developing countries, as well as to speed up the ODS phase-out process.

Tunisia ratified the Vienna Convention and the Montreal Protocol on ODS by accession on 25 September 1989. Its ODS consumption was estimated at 0.13 kg per capita per year in 1991 and at 0.075 kg per capita per year in 1994. Therefore, in accordance with Article 5, paragraph 1, of the Protocol, Tunisia benefits from the ten extra years allotted for complete elimination of ODS use. Tunisia is also eligible for financial assistance from the Multilateral Fund.

At the request of the Tunisian government, the World Bank helped to prepare the present Country Programme. (Presentation of a country programme is a prerequisite for obtaining aid from the Multilateral Fund.) In compliance with the UNEP's general guidelines for the submission of country programmes, the present report contains a study of the different aspects of Tunisia's ODS consumption, a description of the institutional framework and policies in which the Country Programme will be implemented, and an action plan for government activities, as well as projects for which the Tunisian government has obtained aid from the Multilateral Fund.

ODS Use in Tunisia

No ODS are produced in Tunisia. Instead, a limited number of local distributors import them; user companies import them directly. Total CFC imports for 1994 were estimated at 508.1 metric tonnes, of which 84% were CFC-11 and CFC-12. Halon consumption for 1994 was estimated at 4.9 metric tonnes. Consumption of carbon tetrachloride was close to 3.3 metric tonnes, and that of

transitional substances (HCFC-22) was estimated at 97.8 metric tonnes. (See Table A.) In 1994, ODS consumption rose to 623.7 metric tonnes, or 537 ODS tonnes.

The 1994 breakdown of final uses shows that the refrigeration and aerosol sectors account for 75% of total ODS use, while the foam sector accounts for approximately 22%. (See Table B.)

Table A
ODS Consumption in Tunisia: Breakdown by Types of ODS

SUBSTANCES	%
CFC-11	45%
CFC-12	22%
HCFCs	16%
CFC-114	13%
CH ₃ Br	2%
CTC	1%
Halon-1211	1%

Table B
1994 ODS Consumption in Tunisia: Breakdown by Major Final Uses

Final Uses	%
Coolants	45%
Aerosols	29%
Foams	22%
Farm produce	2%
Extinguishers	1%
Solvents	1%

Characteristics of Tunisia's ODS Industry

Most ODS are imported from different chemical companies in Spain, France, and Italy. Imports from European suppliers go to wholesalers and to direct purchasers in the foam and aerosol industries.

Tunisia's ODS users are small companies, particularly in the aerosol sector, and their production levels do not reach full capacity. Manufacturers in any specific sector all use practically the same technology and must rely on foreign suppliers for machinery as well as semi-finished and raw materials.

A large number of home refrigerators containing controlled ODS are exported. Such was the case in 1991, when two-thirds of the country's total production (approximately 300,000 units) went primarily to Europe. Importation of products containing ODS is limited to a small number of aerosol sprays (most contain LPG) as well as a certain number of mobile air-conditioning units and thermal insulating panels for commercial refrigeration equipment.

In Tunisia the major industries using ODS are well aware of the logic and content of the Montreal Protocol. However, awareness of ozone-related problems is not common among small-scale users, for instance, in workshops that do repair and service work on home refrigerators. It is mainly such small-scale interests that continue to resort to CFCs for "unnecessary" purposes, such as flushing and testing for leaks.

Action Plan

The objective of the action plan is to eliminate Tunisia's ODS consumption as effectively, efficiently, and rapidly as possible in compliance with the guidelines of the Montreal Protocol, as ratified by the Tunisian government and in accordance with the recommended phase-out strategy.

The action plan includes measures related to government activities, in addition to the submission of an ODS phase-out project for different kinds of large-scale consumers.

The measures involve government initiatives intended to effectively regulate and control ODS use, and they include a series of projects designed for sectors of final use. The action plan will be revised whenever necessary in accordance with the evolution of ODS use in Tunisia.

Governmental Measures

The following are recommended institutional measures to be implemented by the government in order to ensure that Tunisia's ODS phase-out action plan will be carried out effectively. The measures include four key elements, some of which have already been implemented.

1. Creation of an ozone committee for the implementation of the action plan (already functioning)

The overall objectives of the Ozone Committee are to start up and facilitate the implementation of the action plan. The Ozone Committee has an Executive Committee and working groups, whose members represent key government institutions and different industries that use ODS. Moreover, the Ozone Committee has a full-time coordinator. The contribution made by the ANPE (national environmental protection agency) and several Tunisian ministries is of fundamental importance, given that ODS elimination is a problem not only for the environment but also for Tunisia's economy.

2. System for monitoring ODS use as broken down into substances and sectors

A system used to monitor ODS consumption in Tunisia is being implemented so that compliance with the provisions of the Montreal Protocol and with the national ODS phase-out programme can be ensured. Furthermore, this system will serve as a basis for important measures and adjustments in action-plan policy and will help to determine how and when ODS and their substitutes should be strictly regulated or banned.

3. Legislation

Suggested legislative measures include banning ODS use for specific purposes and as of specific dates that comply with the schedule of the Montreal Protocol.

4. Systems for ODS licensing and for certification of refrigeration technicians

An authorization system for ODS imports is already in force and will facilitate monitoring of all ODS sales in Tunisia. A licence will be issued jointly by the ANPE and the Ministry of Industry for all ODS imports in the form of chemical products.

It is recommended that the licensing system be combined with a certification system for service technicians in the refrigeration sector. The only people eligible to receive ODS licences will be service personnel at certified workshops who have taken a short training course on how to handle ODS. The course will include advanced procedures for CFC maintenance, recovery, and recycling.

Projects

The Multilateral Fund has financed five projects, a detailed description of which is provided in Appendix 1.

Component 11

Project R-1 Pilot installations at the GROUPE TABRID for the production of prototype refrigerators that use HFC-134a as a substitute for CFC-11

The goal of this project is to test new refrigerator models using HFC-134a when conversion takes place on the production line in compliance with the proposed ODS phase-out schedule.

Component 21

Project R-2 Training of refrigeration technicians for home, commercial, and industrial facilities

The goals of this project are to improve refrigerator servicing procedures; introduce advanced servicing practices; teach conversion technology; introduce new non-CFC refrigeration technology; increase awareness among service personnel about ozone problems; and recover CFC-12 through recycling and the use of nitrogen in cleaning and flushing.

Component 12

Project F-1 Financial assistance for the conversion of rigid-foam blowing equipment

The objective of the project is to contribute to a gradual conversion toward non-CFC refrigerator insulation technology: from CFC-11 to 50% CO₂/water and 50% HCFC-142b or to 100% CO₂/water.

Component 31

Project F-2 Technical seminar, consultation, and demonstrations in the flexible-foam sector

The objective of the project is to introduce methylene chloride as a blowing agent that can replace CFC-11 in the production of flexible foam. Because methylene chloride is toxic, all necessary safety measures will be taken.

Component 41

Project A-1 Technical seminar and consultation in the aerosol sector

The objective of this project is to help aerosol-spray producers to choose the most appropriate non-CFC technology. Different options do exist: they include LPG, DME, compressed gases, HCFCs, HFCs, and other replacement propellant gases; sprayers with mechanical pumps; solid sticks; roll-ons; applicators; and other non-aerosol technologies.

Budget and Financing for 1994-1997 Activities

Tables 1 and 2 provide information on the way the costs of the action plan are broken down by components and years.

Total incremental costs for the action plan are estimated as follows (in U.S. dollars):

-	Project administration	444,000
-	Proposed projects	1,620,300
-	Contingency reserve	<u>200,000</u>
		2,264,300

The funding plan for the entire project will be as follows:

- The Multilateral Fund will finance 79%: US\$1,790,000.
- The Tunisian counterpart will finance the rest: US\$474,500.

Details on the different measures are presented in the tables of Appendix 1.

Table 1
Administrative Costs for the Project (in US\$)

Administration	1994	1995	1996	1997	Total
Equipment, materials, and supplies	5,900	38,500	5,600	0	50,000
Technical cooperation	5,300	24,900	43,300	42,000	115,500
Operations	21,500	33,500	49,300	20,300	124,500
Local salaries	0	0	115,500	38,500	154,000
Total	32,700	96,900	213,600	100,800	444,000

Table 2
Costs of Proposed Projects (in US\$)

Administration	1994	1995	1996	1997	Total
Equipment, materials, and supplies	0	14,300	826,000	109,400	949,700
Technical cooperation	0	22,200	414,000	98,300	534,600
Operations	0	3,300	95,200	37,500	136,000
Local salaries	0	0	0	0	0
Total	0	39,800	1,335,300	245,200	1,620,300