



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/25/24
29 June 1998

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-fifth Meeting
Montreal, 29-31 July 1998

PROJECT PROPOSALS: ALGERIA

This document includes the comments and recommendations of the Fund Secretariat on the following project proposals:

Aerosol

- Replacement of CFC-11 and CFC-12 with hydrocarbons in the aerosol sector at Ets Djadir UNIDO

Foam

- Phase out of CFC-11 in the manufacture of flexible polyurethane foam through the use of methylene chloride technology at Ets Matelas Djurdjura UNIDO

Refrigeration

- Replacement of CFC-12 with HFC 134a for commercial refrigeration at Enapat UNIDO

PROJECT EVALUATION SHEET

ALGERIA

SECTOR: AEROSOL ODS use in sector (1996): 559 ODP tonnes

Sub-sector cost-effectiveness thresholds: Hydrocarbons 4.40 US \$/kg

Project Title:

Replacement of CFC-11 & 12 with hydrocarbon in the aerosol sector at ETS DJADIR

Project Data	Hydrocarbons
	ETS DJADIR
ODS phase-out (ODP tonnes)	38.4
Proposed project duration (months)	12
Incremental capital cost (US \$)	225,500
- including contingency (%)	10
Incremental operational cost (US \$)	(77,693)
Total project cost (US \$)	147,807
Local ownership (%)	100
Export component (%)	-
Amount requested (US \$) {Original}	147,807
Cost effectiveness (US \$/kg)	3.85
National Coordinating Agency	Ministère de l'Intérieur, des Collectivités Locales et de l'Environnement)
Implementing Agency	UNIDO
Technical review completed?	Yes
Secretariat's Recommendations:	
Amount recommended (US \$)	147,807
Project impact (ODP tonnes)	38.4
Cost effectiveness (US \$/kg)	3.85
Implementing Agency support cost (US \$)	19,215
Total cost to Multilateral Fund (US \$)	167,022

PROJECT DESCRIPTION

Replacement of CFC-11 & 12 with hydrocarbon in the aerosol sector at ETS DJADIR

1. The Algeria country programme identified two large enterprises (Asmidal and Enad) and 90 small plants manufacturing aerosol products, with a total CFC consumption of 559 tonnes. The Executive Committee has approved six investment projects for the phase out of 305 tonnes of CFCs in this sector.
2. The Government of Algeria is submitting one additional project which would lead to elimination of 38.4 tonnes of CFCs which will contribute to the country's 1999 CFC consumption freeze.
3. The project is for the replacement of CFCs with hydrocarbon propellant used in manufacturing different sizes of deodorant cans (790,000 cans /year).
4. The aerosol filling process under operation utilises a Coster machine with two product filling heads, one crimping head and two propellant gas filling heads; a rotary indexing machine with two filling heads, one crimping head and two propellant gas filling heads; and a semi-automatic machine designed to perform valve crimping and gas filling operations.
5. The enterprises will convert to HAPs technology. Conversion entails installation of gas filling machine to be located in open air filling rooms including a propellant handling system, water bath for testing filled cans, HAP storage and purification system, gas detectors and fire control system. Conveyor systems, explosion-proof lighting and ventilation systems are also requested.
6. Technical assistance will be provided for performance and supervision of engineering designs, equipment installation and commissioning of the plant. Training in production, quality control and safety procedures will also be provided.

SECRETARIAT'S COMMENTS AND RECOMMENDATION**COMMENTS**

1. The capital cost of the project is US \$205,000 and the operational savings (NPV) for four years is US \$77,693.
2. There is no statement in the project document on the commitment by the enterprise to destroy CFC based equipment. However, UNIDO informed the Secretariat that there is a "general agreement with the Ozone Office in Algeria to proceed in a very official manner to the destruction of CFC based equipment. This procedure has been implemented for ENIEM refrigeration project and ENAD aerosol project."

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the project with associated support costs at the funding level shown in the table below:

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
Replacement of CFC-11 & 12 with hydrocarbon in the aerosol sector at ETS DJADIR	147,807	19,215	UNIDO

PROJECT EVALUATION SHEET **ALGERIA**

SECTOR: FOAM ODS use in sector (1996): 400 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible Slabstock US \$6.23/kg

Project Titles:

Phase out of CFC-11 in the manufacture of flexible polyurethane foam through the use of Methelyne Chloride at ETS Matelas Djurdjura.

Project Data	Flexible Slabstock
	ETS Matelas Djurdjura
ODS phase-out (ODP tonnes)	28
Proposed project duration (months)	12
Incremental capital cost (US \$)	104,500
- contingency (%)	10
Incremental operational cost (US \$)	(21,892)
Total project cost (US \$)	82,608
Local ownership (%)	100
Export component (%)	0
Amount requested (US \$) {Original}	82,608
{Revised}	
Cost effectiveness (US \$/kg)	2.95
National Coordinating Agency	Ministère de l'intérieur, des Collectivités Locales et de l'Environnement
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US \$)	82,608
Project impact (ODP tonnes)	28
Cost effectiveness (US \$/kg)	2.95
Implementing Agency support cost (US \$)	10,739
Total cost to Multilateral Fund (US \$)	93,347

PROJECT DESCRIPTION

Phase out of CFC-11 in the manufacture of flexible polyurethane foam through the use of Methelyne Chloride at ETS Matelas Djurdjura.

1. The CFC consumption in the polyurethane foam sector in Algeria in 1996 was reported to be 400 ODP tonnes, while the consumption for the sector in 1997 according to the report on the progress of implementation of the country programme was 560 tonnes. Breakdown by sub-sector was not provided. However, the flexible foam sector is significant, consisting of about 40 manufacturers. The total installed capacity of flexible slabstock foam is reported to be 40,000 tonnes per year with about 63% capacity utilization. Four flexible slabstock polyurethane foam projects for the phase out of 179 ODP tonnes of CFC-11 have been approved for the country.
2. The project document indicates that, if the project is implemented as scheduled, CFC consumption eliminated from the foam sector which currently constitutes 34% of the country's CFC consumption, will contribute to the country's 1999 CFC consumption freeze.
3. ETS Matelas Djurdjura produced 500 tonnes of flexible slabstock foam block for the furniture industry in 1996, using 28 tonnes CFC-11. It currently operates a SPHUL machine installed in 1980.
4. The company will convert its production to the use of methylene chloride. The capital cost of conversion includes the cost of a new metering system (US \$15,000), reinforced ventilation system (US \$50,000), safety devices (US \$5,000), technology transfer & training (US \$15,000), commissioning & start-up (US \$10,000). There are incremental operational savings of US \$21,892.
5. UNIDO indicated, as part of the project implementation process that, ETS Matelas Djurdjura will provide all costs cited in the project's budget but not requested from the Multilateral Fund.
6. UNIDO also indicated that the list of equipment to be replaced and destroyed or rendered unusable (indicating the relevant model and serial numbers) will be prepared after the bidding process for purchase of new equipment. The list will be attached to the completion report with relevant certification of the undertaken destruction actions.

SECRETARIAT'S COMMENT AND RECOMMENDATION**COMMENT**

1. The project and its costs have been agreed.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the project with the level of funding and associated support cost indicated below.

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
(a) Phase out of CFC-11 in the manufacture of flexible polyurethane foam through the use of Methelyne Chloride at ETS Matelas Djurdjura.	82,608	10,739	UNIDO

PROJECT EVALUATION SHEET **ALGERIA**

SECTOR: Refrigeration ODS use in sector (1996): 762 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial 15.21 US \$/kg

Project Titles:

(a) Replacement of CFC-12 with HFC-134a for commercial refrigeration at ENAPAT

Project data	Commercial
	ENAPAT
ODS phase-out (ODP tonnes)	9.2
Proposed project duration (months)	12
Incremental capital cost (US \$)	104,841
- including contingency (%)	10
Incremental operational cost (US \$)	83,482
Total project cost (US \$)	188,323
Local ownership (%)	100
Export component (%)	0
Amount requested (US \$) {Original}	188,323
{Revised}	
Cost effectiveness (US \$/kg)	20.46
National Coordinating Agency	Ministere de l'Interieur, des Collectivites Locales et de l'Environnement
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US \$)	139,932
Project impact (ODP tonnes)	9.2
Cost effectiveness (US \$/kg)	15.21
Implementing Agency support cost (US \$)	18,191
Total cost to Multilateral Fund (US \$)	158,123

PROJECT DESCRIPTION

Sector background

1. The refrigeration industry of Algeria consists of two domestic refrigerator manufacturers (ENIEM and ENAPEM); two main (ENAPAT and RCA), and 40 small scale commercial refrigerators companies. ENIEM phased out in 1996 its CFC consumption of 425 ODP tonnes, leaving a residual consumption in the sector of 445 ODP tonnes (145 ODP tonnes in commercial refrigeration and 300 ODP tonnes in the domestic refrigeration). Most of this residual consumption is for the servicing of existing appliances.

1999 Freeze

2. Algeria is submitting one commercial refrigeration projects to this meeting which will phase out 9.2 ODP tonnes of CFC-12. This will be in addition to the phase-out of 1013 ODP tonnes already approved by the Executive Committee. Since Algeria's projected consumption in 1999 is estimated at 2960 ODP tonnes, this project will assist in meeting the freeze target.

Replacement of CFC-12 with HFC-134a for commercial refrigeration at ENAPAT

1. ENAPAT consumed an average of 27 ODP tonnes of CFC-12 for the production of large scale refrigeration units for the food industry (cold storage, tunnel freezers, refrigerated cabinets), as well as air-conditioning systems. Of this consumption, 9.2 tonnes will be phased out as a result of the project under consideration and 16.2 tonnes will be replaced with ammonia or other refrigerants, and ENAPAT is not seeking funding for the phase-out of this consumption.
2. ENAPAT's pre-assembled cabinets are foamed elsewhere since the company does not have foaming facility.
3. The company will convert from CFC-12 to HFC-134a as a refrigerant for the cooling system of its products. New charging units, leak detectors, some new vacuum pumps (others will be retrofitted), and other components are requested. The cooling circuit will have to be redesigned and tested; test instruments are requested for the performance testing.
4. Two incremental operating costs are requested: one for the commercial refrigeration equipment, and one for small cold room production. As CFC-12 as a refrigerant in the cooling units of the industrial cold stores will be replaced by HCFC-22, ammonia or other CFC-free refrigerant, neither cost of new compressors, nor cost of new refrigerant was taken into account for this group of products. The other IOCs requested include

refrigerant, compressor, capillary tube, evaporator/condenser modification, and drier costs for a two-year duration.

5. Evidence document cleared by the Department of Environment will be provided by ENAPAT with the statement that the production equipment which was previously used for the operation with CFC-12 is dismantled, destroyed, and scrapped and can no longer be used.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The enterprise will fund the purchase of one HFC-134a refrigerant charging board and one production leak detector. Therefore, UNIDO agreed to delete the costs of the two items from the capital cost of the project.
2. The Secretariat is in agreement with the calculation of IOC.
3. The total incremental cost of the project after adjustment is US \$152,518 with a cost-effectiveness of 16.58 \$/kg which is higher than that of the sub-sector.
4. UNIDO accepted the maximum permissible grant of US \$139,932.

RECOMMENDATION

1. The Secretariat recommends blanket approval of ENAPAT with the funding level and associated support cost indicated below:

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
Replacement of CFC-12 with HFC-134a for commercial refrigeration at ENAPAT	139,932	18,191	UNIDO