



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/19/29
14 April 1996

ORIGINAL: ENGLISH

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

Nineteenth Meeting
Montreal, 8-10 May 1996

PROJECT PROPOSAL: ROMANIA

This document includes the Comments and Recommendations from the Fund Secretariat on the following project:

Refrigeration

- Conversion of commercial refrigeration equipment to phase out CFC-12, HCFC-502 and CFC-11 at Tehnofrig S.A.

UNIDO

PROJECT EVALUATION SHEET **ROMANIA**

SECTOR: REFRIGERATION ODS use in sector (1993): 50 ODP tonnes

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

Project Titles:

Conversion of commercial refrigeration equipment to phase out CFC-12, HCFC-502 and CFC-11 at Technofrig S.A.

Project Data	Commercial refrigeration	
	Technofrig	
ODS phase-out (ODP tonnes)		19.5
Proposed project duration (Yrs)		3
Incremental capital cost (US\$)		501,963
Contingency (%)		10
Incremental operational cost (US\$)		28,223
Total project cost (US\$)		530,186
Local ownership (%)		100
Export component (%)		0
Amount requested (US\$) { Original		496,138
{ Revised		297,768
Cost effectiveness (US\$/kg)		14.88
National Coordinating Agency	Ministry of Environment	
Implementing Agency	UNIDO	
Technical review completed?		Yes

<i>Secretariat's Recommendations</i>		
Amount recommended (US \$)		297,768
Project impact (ODP tonnes)		20
Cost effectiveness (US \$/kg)		15.2
Implementing Agency support cost (US\$)		38,710
Total cost to Multilateral Fund		336,478

PROJECT DESCRIPTION

Conversion of commercial refrigeration equipment to phase out CFC-12, HCFC-502 and CFC-11 at Technofrig S.A.

1. The ODS consumption in the commercial refrigeration sector is about 250 ODP tonnes. There are two major manufacturers of commercial refrigeration equipment in Romania. Technofrig is one of them. Other companies in the sub-sector are rather small. Technofrig S.A. manufactures about 6,000 units annually of commercial refrigeration equipment of different type, such as, ice freezers, display cabinets, deep freezers, bottle coolers and display counters.
2. The company opted for conversion from CFC-12 and HCFC-502 to HFC-134a as a refrigerant and from CFC-11 to cyclopentane as a blowing agent.
3. Conversion to HFC-134a refrigerant will involve replacement of refrigerant charging equipment, and leak detector and retrofitting of existing vacuum pumps. Conversion to cyclopentane will require new equipment, such as, machine, a pre-mixing station and a cyclopentane storage. Project costs cover also retrofit of existing foaming fixtures, installation of gas monitoring system, additional ventilation, commissioning, installation, training and consultancy.
4. The company will share the cost of this project.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The chosen technologies are proven.
2. The Secretariat discussed with UNIDO the reported production of the enterprise, the calculation of ODS consumption and the eligibility and incrementality of all cost items, including choice of equipment, capacity and cost, and price of chemicals.
3. The Secretariat recommended not to include the recovery and recycling equipment in the project cost. It was agreed that recovery/recycling/servicing activities in Romania should be covered under a national project.
4. UNIDO subsequently revised the project and adjusted the budget accordingly.

RECOMMENDATIONS

1. The Fund Secretariat recommends approval of the project as follows:

	Project Cost US \$	Support Cost US \$	Implementing Agency
Conversion of commercial refrigeration equipment to phase out CFC-12, HCFC-502 and CFC-11 at Technofrig S.A.	297,768	38,710	UNIDO