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

Nineteenth Meeting
Montreal, 8-10 May 1996

PROJECT PROPOSALS: VENEZUELA

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

Refrigeration

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|---|------|
| • Elimination of CFC-11 and CFC-12 in the manufacture of refrigerated display cases and bottle coolers at Neve Industrial, C.A. | UNDP |
| • Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Hielomatic, C.A. | UNDP |
| • Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Tecoven, C.A. | UNDP |

PROJECT EVALUATION SHEET **VENEZUELA**

SECTOR: REFRIGERATION ODS use in sector (1994): 2,508 ODP tonnes

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

Project Titles:

- (a) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Hielomatic C.A.
- (b) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Tecoven C.A.
- (c) Elimination of CFC-11 and CFC-12 in the manufacture of refrigerated display cases and bottle coolers at Neve Industrial C.A.

Project Data	Commercial Refrigeration		
	Hielomatic	Tecoven	Neve
ODS phase-out (ODP tonnes) ¹	11.12	13.16	7.54
Proposed project duration (Yrs)	1.5	1.5	1.5
Incremental capital cost (US\$)	112,375	154,400	147,100
Contingency (%)	10	10	10
Incremental operational cost (US\$)	64,859	59,322	43,557
Total project cost (US\$)	177,234	213,722	196,657
Local ownership (%)	100	100	100
Export component (%)	0	0	0
Amount requested (US\$) {Original {Revised	168,300	199,000	113,500
Cost effectiveness (US\$/kg)	14.60	14.44	14.87
National Coordinating Agency		FONDOIN	
Implementing Agency	UNDP	UNDP	UNDP
Technical review completed?	Yes	Yes	Yes

<i>Secretariat's Recommendations</i>			
Amount recommended (US \$)	162,375	190,000	112,100
Project impact (ODP tonnes)	11.12	13.16	7.54
Cost effectiveness (US \$/kg)	14.60	14.44	14.87
Implementing Agency support cost (US\$)	21,108	24,700	14,573
Total cost to Multilateral Fund	183,483	214,700	126,673

¹ Figures are average of 1993-1995.

PROJECT DESCRIPTION

- (a) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Hielomatic C.A.
- (b) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Tecoven C.A.
- (c) Elimination of CFC-11 and CFC-12 in the manufacture of refrigerated display cases and bottle coolers at Neve Industrial C.A.

1. Total ODS consumption in the refrigeration and air-conditioning sector in Venezuela in 1994 is estimated at approximately 2,508 tonnes. ODS consumption for manufacture and installation in commercial refrigeration sector is estimated at 114 tonnes. About 35 tonnes will be eliminated through the implementation of 3 projects approved at the 17th Meeting of the Executive Committee. Phase-out of additional 32 tonnes of CFC-11 and CFC-12 is the objective of the submitted projects.

2. The projects cover conversion from CFC-12 to HFC-134a as a refrigerant and from CFC-11 to HCFC-141b as a blowing agent. Whilst recognizing the environmental benefits of cyclopentane versus HCFC-141b, the three enterprises selected HCFC-141b as a first stage, interim, replacement for CFC-11 as it provides the best energy efficiency and the lowest investment and operational costs. It is also most suited to the layout of factories and present skill levels of the work-force at the three enterprises. This selection is supported by The foundation for the Protection of the Ozone Layer and the Environment (FONDOIN), the responsible Venezuelan Government counterpart. The three companies understand that HCFC-141b is an interim solution which will require a change to an appropriate zero-ODP technology at some future date. They also accept to pay for the costs of such technology from their own resources.

3. The conversion to HFC-134a which will involve the replacement of charging equipment, vacuum pumps and leak detectors; the conversion to HCFC-141b which will entail replacement of low pressure machines with high pressure machines. In addition, the project will provide for training, technology assistance, trials and testing.

4. Only one company has requested partial incremental operation costs.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The chosen technologies are proven. The choice of an interim HCFC technology in foaming operations is justified.
2. The Secretariat discussed with UNDP the eligibility and incrementality of all costs items. The choice of foaming machines was adjusted to be consistent with the capacity of existing equipment. The cost of a charging machine, vacuum pumps and a foaming machine were adjusted in accordance with recent quotations. The project budget has been adjusted accordingly.

RECOMMENDATIONS

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

	Project Cost US \$	Support Cost US \$	Cost Effectiveness US \$/kg.
(a) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Hielomatic C.A.	162,375	21,108	14.60
(b) Elimination of CFC-11 and CFC-12 in the manufacture of bottle coolers, freezers and water coolers at Tecoven C.A.	190,000	24,700	14.44
(c) Elimination of CFC-11 and CFC-12 in the manufacture of refrigerated display cases and bottle coolers at Neve Industrial C.A.	112,100	14,573	14.87