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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Twenty-ninth Meeting  
Beijing, 24-26 November 1999

### PROJECT PROPOSALS: COLOMBIA

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

#### Foam

- Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam (panels and sprayfoam) at Manilit UNDP
- Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Industrias Refridcol UNDP
- Phase out of CFC-11 by conversion to HCFC-141b technology in the manufacture of rigid polyurethane foam at selected Colombian enterprises IBRD
- Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Dinalsa UNDP

## PROJECT EVALUATION SHEET COLOMBIA

SECTOR: Foam ODS use in sector (1998): 472 ODP tonnes

Sub-sector cost-effectiveness thresholds: Rigid US \$7.83/kg

**Project Titles:**

- (a) Phase out of CFC-11 by conversion to HCFC-141b technology in the manufacture of rigid polyurethane foam at selected Colombian enterprises
- (b) Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Dinalsa
- (c) Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam (panels and sprayfoam) at Manilit
- (d) Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Industrias Refridcol

Project Data	Rigid	Rigid	Rigid	Rigid
	SME	Dinalsa	Manilit	Refridcol
Enterprise consumption (ODP tonnes)	62.40	11.00	17.00	16.50
Project impact (ODP tonnes)	56.60	10.00	15.40	15.00
Project duration (months)	30	36	36	36
Initial amount requested (US \$)	584,727	78,300	62,230	117,450
Final project cost (US \$):				
Incremental capital cost (a)	408,300	53,750	30,000	113,000
Contingency cost (b)	40,830	5,375	3,000	11,300
Incremental operating cost (c)	135,597	19,500	29,230	28,000
Total project cost (a+b+c)	584,727	78,625	62,230	152,300
Local ownership (%)	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%
<b>Amount requested (US \$)</b>	584,727	78,625	62,230	117,450
Cost effectiveness (US \$/kg.)	10.33	7.83	4.04	7.83
Counterpart funding confirmed?		Yes		Yes
National coordinating agency	Ozone Technical Unit		Unidad Tecnica Ozono	
Implementing agency	IBRD		UNDP	

<b>Secretariat's Recommendations</b>				
Amount recommended (US \$)		78,625	62,230	117,450
Project impact (ODP tonnes)		10.00	15.40	15.00
Cost effectiveness (US \$/kg)		7.83	4.04	7.83
Implementing agency support cost (US \$)		10,221	8,090	15,268
Total cost to Multilateral Fund (US \$)		88,846	70,320	132,718

## PROJECT DESCRIPTION

### Sector Background

- Latest available total ODS consumption (1998)	1,262.1	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)	2,208.2	ODP tonnes
- 1998 consumption of Annex A Group I substances	2,208.2	ODP tonnes
- Baseline consumption of CFCs in foam sector		
- 1998 consumption of CFCs in foam sector**	472.0	ODP tonnes
- Funds approved for investment projects in foam sector as of end of 1998	US \$ 1,459,570	
- Quantity of CFC to be phased out in foam sector as of end of 1998	396.6	ODP tonnes
- Quantity of CFC phased out in foam sector as of end of 1998	190.0	ODP tonnes

\*Baseline consumption of Annex A controlled substances refers to average of the consumption for the years 1995-1997 inclusive.

\*\*Based on information provided in the project document.

### SME Project

1. This project submitted by the World Bank as “Foam Group Technical Assistance Programme” is submitted to access the SME funding window established by decision 25/56. The project will eliminate the use of CFC-11 at 29 enterprises by converting to HCFC-141b as an interim technology, with later conversion to an ODS-free technology. The companies consume 62.4 tonnes of CFC-11 per year. The consumption of the enterprises range from 0.3 tonne to 9.6 tonnes. The list of companies is listed below. The technical assistance programme will be implemented using GMP a systems house operator as the technology partner to provide technology transfer to the participating enterprises. The project includes equipment retrofit (US \$24,000) and replacement (US \$420,000), technical assistance and workshops (US \$20,000), trials (US \$87,000), and contingency (US \$55,100), as well as two years of incremental operating costs (US \$171,598). The World Bank submitted on behalf of the Government of Colombia a letter the Government submitted in fulfilment of paragraph (d) of decision 25/56. The letter is attached for the consideration of the Executive Committee.

	Name	OPD phased out (kg/yr)	Project Costs		
			ICC	IOC	Total
1	GIRALDO MARTIN-FRIOTERMICA	587	23,000	1,815	24,815
2	INCOPAR	1,719	23,000	5,312	28,312
3	EDUARDOÑO	1,906	6,000	5,889	11,889
4	TECNIFIO LTDA.	470	23,000	1,452	24,452
5	INDUSTRIAS DEL FRIO	2,691	23,000	8,314	31,314
6	PUBLIFIBRA	1,495	23,000	4,619	27,619
7	E.S. ENERGIA SOLAR	1,089	23,000	3,365	26,365
8	INDUSTRIAS ESTRA	235	6,000	726	6,726
9	CEDAL	908	23,000	2,804	25,804
10	FRIO PINTA LTDA	758	23,000	2,343	25,343
11	MEYGLASS	1,089	23,000	3,365	26,365
12	CARROCERIAS ALCON	1,837	23,000	5,675	28,675
13	ARMONIA SIGNO AMBIENTE	2,269	23,000	7,011	30,011
14	SATTLER DE COLOMBIA	3,674	23,000	11,350	34,350
15	DIVERQUIMICOS	876	23,000	2,705	25,705
16	RIFRIGERAC. INC. FRIOTERMICA	5,158	23,000	15,936	38,936
17	FURGOTER LTDA	1,517	23,000	4,685	27,685
18	CARROCERIAS LTDA	1,954	23,000	6,038	29,038
19	DARTICO LTDA	1,079	23,000	3,332	26,332
20	IMEPLAST	288	23,000	891	23,891
21	IMDIR	1,719	23,000	5,312	28,312
22	ETEC S.A.	705	23,000	2,178	25,178
23	FAB. HIELO BARRANQUILLA	352	23,000	1,089	24,089
24	MICROCEL-EDUARDO FRANCO	993	6,000	3,068	9,068
25	SIEMEC LTDDA	470	6,000	1,452	7,452
26	INGENIERIA DE REFRIGERACION	8,213	6,000	25,372	31,372
27	REFRIDCOL	8,576	6,000	26,494	32,494
28	REFRIGERATION CASTEL	1,719	6,000	5,312	11,312
29	TERMOINGENIERIA	1,198	6,000	3,702	9,702
	<b>TOTAL</b>	<b>55,549</b>	<b>531,000</b>	<b>171,605</b>	<b>702,605</b>

### Dinalsa, Manilit and Refridcol

2. Dinalsa, Manilit and Refridcol consumed 11, 17 and 16.5 ODP tonnes respectively of CFC-11 in 1998. All three companies manufacture rigid polyurethane foam panels for construction (Dinalsa and Manilit) and commercial refrigeration (Refridcol). Manilit also produces rigid spray foam. Dinalsa uses handmix operations, while Manilit operates a spray/pour dispenser and Refridcol operates a low pressure machine.

3. All three companies will phase out the use of CFC by converting to the use of HCFC-141b. The capital costs of conversion includes a purchase of 40 kg/min high pressure dispenser at US \$90,000 for Dinalsa with 50% contribution from the company for technology upgrade, retrofit of the spray foam machine at Manilit for US \$5,000 and replacement of the low pressure dispenser with high pressure at Refridcol. The other incremental capital costs include technology transfer, training and trials at US \$20,000 each for Dinalsa and Refridcol and US \$25,000 at Manilit. The incremental operational costs relate to differences in chemical usage and costs and do not include claims of costs for density increase.

Justification for the Use of HCFC-141b

4. A letter advising of the Government decision to use HCFC technology has been received by the Secretariat in accordance with Executive Committee decision 27/13 and is attached to this evaluation together with the information and commitments from the enterprises.

Impact of the Projects

5. The four projects will phase out 106.9 ODP tonnes of CFC-11. This represents 4.8% of Colombia's baseline consumption of Annex A Group I substances and 22.6% of CFC consumption for 1998.

**SECRETARIAT'S COMMENTS AND RECOMMENDATIONS****COMMENTS**SME Project

1. The Secretariat and the World Bank discussed the project and agreed on the eligible grant as US \$584,727. The project for the 29 enterprises will phase out 12% of CFC consumption in the foam sector. With regard to the Government plan required under decision 25/56, the Secretariat drew attention of the World Bank to its absence in the project document. Subsequently, the World Bank transmitted to the Secretariat a letter received from the Government of Colombia in that regard. The letter is attached to this Evaluation Sheet "Note form the Government of Colombia in Response to Decision 25/56 (d) on SME Funding Window" for consideration by the Executive Committee

Dinalsa, Refridcol

2. The projects have been discussed between the Secretariat and UNDP and agreed.

**RECOMMENDATIONS**

1. The Fund Secretariat recommends blanket approval of the projects for Dinalsa, Manilit and Refridcol with the level of funding and associated support costs indicated in the table below.

2. The project for the 29 SMEs is submitted for individual consideration on account of decision 25/56.

	<b>Project Title</b>	<b>Project Funding (US\$)</b>	<b>Support Cost (US\$)</b>	<b>Implementing Agency</b>
(a)	Phase out of CFC-11 by conversion to HCFC-141b technology in the manufacture of rigid polyurethane foam at selected Colombian enterprises			IBRD
(b)	Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Dinalsa	78,625	10,221	UNDP
(c)	Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam (panels and sprayfoam) at Manilit	62,230	8,090	UNDP
(d)	Conversion from CFC-11 to HCFC-141b technology in the manufacture of rigid polyurethane foam at Industrias Refridcol	117,450	15,268	UNDP