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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Montreal, 14-16 July 1999

PROJECT PROPOSALS: COLOMBIA

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

Foam

- Elimination of CFC-11 in the manufacture of rigid polyurethane foam through the use of HCFC-141b technology at Rojas Hnos LTDA. — IBRD

Refrigeration

- Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Industrias de Supernordico — IBRD
- Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Polares LTDA. — IBRD

PROJECT EVALUATION SHEET
COLOMBIA

SECTOR: Foam ODS use in sector (1997): 766 ODP tonnes

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

Project Titles:

(a) Elimination of CFC-11 in the manufacture of rigid polyurethane foam through the use of HCFC-141b technology at Rojas Hnos LTDA.

Project Data	**Rigid**
	Rojas Hnos
Enterprise consumption (ODP tonnes)	9.12
Project impact (ODP tonnes)	8.20
Project duration (months)	24
Initial amount requested (US $)	64,206
Final project cost (US $):	
Incremental capital cost (a)	79,585
Contingency cost (b)	3,500
Incremental operating cost (c)	56,505
Total project cost (a+b+c)	139,590
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	64,206
Cost effectiveness (US $/kg.)	7.83
Counterpart funding confirmed?	
National coordinating agency	Ozone Technical Unit
Implementing agency	IBRD

Secretariat's Recommendations	
Amount recommended (US $)	64,206
Project impact (ODP tonnes)	8.20
Cost effectiveness (US $/kg)	7.83
Implementing agency support cost (US $)	8,347
Total cost to Multilateral Fund (US $)	72,553

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1997)		2,223	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)		2,208.2	ODP tonnes
- 1998 consumption of Annex A Group I substances		Not reported	
- Baseline consumption of CFCs in foam sector		414.22	ODP tonnes
- 1998 consumption of CFCs in foam sector		469.46	ODP tonnes
Funds approved for investment projects in foam sector as of March 1999 (27th Meeting)	US $	1,459,570	
- Quantity of CFC to be phased out in foam sector as of March 1999 (27th Meeting)		369.5	ODP tonnes
- Quantity of CFC phased out in foam sector as of March 1999 (27th Meeting)		0	ODP tonnes

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

Other relevant information:

1. The world Bank reports in the project document that the Government of Colombia has revised its phase out programme and by the year 2005 it will reduce its CFC consumption to 50 per cent of 1999 levels. It also reported that the foam sector is now concentrated in the production of rigid foams.

2. One project is being submitted to the 28th Executive Committee Meeting in the foam sector. When approved and implemented 8.2 ODP tonnes of CFC-11 will be phased out.

Impact of the Project

3. The 8.2 ODP tonnes to be phased out constitutes 0.4 per cent of Colombia's baseline consumption of Annex A Group I substances and 2 per cent out of its foam sector baseline consumption. There will be a residual ODP of 0.9 ODP tonnes due to the use of HCFC-141b as substitute blowing agent.

Justification for the Use of HCFC-141b

4. Justification for the use of HCFC-141b by Rojas Hnos Ltda. has been provided and is attached as Annex I to the evaluation. The World Bank indicates in the justification that the enterprise has been informed of the conditions relating to the use of HCFC-141b as substitute. A letter from the Government of Colombia in fulfilment of Decision 27/13 on projects involving HCFCs [has been provided by the World Bank and attached as Annex II] [has not been provided].

(a) Elimination of CFC-11 in the manufacture of rigid polyurethane foam through the use of HCFC-141b technology at Rojas Hnos Ltda.

5. This project will eliminate the use of CFCs in the manufacturing of rigid polyurethane foam at Rojas Hnos Ltda., located in Santafé de Bogotá. The CFC-11 used (9.12 tonnes) as foaming agent in the production of insulating foams will be replaced by HCFC-141b. A net reduction of 8.2 ODP tonnes of CFC-11 (considering HCFC-141b's ODP) will be eliminated per year. The company has already purchased a high pressure foaming machine and hence this project would be retroactively funded. The requested grant will be used to finance the high pressure foam machine, technology transfer and technical assistance, tests and trials, training, and operating costs.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. With regard to the CFC phase out plan of the Government which is based on 1999 consumption, the implementing agency's (World Bank's) attention has been drawn to its inconsistency with the provisions of the Montreal Protocol, particularly since the 1999 CFC consumption could potentially be higher than the baseline consumption.

2. The Fund Secretariat and World Bank agreed on the project's costs.

RECOMMENDATIONS

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

	Project Title	Project Cost (US$)	Support Cost (US$)	Implementing Agency
(a)	Elimination of CFC-11 in the manufacture of rigid polyurethane foam through the use of HCFC-141b technology at Rojas Hnos LTDA.	64,206	8,347	IBRD

PROJECT EVALUATION SHEET
COLOMBIA

SECTOR: Refrigeration ODS use in sector (1994): 2,078 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial US $15.21/kg
Rigid Foam US $ 7.83/kg

Project Titles:

(a) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Polares LTDA.
(b) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Industrias de Supernordico

Project Data	**Commercial**	**Commercial**
	Polares	**Supernordico**
Enterprise consumption (ODP tonnes)	5.09	10.40
Project impact (ODP tonnes)	4.64	9.70
Project duration (months)	24	24
Initial amount requested (US $)	58,692	131,535
Final project cost (US $):		
Incremental capital cost (a)	136,200	135,100
Contingency cost (b)	13,620	13,510
Incremental operating cost (c)	34,030	97,850
Total project cost (a+b+c)	183,850	246,460
Local ownership (%)	100%	100%
Export component (%)	0%	0%
Amount requested (US $)	58,109	128,381
Cost effectiveness (US $/kg.)	12.52	13.33
Counterpart funding confirmed?	Yes	Yes
National coordinating agency	Ozone Technical Unit	Ozone Technical Unit
Implementing agency	IBRD	IBRD

Secretariat's Recommendations		
Amount recommended (US $)	58,109	128,381
Project impact (ODP tonnes)	4.64	9.63
Cost effectiveness (US $/kg)	12.52	13.33
Implementing agency support cost (US $)	7,554	16,690
Total cost to Multilateral Fund (US $)	65,663	145,071

PROJECT DESCRIPTION

(a) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Polares Ltda.

(b) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Industrias de Supernordico

Sector Background

– Latest available total ODS consumption (1997)	2,223.0 ODP tonnes
– Baseline consumption* of Annex A Group I substances (CFCs)	2,208.2 ODP tonnes
– 1998 consumption of Annex A Group I substances	
– Baseline consumption of CFCs in refrigeration sector	Not reported
– 1998 consumption of CFCs in refrigeration sector	Not reported
– Funds approved for investment projects in refrigeration sector **as of March 1999**	US $6,127,355
– Quantity of CFC to be phased out in refrigeration sector **as of March 1999**	459,3 ODP tonnes
– Quantity of CFC phased out in refrigeration sector **as of March 1999**	258 ODP tonnes

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

1. The approval of the two proposed projects will assist Colombia to phase out a total of 14.27 ODP tonnes. Since the project duration is 2 years, the expected ODP phase out would not be reflected on the 1999 freeze target of the country; however, it will help the country to meet the 50% ODS reduction target.

(a) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Polares Ltda.

2. This project will phase out 4.64 ODP tonnes of CFC in the production of commercial refrigerators and polyurethane sandwich panels at Polares Ltda.. It will be achieved by converting foam and sandwich panels operations form CFC-11 to HCFC-141b technology and refrigeration operations from CFC-12 to HFC-134a as the refrigerant. The enterprise operates one low pressure foaming machine (31 kg/min), one refrigerant charging machine, and four vacuum pumps. The low pressure foaming machine and charging unit will be replaced while the four vacuum pumps will be retrofitted. The project will include incremental capital costs covering one high pressure foaming machine (US $78,300), one refrigerant charging units

(US $14,000), one vacuum pump (US $2,100), retrofit of vacuum pumps (US $1,500), leak detector (US $300), training/test trials/technology transfer (US $40,000). The total incremental operating costs amount to US $34,030 based on 2 years duration.

(b) Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Industrias de Supernordico

3. This project will phase out 9.63 ODP tonnes of CFC in the production of commercial refrigerators and polyurethane sandwich panels at Industrias de Refrigeracion Supernordico. It will be achieved by converting foam and sandwich panels operations from CFC-11 to HCFC-141b technology and refrigeration operations from CFC-12 to HFC-134a as the refrigerant. The enterprise operates one low pressure foaming machine, one refrigerant charging machine, and five vacuum pumps. The low pressure foaming machine and charging unit will be replaced, and scrapped while the five vacuum pumps will be retrofitted. The project will include incremental capital costs covering one high pressure foaming machine (US $78,300), one refrigerant charging units (US $14,000), retrofit of five vacuum pumps (US $2,500), leak detector (US $300), training/test trials/technology transfer (US $40,000). The total incremental operating costs amount to US $97,850 based on 2 years duration.

Justification for the Use of HCFC-141b

4. The two companies have selected HCFC-141b technology to replace CFC-11 in foam blowing operations. The justifications for the use of HCFC have been provided for each individual company. The Government's concurrence of the use of HCFC technology has been also received by the secretariat in accordance with Executive Committee decision 27/13 and is attached to this evaluation.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat has indicated to the World Bank that the two companies have been manufacturing unitary refrigeration equipment with compressors below 250 WT. Decision 26/36 should apply in the calculation of eligible level of grant using respective threshold for domestic and commercial refrigeration as well as respective durations for calculations of incremental operating cost. The Secretariat has also noted that the cost-effectiveness established for rigid foam should be used for the production of insulating sandwich panels. The requested incremental costs and eligible level of grants has been adjusted accordingly.

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the two projects with the funding level and associated support cost as indicated below:

	Project Title	Project Cost (US$)	Support Cost (US$)	Implementing Agency
(a)	Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Polares Ltda.	58,109	7,554	IBRD
(b)	Replacement of CFC-11 foam blowing agent with HCFC-141b and CFC-12 refrigerant with HFC-134a in the manufacture of commercial refrigerators and polyurethane sandwich panels at Industrias de Supernordico	128,381	16,690	IBRD