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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-eighth Meeting
Rome, 20-22 November 2002

PROJECT PROPOSALS: COLOMBIA

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

Foam

- CFC phase-out plan for the foam sector — UNDP

Refrigeration

- Umbrella project designed to phase out of the refrigerant CFC-12 by conversion to HFC-134a and replacement of the blowing agent CFC-11 by HCFC-141b in the manufacture of commercial refrigeration systems in 17 Colombian enterprises — World Bank

PROJECT EVALUATION SHEET
COLOMBIA

SECTOR: Foam | ODS use in sector (2001): 249.06 ODP tonnes

Sub-sector cost-effectiveness thresholds: Integral skin US $16.86/kg; Rigid US $7.83/kg

Project Titles:

(a) CFC phase-out plan for the foam sector

Project Data	**Multiple-subsectors**
	CFC phase-out plan
Enterprise consumption (ODP tonnes)	167.40
Project impact (ODP tonnes)	161.30
Project duration (months)	36
Initial amount requested (US $)	1,083,058
Final project cost (US $):	
Incremental capital cost (a)	763,144
Contingency cost (b)	112,600
Incremental operating cost (c)	504,000
Total project cost (a+b+c)	1,379,744
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	1,083,058
Cost effectiveness (US $/kg.)	6.71
Counterpart funding confirmed?	
National coordinating agency	Unidad Tecnica de Ozono - UTO
Implementing agency	UNDP

Secretariat's Recommendations	
Amount recommended (US $)	840,170
Project impact (ODP tonnes)	123.20
Cost effectiveness (US $/kg)	6.82
Implementing agency support cost (US $)	102,419
Total cost to Multilateral Fund (US $)	942,589

PROJECT DESCRIPTION

Sector background

CFC (Annex A Group I) Consumption and Phase-out Profile

According to Decision 35/57 Colombia has selected Option 1 as starting point amounting to:	**2,208.2 ODP tonnes**
- Remaining consumption of CFCs eligible for funding as at 38th Meeting (per Decision 35/57, proviso B)	1,456.9 ODP tonnes
- Impact of ALL CFC projects submitted for funding at the 38th Meeting	176.5 ODP tonnes
- Maximum remaining consumption of CFCs eligible for funding following approval of projects submitted to 38th Meeting	1,280.4 ODP tonnes

Foam Sector Profile

- Consumption of CFCs in the foam sector in 2001*	249.06 ODP tonnes
- Amount of CFCs to be phased out in on-going foam projects	165.3 ODP tonnes
- Impact of foam projects submitted for funding at the 38th Meeting on remaining CFC consumption	161.3 ODP tonnes

* Based on data reported to the Fund Secretariat on 27 September 2002 by the Government of Colombia.

Foam sector ODS phase-out plan

1. UNDP has submitted a foam sector phase-out plan to the 38th Meeting for the Government of Colombia. UNDP stated that with the approval of the plan, the Government of Colombia is committed not to allow any further use of CFCs and not to request any further funding for the sector.

CFC consumption

2. The CFC consumption covered by the sector plan is estimated to be 167.4 ODP tonnes. This amount is the estimated unfunded consumption allocated by the Government to the foam sector plan and is derived in part from analysis of ODS use data obtained from two Colombian systems houses which supply CFC-based systems to the small- and medium scale foam enterprises. To the amount of CFCs derived from systems from the local suppliers amounting to 123.2 tonnes has been added:

(a) estimated 20 tonnes CFC-11 stated to account for direct imports of systems;

(b) an unquantified amount of CFC to account for “inventory fluctuations”.

3. Thus, 150-170 tonnes of CFC is claimed as the amount of CFCs that the Government of Colombia ought to allocate to the foam sector within its calculated unfunded CFC consumption of 1,456.9 ODP tonnes based on Decision 35/57 (indicated in the sector background above). As a result, 170 tonnes of CFC has been allocated to the foam sector. This amount, however, includes 135 tonnes CFC-11 and 35 tonnes CFC-12. The remaining foam producing enterprises addressed in the phase-out plan all produce polyurethane foam and exclusively use CFC-11 only. Therefore, the CFC-12 component is not eligible for funding under the plan. Analysis of the data presented in the plan document shows that the consumption of CFC which has been accounted for amounts to 123.2 tonnes.

4. 543 small polyurethane foam producing enterprises have been identified as the remaining enterprises in the foam sector. 78 enterprises out of this number have been verified while the rest (465 mainly very small CFC using enterprises) have not. Out of the 543 enterprises 36 consume CFC ranging from 0.5 - 1.6 tonnes per year with annual foam production of 2 - 21 tonnes. The rest of the enterprises have annual consumption of 0 to about 400 kg of CFC-11 and either do not produce any foam (distributors and some foam producers) or produce from 1 kg to less than 2 tonnes of foam per year.

Baseline equipment

5. The enterprises produce polyurethane integral skin and rigid foams. They all use hand mixing techniques except five which use low pressure dispensers.

Phase-out strategy

6. Under the foam sector ODS phase-out plan the remaining CFC in the sector will be eliminated through the following measures:

- awareness campaigns;
- verification visits to confirm ODS use and conversion plans;
- adoption of regulatory measures to tighten the quota system and ban CFC use;
- technical and financial assistance from the Multilateral Fund to foam manufacturers to phase out their use of CFCs.

Calculation of project costs

7. The incremental capital and operating costs of the projects for enterprises having CFC consumption exceeding 260 kg/year were calculated based on standard calculations for rigid and integral skin foam projects. The following criteria were used for calculating the incremental costs for enterprises for which investment projects were foreseen:

- provision of small low pressure dispenser at US $6,000;
- retrofit of low pressure dispenser at US $5,000;
- trial cost of US $3,000;
- a lump sum technical assistance cost of US $176,000 which has been separated from the incremental capital costs included in the non-investment component.

8. The calculations yielded US $693,638 in incremental capital cost and US $131,706 in incremental operating cost for a total project cost of US $825,344. The amount of US $528,658 is indicated as the eligible investment cost based on the cost-effectiveness threshold funding for integral skin and rigid foam sub-sectors. In addition to the investment costs an amount of US $554,400 is calculated as non-investment costs for supervisory and supporting activities and technical assistance and monitoring as follows:

(a)	Supervisory and supporting activities	US $88,000
(b)	Technical assistance and monitoring:	
	(i) Enterprises in group projects at unit cost of US $2,000	US $176,000
	(ii) Small and non-eligible enterprises at unit cost of US $10,000	US $240,000
(c)	Contingency	US $50,400
		US $554,400

9. The amount of US $1,083,058 was requested as the grant amount for the sector plan, with the following breakdown:

Item	**Amount Requested US $**
Investment costs	825,344
Non-investment cost	554,400
Total project cost	1,379,744
Requested grant	1,083,058
Project impact	161.30 tonnes
Cost-effectiveness	US $6.71/kg

Justification for the use of HCFC-141b

10. Justification for the use of HCFC-141b by the foam companies in the sector plan has been provided by UNDP based on technological and economic analysis of the operation of each enterprise. UNDP stated that its technical expert which pre-appraised the projects prior to preparation of the project document had discussions with government representatives on the choice of technology for replacing the CFC-based technology. The representatives were briefed in detail about the existing decisions and technological and economic impacts of the use of alternatives. The conclusions reached during the discussion formed the basis for the choice of HCFC-141b.

11. A letter of transmittal from the Government of Colombia endorsing the use of HCFC-141b by the enterprises is attached to the project document consistent with Decision 27/13.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

12. The Secretariat's analysis of the data presented in the phase-out plan showed that 123.2 ODP tonnes of CFC-11 is the amount of CFCs that had been accounted for as CFC used by the enterprises and which would be eligible for funding. The Secretariat also identified other technical and cost issues including the scope, duration of the project and the size of enterprises in relation to the design of the project as a sector plan requiring multi-year funding agreement.

13. The Secretariat and UNDP subsequently discussed the issues and agreed that:

- the project would be submitted as a terminal umbrella project with one-time funding based on total consumption of 123.2 tonnes to be implemented in 36 months;
- the calculation of the investment component will be based on CFC consumption exceeding 0.5 tonne and foam production exceeding 2 tonnes per annum using the relevant cost-effectiveness threshold value. All enterprises with CFC consumption below 0.5 tonne will be provided technical assistance to phase out their CFC consumption;
- the Government will be provided an amount of US $50,000 as management cost in view of the terminal nature of the project and the large number of small enterprises which could require co-ordination and supervision on the part of the Government;
- the Government's undertaking not to request further assistance for projects in the foam sector still holds, however, it would require flexibility in the application of the approved funds to the phase-out of CFC remaining within the sector.

14. Based on the above considerations the following costs were agreed.

	CFC consumption ODP tonnes	Cost-effectiveness US $/kg	Proposed amount US $
Investment project component:			
Integral skin	8.25	16.86	139,095
Rigid foam	25.68	7.83	201,075
Sub-total	33.20		340,170
Technical assistance component	90.00	--	450,000
Non-investment component	--	--	50,000
TOTAL	**123.20**		**840,170**

Cost-effectiveness	US $6.82/kg
Agency support cost	US $102,419
Total cost to the Multilateral Fund	US $942,589

RECOMMENDATIONS

15. The Fund Secretariat recommends:

(a) blanket approval of the Colombia foam sector ODS phase-out plan with the level of funding and associated support cost as indicated below;

(b) that the Executive Committee grants the Government of Colombia flexibility in the use of the approved funds for the phase-out of the remaining CFCs in the foam sector;

(c) that the Executive Committee takes note of the undertaking made by the Government of Colombia not to seek further assistance for any activity in the foam sector upon approval of the project;

(d) that the Executive Committee takes note that the project has been approved as a terminal umbrella project rather than ODS phase-out sector plan with multi-year funding agreement.

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	CFC phase-out plan for the foam sector	840,170	102,419	UNDP

PROJECT EVALUATION SHEET
COLOMBIA

SECTOR: Refrigeration ODS use in sector (2001): 845.7 ODP tonnes

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

Project Titles:

(a) Umbrella project designed to phase out of the refrigerant CFC-12 by conversion to HFC-134a and replacement of the blowing agent CFC-11 by HCFC-141b in the manufacture of commercial refrigeration systems in 17 Colombian enterprises

Project Data	**Commercial**
	17 enterprises
Enterprise consumption (ODP tonnes)	
Project impact (ODP tonnes)	15.45
Project duration (months)	24
Initial amount requested (US $)	234,995
Final project cost (US $):	
Incremental capital cost (a)	106,425
Contingency cost (b)	10,643
Incremental operating cost (c)	94,568
Total project cost (a+b+c)	211,636
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	211,636
Cost effectiveness (US $/kg.)	13.70
Counterpart funding confirmed?	
National coordinating agency	Ozone Technical Unit
Implementing agency	World Bank

Secretariat's Recommendations	
Amount recommended (US $)	211,636
Project impact (ODP tonnes)	15.45
Cost effectiveness (US $/kg)	13.70
Implementing agency support cost (US $)	27,513
Total cost to Multilateral Fund (US $)	239,149

PROJECT DESCRIPTION

Sector background

CFC (Annex A Group I) Consumption and Phase-out Profile

According to Decision 35/37 Colombia has selected Option 1 as Starting Point amounting to:	**1,456.9 ODP tonnes**
- Remaining consumption of CFCs eligible for funding as at 38th Meeting (per Decision 35/57, proviso B)	1,456.9 ODP tonnes
- Impact of ALL CFC projects submitted for funding at the 38th Meeting	176.8 ODP tonnes
- Remaining consumption of CFCs eligible for funding following approval of projects submitted to 38th Meeting	1,280.1 ODP tonnes

Refrigeration Sector Profile

- Consumption of CFCs reported for the refrigeration sector in 2001*	845.7 ODP tonnes
- Amount of CFCs to be phased out in on-going refrigeration projects	14.2 ODP tonnes
- Impact of refrigeration projects submitted for funding at the 38th Meeting on remaining CFC consumption	15.45 ODP tonnes

* Based on data reported to the Fund Secretariat from the Government of Colombia transmitted though UNDP on 27 September 2002.

16. The Executive Committee has approved 15 investment projects to phase out 351 ODP tonnes of CFC used in the manufacture of domestic and commercial refrigerators. About US $6.8 million has been allocated for the implementation of these projects.

17. World Bank is submitting this umbrella project for the conversion of 17 enterprises of similar background in the manufacturing of commercial refrigeration equipment to the 38th Meeting of the Executive Committee to phase out 15.45 ODP tonnes of CFC consumption.

18. The 17 enterprises consume 5.75 ODP tonnes of CFC-11 and 10.4 ODP tonnes of CFC-12 per year in the manufacture of various types of commercial refrigeration equipment. The total production of the enterprises is 7,190 units per year. The enterprises carry out refrigerant-related operations using vacuum pumps, charging machines and leak detectors in the baseline.

19. The phase out will be achieved by converting CFC-11 based technology to HCFC-141b as the foam blowing agent and CFC-12 to HFC-134a as the refrigerant. All the enterprises will require replacement or retrofit of industrial or portable charging units, vacuum pumps and leak

detectors suitable for HFC-134a duty. Other costs include re-design of refrigeration systems, testing, trials and training. Incremental costs are requested by the enterprises reflecting higher cost of chemicals and components.

Justification for the use of HCFC-141b

20. Justification for the use of HCFC-141b is provided in the project document. The World Bank indicated that the choice of HCFC-141b as interim technology was made by the enterprises following a discussion with them on available alternatives and relevant decisions of the Executive Committee regarding the use of HCFC-141b as interim substitute foam blowing agent.

21. In accordance with relevant decisions of the Executive Committee on the use of HCFCs, a letter of transmittal from the Government of Colombia endorsing the use of HCF-141b by the companies has been submitted and is attached.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

22. The Secretariat requested from the World Bank additional information pertaining to CFC consumption breakdown in the refrigeration sector among manufacturing and servicing sub-sectors and the strategy on phasing out the remaining consumption in the sector. The World Bank advised that it will be preparing the chiller replacement project. The National ODS Phase out Plan (to be implemented by UNDP) will be presented to the Executive Committee in 2003 to phase out all the remaining CFC consumption.

23. The Secretariat has discussed with the World Bank the eligibility and the methodology of the calculation of incremental operating costs (IOC). Subsequently, IOC have been adjusted accordingly.

24. The Secretariat has agreed with the proposed incremental capital costs. The total level of grant was agreed.

RECOMMENDATIONS

25. The Fund Secretariat recommends blanket approval of the umbrella project for the 17 enterprises with the levels of funding and associated support costs as indicated in the table below.

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Umbrella project designed to phase out of the refrigerant CFC-12 by conversion to HFC-134a and replacement of the blowing agent CFC-11 by HCFC-141b in the manufacture of commercial refrigeration systems in 17 Colombian enterprises	211,636	27,513	World Bank

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REPUBLICA DE COLOMBIA
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Unidad Técnica Ozono

Mrs.
SUELY CARVALHO
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REF: GOVERNMENT NOTE OF TRANSMITTAL OF INVESTMENT PROJECTS

PROJECTS OF THE GOVERNMENT OF COLOMBIA

The Government of Colombia requests the UNITED NATIONS DEVELOPMENT PROGRAM – UNDP to submit the project(s) listed in Table 1 below to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol for consideration at its 38th Meeting.

Section I: ODS Consumption Data

1. The ODS consumption figure(s) of the project(s) has/have been validated by the National Ozone Unit (NOU).

2. The consumption data have been retained in the records of the NOU for reference and/or future verification.

3. The Government has been advised by the NOU that the agreement to the project(s) indicates a commitment to ensure that the validated phase-out figure(s) were realized and yielded a sustained reduction from the current 2001 total consumption of 1,102 ODP tonnes.

Table 1: Foam Projects Submitted to the 38th Meeting of the Executive Committee

Project Title	Type of ODS	Consumption (ODP Tonnes)	Amount to be Phased Out (ODP Tonnes)	Implementing Agency
CFC Phaseout Plan for the Foam Sector	CFC-11 CFC-12	250	170	UNDP
Institutional Strengthening project Phase IV	ALL		22.7	UNDP
Total	ALL		192.7	UNDP

Section II: Other Relevant Actions Arising from Decision 33/2

1. It is understood that, in accordance with the relevant guidelines, the funding received for a project would be partly or fully returned to the Multilateral Fund in cases where technology was changed during implementation of the project without informing the Fund Secretariat and without approval by the Executive Committee;

2. The National Ozone Unit undertakes to monitor closely, in cooperation with customs authorities and the environmental protection authorities, the importation of CFCs and to combine this monitoring with occasional unscheduled visits to importers and foam companies to check invoices and storage areas for unauthorized use of CFCs.

3. It is understood that the National Ozone Unit might conduct a determined number of unscheduled visits to the recipient enterprises.

4. The National Ozone Unit will cooperate with the relevant implementing agencies to conduct safety inspections where applicable and keep reports on incidences of fires resulting from conversion projects.

Section III: Projects Requiring the Use of HCFCs for Conversion

5. In line with Decision 27/13 of the Executive Committee and in recognition of Article 2F of the Montreal Protocol, the Government

   (a) has reviewed the specific situations involved with the project *CFC Phaseout Plan for the Foam Sector* as well as its HCFC commitments under Article 2F; and

   (b) has nonetheless determined that, at the present time, the projects needed to use HCFCs for an interim period with the understanding that no funding would be available for the future conversion from HCFCs for the company/companies involved.

JORGE ENRIQUE SÁNCHEZ SEGURA
Coordinador Nacional Unidad Técnica Ozono Date: September 24th 2002

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REF: GOVERNMENT NOTE OF TRANSMITTAL OF INVESTMENT PROJECTS

PROJECTS OF THE GOVERNMENT OF COLOMBIA

The Government of Colombia requests THE WOLRD BANK to submit the project listed in Table 1 below to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol for consideration at its 38th Meeting.

Section I: ODS Consumption Data

1. The ODS consumption figure of the project has been validated by the National Ozone Unit (NOU).

2. The consumption data have been retained in the records of the NOU for reference and/or future verification.

3. The Government has been advised by the NOU that the agreement to the project indicates a commitment to ensure that the validated phase-out figure was realized and yielded a sustained reduction from the current 2001 sector consumption of 869.4 ODP tonnes.

Table 1: Foam Projects Submitted to the 38th Meeting of the Executive Committee

Project Title	Type of ODS	Consumption (ODP Tonnes)	Amount to be Phased Out (ODP Tonnes)	Implementing Agency
Commercial Refrigeration Group Technical Assistance Program	CFC-12 CFC-11	869.4	15.45	World Bank
Total	**CFC-12 CFC-11**	**869.4**	**15.45**	

Section II: Other Relevant Actions Arising from Decision 33/2

1. It is understood that, in accordance with the relevant guidelines, the funding received for a project would be partly or fully returned to the Multilateral Fund in cases where technology was changed during implementation of the project without informing the Fund Secretariat and without approval by the Executive Committee;

2. The National Ozone Unit undertakes to monitor closely, in cooperation with customs authorities and the environmental protection authorities, the importation of CFCs and to combine this monitoring with occasional unscheduled visits to importers and foam companies to check invoices and storage areas for unauthorized use of CFCs.

3. It is understood that the National Ozone Unit might conduct a determined number of unscheduled visits to the recipient enterprises.

4. The National Ozone Unit will cooperate with the relevant implementing agencies to conduct safety inspections where applicable and keep reports on incidences of fires resulting from conversion projects.

The Government has reviewed the proposed use of HCFC as a transitional substitute for Cabarria y Cia. S.A.. Based on the review and AFTER consultation with the company and experts familiar with the foam sector and choice of technology, the Government of Colombia, through its Technical Ozone Unit, has endorsed the use of HCFC by the company for the specific application as given in the project document.

JORGE ENRIQUE SÁNCHEZ SEGURA
Coordinador Nacional UTO Date: September 24th 2002

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