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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-third Meeting
Montreal, 12-14 November 1997

PROJECT PROPOSALS: ARGENTINA

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

Foam

• Conversion to non CFC technology in the manufacture of molded foam at Cifor S.A.	UNDP
• Conversion to non CFC technology in the manufacture of integral skin and flexible molded foam at Strapur	UNDP
• Elimination of the use of CFCs in the manufacture of rigid foam blocks for insulated trailers at Fruehauf	UNDP
• Elimination of the use of CFCs in the manufacture of sandwich polyurethane panels and spray foams at Bonano	UNDP

Fumigant

• Demonstration Project - Open and closed circuit non-soil cultivation as main alternatives to the use of methyl bromide in tomato, cut flowers and strawberry production	UNIDO

Refrigeration

• Elimination of the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores and walk-in coolers at Eurofrio	UNDP
• Elimination of the use of CFCs in the manufacture of commercial refrigerators and display cabinets at Trevi	UNDP
• Elimination of CFCs in the manufacturing plants of commercial refrigerators at Gepasa S.A. and Gesal S.R.L.	World Bank
• Elimination of CFCs in the manufacturing plant of commercial refrigerators at Lobato San Luis S.A.	World Bank
• Elimination of CFCs in 1 manufacturing plant of domestic refrigerators of enterprise Whirlpool Argentina S.A.	World Bank
• Eliminationof CFCs in the manufacturing plant of domestic refrigerators of Bambi S.A., Santa Fe	UNIDO
• Elimination of CFCs in the manufacturing plant of domestic refrigerators of Frare S.A., Buenos Aires	UNIDO

PROJECT EVALUATION SHEET
ARGENTINA

SECTOR: FOAMS ODS use in sector (1992): 1,484 ODP tonnes

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

Project Titles:
(a) CIFOR S.A. conversion to non CFC technology in the manufacture of molded foam
(b) STRAPUR conversion to non CFC technology in the manufacture of integral skin and flexible molded foam
(c) FRUEHAUF elimination of the use of CFC's in the manufacture of rigid foam blocks for insulated trailers
(d) BONANO elimination of the use of CFC's in the manufacture of sandwich polyurethane panels and spray foams

Project Data	Integral Skin		Rigid	
	Cifor	Strapur	Fruchauf	Bonano
ODS phase-out (ODP tonnes)	8.2	15	27	72
Proposed project duration (months)	24	24	24	24
Incremental capital cost (US $)	126,500	280,000	165,000	489,500
- including contingency (%)	10	10	10	10
Incremental operational cost (US $)	33,000	42,000	43,000	0
Total project cost (US $)	159,500	322,000	208,000	489,500
Local ownership (%)	100	95	100	100
Export component (%)				
Amount requested (US $) {Original}	138,250	253,000	208,000	489,500
{Revised}				
Cost effectiveness (US $/kg)	16.86	16.86	7.70	6.80
National Coordinating Agency	OPROZ			
Implementing Agency	UNDP			
Technical review completed?	Yes	Yes	Yes	Yes

Secretariat's Recommendations:				
Amount recommended (US $)	138,250	Pending	Pending	Pending
Project impact (ODP tonnes)	8.2			
Cost effectiveness (US $/kg)	16.86			
Implementing Agency support cost (US $)	17,973			
Total cost to Multilateral Fund (US $)	156,223			

PROJECT DESCRIPTION

Foam Sector Profile

Sector ODS consumption (1992) reported in country programme	1484 tonnes ODP
Most recent consumption data	not available
ODS to be phased out in approved projects (as at July 1997)	1256 tonnes ODP
ODS phased out (as at July 1997)	368 tonnes ODP
ODS to be phased out in current proposed projects	122 tonnes ODP
Latest (1995) CFC-11 consumption reported according to Art.7	1538 tonnes ODP

Justification for the Use of HCFCs

1. If applicable, HCFC-141b has been chosen by the enterprise to replace CFC-11 to provide the energy efficiency required. HCFC-141b is also commercially available in Argentina.

Equipment or Components to be Destroyed or Rendered Unusable

2. There is no mention of the destruction methods of the replaced equipment in the above projects.

Impact of Project on 1999 Freeze

3. The present series of projects being submitted by Argentina in 1997 will be completed by the year 2000, and would therefore enable the country to further decrease its ODS consumption after 1999, enabling it to comply with the Montreal Protocol requirements.

(a) CIFOR S.A. conversion to non CFC technology in the manufacture of molded foam

4. CIFOR S.A. will phaseout the use of CFC-11 in the manufacture of integral skin foam and flexible molded foam for automotive applications. The company currently has one Krauss Maffei Model K20-40, and one high pressure Hennecke machine. The company uses systems formulated by ARCO, Bayer and Dow.

5. The manufacturing operations are to be converted by water and to a lower extent by additives and re-formulation of the foam. The capital costs include the modification of both the Krauss Maffei machine (US $70,000) and the Hennecke machine (US $25,000). Trials, technology transfer and training amount to US $20,000. Contingency costs of US $11,500 are also included. Incremental operating costs of US $33,000 are expected based on the use of the following chemicals: 8.2 tonnes CFC-11; 12.3 tonnes MDI.

6. Incremental operational costs of all the projects are calculated based on the following prices: CFC-11: US $2.2/kg; MDI: US $3.0/kg; HCFC-141b: US $4.2/kg; HFC-134: US $8.0/kg; Premix changes: US $3.2/kg.

(b) STRAPUR conversion to non CFC technology in the manufacture of integral skin and flexible molded foam

7. Strapur will convert from the use of CFC-11 in the manufacture of integral skin foam and molded flexible foam for automotive applications. Strapur operates two high pressure KMK-16/16 machines, each with a capacity of 48 kg/min, and one low pressure machine locally made also with output 48 kg/min. The company uses systems formulated by Bayer, Dow, ICI, and BASF.

8. Strapur is substituting water blown formulations for CFC-11 to the extent possible, complemented by HFC-134a. The capital cost of conversion involves: the modification of the KMK machines (US $25,000); the replacement of the low pressure dispenser by a high pressure dispenser of output 40 kg/min (US $100,000); the introduction of a premixer (US $60,000), a mold coating system (US $5,000),and mold ajustments (US $20,000). The capital cost associated with trials, technology transfer and training is US $45,000, while the cost of contingency is US $25,000. Incremental operating costs of US $42,000 are expected on the basis of the use of the following chemicals: 15 tonnes CFC-11; 3 tonnes HFC-134a, 10 tonnes MDI and 1 tonne Coating.

(c) FRUEHAUF elimination of the use of CFC's in the manufacture of rigid foam blocks for insulated trailers

9. Fruehauf will phaseout the use of CFC-11 in the manufacture of rigid polyurethane blocks for insulated trailers. As baseline, the company uses a boxfoam type arrangement, using an electrical mixer, and metering systems comprised of some manual metering (amines, surfactant, etc) and partial metering by pumps.

10. The chosen interim replacement is HCFC-141b as blowing agent. The capital costs include the replacement of the baseline equipment by one high pressure dispenser with output 160 kg/min (US $130,000. Trials, technology transfer and training amount to US $20,000. Capital costs also include contingency (US $15,000). Incremental operating costs of US $43,000 are expected based on the use of the following chemicals: 28.9 tonnes CFC-11; 17.2 tonnes HCFC-141b and 50 tonnes premix charges.

(d) BONANO elimination of the use of CFC's in the manufacture of sandwich polyurethane panels and spray foams

11. Bonano will phaseout the use of CFC-11 in the manufacture of rigid polyurethane panels for trucks. The company uses three injection machines: Cannon B 60 RF2 low pressure (1994), OMS 80 low pressure (1994), and Orma (1995).

12. The chosen interim replacement is pentane as blowing agent. The capital costs of equipment modification and plant conversion amount to US $405,000. Trials, technology transfer and training amount to US $40,000. Capital costs also include contingency (US $44,500). No incremental recurrent costs or benefits are being sought or claimed under this project.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The costs of the Cifor project have been agreed, while those of Strapur, Früehauf and Bonano are still under discussion based on expert advice to the Secretariat. The outcomes of this discussion will be communicated to the Sub-Committee on Project Review.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the Cifor project with the funding level ans associated support cost as indicated below.

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
(a) CIFOR S.A. conversion to non CFC technology in the manufacture of molded foam	138,250	17,973	UNDP
(b) STRAPUR conversion to non CFC technology in the manufacture of integral skin and flexible molded foam	Pending		UNDP
(c) FRUEHAUF elimination of the use of CFC's in the manufacture of rigid foam blocks for insulated trailers	Pending		UNDP
(d) BONANO elimination of the use of CFC's in the manufacture of sandwich polyurethane panels and spray foams	Pending		UNDP

PROJECT EVALUATION SHEET
ARGENTINA

SECTOR: FUMIGANT ODS use in sector (1996): 410 ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A

Project Title:
Demonstration Project: Open and closed circuit non-soil cultivation as main alternatives to the use of methyl bromide in tomato, cut flowers and strawberry production

Project Data	FUMIGANT Alternative to the use of methyl bromide
ODS phase-out (ODP tonnes)	N/A
Proposed project duration (months)	24
Incremental capital cost (US $)	547,800
- including contingency (%)	10
Incremental operational cost (US $)	
Total project cost (US $)	547,800
Local ownership (%)	100
Export component (%)	
Amount requested (US $) {Original}	547,800
{Revised}	
Cost effectiveness (US $/kg)	N/A
National Coordinating Agency	Secretaria de Recursos Naturales y Ambiente Humano de la Nación
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US $)	481,800
Project impact (ODP tonnes)	N/A
Cost effectiveness (US $/kg)	N/A
Implementing Agency support cost (US $)	62,634
Total cost to Multilateral Fund (US $)	544,434

PROJECT DESCRIPTION

Demonstration Project: Open and closed circuit non-soil cultivation as main alternatives to the use of methyl bromide in tomato, cut flowers and strawberry production

1. The Government of Argentina is submitting a project proposal to demonstrate alternatives to methyl bromide for consideration by the Executive Committee at its 23rd Meeting.

2. The project is to demonstrate the technical and economic feasibility of demonstrate the technical and economic feasibility of four alternative methods to the use of methyl bromide in solarization, steam pasteurization, non-soil cultivation techniques and application of alternative chemicals according to strategies of low environmental impact as part of an integrated pest management system in the production of tomatoes, cut flowers and strawberries.

3. Integrated pest management (IPM) approach for crop protection utilizes a combination of cultural practices, including crop rotation, cover crops, fertilization and plant nutrition; physical methods, including steam, solarization, and heat, and use of chemical compounds. Soil pasteurization by steam (SPS), consists of heating the soil up to 80° Celsius, 65 centimeters deep, in order to inactivate nematodes and 95 per cent of the spores of the pathogenic fungi. A combination of SPS and IPM has proven to be an effective approach for the control of pests and diseases in horticulture (annual losses of only 1-2% due to bacterial and fungal diseases, as compared to much higher losses when relying on soil fumigation with methyl bromide only).

4. Non-soil cultivation technique is used in nurseries, glasshouses and seedbeds to prevent infestation by bacteria and fungi. Soil is replaced by synthetic or natural sterilized soil substitutes which provide reliable support. Two types of soil-less media are available: (i) organic media, such as peat, sawdust, straw bales, which have good cation-exchange and water holding capacity, and (ii) inert media, such as rock wool, perlite, polyurethane, expanded clay and polystyrene, which have high water holding capacity but low cation-exchange capacity. Organic media and some inert media can be sterilized with steam and re-utilized. Some inert media can also be re-extruded.

5. The use of alternatives to methyl bromide have been tested in Argentina by the "Instituto Nacional de Tecnología Agropecuaria" (INTA). For instances, experiments with inert soil media (combinations of peat with rice straws, pine leafs and other soil substitute products) for production of tomatoes and lettuce, have been carried out in small areas. IPM activities with tomato crops cultivated under shelter have also been tested. However, these tests have not been carried out systematically, and thus, the results cannot be transferred to producers.

6. Under the coordination of INTA, and in cooperation with the National University of La Plata and the Ministry of Agriculture of the Province of Buenos Aires, the project will be implemented in fields of tomatoes and flowers producers located in La Plata, as well as in three INTA's experimental stations: a) El Pato, Unity of Extension and Adaptive Experimentation in Gran Buenos Aires; b) Gorina Experimental Station, in La Plata; and c) San Pedro Experimental Station in Buenos Aires.

7. The project consists of the following operative modules: (1) closed circuit non-soil cultivation of horticultural products, particularly tomatoes, with recovery and reutilization of the nutrient solution, in San Pedro Experimental Station; (2) open circuit non-soil cultivation of horticultural (mainly tomatoes) and ornamental (mainly carnation) products with biodegradable organic substrates, in El Pato Experimental Station); (3) application of alternative chemicals with low environment impact in soil cultivation in open circuit greenhouses of horticultural (mainly tomatoes) and ornamental (mainly carnation) products, in the Gorina Experimental Station; (4) steam pasteurization of soil combined with IPM of tomatoes planted in greenhouses, in Gorina Experimental Station and in one field of tomato producers in the region; and (5) solarization of soil, together with the use of other chemical alternative to methyl bromide and IPM for production of strawberries and tomatoes, in Gorina Experimental Station and in one field of tomato producers in the region.

8. The project will be coordinated by the Ozone Bureau (within the Ministry of Natural Resources and Human Environment, and will be implemented by UNIDO in close cooperation with INTA, the Ministry of Agriculture of the Province of Buenos Aires, the National University of La Plata, and local producers of selected agricultural products.

9. The expected results from project implementation are: (i) a technical and economic analysis of utilization of proposed alternatives to methyl bromide, (ii) agronomists and crop specialists fully trained in the alternative technologies used; and (iii) dissemination of the results of the demonstration project among Article 5 countries.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The 20th Meeting of the Executive Committee adopted interim guidelines on methyl bromide projects and allocated US $100,000 for preparation of project proposals on alternatives to methyl bromide.

2. The Fund Secretariat reviewed the project proposals in the context of the Executive Committee's interim guidelines on methyl bromide projects, the report of the Methyl Bromide Technical Options Committee (MBTOC), UNIDO's strategy paper for the phase-out of methyl bromide, as well as several publications on alternatives to methyl bromide.

3. The project concept follows the Executive Committee's guidelines and is consistent with MBTOC reports.

4. The amount of methyl bromide to be phased out is negligible as this is only a demonstration project.

5. The Secretariat discussed with UNIDO issues regarding the use of existing equipment in the country, the cost of equipment being requested particularly the need for a small-scale greenhouse, and the salaries of international and national experts. UNIDO agreed to eliminate the closed circuit non-soil cultivation module; project costs were subsequently adjusted.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the project with associated support costs at the funding level shown in the table below:

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
Demonstration Project: Open and closed circuit non-soil cultivation as main alternatives to the use of methyl bromide in tomato, cut flowers and strawberry production	481,800	62,634	UNIDO

PROJECT EVALUATION SHEET
ARGENTINA

SECTOR: REFRIGERATION — ODS use in sector (1992): 783 ODP tonnes
Sub-sector cost-effectiveness thresholds: Commercial US $15.21/kg
Domestic US $13.76/kg

Project Title:
(a) Elimination in the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores and walk-in coolers at EUROFRIO
(b) Elimination in the use of CFCs in the manufacture of commercial refrigerators and display cabinets at TREVI
(c) Elimination in the use of CFCs in the manufacturing plants of domestic refrigerators at GEPASA SA and GESAL SRL
(d) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at LOBATO SAN LUIS SA
(e) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at WHIRLPOOL ARGENTINA.
(f) Elimination of CFCs in the manufacturing plant of domestic refrigerators at BAMBI SA
(g) Elimination of CFCs in the manufacturing plant of domestic refrigerators at FRARE SA

Project Data	Commercial		Domestic				
	Eurofrio	Trevi	Gepasa/ Gesal	Lobato San Luis SA	Whirlpool	Bambi	Frare
ODS phase out (ODP tonnes)	26	3.54	26	19.4	90.64	30.6	32
Proposed project duration (months)	24	24	24	12	18	24	24
Incremental capital cost (US$)	460,500	118,000	1,125,464	653,138	2,227,269	568,007	591,864
- including contingency (%)	10	10	10	5	10	10	10
Incremental operational cost (US$)	11,400	14,000	23,329	13,234	801,923	not requested	not requested
Total project cost (US$)	471,900	132,000	1,148,793	666,372	3,029,192	568,007	591,864
Local ownership (%)	100	100	100	100	61.5	100	100
Export component (%)					0	0	0
Amount requested (US$) {Original}	395,500	53,850	764,375	513,860	1,349,443	568,007	591,864
(Revised)			550,400	410,683	1,862,953		
Cost effectiveness (US$/kg.)	15.21	15.21	13.76	13.76	13.36	11.14	12.03
National Coordinating Agency	OPROZ						
Implementing Agency	UNDP		World Bank			UNIDO	
Technical review completed?	Yes						
Secretariat's Recommendations							
Amount recommended (US $)	Pending	53,850	550,400	410,683	Pending	515,258	514,384
Project Impact (ODP tonnes)		3.54	26	19.4		30.6	32
Cost effectiveness (US $/kg)		15.21	13.76	13.76		10.94	10.45
Implementing Agency support cost (US$)		7,000	71,552	53,389		66,980	66,870
Total cost to Multilateral Fund		60,850	621,952	464,072		582,238	581,254

PROJECT DESCRIPTION

PROJECT DESCRIPTION

Background for all projects.

1. The sector description in the project documents contain the following information: ODS calculated consumption in the commercial refrigeration sector was estimated at 90 tonnes (1992) and was quoted to grow 7% in 1993 and 6% in 1994. In the domestic refrigeration sector, 512 tonnes were used in new equipment and 250 tonnes for servicing operations. The Executive Committee approved twelve domestic refrigeration projects, phasing out 497 ODP tonnes, and two projects in the commercial refrigeration sector to phase out 32.4 ODP tonnes.

2. The two commercial refrigeration projects are medium sized enterprises that manufacture a wide range of commercial refrigeration units: refrigerators, freezers, bottle coolers, food displays, VC coolers and polyurethane panels. The implementation of these projects will result in the phasing out of 29.54 ODP tonnes.

3. Five domestic refrigeration projects are for five enterprises manufacturing refrigerators, chest freezers, VC coolers. Part of these products are used by retail stores.

4. The Argentine Government will phase out the use of CFCs in new equipment in the refrigeration sector and in the foam sector by 1 January 2000.

5. Incremental operating costs are calculated for the higher chemical costs for a two-year and six-month duration in commercial and domestic refrigeration sectors respectively.

(a) Elimination in the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores and walk-in coolers at EUROFRIO

1. The implementation of this project will result in the phasing out of 26 ODP tonnes.

2. The enterprise is using manual pre-mixing operations in drums as the baseline. The enterprise has simple drum storage for CFC-11.

3. EUROFRIO will convert from CFC-11 to pentane for its polyurethane foam. This technology requires new storage, an automatic continuous pre-mixing facility and high-pressure dispensing equipment, as well as safety improvements.

4. This project selected HFC 134a and blended HFC technology to replace CFC-12 use. New vacuum pumps, gauges, leak detection equipment, and production procedures are required. Two HFC-134a recovery/recycling machines are requested for service of installed equipment. EUROFRIO noted the disposal of a low-pressure dispenser.

(b) Elimination in the use of CFCs in the manufacture of commercial refrigerators and display cabinets at TREVI

1. The implementation of this project will result in the phasing out of 3.54 ODP tonnes.

2. TREVI will convert to HCFC-141b for foaming as an interim technology, as it is a proven technology, has lower ODP, is available domestically, and is most economical. Storage and high-pressure foaming equipment is considered. The company is prepared to convert to water-blown or pentane systems at its own expense.

3. TREVI will convert to HFC-134a technology for refrigeration. The conversion requires only small changes to existing production facilities, and a new leak detector.

4. This project includes a list of equipment that will be replaced and/or destroyed.

(c) Elimination in the use of CFCs in the manufacturing plants of domestic refrigerators at GEPASA SA and GESAL SRL

1. The implementation of this project will result in the phasing out of 26 ODP tonnes.

2. 20% of GEPASA S.A.'s and GESAL S.R.L.'s total production is exported to Article 5 countries.

3. GEPASA S.A. and GESAL S.R.L. will convert to cyclopentane from CFC-11 in foam operation through retrofitting and replacement of production equipment. Necessary safety equipment will be provided under the project. Manual pre-mixing of polyol and CFC-11 is currently in use by both enterprises. Two low pressure machines were acquired second hand in 1990.

4. This project will convert to HFC-134a use for refrigeration with the repair of vacuum pumps, a HFC-134a charging machine system and leak detector.

5. The plan and certification of execution for replaced equipment disposal will be verified by INTI and OPROZ. GEPASA S.A. and GESAL S.R.L. state that the company will render unusable all ODS-using equipment replaced as a result of the project, and include a list of equipment to be replaced.

(d) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at LOBATO SAN LUIS SA

1. The implementation of this project will result in the phasing out of 19.4 ODP tonnes.

2. LOBATO S.L. will convert to cyclopentane from CFC-11, with provision of necessary funding to retrofit and replace the production equipment, manual pre-mixing of polyol and CFC-11 being used in the foam operation.

3. This project will follow the primary conversion to HFC-134a from CFC-12 with hydrocarbon use once the leader companies introduce them in the market. Conversion cost is requested for transition to HFC-134a. Conversion will require retrofitting of vacuum pumps and replacement of a leak detector. The enterprise is using manifold gauges and scales for charging the refrigerant. The acquisition of a charging system is requested.

4. The plan and certification of execution for replaced equipment disposal will be verified by INTI and OPROZ. LOBATO S.A. does not include a list of equipment to be destroyed.

(e) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at Whirlpool Argentina

1. The annual production at Whirlpool (Argentina) was 138,445 units in 1996. The installed capacity is 288,000 units a year. The Article 5 country ownership belonging to Multibras, Brazil was 24.6 per cent till August 1997 when Multibras acquired the remaining shares. Currently, the Article 5 country ownership is 61.5 per cent.

2. Under the project submitted, the company will eliminate a total consumption of 90.64 MT of CFCs by converting the refrigeration system to HFC 134a and to isobutane, and the foaming system to cyclopentane.

3. This project will be implemented before the year 2000 and will, therefore, contribute to the freeze.

4. Whirlpool Argentina acquired new equipment for its door foaming line in July 1995. The company also purchased new refrigeration equipment suitable for HFC-134a in July 1995.

5. The project proposal seeks funding, including retroactive funding, for conversion to cyclopentane which entails the replacement of the existing low pressure foaming machine with a high pressure machine, modification to door foaming unit in order to meet safety requirements, acquisition of storage and delivery systems for cyclopentane operations, retrofitting of the existing premixing station and acquisition a new pre-mixer. All the necessary safety equipment is part of the project. The proposal also includes the replacement of a carrousel conveyor for cabinet foaming with six automatic stationary fixtures and associated equipment for automatic cabinet loading and unloading at a cost of US $ 855,000.

6. The project requests funding for modification and retrofitting the refrigerant charging equipment purchased in July 1995 including a charging board, refrigerant supply pump, vacuum pumps, and the replacement of CFC-12 based leak detectors, with sophisticated multipurpose leak detectors. Conversion to HFC-134a will cover most of the enterprise's production.

7. Conversion to isobutane refrigerant will cover the production of only one model (accounting for 6.1 tonnes of CFC-12) involving the acquisition of a new refrigerant charging board, leak detectors, helium testing and recovery and charging equipment, an isobutane storage and delivery system, model redesign, testing and technology transfer fee.

8. Conversion to cyclopentane and isobutane will also necessitate implementing a stringent safety programme to ensure personnel and plant safety owing to the flammable nature of cyclopentane and isobutane. The project includes costs for training, installation, start up and commissioning.

(f) Elimination of CFCs in the manufacturing plant of domestic refrigerators at BAMBI SA

(g) Elimination of CFCs in the manufacturing plant of domestic refrigerators at FRARE SA

1. ODS consumption in the affected sector is estimated at 762 tonnes (1992) and was quoted to grow 7% in 1993 and 6% in 1994. The Executive Committee has approved eleven domestic refrigeration projects for Argentina, phasing out 457.1 ODP tonnes.

2. Bambi and Frare are medium-sized enterprises manufacturing domestic refrigerators and chest freezers. The implementation of these two projects will result in the phasing out of 62.6 ODP tonnes.

3. Total 1996 production for Bambi was 32,000 units consuming 30.6 tonnes of CFCs, and for Frare, S.A. was 25,100 units, consuming 32 tonnes of CFCs.

4. Both companies will substitute CFC-11 with cyclopentane as a blowing agent. Changes are required to the storage, pre-mix and foaming systems. The two low-pressure foaming machines in each company will be replaced with one double head high-pressure machine. The mould systems will be retrofitted, and two new premixers will be requested. Safety, including fire extinguishing systems and technical improvements are also required.

5. Both companies will convert to HFC-134a from CFC-12 as a refrigerant. The present vacuum pumps will be converted. New charging equipment, as well as new leak detectors are required.

6. Incremental operating costs are not requested.

7. The implementation of the two projects will contribute to the achievement of the Argentine Government's goal to phase out the use of CFCs in new equipment in the refrigeration sector and in the foam sector by January 1, 2000, and will then enable the Government to check the freeze deadline in 1995.

8. The Argentine Government will be responsible for the destruction of the replaced equipment and the respective evidence document will be presented to UNIDO.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

General comments

1. All the projects contain the statement that the projects would contribute to maintaining the freeze after 1999.

2. The chosen technologies are proven.

(a) Elimination in the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores and walk-in coolers at EUROFRIO

1. The enterprise is using manual pre-mixing operations in drums as a baseline. Transition from manual to automatic pre-mixing operations provides several additional advantages to the company, representing a technological upgrade. Similarly, the enterprise does not have CFC-11 storage as a baseline. CFC-11 is handled in drums. Provision of a new stationary cyclopentane storage unit would represent a technological upgrade. The cost of two recovery/recycling machines was not recommended by the Secretariat for funding since the project for leak reduction, emission control, recycling and refrigerant management - Phase 2, was approved for UNEP in Argentina at US $ 215,000 which envisaged provision of recovery/recycling equipment. Costing of several other budget items have not been justified. The Secretariat and UNDP are still discussing the level of eligible incremental costs. The Sub-Committee on Project Review will be informed about the results of the discussion accordingly.

(b) Elimination in the use of CFCs in the manufacture of commercial refrigerators and display cabinets at TREVI

1. The choice of an interim HCFC technology in foaming operations is justified.

2. The Secretariat discussed with UNDP the eligibility and incrementality of all cost items. Cost adjustments were recommended regarding the replacement of a low pressure machine with a high pressure machine of adequate capacity. Since the requested grant at US $ 53,850 is already limited by the cost-effectiveness threshold, the project can be recommended for blanket approval.

(c) Elimination in the use of CFCs in the manufacturing plants of domestic refrigerators at GEPASA SA and GESAL SRL

(d) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at LOBATO SAN LUIS SA

1. The projects had been initially submitted as commercial refrigeration projects. The Secretariat and the World Bank discussed the issue of qualification of the two projects. The projects were subsequently reclassified as domestic refrigeration projects. Taken into account was the significant similarity of these two projects with other domestic refrigeration projects approved for medium enterprises, i.e., the production technology used; cost structure of projects; size and design of final product; and capacity of compressors employed. Incremental operating costs are requested for a six-month duration. The amount of grant and the cost-effectiveness are calculated using a 35 per cent discounting factor for safety.

2. The Secretariat discussed with the World Bank the eligibility and the incrementality of all cost items. Adjustments to the costs of pre-mixing equipment, refrigerant charging equipment and storage facility have been applied to reflect the technological upgrade. Incremental operating costs have been recalculated reflecting the prevailing price of chemicals.

(e) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at Whirlpool Argentina

1. The Fund Secretariat discussed the following issues with the World Bank:

   (a) chronology of Article 5 country ownership in the enterprise since 1993;

   (b) purchase of CFC equipment in July 1995 and the subsequent capacity expansion in both foaming and refrigerant charging operations;

   (c) the 1995-1996 conversion of most of the refrigerating equipment to HFC-134a;

   (d) the eligibility of incremental costs requested for the use of isobutane in charging one model, additional to the conversion of most of the production to HFC-134a for which incremental costs are also requested;

   (e) basis of calculation of incremental costs.

2. The World Bank informed the Secretariat that they are in the process of recalculating the incremental costs of the project, taking into consideration the above mentioned issues.

3. The outcome of the expected further discussions with the World Bank will be reported to the Project Review Sub-Committee.

(f) Elimination of CFCs in the manufacturing plant of domestic refrigerators at BAMBI SA

(g) Elimination of CFCs in the manufacturing plant of domestic refrigerators at FRARE SA

1. The Secretariat and UNIDO discussed the eligibility and incrementality of the requested equipment and services.

2. The costs were revised to accurately reflect baseline situation.

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the projects, except for the Eurofrio and Whirlpool projects which are still under discussion, with associated support cost at the funding level shown in the table below.

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
(a) Elimination in the use of CFCs in the manufacture of display cabinets and polyurethane panels for cold stores and walk-in coolers at EUROFRIO	Pending		UNDP
(b) Elimination in the use of CFCs in the manufacture of commercial refrigerators and display cabinets at TREVI	53,850	7,000	UNDP
(c) Elimination in the use of CFCs in the manufacturing plants of commercial refrigerators at GEPASA SA and GESAL SRL	550,400	71,552	World Bank
(d) Elimination in the use of CFCs in the manufacturing plant of commercial refrigerators at LOBATO SAN LUIS SA	410,683	71,552	World Bank
(e) Elimination in the use of CFCs in the manufacturing plant of domestic refrigerators at WHIRLPOOL ARGENTINA.	Pending		World Bank
(f) Elimination of CFCs in the manufacturing plant of domestic refrigerators at BAMBI SA	515,258	66,980	UNIDO
(g) Elimination of CFCs in the manufacturing plant of domestic refrigerators at FRARE SA	514,384	66,870	UNIDO