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Implementation of the Montreal Protocol

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PROJECT PROPOSALS: MEXICO

This document includes the comments and recommendations from the Fund Secretariat on the following projects:

Foam

•	Conversion to CFC-free technology in the manufacture of polyurethane shoe soles at Industrias Pol-Rym S.A. de C.V. (IPR)	UNDP
•	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam (spray) at Tecnopolimeros	UNDP
•	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at Termo Puertas	UNDP
•	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam (spray) at Acsa	UNDP

PROJECT EVALUATION SHEET
MEXICO

SECTOR: Foams ODS use in sector (1989): 1,629 ODP tonnes

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

Project Titles:
(a) ACSA Group Project: conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)
(b) Tecnopolimeros Group Project - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)
(c) Termo Puertas - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam
(d) IPR - conversion to CFC-free technology in the manufacture of polyurethane shoe soles

Project Data	**Rigid**			**Integral skin**
	ACSA	**Tecnopolimeros**	**Termo Puertas**	**IPR**
ODS phase-out (ODP tonnes)	94.4	54.4	10	25
Proposed project duration (Yrs)	2	2	2	1.52
Incremental capital cost (US $)	167,000	134,000	75,500	490,000
Contingency (%)	10	10	10	10
Incremental operational cost (US $)	430,000	225,000	16,500	40,000
Total project cost (US $)	597,000	359,000	92,000	430,000
Local ownership (%)	100	100	100	100
Export component (%)	0	0	0	0
Amount requested (US $) {Original}	739,000	426,000	78,300	421,500
{Revised}	597,000	359,000		
Cost effectiveness (US $/kg)	6.32	6.60	7.83	16.86
National Coordinating Agency	Department of Environment (DOE)			
Implementing Agency	UNDP			
Technical review completed?	Yes	Yes	Yes	Yes

Secretariat's Recommendations:				
Amount recommended (US $)	597,000	359,000	78,300	421,500
Project impact (ODP tonnes)	94.4	54.4	10	25
Cost effectiveness (US $/kg)	6.32	6.60	7.83	16.86
Implementing Agency support cost (US $)	77,610	46,670	10,179	54,795
Total cost to Multilateral Fund (US $)	674,610	405,670	88,479	476,295

PROJECT DESCRIPTION

Rigid Foam

(a) ACSA Group Project: conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)

(b) Tecnopolimeros Group Project - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)

1. In these projects, two groups of Mexican spray foam contractors will convert to non-CFC technology under the guidance of their major system suppliers, ACSA and Tecnopolimeros. The project introduces water based technology, but contractors who have initial problems to meet insulation standards will be offered the option to use HCFC-141b and convert to water at a later stage. The equipment will be modified or replaced, where necessary, to allow both systems.

2. ACSA will be responsible for 17 enterprises, while Tecnopolimeros will be responsible for 8 enterprises. The costs of each project include capital cost for the systems supplier, capital costs for the enterprises, incremental operating costs and technology transfer costs. These are:

	ACSA Group	Tecnopolimeros Group
System supplier	170,000	170,000
Enterprises (1 spray foam dispenser each and retrofits)	486,000	237,000
Incremental operational cost	80,000	15,000

3. Except for one enterprise in the ACSA Group which had manual operation, all of the enterprises in the ACSA Group and most of the Tecnopolimeros Group used Gusmer FF-1600 machines.

(c) Termo Puertas - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam

4. Termo Puertas will convert to non-CFC technology in the manufacture of rigid polyurethane foam for metal and wooden door insulation and stability. The company will convert to a water based system, preceded by use of HCFC-141b as an interim step, if necessary. The project includes costs for equipment replacement (high pressure dispenser US $40,000; chiller/heater US $10,000; drum pumps and heating system US $3,500), as well as technology transfer and training, trials (US $25,000) and contingency. The costs include 2 years incremental operating costs.

Integral Skin foam

(d) IPR - conversion to CFC-free technology in the manufacture of polyurethane shoe soles

1. Industrias Pol-Rym, S.A. de C.V. (IPR) manufactures molded automotive parts in a three shift operation. System consumption in 1996 was 420 tonnes, with 25 tonnes of CFC-11. Annual production capacity is 480,000 pieces of 500-900 grams, and 120,000 pieces of 2,800 - 18,000 grams. The company operates 5 Ramsburg low pressure machines.

2. IPR will phase out the use of CFC-11 in its manufacture of molded polyurethane foam by the use of water blown technology. The company will replace the existing 5 low pressure dispensers with high pressure dispensers at a total cost of US $450,000. The project includes costs for technology transfer and training (US $20.000), trials (US $25,000) contingency and 2 years incremental operating costs

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Rigid Foam

1. The projects were discussed between the Fund Secretariat and UNDP.

2. For the group projects, the cost of pre-blenders (US $60,000 each) was eliminated since it was agreed that the current blenders should be able to support the conversion activities. For the enterprises using Gusmer machines, those machines were to be retained. However, possible reduction in output due to the use of the substitute blowing agent was factored into the calculation of the incremental operational cost based on systems usage. The following were the revised project costs for the two groups.

		ACSA		**Tecnopolimeros**
Capital cost - Systems supplier	US $	71,800	US $	71,500
Capital cost - enterprises		95,500		72,500
Incremental operational cost		430,000		226,000
TOTAL		597,000		359,000

Integral Skin

3. The high pressure dispensers were costed at US $80,000 each. The company requested a grant equivalent to the maximum allowable since the project cost exceeded the ceiling for the company's level of ODS consumption.

Impact of the Projects on Meeting the 1999 Freeze

4. No statement is provided on this subject in the project documents.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the projects with the funding levels and associated support costs as indicated below.

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
(a) ACSA Group Project: conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)	597,000	77,610	UNDP
(b) Tecnopolimeros Group Project - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam (Spray)	359,000	46,670	UNDP
(c) Termo Puertas - conversion to CFC-free technology in the manufacture of Rigid Polyurethane Foam	78,300	10,179	UNDP
(d) IPR - conversion to CFC-free technology in the manufacture of polyurethane shoe soles	421,500	54,795	UNDP