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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: PHILIPPINES

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

Foam

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| • Conversion to CFC-free technology in the manufacture of polyurethane foam at Soutech | UNDP |
| • Umbrella project -conversion to CFC-free technology in small CFC consuming enterprises using CFC in the manufacture of rigid polyurethane foam | UNDP |

PROJECT EVALUATION SHEET PHILIPPINES

SECTOR: FOAMS ODS use in sector (1991): 417 ODP tonnes

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

Project Title:

- (a) SOUTECH - Conversion to CFC-free Technology in the Manufacture of Polyurethane Foam
- (b) UMBRELLA PROJECT - conversion to CFC-free Technology in small CFC consuming enterprises using CFC in the Manufacture of Rigid Polyurethane foam

Project Data	Integral Skin	Rigid
	SOUTECH	Umbrella
ODS phase-out (ODP tonnes)	20	5.1
Proposed project duration (months)	24	24
Incremental capital cost (US \$)	560,000	39,930
- including contingency (%)	10	10
Incremental operational cost (US \$)	60,000	3,698
Total project cost (US \$)	620,000	43,628
Local ownership (%)	100	100
Export component (%)		
Amount requested (US \$) {Original}	337,200	39,930
{Revised}		
Cost effectiveness (US \$/kg)	16.86	7.83
National Coordinating Agency	Philippine Department of Environment and Resources, Environmental Management Bureau	
Implementing Agency	UNDP	
Technical review completed?	Yes	Yes

Secretariat's Recommendations:		
Amount recommended (US \$)	Pending	39,930
Project impact (ODP tonnes)		5.1
Cost effectiveness (US \$/kg)		7.83
Implementing Agency support cost (US \$)		5,191
Total cost to Multilateral Fund (US \$)		45,121

PROJECT DESCRIPTION

Foam Sector Profile

Sector ODS consumption (1991) reported in country programme	417 tonnes ODP
Most recent consumption data	not available
ODS to be phased out in approved projects (as at July 1997)	448 tonnes ODP
ODS reported to have been phased out (as at July 1997)	32 tonnes ODP
ODS to be phased-out in current proposed projects	25 tonnes ODP
Latest (1995) CFC-11 consumption reported according to Art.7	1,231 tonnes ODP

(a) SOUTECH Conversion to CFC-free technology in the manufacture of polyurethane foam

1. Soutech will phaseout the use of CFC-11 in the manufacture of integral skin and flexible molded foam for automotive applications. The company has three high pressure dispensers: Hennecke (1994); SAIP, and one Cannon (1993) with maximum output of 100 kg/min.). The company also has three Cannon low pressure dispensers, of which two are model C-60 (1990-1991), with a capacity of 60 kg/min., and one is model C-30 (1989), with a capacity of 30 kg/min.
2. The manufacturing operations are to be converted to water blown formulations. The capital costs include: the replacement of the three Cannon low pressure dispensers by two high pressure machines with output 60 kg/min. (US \$200,000), and one high pressure machine with output 30 kg/min. (US \$90,000); the introduction of thirty new aluminum molds to replace the existing resin molds (US \$150,000), four mold heating tunnels (US \$40,000), and a in mold coating system (US \$5,000). Trials, technology transfer and training amount to US \$25,000. Contingency costs of US \$50,000 are also included. Incremental operating costs of US \$60,000 are expected based on the use of the following chemicals: 20 tonnes CFC-11 and 30 tonnes MDI.
3. The prices used in the calculation of incremental operational costs were as follows: CFC-11: US \$2.00/kg in the Soutech project and US \$2.75/kg in the umbrella project; MDI: US \$2.50/kg (in the Soutech project); HCFC-141b: US \$4.71/kg and US \$0.20/kg premix charges (in the umbrella project).

Equipment or Components to be Destroyed or Rendered Unusable

4. The existing Cannon low pressure machines will be destroyed, however the method of destruction of these machines as well as the replaced molds is not mentioned.

(b) Umbrella Project conversion to CFC-free technology in small CFC consuming enterprises using CFC in the manufacture of rigid polyurethane foam

1. This umbrella project comprises three foam enterprises listed below along with their respective baseline equipment:

<u>Plant</u>	<u>Items</u>	<u>Make and Model</u>
Ashlar Industrial Corporation	1 low pressure dispenser 30 kg/min.	Taiwanese (1990)
Alen International	1 low pressure dispenser 2 pour foaming units	Cannon C7 (1992) Gusmer FF 1600 (1994 and 1997)
Zegal Plastic Product		

2. The manufacturing operations are to be converted to water blown systems with HCFC-141b as an interim solution in the production of rigid polyurethane foam. The capital costs include technical assistance with workshop and necessary in-house consultancy (US \$21,000). Trials, technology transfer and training amounts to US \$15,300. The contingency costs amount to US \$3,639. Total incremental operating costs amount to US \$3,698 based on the use of the following chemicals: 5.1 tonnes CFC-11; 3 tonnes HCFC-141b; 10.1 tonnes premix charges. Note that 30% evaporation losses are included in 5.1 tonnes CFC-11 consumption.

Justification for the Use of HCFCs

3. The above enterprises have chosen interim use of HCFC-141b until a suitable final solution is available, since HCFC-141b offers the lowest investment costs.

Equipment or Components to be Destroyed or Rendered Unusable

4. No information to that effect were given in these projects.

Impact of Project on 1999 Freeze

5. As the service sector moves slower, the CFC-phaseout program for manufacturers, to which the foam industry belongs, is crucial for meeting the freeze requirements of the Montreal Protocol.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENT

Integral Skin/Flexible Molded Foams

(a) SOUTECH Conversion to CFC-free technology in the manufacture of polyurethane foam

1. Based on expert advice to the Secretariat the following cost items are still being discussed with the Implementing Agencies.

- change of molds following conversion
- provision of heating ovens
- replacement of low pressure with high pressure machines.

2. Agreed costs of the project will be communicated to the Sub-Committee on Project Review.

(b) Umbrella Project conversion to CFC-free technology in small CFC consuming enterprises using CFC in the manufacture of rigid polyurethane foam

1. The costs of the projects were agreed between the Fund Secretariat and the implementing agency.

RECOMMENDATION

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

Project Title	Project Cost US \$	Support Cost US \$	Implementing Agency
(a) SOUTECH - Conversion to CFC-free Technology in the Manufacture of Polyurethane Foam	Pending		UNDP
(b) UMBRELLA PROJECT - conversion to CFC-free Technology in small CFC consuming enterprises using CFC in the Manufacture of Rigid Polyurethane foam	39,930	5,191	UNDP