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PROJECT PROPOSALS: PHILIPPINES

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 rigid polyurethane foam at P.U. Rigid Insulation Contractor UNDP
- Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at MBA Urethane Products Contractor UNDP

Refrigeration

- National CFC recovery and recycling scheme UNIDO

PROJECT EVALUATION SHEET **PHILIPPINES**

SECTOR: Foams ODS use in sector (1991): 90 ODP tonnes

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

Project Titles:

- (a) Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at P.U. Rigid Insulation Contractor.
- (b) Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at MBA Urethane Products Contractor.

Project Data	Rigid	
	P.U. Rigid Insulation Contractor	MBA Urethane Products Contractor
ODS phase-out (ODP tonnes)	14.5	24.2
Proposed project duration (Yrs)	2	2
Incremental capital cost (US \$)	102,000	125,500
Contingency (%)	10	10
Incremental operational cost (US \$)	38,340	63,298
Total project cost (US \$)	142,540	201,998
Local ownership (%)	100	100
Export component (%)	-	-
Amount requested (US \$) {Original}	113,574	189,290
{Revised}		
Cost effectiveness (US \$/kg)	7.83	7.83
National Coordinating Agency	Department of Environment and Natural Resources (DENR)	
Implementing Agency	UNDP	
Technical review completed?	Yes	Yes

Secretariat's Recommendations:		
Amount recommended (US \$)	113,574	189,290
Project impact (ODP tonnes)	14.5	24.2
Cost effectiveness (US \$/kg)	7.83	7.83
Implementing Agency support cost (US \$)	14,765	24,608
Total cost to Multilateral Fund (US \$)	128,339	213,898

PROJECT DESCRIPTION

At both enterprises (P.U. Rigid Insulation and MBA Urethane Products) production is to be converted to water blown formulations, preceded by HCFC-141b as an interim step. Each project includes equipment replacement, as well as trials, training, technology transfer, contingency and incremental operational costs.

- (a) Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at P.U. Rigid Insulation Contractor.

1. P.U. Rigid Insulation Contractor will phase out the use of 24.2 ODP tonnes of CFC-11 in the manufacture of rigid foam for prefabricated insulated pipe-in-pipe sections, spray foam and plywood faced sandwich panels. The company currently uses the following equipment: UPC-25-2P medium pressure dispenser; output 17 kg/min., and 5 kg/min. locally made low pressure spray foaming machine.

2. The main costs of the project are as follows:

High pressure spray foam dispensers	US \$100,000
Retrofit of foaming machines	6,500
Technology transfer, trials and training	19,000
Incremental operational cost	63,298

- (b) Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at MBA Urethane Products Contractor.

1. MBA Urethane Products Contractor will phase out the use of 14.5 ODP tonnes of CFC-11 in the manufacture of rigid foam for roof and container insulations, molded pipes and insulation slabs. The company currently uses the following equipment: locally fabricated 5 kg/min spray foaming machines.

2. The main costs of the project are as follows:

High pressure spray foam dispensers	US \$85,000
Technology transfer, trials and training	17,000
Incremental operational cost	38,340

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Fund Secretariat and UNDP agreed on the costs of the projects. The companies are requesting funding up to the maximum level allowed under the threshold value relative to their ODS consumption.

Impact of the Projects on the 1999 Freeze

2. There is no statement on the impact of the projects on the 1999 freeze obligations of Philippines. However, the documents state that the Government has passed a specific ban on the use of CFC-11 and CFC-12 in the foam sector by 1998.

RECOMMENDATION

1. The Fund Secretariat recommends that the projects be given blanket approval at the funding level indicated in the table below:

	<u>Project Title</u>	<u>Project Cost US \$</u>	<u>Support Cost US \$</u>	<u>Implementing Agency</u>
(a)	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at P.U. Rigid Insulation Contractor.	113,574	14,765	UNDP
(b)	Conversion to CFC-free technology in the manufacture of rigid polyurethane foam at MBA Urethane Products Contractor.	189,290	24,608	UNDP

PROJECT EVALUATION SHEET **PHILIPPINES**

SECTOR: REFRIGERATION ODS use in sector (1992): 865 ODP tonnes

Sub-sector cost-effectiveness thresholds: CFC Recovery & Recycling N/A

Project Title:

National CFC recovery and recycling scheme for The Philippines

Project Data	CFC Recovery & Recycling
ODS phase-out (ODP tonnes)	60
Proposed project duration (Yrs)	1
Incremental capital cost (US \$)	557,500
Contingency (%)	5
Incremental operational cost (US \$)	-
Total project cost (US \$)	557,500
Local ownership (%)	-
Export component (%)	-
Amount requested (US \$) {Original}	583,750
{Revised}	557,500
Cost effectiveness (US \$/kg)	10.30
National Coordinating Agency	Department of Environment & Natural Resources
Implementing Agency	UNIDO
Technical review completed?	N/A

<i>Secretariat's Recommendations:</i>	
Amount recommended (US \$)	557,500
Project impact (ODP tonnes)	60
Cost effectiveness (US \$/kg)	9.29
Implementing Agency support cost (US \$)	72,475
Total cost to Multilateral Fund (US \$)	629,975

PROJECT DESCRIPTION

1. The project is to reduce the release into the atmosphere of CFC-11, CFC-12 and R-502 during servicing and decommissioning of domestic, commercial and air conditioning refrigeration equipment, by improving service and maintenance procedures by service technicians, and by including refrigerant recovery as standard practice in the refrigeration servicing sub-sector.
2. The project will be fully implemented by the end of 1999 and thus will contribute to the freeze target of the Philippines by phasing out 60 ODP tonnes in line with the Government ODS phase out programme. This amount does not take into account the amount of refrigerant that might be saved owing to the teaching of good service and maintenance practices at the training seminars.
3. The basic data used in the preparation of the project was compiled in 1992 by a consulting firm and updated by UNIDO on the basis of discussions with representatives from all sectors of the refrigeration industry of the Philippines, including the Society of Ventilation, Air Conditioning and Refrigeration Engineers, the Association of Home Appliances Manufacturing, refrigeration servicing companies and refrigerant importers and suppliers.
4. The key elements of the project are ensuring that recovery and recycling becomes part of the standard vocational training programme; implementing a national training programme to impart knowledge on good servicing practices and know-how on refrigerant recovery and recycling practices; and providing recovery and recycling equipment to users with larger recovery potential.
5. A recovery and recycling nation-wide network comprising 125 recovery and recycling equipment will be established, at a cost of US \$450,000. The distribution of the equipment will be determined by Philippines Society of Ventilation, Air Conditioning and Refrigeration Engineers in consultation with the Environment Management Bureau and UNIDO consultants, based on the potential amount of CFCs that could be recovered and recycled.
6. The training programme included in the proposal consists of two sub-programmes. A "train the trainers" programme, aimed at personnel currently teaching refrigeration and air conditioning students in vocational training centres, most of them under the jurisdiction of the Technical Education and Skills Development Authority. Instruction will include, *inter alia*, an overview of issues related to global warming, ozone depletion and environmental considerations; refrigerants and refrigerant handling; recovery and recycling procedures; construction of low cost recovery machines from recycled material; fault finding, diagnostics and repair. Twenty-five recovery and recycling machines would be provided to vocational schools.
7. The second training programme is for servicing technicians. The trainers who will be trained at vocational training centres would deliver a one-day course to technicians on good servicing and maintenance procedures; leak detection; refrigerant handling; recovery and recycling techniques; and construction of simple recovery machines. It is estimated that approximately

4,000 technicians could be trained in the country. Successful completion of the course will entitle the participants to a CFC User Certificate. It is expected that the participants would pass on the knowledge and techniques acquired through the training programme to colleagues in the same enterprise.

8. Recovery and recycling machines will be allocated only to companies that have sent mechanics to a training course.

9. To assist the programme, Environment Management Bureau will monitor operations and ensure that the machines are distributed according to criteria of maximum recoverability of CFCs, that the equipment is properly used, kept and maintained; and that proper records of the amounts of CFC recovered, recycled and reused are maintained.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. This project was first submitted to the Fund Secretariat in February 1996. The project cost was estimated at US \$244,000 to phase out only 21.7 ODP tonnes in the Metro Manila area. During discussions between the Fund Secretariat and UNIDO, the Government of Philippines requested to withdraw the project, since it would 'need to ensure that the project will cover most if not all the sector of servicing domestic, commercial and industrial refrigeration/air conditioning equipment'.

2. The project submitted to the 22nd Meeting of the Executive Committee has been reformulated to address the concerns raised by the Government. The revised project is a comprehensive national training and recovery and recycling programme covering the domestic, commercial and air conditioning refrigeration sub-sectors.

3. UNIDO and the Fund Secretariat discussed issues regarding the number and geographical distribution of the recycling and recovery equipment and the request for equipment to recover CFC-11, since this refrigerant can be recovered and recycled using a liquid pump, which is part of the "business as usual" equipment of a service technician. The project was reviewed accordingly.

RECOMMENDATION

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

<u>Project Title</u>	<u>Project Cost</u> US \$	<u>Support</u> Cost US \$	<u>Implementing</u> Agency
National CFC recovery and recycling scheme for The Philippines	557,500	72,475	UNIDO