UNITED
NATIONS

EP

United Nations
Environment
Programme

Distr.
LIMITED

UNEP/OzL.Pro/ExCom/22/43
2 May 1997

ORIGINAL: ENGLISH

Executive Committee of
the Multilateral Fund for the
Implementation of the Montreal Protocol

Twenty-second Meeting
Nairobi, 28-30 May 1997

PROJECT PROPOSALS: MALAYSIA

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 foam at RCA Group	UNDP
•	Conversion to CFC-free technology in the manufacture of polyurethane foam at Amstrad	UNDP
•	Conversion to CFC-free technology in the manufacture of polyurethane foam at Rollbond	UNDP
•	Conversion to CFC-free technology in the manufacture of polyurethane foam at Anchor Profit Sdn Bhd	UNDP

PROJECT EVALUATION SHEET
MALAYSIA

SECTOR: Foams ODS use in sector (1993): 1,360 ODP tonnes

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

Project Titles:
(a) Amstrad - conversion to CFC-free technology in the manufacture of polyurethane foam
(b) Anchor Profit SDN BHD - conversion to CFC-free technology in the manufacture of polyurethane foam
(c) Rollbond - conversion to CFC-free technology in the manufacture of polyurethane foam
(d) RCA Group - conversion to CFC-free technology in the manufacture of polyurethane foam

Project Data	**Rigid**			
	Amstrad	**Anchor**	**Rollbond**	**RCA**
ODS phase-out (ODP tonnes)	13.9	18.5	22.2	41.9
Proposed project duration (Yrs)	2	2	2	2
Incremental capital cost (US $)	187,000	32,000	32,000	203,500
Contingency (%)	10	10	10	10
Incremental operational cost (US $)	28,000	99,000	123,500	81,000
Total project cost (US $)	215,000	131,000	155,500	284,500
Local ownership (%)	100	100	100	100
Export component (%)				
Amount requested (US $) {Original}	108,800	144,800	173,800	328,000
{Revised}		131,000	155,500	284,500
Cost effectiveness (US $/kg)	7.83	7.08	7.00	6.79
National Coordinating Agency	Department of Environment (DOE)			
Implementing Agency	UNDP			
Technical review completed?	Yes	Yes	Yes	Yes

Secretariat's Recommendations:				
Amount recommended (US $)	108,800	131,000	155,500	284,500
Project impact (ODP tonnes)	13.9	18.5	22.2	41.9
Cost effectiveness (US $/kg)	7.83	7.08	7.0	6.79
Implementing Agency support cost (US $)	14,144	17,030	20,215	36,985
Total cost to Multilateral Fund (US $)	122,944	148,030	175,715	321,485

PROJECT DESCRIPTION

At all the four enterprises (Amstrad, Anchor Profit, RCA Group and Rollbond) 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) Amstrad - conversion to CFC-free technology in the manufacture of polyurethane foam

1. Amstrad operates two plants. It will phase out the use of 13.9 ODP tonnes of CFC-11 in the manufacture of rigid foam for insulated pipes and pipe sections. The company currently uses a Cannon C-30 low pressure dispenser in one plant, while the other plant has manual operations.

2. The company will replace its existing 30 kg/min low pressure dispenser at Plant II with a 100 kg/min high pressure dispenser, and will add a high pressure dispenser at Plant I where currently they do not have a dispenser. Since the baseline at Plant II is a 30 kg/min machine, the eligible project cost is equal to a 40 kg/min machine (US$90,000). For Plant I, where there is no baseline equipment, the project will cover the cost of a low pressure dispenser. The project also includes costs for trials, technology transfer and training, contingency and 2 years incremental operating expenses.

(b) Anchor Profit Sdn Bhd - conversion to CFC-free technology in the manufacture of polyurethane foam

(c) Rollbond - conversion to CFC-free technology in the manufacture of polyurethane foam

3. Anchor Profit formerly known as Selayang Coldrooms Sdn. Bhd. will phase out the use of 18.5 ODP tonnes of CFC-11 in the manufacture of rigid foam for insulation panels and construction. The company currently uses an OMS FM-110 dispenser installed in 1995.

4. Rollbond will phase out the use of 22.2 ODP tonnes of CFC-11 in the manufacture of rigid foam for insulation panels and truck bodies. The company currently uses a 1995 OMS FM-110 dispenser; output 1,800 g/sec.

5. Standard practice in projects such as these to replace low pressure dispensers with high pressure dispensers, and destroy the low pressure dispensers. However, when the baseline dispensers are relatively new, as these ones are, it seems unwise to destroy the equipment simply to replace them with high pressure dispensers. Through these projects, an innovative approach is being implemented as a demonstration project, which will preserve the value of the relatively new baseline equipment, while fairly compensating the

enterprises for costs which will be incurred through utilizing the low pressure equipment with the new chemical system.

6. Compensatory costs for effective capacity reduction of the low pressure machines, and for increased material consumption are included. Capacity is reduced due to the need for processing at a different component ratio. It has been agreed to include in the capital costs a value of 20% of the cost of the low pressure dispenser. In order to compensate for the lowered insulation values, it is agreed to compensate, under incremental operating costs, a 10% increase in material usage, allowing the enterprise to make a thicker panel to achieve the same insulation value. Early in the project, an evaluation will be made of the insulation value of the baseline foam, and later with the HCFC-141b system to measure the validity of the assumed parameters.

7. It should be noted that the enterprise retains the option to purchase the high pressure dispensers if they so wish, and to apply the grant money toward the purchase of those dispensers.

8. The projects also include costs for trials, technology transfer and training, contingency and 2 years incremental operating costs.

(d) RCA Group - conversion to CFC-free technology in the manufacture of polyurethane foam

9. RCA Group will phase out the use of 41.9 ODP tonnes of CFC-11 in the manufacture of rigid foam for coldroom panels and refrigerated trucks. The company currently uses electric and/or hand pouring operations.

10. Three low pressure dispensers are included in the project (1 each for Polytek, MultiRigid and Kim Refrigeration). The company retains the right to purchase high pressure dispensers if it desires, and can apply the grant money to the purchase of those dispensers; however, the Fund will only cover up to the cost of the low pressure dispenser due to the fact that there are no baseline dispensers. The project also includes costs for trials, technology transfer and training, contingency and compensation for 2 years' incremental operating expenses.

Impact of the Projects on the 1999 Freeze

11. The project documents indicated as follows:

DOE regulations currently prohibit the use of ODS in flexible foams. According to the Country Program for Malaysia, approved by the ExCom and endorsed by the Fund, *all* CFC consumption in the manufacture of foams is scheduled to be phased out by the end of 1999. This commitment by Malaysia to complete phase out by 1999 goes beyond the required 1999 freeze as stipulated in the Montreal Protocol. The preparation of this

project is consistent with, and essential for, the stated goal of 100% CFC-11 phase out in foam making by 1999.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Fund Secretariat and UNDP agreed on the phase-out approaches adopted in these projects as well as the project costs.

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) Amstrad - conversion to CFC-free technology in the manufacture of polyurethane foam	108,800	14,144	UNDP
(b) Anchor Profit SDN BHD - conversion to CFC-free technology in the manufacture of polyurethane foam	131,000	17,030	UNDP
(c) Rollbond - conversion to CFC-free technology in the manufacture of polyurethane foam	155,500	20,215	UNDP
(d) RCA Group - conversion to CFC-free technology in the manufacture of polyurethane foam	284,500	36,985	UNDP