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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
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PROJECT PROPOSALS: MALAYSIA

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

Foam

- Conversion from CFC-11 to LCD technology in the manufacture of flexible polyurethane foam at Kemas Mekar Sdn Bhd — UNDP
- Conversion from CFC-11 to LCD (liquid carbon dioxide) technology in the manufacture of flexible polyurethane foam at Masterfoam Products — UNDP

Fumigant

- Alternatives to the use of methyl bromide on Malaysian timbers — UNDP

Refrigeration

- Phase-out of CFC-11 and CFC-12 and R-502 in the manufacture of commercial refrigerators by conversion HCFC-141b, HCFC-22 and HFC-404a at Gai Hin Refrigeration Sdn. Bhd. — UNDP

PROJECT EVALUATION SHEET
MALAYSIA

SECTOR: Foam | ODS use in sector (1998): 2,639.1 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible US $6.23/kg; Integral Skin US $16.86/kg

Project Titles:

(a) Conversion from CFC-11 to LCD technology in the manufacture of flexible polyurethane foam at Kemas Mekar Sdn Bhd
(b) Conversion from CFC-11 to LCD (liquid carbon dioxide) technology in the manufacture of flexible polyurethane foam at Masterfoam Products

Project Data	**Flexible moulded**	**Integral skin**
	Kemas Mekar	**Masterfoam**
Enterprise consumption (ODP tonnes)	23.30	25.00
Project impact (ODP tonnes)	23.30	25.00
Project duration (months)	36	36
Initial amount requested (US $)	385,900	208,900
Final project cost (US $):		
Incremental capital cost (a)	385,000	235,000
Contingency cost (b)	38,500	23,500
Incremental operating cost (c)	-37,600	-49,600
Total project cost (a+b+c)	385,900	208,900
Local ownership (%)	100%	100%
Export component (%)	0%	0%
Amount requested (US $)	385,900	208,900
Cost effectiveness (US $/kg.)	16.56	8.36
Counterpart funding confirmed?		
National coordinating agency	Department of Environment	Department of Environment
Implementing agency	UNDP	UNDP

Secretariat's Recommendations		
Amount recommended (US $)	385,900	208,900
Project impact (ODP tonnes)	23.30	25.00
Cost effectiveness (US $/kg)	16.56	8.36
Implementing agency support cost (US $)	50,167	27,157
Total cost to Multilateral Fund (US $)	436,067	236,057

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1998)		2,639.1	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)		3,271.1	ODP tonnes
- 1998 consumption of Annex A Group I substances		2,333.7	ODP tonnes
- Funds approved for investment projects in foam sector as of March 1999	US $	10,917,200	
- Quantity of CFC to be phased out in foam sector as of March 1999 (27th Meeting)		1,577.6	ODP tonnes
- Quantity of CFC phased out in foam sector as of March 1999 (27th Meeting)		1,302.8	ODP tonnes
- Quantity of CFCs to be phased out in foam projects approved in 1999 (27th and 28th Meetings)		82.6	ODP tonnes
- Funds approved for investment projects in the foam sector (27th and 28th Meetings)	US $	579,786	

*Baseline consumption of Annex A controlled substances refers to average of the consumption for the years 1995-1997 inclusive.

Kemas Mejar and Masterfoam Products

1. Kemas Mejar used 23.3 tonnes of CFC-11 (average 1996-1998) in the manufacture of flexible molded foam for pillows and mattresses. Masterfoam's consumption for producing similar foam products (discounting the consumption due to a newly installed machine) was 25 tonnes. Kemas company operates 1991 and 1994 low pressure machines, while Masterfoam operates a 1994 and 1997 low pressure machines. Both production lines at Kemas and one line at Masterfoam will be converted to LCD (liquid carbon dioxide) technology. The projects include replacement of the two existing low pressure dispensers by high pressure dispensers with direct LCD injection at Kemas (US $320,000) and Masterfoam (US $170,000), an LCD storage and transfer system (US $30,000) for each project. Other costs for each project include local civil works (US $5,000), trials (US $10,000), training and technology transfer (US $20,000). There are incremental operational savings of US $37,600 and US $49,600 for Kemas and Masterfoam respectively.

Project Impact

2. The total amount of CFC to be phased out from the projects is 48.3 ODP tonnes. This constitutes 1.5% of the country's baseline consumption of Annex A Group I substances and 2.1% of its 1998 consumption of these substances.

COMMENTS

1. The Secretariat and UNDP agreed on the costs of the two projects.

Project Implementation Time Frame

2. UNDP indicates that the projects will be implemented with a time frame of three years.

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the Kemas Mekar and Masterfoam Products projects with the level of funding and associated support cost as indicated in the table below.

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Conversion from CFC-11 to LCD technology in the manufacture of flexible polyurethane foam at Kemas Mekar Sdn Bhd	385,900	50,167	UNDP
(b)	Conversion from CFC-11 to LCD (liquid carbon dioxide) technology in the manufacture of flexible polyurethane foam at Masterfoam Products	208,900	27,157	UNDP

PROJECT EVALUATION SHEET
MALAYSIA

SECTOR: Fumigant ODS use in sector (199): ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A

Project Titles:

(a) Alternatives to the use of methyl bromide on Malaysian timbers

Project Data	**Methyl bromide**
Enterprise consumption (ODP tonnes)	36.30
Project impact (ODP tonnes)	
Project duration (months)	36
Initial amount requested (US $)	357,500
Final project cost (US $):	
Incremental capital cost (a)	228,000
Contingency cost (b)	22,800
Incremental operating cost (c)	
Total project cost (a+b+c)	250,800
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	250,800
Cost effectiveness (US $/kg.)	
Counterpart funding confirmed?	
National coordinating agency	Department of Environment
Implementing agency	UNDP

Secretariat's Recommendations	
Amount recommended (US $)	
Project impact (ODP tonnes)	
Cost effectiveness (US $/kg)	
Implementing agency support cost (US $)	
Total cost to Multilateral Fund (US $)	

PROJECT DESCRIPTION

Alternatives to the use of methyl bromide on Malaysian timbers

1. As per the Malaysia updated country programme the annual consumption of methyl bromide (MB) is estimated at 36.3 ODP tonnes, 85 per cent of which (31 ODP tonnes) is used for disinfestation of timber.

2. Treatment of timber is carried out in large lumberyards, stacked in piles 5-10 meters high, and is first introduced to kilns (2 to 24 hours at temperatures between 60 and 80 ^{o}C), to kill all insect, fungi, and mold activity. However, re-infestation occurs immediately after it is removed from the kiln and cooled. To control this problem, the lumber is treated with MB (cans are placed under the covered stacks with polyethylene tarpaulins and sealed to the ground). Since a large portion of timber resides in the yards for long periods of time before it is transported to the shipyards(6 months or more), treatment with MB can occur several times.

3. There are approximately 50 fumigators licensed by the Department of Agriculture to perform fumigation in Malaysia, mostly in the western part of the country. The majority of them use one-kilo cans of MB, with a dosage rate of 1.36 kg/28 cubic meters.

4. The project is to demonstrate the effectiveness of sulfuryl fluoride and phosphine in an IPM system as an alternative fumigant on timber in order to reduce risks to the environment and human health, implement relevant techniques to prevent pest reinfestation due to storage and handling procedures, and to provide training for major stakeholders.

5. The project will be coordinated by Department of Environment and Department of Agriculture by setting up a committee comprising of the Pesticide Control Division, Plant Protection Division, Forest Research Institute, Timber Council, Timber Industry Board, Wood Preserving Association and Timber Exporter Associations.

6. The results of this project will be compiled into a manual on IPM systems for the timber industry to be disseminated to all timber industries for implementation. A regional workshop for the demonstration and dissemination of results will be organized.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat discussed with UNDP the eligibility of the project based on the information provided in the project in which it appears that the majority of MB use in Malaysia is in timber wood for preshipment and quarantine purposes, which are exempted applications. UNDP informed the Secretariat that "timber is inventoried in large quantities. Much timber is intended for export and is fumigated with MB prior to departure. However, because of the

logistics and rainy climate of Malaysia, much timber sits in inventory for more than 14 days post-fumigation. Stacks of timber may sit in storage for months before it is ready to be loaded".

2. Upon a request by the Fund Secretariat whether this project was only to demonstrate alternative technologies to the use of MB or for complete phase out of MB in the disinfestation of timber, UNDP stated that the project had been ready for submission to the 27th Meeting (March 1999), but was deferred by the Government of Malaysia in order to ascertain whether it could be submitted as an investment rather than as a demonstration project. However, UNDP's consultant was convinced that a demonstration is still necessary since there has been no previous demonstration project in timber storage. After the 28th ExCom meeting, however, UNDP was reluctant to submit the project as a demonstration one in view of the strong statements from Executive Committee members that it would be preferable that MB projects be developed with the objective of complete phaseout. In order, therefore, to determine the appropriateness of the project, UNDP's consultant met with stakeholders and policy makers in Malaysia and concluded that a demonstration project would be the best approach not only in the interest of Malaysia but of the region as well.

3. The use of MB in the country is strictly regulated by the Ministry of Health and through pesticide registration by the Pesticide Board (Department of Agriculture). The Government of Malaysia, in cooperation with stakeholders, will start implementation the phaseout of MB in 2000.

4. The Fund Secretariat and UNDP also discussed issues related to eligibility of some equipment items (data loggers, recorders and sensors) taking into consideration that they were common components of kilns. Also, the request for a fumigation chamber was considered ineligible since it should be part of the baseline, considering that timber is disinfested with MB. Subsequently, UNDP revised the budget accordingly.

RECOMMENDATIONS

1. The Secretariat and UNDP have agreed that on cost of the project at US $250,800 and US $32,604 for agency's support costs.

2. The Executive Committee may wish to consider the project in light of the above comments.

PROJECT EVALUATION SHEET
MALAYSIA

SECTOR: Refrigeration ODS use in sector (1998): 2,639.1 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial US $15.21/kg

Project Titles:

(a) Phase-out of CFC-11 and CFC-12 and R-502 in the manufacture of commercial refrigerators by conversion HCFC-141b, HCFC-22 and HFC-404a at Gai Hin Refrigeration Sdn. Bhd.

Project Data	**Commercial**
	Gai Hin
Enterprise consumption (ODP tonnes)	45.22
Project impact (ODP tonnes)	41.00
Project duration (months)	36
Initial amount requested (US $)	403,424
Final project cost (US $):	
Incremental capital cost (a)	245,000
Contingency cost (b)	24,500
Incremental operating cost (c)	133,924
Total project cost (a+b+c)	403,424
Local ownership (%)	100%
Export component (%)	8%
Amount requested (US $)	354,147
Cost effectiveness (US $/kg.)	8.63
Counterpart funding confirmed?	Yes
National coordinating agency	Department of Environment
Implementing agency	UNDP

Secretariat's Recommendations	
Amount recommended (US $)	354,147
Project impact (ODP tonnes)	41.00
Cost effectiveness (US $/kg)	8.63
Implementing agency support cost (US $)	46,039
Total cost to Multilateral Fund (US $)	400,186

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1998)		2,639.1	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)		3,271.1	ODP tonnes
- 1998 consumption of Annex A Group I substances		2,333.7	ODP tonnes
- Baseline consumption of CFCs in refrigeration sector		Not available	ODP tonnes
- 1998 consumption of CFCs in refrigeration sector		1,771.0**	ODP tonnes
- Funds approved for investment projects in refrigeration sector as of July 1999	US $	5,465,740	
- Quantity of CFC to be phased out in refrigeration sector as of July 1999 (28th Meeting)		468.7	ODP tonnes

*Baseline consumption of Annex A controlled substances refers to average of the consumption for the years 1995-1997 inclusive.
**Including 1,471 tonnes for servicing.

1. Original equipment manufacturers in the refrigeration sector in Malaysia comprises four large enterprises producing domestic refrigeration appliances (all have received assistance from the Multilateral Fund) with a consumption of about 200 ODP tonnes, and a number of commercial refrigeration small and medium sized enterprises, eight of which have received assistance from the Multilateral Fund with a consumption of about 163 ODP tonnes.

Project description

2. Gai Hin is a medium-size commercial refrigeration enterprise involved in manufacturing refrigerated trucks, blast freezers and contact freezers, and in production of insulating panels used in installation of refrigerated stores. This company consumed a total of 40.33 ODP tonnes of CFC-11 and 4.88 ODP tonnes of CFC-12, R502 and HCFC-22 calculated as an average for the three year period 1996-1998. The enterprise will convert its foam operations from CFC-11 to HCFC-141b as the blowing agent (as the interim technology, with a later conversion to an ODS-free technology) and refrigerant operations from CFC-12 and R502 to HCFC-22 and R404a respectively, resulting in a total phase out of 41.00 ODP tonnes. The enterprise possesses two low pressure foaming machines, refrigerant charging equipment, leak detectors and vacuum pumps. The project will include incremental capital costs covering replacement of foam dispensers with high pressure dispensers, replacement of refrigerant charging units, leak detectors and vacuum pumps, trials, technical assistance and technology transfer. Incremental operating costs are sought for the higher cost of chemicals.

Justification for the Use of HCFC-141b

3. The two companies have selected HCFC-141b technology to replace CFC-11 in foam blowing operations. A letter advising of the Government's decision to use HCFC technology has

been received by the Secretariat in accordance with Executive Committee decision 27/13 and is attached to this evaluation together with the justification and undertakings from the enterprise.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat has discussed with UNDP the application of the cost-effectiveness threshold in calculating the eligible level of grant under the proposal. It was agreed that the eligible level of funding related to production of insulating panels and refrigerated trucks should be calculated using the cost-effectiveness threshold established for the rigid foam sector.

RECOMMENDATIONS

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

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Phase-out of CFC-11 and CFC-12 and R-502 in the manufacture of commercial refrigerators by conversion HCFC-141b, HCFC-22 and HFC-404a at Gai Hin Refrigeration Sdn. Bhd.	354,147	46,039	UNDP