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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Geneva, 5-7 July 2000

PROJECT PROPOSALS: THAILAND

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

Foam

•	Conversion from CFC-11 to water-based technology in the manufacture of integral skin and flexible molded polyurethane foam at Siam Chitose	World Bank
•	Conversion from CFC-11 to water-based technology in the manufacture rigid polyurethane foam at Siam Cargo Containers	World Bank

PROJECT EVALUATION SHEET
THAILAND

SECTOR: Foam ODS use in sector (1999): 1,381.3 ODP tonnes

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

Project Titles:
(a) Conversion from CFC-11 to water-based technology in the manufacture of integral skin and flexible molded polyurethane foam at Siam Chitose
(b) Conversion from CFC-11 to water-based technology in the manufacture of rigid polyurethane foam at Siam Cargo Containers

Project Data	**Integral skin**	**Rigid**
	Siam Chitose	**Siam Cargo**
Enterprise consumption (ODP tonnes)	11.30	22.70
Project impact (ODP tonnes)	11.30	22.70
Project duration (months)	36	36
Initial amount requested (US $)	87,942	177,741
Final project cost (US $):		
Incremental capital cost (a)	40,000	60,000
Contingency cost (b)	4,000	6,000
Incremental operating cost (c)	39,540	334,994
Total project cost (a+b+c)	83,540	400,994
Local ownership (%)	62%	100%
Export component (%)	0%	0%
Amount requested (US $)	51,795	177,741
Cost effectiveness (US $/kg.)	4.58	7.83
Counterpart funding confirmed?		
National coordinating agency	Department of Industrial Works	
Implementing agency	IBRD	

Secretariat's Recommendations		
Amount recommended (US $)	51,795	177,741
Project impact (ODP tonnes)	11.30	22.70
Cost effectiveness (US $/kg)	4.58	7.83
Implementing agency support cost (US $)	6,733	23,106
Total cost to Multilateral Fund (US $)	58,528	200,847

PROJECT DESCRIPTION

- Latest available total ODS consumption (1999)	4,762.16 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	6,082.10 ODP tonnes
- Consumption of Annex A Group I substances for the year 1999	3,610.6 ODP tonnes
- Baseline consumption of CFCs in foam sector	2,116.00 ODP tonnes
- Consumption of CFCs in foam sector in 1999	1,202.00 ODP tonnes
- Funds approved for investment projects in foam sector as of end of 1999	US $11,209,571.00
- Quantity of CFC to be phased out in investment projects in foam sector as of end of 1999	2,141.97 ODP tonnes
- Quantity of CFC phased out in investment projects in foam sector as of end of 1999	1,293.50 ODP tonnes
- Quantity of CFC to be phased out in investment projects in foam sector approved in 1999	236.90 ODP tonnes
- Funds approved for investment projects in the foam sector in 1999	US $1,698,558.00

*Based on data reported to the Fund Secretariat in May 2000.

Integral Skin Foam

1. Siam Chitose was founded in 1989 and is a member company of Siam Steel Corp., a large conglomerate of companies many of which are in joint venture with foreign partners. The national ownership in Siam Chitose is 62%.

2. The company is engaged in the production of steel and structural foam furniture and to a lesser extent in the production of flexible molded foam back cushions. The company consumed average of 11.3 tonnes CFC-11 in 1996-1998. The company employs hand mixing techniques to produce both the seat cushions which is produced without CFC-11 (water-blown) and seat back (about 30% of the production) which is blown with CFC-11. The density of the structural foam is 200 kg/m^3 while those of the cushions and seat backs are 50-55 kg/m^3 and 40-45 kg/m^3 respectively.

3. It is proposed to replace the hand mixing operations with the use of two low pressure machines of capacities 80 kg/m^3 and 30 kg/m^3 for structural foam and seat back production respectively. It is claimed that 10% increase in foam density will be expected following conversion but this is not factored into the calculation of the incremental operating cost.

4. The incremental capital cost includes the cost of 30 kg/min and 80 kg/m^3 low pressure dispensers at US $35,000 and US $45,000 respectively, trials, technology transfer and training for US $30,000. Incremental operating cost of US $39,542 is requested.

Rigid Foam

5. Siam Cargo Containers was established in 1990. It is also a member of the Siam Steel Group. It manufactures cargo containers and panels for construction as well as foam-filled aluminium shutters made with CFC-11. The average CFC-11 consumption 1996-1998 was 22.7 tonnes. The company operates a locally-made low pressure dispenser of about 1 kg/min capacity which is attached to a continuous line that includes folding of the aluminium, pouring of the foam and closing of the profile. The foam density is stated to be 30-33 kg/m^3.

6. The production will be converted to all-water-blown for which a replacement of the existing low pressure dispenser with another low pressure dispenser of higher capacity (2-3 kg/min) is proposed at a cost of US $50,000. Other items of capital cost include trials and verification testing (US $10,000) and technology transfer and training (US $20,000). Incremental operating cost of US $316,486 is requested. This includes costs associated with 43% density increase claimed for the water-blown foam.

Impact of the projects

7. 34 ODP tonnes will be phased out from the two projects when they are implemented, eliminating about 0.9% of Thailand's 1999 consumption of Annex A Group I substances.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Fund Secretariat and the World Bank discussed the two projects and agreed on the costs. In the case of Siam Chitose it was agreed to provide ventilation system for US $15,000 instead of the equipment requested. For Siam Cargo Containers the price of the special low pressure dispenser was agreed as US $40,000 based on a quotation for a similar equipment for an approved project. The following were the agreed project costs of the projects:

Siam Cargo Containers

	US $
Incremental capital cost:	66,000
Incremental operational cost:	334,994
Total project cost:	400,994
Eligible grant based on sector threshold:	177,741

2. The incremental operational cost includes an amount associated with claimed 43% increase in foam density. However, this does not affect the eligible grant since it is limited by the threshold.

Siam Chitose

	US $
Incremental capital cost:	44,000
Incremental operational cost:	39,540
Total project cost:	83,540
Eligible grant based on 60% national ownership:	51,795

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the Siam Cargo Containers and Siam Chitose projects with the level of funding and associated support costs indicated in the table.

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Conversion from CFC-11 to water-based technology in the manufacture of integral skin and flexible molded polyurethane foam at Siam Chitose	51,795	6,733	IBRD
(b)	Conversion from CFC-11 to water-based technology in the manufacture of rigid polyurethane foam at Siam Cargo Containers	177,741	23,106	IBRD