UNITED NATIONS

EP

United Nations Environment Programme

Distr.
Limited

UNEP/OzL.Pro/ExCom/31/30
8 June 2000

ORIGINAL: ENGLISH

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

PROJECT PROPOSALS: CHINA

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

Foam

•	Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Nantong Xinyuan Foam Plant	World Bank
•	Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology at Qujing Plastic No. 2 Plant	World Bank
•	Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology at Jintan Tiaoxi Shuya Foam Plant	World Bank
•	Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Wuxian Polyurethane Foam Plant	World Bank

Refrigeration

•	Replacement of CFC-11 and CFC-12 with cyclopentane and HFC-134a in the production of refrigerators at Banshen Electric Appliances Co.	UNIDO

PROJECT EVALUATION SHEET
CHINA

SECTOR: Foam ODS use in sector (1997): 23,900 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible slabstock US $6.23/kg

Project Titles:

(a) Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Nantong Xinyuan Foam Plant
(b) Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology at Qujing Plastic No. 2 Plant
(c) Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology at Jintan Tiaoxi Shuya Foam Plant
(d) Conversion of PU slabstock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Wuxian Polyurethane Foam Plant

Project Data	**Flexible slabstock**			
	Nantong	**Qujing**	**Tiaoxi**	**Wuxian**
Enterprise consumption (ODP tonnes)	82.00	99.00	67.50	80.00
Project impact (ODP tonnes)	82.00	99.00	67.50	80.00
Project duration (months)	36	36	36	36
Initial amount requested (US $)	510,860	591,566	420,525	498,400
Final project cost (US $):				
Incremental capital cost (a)	555,000	555,000	555,000	555,000
Contingency cost (b)	50,500	50,500	50,500	50,500
Incremental operating cost (c)	14,088	-5,434	-12,833	-77,872
Total project cost (a+b+c)	619,588	600,066	592,667	527,628
Local ownership (%)	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%
Amount requested (US $)	510,860	600,066	420,525	498,400
Cost effectiveness (US $/kg.)	6.23	6.06	6.23	6.23
Counterpart funding confirmed?	Yes	Yes	Yes	Yes
National coordinating agency	SEPA			
Implementing agency	IBRD			

Secretariat's Recommendations				
Amount recommended (US $)	510,860		420,525	498,400
Project impact (ODP tonnes)	82.00		67.50	80.00
Cost effectiveness (US $/kg)	6.23		6.23	6.23
Implementing agency support cost (US $)	66,195		54,668	64,792
Total cost to Multilateral Fund (US $)	577,055		475,193	563,192

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1998)	166,265.90 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	57,818.70 ODP tonnes
- Consumption of Annex A Group I substances for the year 1998	55,414.20 ODP tonnes
- Baseline consumption of CFCs in foam sector	Not Available ODP tonnes
- Consumption of CFCs in foam sector in 1997	23,900.00 ODP tonnes
- Funds approved for investment projects in foam sector as of end of 1999	US $74,695,424.00
- Quantity of CFC to be phased out in investment projects in foam sector as of end of 1999	13,918.97 ODP tonnes
- Quantity of CFC phased out in investment projects in foam sector as of end of 1999	6,946.10 ODP tonnes
- Quantity of CFC to be phased out in investment projects in foam sector approved in 1999	4,413.59 ODP tonnes
- Funds approved for investment projects in the foam sector in 1999	US $30,443,314.00

Flexible Slabstock Foam

1. The four companies (Jintan Tiaoxi, Nantong, Qujing and Wuxian) use a total of 320.5 ODP tonnes of CFC-11 in the production of flexible polyurethane foam for furniture and garment use per year (average 1997-1999). Under the current projects, the companies will phase out 100% of CFC-11 use by converting their production to a liquid carbon dioxide system. Three of the companies (Jintan Tiaoxi, Nantong and Qujing) currently operate Maxfoam dispensers, while Wuxian operates a Vertifoam machine.

2. Each project includes the replacement of the current machinery with LCD equipment at US $520,000 per project. This amount includes LCD system (US $370,000), CO_2 storage tank (US $45,000), CO_2 refrigeration system (US $25,000), high pressure pump system (US $70,000) and building modifications (US $10,000). Other costs include trial materials (US $15,000), technical assistance (US $10,000) and a contingency of (US $52,000). All companies report incremental operational savings ranging from US $5,000 - US $77,000, except for Nantong which reports an incremental operational cost of US $14,088.

Impact of the projects

3. The 320.5 tonnes of CFC-11 to be phased out through the four projects will eliminate 0.6% of China's baseline consumption of Annex A Group I substances.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Fund Secretariat identified capital cost items that were not consistent with the guidelines on LCD technology. The costs of those items were revised by the World Bank. However, the World Bank informed the Secretariat that it had omitted to include the cost of technology acquisition in its original submission. The inclusion of this cost of US $50,000 resulted in increase in the capital costs of each project from US $597,000 to US $605,500.

2. The Secretariat also identified some issues relating to prices used in the calculation of incremental operational costs and savings. Although these issues are still being discussed, the outcomes will not have any impact on the eligible grants of three of the projects, namely Nantong, Tiaoxi and Wuxian since the capital costs exceed the eligible grants. Therefore, the three projects are being recommended for blanket approval. The issue relating to the calculation of the incremental operational cost of the fourth project (Qujing) is still under discussion. The outcome of this discussion will be communicated to the Sub-Committee on Project Review.

RECOMMENDATIONS

1. The Fund Secretariat recommends blanket approval of the Nantong, Tiaoxi and Wuxian projects with the level of funding and associated support costs indicated in the table below.

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Conversion of PU slastock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Nantong Xinyuan Foam Plan	510,860	66,195	IBRD
(c)	Conversion of PU slastock manufacture from CFC-11 to liquid carbon dioxide technology at Jintan Tiaoxi Shuya Foam Plant	420,525	54,668	IBRD
(d)	Conversion of PU slastock manufacture from CFC-11 to liquid carbon dioxide technology (LCD) at Wuxian Polyurethane Foam Plan	498,400	64,792	IBRD

PROJECT EVALUATION SHEET
CHINA

SECTOR: Refrigeration ODS use in sector (1998): 21,178 ODP tonnes

Sub-sector cost-effectiveness thresholds: Domestic US $13.76/kg

Project Titles:

(a) Replacement of CFC-11 and CFC-12 with cyclopentane and HFC-134a in the production of refrigerators at Banshen Electric Appliances Co.

Project Data	**Domestic**
	Banshen
Enterprise consumption (ODP tonnes)	563.00
Project impact (ODP tonnes)	563.00
Project duration (months)	36
Initial amount requested (US $)	3,728,871
Final project cost (US $):	
Incremental capital cost (a)	2,267,400
Contingency cost (b)	221,440
Incremental operating cost (c)	500,000
Total project cost (a+b+c)	2,988,840
Local ownership (%)	100%
Export component (%)	0%
Amount requested (US $)	2,988,840
Cost effectiveness (US $/kg.)	5.31
Counterpart funding confirmed?	Yes
National coordinating agency	SEPA
Implementing agency	UNIDO

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

Sector Background

- Latest available total ODS consumption (1997)	90,511.1 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	57,818.70 ODP tonnes
- Consumption of Annex A Group I substances for the year 1998	55,414.20 ODP tonnes
- Baseline consumption of CFCs in refrigeration sector	Not available ODP tonnes
- Consumption of CFCs in refrigeration sector in 1998	23,178 ODP tonnes
- Funds approved for investment projects in refrigeration sector as of March 2000 (30th Meeting)	US$144,147,910.00
- Quantity of CFC to be phased out in investment projects in refrigeration sector as of March 2000 (30th Meeting)	11,498.67 ODP tonnes

1. The updated country programme of China, which was considered at the 30th Meeting of the Executive Committee, identified the 1997 ODP consumption in the domestic refrigeration sector to be 7,300 ODP tonnes. The remaining consumption to be phased out in the sector was calculated to be 620 ODP tonnes taking into account the amount of CFC phased out/to be phased out from projects approved prior to August 1998. Since August 1998 the Executive Committee approved four projects in the domestic refrigeration sector in China to phase out 997.4 ODP tonnes. In total, the Executive Committee has approved about US $72 million for thirty-seven projects to phase out 9,732 ODP tonnes of CFC in the domestic refrigeration sub-sector.

2. The Executive Committee has also approved a total of US $10.9 million for the conversion of eight hermetic compressor manufacturing facilities with installed production capacity of about 11 million units per year of non-ODS based compressors, which are used in the production of domestic refrigeration appliances. The Executive Committee has also approved 19 projects for conversion of 20 manufacturers of commercial refrigeration compressors at about US $44.3 million.

3. The production of refrigerators and freezers has increased from 8.1 million units in 1993 to 14.2 million units in 1997, an increase of 75.3%. The target for the complete phase out of CFC consumption in the domestic refrigeration sub-sector in China is 2005.

4. The production of refrigerators at Banshen started in 1988, when production was a few hundred units. Between 1994 and 1995 the production has increased from 140,500 units to 347,256 units due to installation of new production capacity, including four foaming machines installed in the period from January to May 1995. By 1999, the production increased to 512,124 units per year with an average (1997-1999) consumption of 473 ODP tonnes of CFC-11 and 90 ODP tonnes of CFC-12.

5. The objective of the proposal is to convert from CFC-11 to cyclopentane as the blowing agent and from CFC-12 to HFC-134a as refrigerant, which will result in a total phase out of CFC consumption of 563 ODP tonnes.

6. The conversion of the foam operations will involve modification of eight of the existing nine high-pressure foaming machines for cyclopentane; installation of four cyclopentane/polyol mixing stations; equipping the foaming areas with safety ventilation, gas detectors, nitrogen generators and fire extinguishing systems; and installation of three cyclopentane tanks, including piping.

7. For the refrigeration operation, the seven existing charging boards will be replaced with seven HFC-134a charging units. Nine leak detectors have been requested and the existing 270 vacuum pumps are to be cleaned and retrofitted. Other costs include model redesign, engineering, commissioning, technology transfer, testing, training and a safety inspection.

8. Incremental operating costs are requested for six months to cover the higher cost of chemicals and components. IOC for compressors is not requested in the proposal.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat has raised the issue of the eligibility of the project since as it appears from the updated China country programme that all the required phase out in the domestic refrigeration sector has already been funded by the Multilateral Fund. (Please see Paragraph 1 in Sector Background.) UNIDO was requested to provide clarification of this issue.

2. The Executive Committee has approved UNIDO Business Plan for 2000 with allocations of US $1.3 million for a domestic refrigeration project using hydrocarbon technology in China. The current proposal with a requested budget of US $4.1 million exceeds by US $2.8 million the planning figure. The Secretariat has requested explanations from UNIDO. The Secretariat has received a communication from SEPA, China requesting UNIDO to adjust its Business Plan by increasing the allowance for the refrigeration sector and by decreasing proportionally the share of foam sector in UNIDO activities in China in the year 2000.

3. The Secretariat has requested additional information and verification on dates of installation of four foaming machines to ensure that this equipment was installed prior to 25 July 1995. A satisfactory response was provided to the Secretariat by UNIDO and SEPA.

4. The Secretariat has also discussed with UNIDO the eligibility of retrofitting of some of the foaming machines, laboratory equipment, and specifications and cost of safety ventilation and incapsulation, gas detection system, retrofitting of vacuum pumps, nitrogen generators, cyclopentane tanks, piping, safety inspection and engineering/commissioning/start up services and cost of transportation & insurance. The necessary adjustments have been made and all the capital costs have been agreed with UNIDO.

5. Incremental operating costs have also been discussed with UNIDO regarding the eligible number of units produced and ODS consumption, and prices of chemicals used in calculation of IOC. Incremental operating costs have also been agreed.

6. The Secretariat is withholding recommendation of this project to the Executive Committee pending clarification by UNIDO of the issue of project eligibility.