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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-ninth Meeting
Beijing, 24-26 November 1999

PROJECT PROPOSALS: NIGERIA

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

Foam

• Phase out of CFC-11 by conversion to methylene chloride blown technology in the manufacture of flexible polyurethane foam at Betaday Industries Ltd.	UNDP
• Phasing out of CFC-11 in the manufacture of flexible slabstock foam at Jafco Industries Limited by conversion to methylene chloride	UNDP
• Phase-out of CFC-11 by conversion to methylene chloride in the manufacture of flexible polyurethane foam at Rubez (Nig.) Ltd. (Current Foam)	UNDP
• Phase-out of CFC-11 by conversion to mehtylene chloride in the manufacture of flexible polyurethane foam at Vito Company (Nig.) Ltd. - Victory Foam	UNDP
• Phase-out of CFC-11 by conversion to methylene chloride in the manufacture of flexible polyurethane foam at Vono Products PLC	UNDP

Refrigeration

• Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration at Austin-Laz & Co. Ltd.	UNIDO
• Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of domestic refrigeration equipment at De Johnson Ltd.	UNIDO

PROJECT EVALUATION SHEET
NIGERIA

SECTOR: Foam ODS use in sector (1998): 3,770 ODP tonnes

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

Project Titles:

(a) Phase out of CFC-11 by conversion to methylene chloride blown technology in the manufacture of flexible polyurethane foam at Betaday Industries Ltd.
(b) Phasing out of CFC-11 in the manufacture of flexible slabstock foam at Jafco Industries Limited by conversion to methylene chloride
(c) Phase-out of CFC-11 by conversion to methylene chloride in the manufacture of flexible polyurethane foam at Rubez (Nig.) Ltd. (Current Foam)
(d) Phase-out of CFC-11 by conversion to mehtylene chloride in the manufacture of flexible polyurethane foam at Vito Company (Nig.) Ltd. – Victory Foam
(e) Phase-out of CFC-11 by conversion to methylene chloride in the manufacture of flexible polyurethane foam at Vono Products PLC

Project Data	**Flexible slabstock**				
	Betaday	**Jafco**	**Rubez**	**Vito**	**Vono**
Enterprise consumption (ODP tonnes)	30.00	34.20	21.90	26.00	56.50
Project impact (ODP tonnes)	30.00	34.20	21.90	26.00	56.50
Project duration (months)	36	36	36	36	36
Initial amount requested (US $)	119,960	133,950	112,730	149,030	198,830
Final project cost (US $):					
Incremental capital cost (a)	131,500	114,000	98,000	139,500	175,500
Contingency cost (b)	13,150	11,400	9,800	13,950	17,550
Incremental operating cost (c)	-40,155	-66,841	-17,997	-19,890	-19,268
Total project cost (a+b+c)	104,495	58,559	89,803	133,560	173,782
Local ownership (%)	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%
Amount requested (US $)	104,495	58,559	89,803	133,560	173,782
Cost effectiveness (US $/kg.)	3.48	1.71	4.10	5.14	3.08
Counterpart funding confirmed?					
National coordinating agency	Federal Environmental Protection Agency				
Implementing agency	UNDP	UNDP	UNDP	UNDP	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

Sector Background

- Latest available total ODS consumption (1998)		5,476.1	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)		3,650.3	ODP tonnes
- 1998 consumption of Annex A Group I substances		4,761.5	ODP tonnes
- Baseline consumption of CFCs in foam sector		Not reported	
- 1998 consumption of CFCs in foam sector		3,770.0**	ODP tonnes
- Funds approved for investment projects in foam sector as of end of 1998	US $	3,803,300	
- Quantity of CFC to be phased out in foam projects as of end of 1998		832.0	ODP tonnes
- Quantity of CFC phased out in foam projects as of end of 1998		138.0	ODP tonnes
- Quantity of CFCs to be phased out in foam projects approved in 1999 (27th and 28th Meetings)		105.7	ODP tonnes
- Funds approved for investment projects in the foam sector in 1999 (27th and 28th Meetings)	US $	573,631	

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

**Based on information in the project documents. Nigeria has not officially reported sector consumption data to the Fund Secretariat.

1. The five companies (Betaday Industries, Jafco Industries, Rubez, Vito and Vono) used a total of 168.6 tonnes CFC-11 in 1998, with consumption of the individual companies ranging from 21.9-56.5 ODP tonnes (see Project Evaluation Sheet). The companies will phase-out the use of 168.6 tonnes of CFC-11 in the manufacture of flexible slabstock polyurethane foam for furniture applications. Betaday, Rubez and Vito operate boxfoam units while Jafco operates a maxfoam unit. Vono operates two units, one continuous and the other boxfoam. Betaday and Rubez intend to apply the funds approved to their planned changes from boxfoam (discontinuous) operations to continuous process.

2. All the companies will convert their production to the use of methylene chloride. The incremental capital cost of conversion includes the cost of methylene chloride storage tank and metering system at US $27,000-US $35,000, storage and metering systems for softening additive at US $10,000, machine enclosure and ventilation at US $44,000-US $80,000, methylene chloride detectors at US $8,000-US $10,000, trials, technology transfer and training (US $19,000-US $23,500). There are incremental operational savings ranging from about US $13,600 to US $38,600. However there is incremental operational cost of US $6,160 in the case of Vono Products.

Project Implementation Time Frame

3. The period of implementation of all the projects is three years.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat and UNDP have discussed the projects and agreed to the costs. The group of projects is, however, submitted for individual consideration in light of the fact that Nigeria has not ratified the London Amendment.

PROJECT EVALUATION SHEET
NIGERIA

SECTOR: Refrigeration ODS use in sector (1996): 708 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial US $15.21/kg
Domestic US $13.76/kg

Project Titles:

(a) Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of commercial refrigeration at Austin-Laz & Co. Ltd.
(b) Replacement of refrigerant CFC-12 with HFC-134a and foam blowing agent CFC-11 with HCFC-141b in the manufacture of domestic refrigeration equipment at De Johnson Ltd.

Project Data	**Commercial**	**Domestic**
	Austin-Laz	**De Johnson**
Enterprise consumption (ODP tonnes)	11.70	9.00
Project impact (ODP tonnes)	11.60	9.00
Project duration (months)	18	18
Initial amount requested (US $)	147,181	123,816
Final project cost (US $):		
Incremental capital cost (a)	117,860	112,560
Contingency cost (b)	11,786	11,256
Incremental operating cost (c)	17,535	
Total project cost (a+b+c)	147,181	123,816
Local ownership (%)	100%	100%
Export component (%)	0%	0%
Amount requested (US $)	147,181	123,816
Cost effectiveness (US $/kg.)	13.19	13.75
Counterpart funding confirmed?		
National coordinating agency	Federal Environmental Protection Agency	
Implementing agency	UNIDO	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 (1998)		5,476	ODP tonnes
- Baseline consumption* of Annex A Group I substances (CFCs)		3,650	ODP tonnes
- 1998 consumption of Annex A Group I substances		4,761	ODP tonnes
- Baseline consumption of CFCs in refrigeration sector		Not available	
- 1998 consumption of CFCs in refrigeration sector		Not available	
- Funds approved for investment projects in refrigeration sector as of July 1999	US $	4,239,200	
- Quantity of CFC to be phased out in refrigeration sector as of July 1999 (28th Meeting)		245.3	ODP tonnes

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

1. The composition of the refrigeration sector in Nigeria has not yet been identified. There are known to be several manufacturers of domestic refrigeration appliances, eight of which have received assistance from the Multilateral Fund with a total consumption of 245.3 ODP tonnes. There are also a number of small and medium sized commercial refrigeration enterprises which have not been converted.

Project description

2. In 1998, these two companies consumed a total of 9.1 ODP tonnes of CFC-11 and 15.0 ODP tonnes of CFC-12 in the production of commercial refrigeration equipment such as commercial refrigerators, and display cabinets (Austin-Laz) and domestic refrigerators and freezers (De Johnson). The two enterprises will convert their 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 to HFC-134a resulting in a total phase out of 20.16 ODP tonnes. The enterprises possess two low pressure machines (one in each enterprise), refrigerant charging equipment, leak detectors and vacuum pumps. The project includes incremental capital costs covering replacement of low pressure foam dispensers with high pressure dispensers. The capital costs are also sought for replacement/retrofit vacuum pumps, replacement of refrigerant charging units and leak detectors, re-design, testing, trials, technical assistance and training. Incremental operating costs are sought by Austin-Laz for the higher cost of chemicals, including increase in foam density and for HFC-134a compressors for the period of six months. De Johnson does not claim incremental operating costs.

Justification for the Use of HCFC-141b

3. All the enterprises 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 each enterprise.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Secretariat has discussed with UNIDO the proposed increase in foam density. UNIDO provided clarifications regarding the basis on which the increase in foam density was established and applied in the calculation of IOC. There are no outstanding issues with regard to the eligibility or costs of the projects. The grant levels have been agreed for Austin-Laz at US $147,181, with support cost US $19,133 and for De Johnson at US $123,816 with support cost of US $16,096

2. Since Nigeria has not yet ratified the London amendment the projects are submitted for individual consideration by the Sub-Committee on Project Review.