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

Eighteenth Meeting
Vienna, 22-24 November 1995

PROJECT PROPOSAL: NIGERIA

This document includes the Comments and Recommendations from the Fund Secretariat on the following projects:

- Investment project for phasing out of CFCs at Thermocool Engineering Co., PLC. UNIDO

**PROJECT EVALUATION SHEET
NIGERIA**

SECTOR: REFRIGERATION ODS use in sector (1994): 538 ODP tonnes

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

Project Title: Investment project for phasing out of CFCs at Thermocool Engineering Co., PLC.

Project Data	Domestic Refrigeration
	Thermocool
ODS phase-out (ODP tonnes)	82
Proposed project duration (Yrs)	1.5
Incremental capital cost (US\$)	1,465,750
Contingency (%)	10
Incremental operational cost (US\$)	0
Total project cost (US\$)	1,465,750
Local ownership (%)	100
Export component (%)	0
Amount requested (US\$) {Original	3,151,321
{Revised	1,465,750
Cost effectiveness (US\$/kg)	11.8
National Coordinating Agency	FEPA
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations	
Amount recommended (US \$)	1,465,750
Project impact (ODP tonnes)	82
Cost effectiveness (US \$/kg)	11.7
Implementing Agency support cost (US\$)	190,547
Total cost to Multilateral Fund	1,656,297

PROJECT DESCRIPTION

Investment project for phasing out of CFCs at Thermocool Engineering Co., PLC.

1. ODS consumption in domestic refrigeration in Nigeria is estimated at about 208 MT of CFC-11 and 330 MT of CFC-12 out of which less than half was used to produce new appliances and the major part was used for recharging existing appliances.
2. Thermocool Engineering Co. is the largest manufacturer of domestic refrigerators and freezers in Nigeria. The Executive Committee has approved a project for the second largest company Depo Industries Ltd. There are four more companies in this sub-sector in Nigeria.
3. The project covers phase out of 82 MT of CFC-11 and CFC-12 by converting to HFC-134a as a refrigerant and cyclopentane as a blowing agent.
4. The conversion to HFC-134a refrigerant involves replacing the existing refrigerant charging system with charging boards suitable for HFC-134a, vacuum pumps and leak detectors as well as prototype testing.
5. The conversion to cyclopentane involves modification of the existing foaming machines. A new cyclopentane mixing station, new fixtures and plugs, cyclopentane storage system, and the safety measures required for the handling of cyclopentane will be provided.
6. A general contractor will be appointed by UNIDO for the implementation of major project components. The general contractor will be responsible for the supply of equipment, installation, commissioning and on-the-job training of Thermocool staff. In order to guarantee smooth technology transfer and ensure that appropriate safety standards are adhered to, the general contractor will issue an operational safety statement.
7. The capital costs include cost of commissioning and start up as well as ten per cent contingency.
8. The enterprise will not request the incremental operating costs.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The chosen technologies are proven.
2. The enterprise will share the cost of fixtures and plugs.
3. The Secretariat discussed with UNIDO the eligibility and incrementality of all cost items. The project budget has been adjusted accordingly.

RECOMMENDATIONS

1. The Fund Secretariat recommends approval of the project with associated support costs at the funding level shown in the table below:

Project	Project Cost US \$	Support Cost US \$	Implementing Agency
Investment project for phasing out of CFCs at Thermocool Engineering Co., PLC.	1,465,750	190,547	UNIDO

2. The Fund Secretariat further recommends that the project be included in the Consolidated List.