



**United Nations
Environment
Programme**



Distr.
LIMITED

UNEP/OzL.Pro/ExCom/17/42/Add.1
3 July 1995

ORIGINAL: ENGLISH

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

Seventeenth Meeting
Montreal, 26-28 July 1995

PROJECT PROPOSAL: NIGERIA

This document includes Comments and Recommendations from the Fund Secretariat.

PROJECT EVALUATION SHEET

COUNTRY OR REGION: Nigeria

PROJECT TITLE: Investment Project for Phasing out of CFCs at DEBO Industires Ltd., Nigeria

BUDGET: Capital Costs: US \$1,737,120¹
Operational Costs: US \$ 133,500

INCREMENTAL COSTS: US \$1,870,620

ODS PHASE-OUT: 52 MT

COST EFFECTIVENESS²: US \$13.22 per kg. ODP saved

PROJECT DURATION: 18 months

IMPLEMENTING AGENCY: UNIDO

NATIONAL COORDINATING AGENCY: Nigerian Federal environmental Protection Agency (FEPA)

TECHNICAL REVIEW COMPLETED: YES ☒ NO ☐

SECRETARIAT'S COMMENTS

1. The project covers the conversion of a domestic refrigerator manufacturing plant. The annual output of the plant is 25,000 household refrigerators and freezers. This project proposes to replace the CFC-11 used as a blowing agent in the production of insulation foam with cyclopentane, and the CFC-12 used as a refrigerant with HFC-134a.

2. The proposal includes: modification of existing equipment where applicable; procurement and installation of new equipment or machinery including safety measures for the use of cyclopentane; modification of assembly lines; refrigerator redesign; testing and development of prototypes; and a training programme.

¹ Including a 10 per cent contingency fee.

² Determined as the ratio of incremental costs, excluding safety-related costs, to the estimated annual savings of ODP (\$/ODP kg). For CFC-11 and CFC-12, ODS=ODP.

3. The incremental operating costs include the additional costs of raw materials and HFC-134a for a six-month duration.
4. A technical review was provided by UNIDO.
5. Consumption of CFCs was reviewed by the Secretariat. UNIDO subsequently revised the amount of CFCs to be phased-out by the project to 18 tonnes ODP.
6. The Secretariat reviewed the project proposal to assess the eligibility and costs of the requested equipment for the conversion to cyclopentane foaming and HFC-134a refrigerant technologies, in the light of similar projects approved by the Executive Committee. The Secretariat discussed with UNIDO the incrementality of all cost components and their amounts.
7. It was agreed that replacement of capital equipment will be eliminated where retrofitting was possible. Technological upgrades were identified and the relevant costs have been deducted from the budget. Budget items have been identified where costs can be incurred locally at lower prices. The costs of such items have been reduced accordingly. Operating costs have been reviewed and reduced.
8. Consequently, it was agreed that the new project budget should be recommended for approval.
9. It should also be noted that safety-related costs represent 42 per cent of incremental capital costs.
10. Cost-effectiveness has been calculated after the exclusion of safety-related costs. The cost-effectiveness for this project is US \$12.57/kg. ODP phased out which is below the threshold value established by the 16th Meeting of the Executive Committee.

SECRETARIAT'S RECOMMENDATIONS

11. The Fund Secretariat recommends approval of US \$1,048,053 for the implementation of the project at Union Camerounaise d'Entreprises, and recommends US \$136,247 in support costs for UNIDO.