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

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**PROJECT PROPOSAL: KENYA**

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

- Umbrella Investment Project for Phasing Out and Recover/Recycling of CFCs at domestic and Commercial Refrigeration Sector in Kenya (Kenya Cold Storage Group). UNIDO

**PROJECT EVALUATION SHEET**
**KENYA**

SECTOR: REFRIGERATION ODS use in sector (1994): 50 ODP tonnes

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

***Project Title*:** **Umbrella Investment Project for Phasing out and recovery/recycling of CFCs at domestic and commercial refrigeration sector in Kenya (Kenya Cold Storage Group)**

| **Project Data** | **Domestic/Commercial Refrigeration** |
|---|---|
| | **Kenya Cold Storage Group** |
| ODS phase-out (ODP tonnes) | 40.8 |
| Proposed project duration (Yrs) | 1.3 |
| Incremental capital cost (US$) | 489,105 |
| Contingency (%) | 10 |
| Incremental operational cost (US$) | 0 |
| Total project cost (US$) | 489,105 |
| Local ownership (%) | 100 |
| Export component (%) | 0 |
| Amount requested (US$) {Original | 1,206,290 |
| {Revised | 489,105 |
| Cost effectiveness (US$/kg) | 11.98 |
| National Coordinating Agency | MENR |
| Implementing Agency | UNIDO |
| Technical review completed? | Yes |

| ***Secretariat's Recommendations*** | |
|---|---|
| Amount recommended (US $)[1] | 130,354 |
| Project impact (ODP tonnes) | 40.8 |
| Cost effectiveness (US $/kg) | 11.98 |
| Implementing Agency support cost (US$) | 16,946 |
| Total cost to Multilateral Fund | 147,300 |

[1] Amount has ben adjusted to reflect past allocation for the project.

## PROJECT DESCRIPTION

Umbrella Investment Project for Phasing out and recovery/recycling of CFCs at domestic and commercial refrigeration sector in Kenya (Kenya Cold Storage Group).

1. Total ODS consumption in domestic and commercial refrigeration sector in Kenya is 50 MT. The largest single user of CFCs in Kenya is Kenya Cold Storage Ltd. with three subsidiary companies: Premier Refrigeration & Engineering Ltd (PREL), Hall Equatorial Ltd and Refrigeration Distributors Ltd. These companies have their branches in three major cities in Kenya: Nairobi, Mombassa and Nakuru.

2. Premier Refrigeration & Engineering Ltd. is the only local manufacturer of domestic and commercial refrigerators and the leading producer of chest freezers, bottle coolers and special (custom-made) commercial refrigeration units.

3. Hall Equatorial Ltd. is the producer of polyurethane insulation panels designed for cold stores/rooms and a major assembler/contractor for commercial refrigeration and air-conditioning. The services offered include design of the cold stores/rooms, panel fabrication and assembly, installation, charging of cooling systems, and maintenance of cold rooms.

4. Hall Equatorial Ltd, Nairobi, is specialized in design and manufacturing of insulation panels and elements for cold stores and rooms, assembling them (include. installation of cooling systems) at the customer’s premises and providing their maintenance and service.

5. Refrigeration Distributors Ltd. is the distributor for PREL’s domestic refrigerators, freezers, bottle coolers and special products and provides servicing of refrigeration installations.

6. The first objective of this project is to eliminate the use of ozone depleting substances (ODS) such as CFC-11 and CFC-12 in the production of domestic refrigerators and freezers, commercial and retail refrigeration equipment, cold stores and rooms and PU insulation panels through conversion to the use of HFC-134a as a refrigerant and to HCFC-141b as a blowing agent for polyurethane insulation foam.

7. The second objective of the project is to strengthen and improve the existing practice of the refrigeration equipment servicing and to establish a system of CFC recovery, recycling and stock-piling on the country level.

8. The implementation of the project will lead to elimination of 40.8 MT of CFC-11 and CFC-12 which represents about 80 per cent of ODS consumption in domestic and commercial refrigeration sub-sectors in Kenya.

9. Conversion to HFC-134a involves replacement of refrigerant charging boards, leak detectors, test equipment for prototypes and vacuum systems.

10. Conversion to HCFC-141b entails the replacement of low pressure foaming machines with high pressure machines, provision of premixing station and rebuilding of jigs.

11. Servicing facilities will be provided with recovery/recycling equipment, accessories, storage tanks for contaminated and cleaned refrigerants, charging equipment, leak detectors and vacuum pumps.

12. The companies recognize the transitional nature of HCFC technology. They are also aware of the availability of non-ODS hydrocarbon technologies. However, location of factories and layout of main production lines make it very difficult to accommodate all the requirements related to flammable substitutes. The companies, when equipped with modern high-pressure foaming equipment will be able to replace HCFC-141b by non-ODS technologies at a later stage. The companies will accept that all future costs related to subsequent transition to zero-ODP technology will be borne by the companies themselves.

13. The companies do not request incremental operational costs.

14. The 11th Meeting of the Executive Committee approved the project “CFC phase-out at Kenya Cold Storage Ltd. and its subsidiary companies” at US $380,875. At the project preparation stage, UNIDO recognized the broader scope of activities involved and reformulated the project encompassing ODS phase-out in the whole domestic and commercial refrigeration in Kenya.

15. UNIDO proposed to off-set US $355,875 (adjusted to reflect US $ 22,124 disbursed for te preparation of the project) from the requested amount. spent for project preparation activities.

## SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

### COMMENTS

1. The chosen technologies are proven. The choice of interim HCFC technology in foaming operations is justified.

2. 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, after offsetting US $355,875 as indicated above.

| Project | Project Cost US $ | Support Cost US $ | Implementing Agency |
|---|---|---|---|
| Umbrella Investment Project for Phasing out and recovery/recycling of CFCs at domestic and commercial refrigeration sector in Kenya (Kenya Cold Storage Group) | 130,354 | 16,946 | UNIDO |

2. It also recommends that the project be included in the Consolidated List.