



**United Nations
Environment
Programme**



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

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PROJECT PROPOSAL: MALAWI

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

Refrigeration

- Implementation of a national programme for recovery and recycling of refrigerant

UNDP

SECTOR: **REFRIGERATION** ODS use in sector (1992): 43.1 ODP tonnes
CFC RECOVERY AND RECYCLING

Implementation of a national programme for recovery and recycling of refrigerant

Project Data	Recovery and recycling
ODS phase-out (ODP tonnes)	7.2
Proposed project duration (Yrs)	1.5
Incremental capital cost (US \$)	106,320
Incremental operational cost (US \$)	-
Total project cost (US \$)	106,320
Amount requested (US \$) {Original}	113,320
{Revised}	106,320
Cost effectiveness (US \$/kg)	14.76
National Coordinating Agency	Ministry of Research and Environmental Affairs
Implementing Agency	UNDP
Technical review completed?	Yes

<i>Secretariat's Recommendations</i>	
Amount recommended (US \$)	106,320
Project impact (ODP tonnes)	7.2
Cost effectiveness (US \$/kg)	14.76
Implementing Agency support cost (US\$)	13,822
Total cost to Multilateral Fund	120,142

PROJECT DESCRIPTION

1. The project will implement a comprehensive national programme for recovery and recycling of refrigerants in the refrigeration, air conditioning and mobile air conditioning sub-sectors. This programme is part of an overall ODS phase out strategy for the refrigeration sector.
2. The first priority in this programme is to stop CFC discharge into the atmosphere by repairing leaks and controlling unnecessary emissions from refrigeration equipment, followed by CFC recovery from existing installations during maintenance and prior to retrofits or dismantlement.
3. A recovery and recycling nation-wide network comprised of 30 recovery units and 2 mobile recycling machines will be established, at a cost of US \$94,820. Any CFC-recovered by companies or workshops not included in the recovery network will also be treated in the recycling centers. In total, 7.2 tonnes of CFC will be recovered and recycled each year. This amount does not take into account the amount of refrigerant that might be saved owing to the teaching of good service and maintenance practices at the training seminars.
4. Two training workshops for service technicians of refrigeration and air conditioning equipment, at a cost of US \$11,500, are envisioned which will include a practical demonstration on recovery and recycling equipment; good service practices and safety in the handling of refrigerants during installation, servicing, retrofitting and dismantlement of refrigeration and/or air conditioning equipment; and detection of CFC leaks and prevention of emissions. The seminars will utilize some of the training documentation and materials used in previous seminars held elsewhere, as well as those prepared by UNEP.
5. To ensure the success of the programme, the Government will introduce a monitoring system to check the amount of CFC being recovered and recycled by each piece of recovery equipment and assure the quality of the recycled refrigerant. The ozone unit will be responsible for monitoring the programme.

SECRETARIAT'S RECOMMENDATION

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
Implementation of a National Programme for Recovery and Recycling of Refrigerant	106,320	13,822	UNDP