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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Montreal, 17 -19 December 2003

PROJECT PROPOSALS: LIBERIA

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

Refrigeration

- Implementation of the refrigerant management plan: Training of trainers in code of good refrigeration practices/establishment of national refrigeration demonstration centre Germany
- Implementation of the refrigerant management plan: improved servicing and maintenance within the refrigeration sector-recovery and recycling project Germany
- Implementation of the refrigerant management plan: incentive programme for the commercial and industrial refrigeration end-user sector Germany
- Implementation of the refrigerant management plan: mobile air conditioning recovery/recycling of CFC-12 Germany
- Implementation of the refrigerant management plan: customs training UNEP
- Implementation of the refrigerant management plan: monitoring activities Germany

PROJECT EVALUATION SHEET LIBERIA

SECTOR: Refrigeration ODS use in sector (2002): 32.6 ODP tonnes

Sub-sector cost-effectiveness thresholds: N/A US \$/kg

Project Titles:

- (a) Implementation of the refrigerant management plan: Training of trainers in code of good refrigeration practices/establishment of national refrigeration demonstration centre
- (b) Implementation of the refrigerant management plan: improved servicing and maintenance within the refrigeration sector-recovery and recycling project
- (c) Implementation of the refrigerant management plan: incentive programme for the commercial and industrial refrigeration end-user sector
- (d) Implementation of the refrigerant management plan: mobile air conditioning recovery/recycling of CFC-12
- (e) Implementation of the refrigerant management plan: customs training
- (f) Implementation of the refrigerant management plan: monitoring activities

Project Data	(a)	(b)	(c)	(d)	(e)	(f)
	Enterprise consumption (ODP tonnes)			2.4	11.6	
Project impact (ODP tonnes)		21	2	8.6		
Project duration (months)	36	36	60	36	24	36
Initial amount requested (US \$)	182,100	142,000	130,000	97,000	59,840	14,910
Final project cost (US \$):						
Incremental capital cost (a)	108,609	84,000				
Contingency cost (b)	10,860	8,400				
Incremental operating cost (c)						
Total project cost (a+b+c)	119,460	92,400	107,350	61,858	40,040	15,455
Local ownership (%)	100%	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%	0%
Amount requested (US \$)	119,460	92,400	107,350	61,858	40,040	15,455
Cost effectiveness (US \$/kg.)						
Counterpart funding confirmed?						
National coordinating agency	Environmental Protection Agency					
Implementing agency	Germany	Germany	Germany	Germany	UNEP	Germany

<i>Secretariat's Recommendations</i>						
Amount recommended (US \$)	119,460	92,400	107,350	61,858	40,040	15,455
Project impact (ODP tonnes)		21	2	8.6		
Cost effectiveness (US \$/kg)						
Implementing agency support cost (US \$)	15,530	12,012	13,996	8,042	5,205	2,009
Total cost to Multilateral Fund (US \$)	134,990	104,412	121,346	69,900	45,245	17,464

PROJECT DESCRIPTION

Background

1. The Government of Liberia has submitted a refrigerant management plan (RMP) project proposal for the consideration of the Executive Committee at its 41st Meeting.

ODS consumption

2. Based on a survey on the consumption of ODS conducted during the preparation of the Liberia country programme/RMP, in 2002, about 32.6 ODP tonnes of CFCs were used in the country to service domestic refrigerators (18.0 ODP tonnes), commercial and industrial refrigerators (2.9 ODP tones) and MAC units (11.7 ODP tonnes).

3. Most citizens purchase second-hand refrigerators/freezers imported from non-Article 5 countries. With the cessation of armed conflicts, it is expected that there will be significant growth in development with enterprises importing larger quantities of used refrigerators, freezers, and cold storage equipment. Construction of new cold storage facilities, hotels and other industries that use various refrigeration systems is expected to increase.

4. The high consumption of CFC-12 for servicing the relatively small number of domestic refrigerators (310,000 units in total) and commercial refrigeration systems is due to poor code of refrigeration practices. (CFC-12 use to purge the equipment, bad maintenance policies, lack of alternative refrigerants). The most frequent faults in the refrigeration systems include: partial leakage where about 0.1 kg of CFC-12 might be present in the circuit; complete leakage (one of the most frequent faults), where no refrigerant is left in the circuit; burnt compressor (most frequent fault), where CFC-12 is present but contaminated and, thus, cannot be used; and drier blockage (not very common) where CFCs be recovered and recycled. CFCs are never used to service HFC-134a based MAC units. However it is common to replace the HFC-134a MAC unit with CFC-12 based unit because of the price differential (HFCs are more expensive than CFCs).

5. The current prices of refrigerants per kg are: US \$7.00 for CFC-12, US \$9.00 for HFC-134a and US \$7.00 for HCFC-22.

Policy framework

6. The Government of Liberia is proposing the establishment of legislation and a regulatory system to control imports of ODSs and ODS-based equipment. The licensing system will require that all importers must first apply for a license/permit to import ODS into the country. The system will facilitate the transition towards non-ODS technologies by informing importers, wholesalers and industry about the maximum quantities of ODS permitted to be imported each year into the country until phase-out date.

7. The National Environmental Commission together with the Ministry of Justice will be responsible for the enforcement of the import/export-licensing system. Penalties will be imposed to discourage persons from illegally importing ODS or ODS-based equipment.

Sub-projects in the RMP

8. The RMP, as submitted, consisted of the following sub-projects:
- (a) Training of trainers in good refrigeration practices and establishment of national refrigeration demonstration centre (US \$182,100): to train 30 refrigeration technicians and engineers as trainers and to establish a national refrigeration demonstration centre;
 - (b) Improved servicing and maintenance within the refrigeration sector-recovery and recycling project (US \$142,000): to improve the maintenance and servicing procedures currently being employed for servicing refrigeration equipment. A total of 720 technicians are proposed to be trained. Implementation of this sub-project will lead to the phase out of 21 tonnes of CFCs;
 - (c) Incentive programme for the commercial and industrial refrigeration end-user sector (US \$130,000): to provide a funding incentive for replacement or retrofit of existing CFC-based refrigeration systems to non-CFC refrigerant. Implementation of this sub-project will lead to the phase out of 2.4 tonnes of CFCs;
 - (d) MAC recovery/recycling of CFC-12 (US \$97,000): to implement a national programme for recovery and recycling of refrigerants in the MAC sub-sector (8 recovery/recycling machines and ancillary equipment). Implementation of this sub-project will lead to the phase out of 8.8 tonnes of CFCs;
 - (e) Training for customs officers (US \$59,840): to train 50 customs officers to ensure the proper enforcement of the restriction on imports of CFC based equipment and import/export regulations in Liberia, identification of ODS and ODS-equipment, and techniques used in illegal importation of ODSs; and
 - (f) Monitoring activities (US \$14,905).
9. The Liberia RMP project was submitted with an official letter from the Government of Liberia (signed by the Executive Director of the National Environmental Commission) stating the Government's commitment to achieve, without further request for funding, at least 50 per cent reduction in consumption of CFCs by 2005 and 85 per cent reduction by 2007.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Issues related to baseline for compliance by Liberia

10. The Secretariat noted that, at the time of the submission of the RMP project, the Government of Liberia had not yet complied with Decisions XIV/14 and XIV/16 of the parties (non-compliance with data reporting requirement from Article 7). The Secretariat also noted that

projects proposals submitted to the Executive Committee for countries that did not have a compliance baseline should be considered in the light of the advice provided by the Implementation Committee (Decision 38/12).

11. Subsequently, the Government of Germany and UNEP informed the Fund Secretariat that the Government of Liberia sent its ODS consumption data to the Ozone Secretariat and had requested to use the 2002 CFC consumption as the baseline for compliance.

Issues related to CFC consumption

12. The Secretariat discussed with the agencies issues related with calculation of the level of CFC consumption in Liberia, including the average amount used for servicing domestic refrigerators, the number of CFC-based MAC systems still in operation, whether CFC-12 is being used for servicing non-CFC based MAC systems, and the prices of refrigerants.

13. In this regard, the Government of Germany informed the Secretariat that about 85 per cent of the second-hand refrigerators coming into Liberia are operating with CFC-12 refrigerant. The high incidence of repair of these units is related to general wear and tear, incorrect repair of leaks and compressor burn-outs. The estimated amount used for repair domestic refrigerators is 0.3 kg/unit. Also, the total number of vehicles in the country was estimated at 8,600 (the estimated population is over 3.5 million), and less than half of these are fitted with a MAC unit functioning. The need for frequent servicing of MACs arises from the very poor condition of the roads in the country and that the MAC systems operate throughout the year.

Issues related to the activities proposed in the RMP

14. The Secretariat pointed out that on the basis of Decision 31/48, the CFC consumption level in Liberia and its sectoral distribution (84 per cent in the MAC sub-sector), the level of funding for the Liberia RMP project would be US\$450,000. Several items included in the sub-projects were more expensive than in similar projects and/or their eligibility was in doubt (e.g., operational costs for training programmes, demonstration shop preparation, study tours, request for miscellaneous expenses; project assistance, monitoring and evaluation for the customs training programme, cost of recovery/recycling machines).

15. The Secretariat expressed reservation to the Government of Germany and UNEP about committing US \$239,000 for activities related to recovery and recycling and US \$130,000 for an incentive programme for end-users, taking into consideration that ODS legislation will be enforced in 2004; training programmes for refrigeration servicing technicians will only commence in 2004; the majority of the consumption is for servicing domestic refrigerators, where recovery of CFC is not viable; and the poor results so far achieved in the quantity of CFCs recovered and recycled in the majority of Article 5 countries with similar projects.

16. Subsequently, the Government of Germany and UNEP submitted a revised project proposal, addressing the issues raised by the Secretariat. The revised proposal consists of the following activities:

- (a) Train-the trainer programme and national refrigeration demonstration centre programme (US \$119,460);
- (b) Customs training programme (US \$40,040);
- (c) Improved servicing and maintenance in code of good refrigeration practices, including recovery and recycling (US \$92,400) and MAC recovery and recycling (US \$61,858);
- (d) Incentive programme for commercial and industrial end-users (US \$107,350)
- (e) Monitoring and management of the sub-projects in the RMP US \$15,455.

17. The Secretariat proposed that the Government of Germany should have flexibility in utilizing the resources available under the recovery and recycling programme and the incentive programme for end-users (approximately US \$260,000) when specific needs arise during project implementation (e.g., to provide more recycling machines in the event of a steep rise in the price of CFCs, or to purchase basic service tools should technicians experience difficulties in implementing good practices). Thus, the objective would be to continuously monitor and survey the needs of technicians and adapt the project accordingly.

RECOMMENDATION

18. The Fund Secretariat recommends blanket approval of the projects at the funding level indicated below, on the understanding that:

- (a) The Government of Liberia would have flexibility in utilizing the resources available under the recovery and recycling programme and the incentive programme for end-users, to address specific needs that might arise during project implementation;
- (b) The recovery and recycling programme and the incentive programme for end-users would be implemented in stages so that resources can be diverted to other activities, such as additional training or procurement of service tools, if the proposed results are not achieved;
- (c) The Government of Germany would provide appropriate monitoring of through out project implementation; and
- (d) Approval of the project is without prejudice to the operation of the Montreal Protocol's mechanisms dealing with non-compliance issues.

Project Titles	Project Funding (US\$)	Support Cost (US\$)	Implementing Agency
Implementation of the refrigerant management plan: Training of trainers in code of good refrigeration practices/establishment of national refrigeration demonstration centre	119,460	15,530	Germany
Implementation of the refrigerant management plan: improved servicing and maintenance within the refrigeration sector-recovery and recycling project	92,400	12,012	Germany
Implementation of the refrigerant management plan: incentive programme for the commercial and industrial refrigeration end-user sector	107,350	13,996	Germany
Implementation of the refrigerant management plan: mobile air conditioning recovery/recycling of CFC-12	61,858	8,042	Germany
Implementation of the refrigerant management plan: customs training	40,040	5,205	UNEP
Implementation of the refrigerant management plan: monitoring activities	15,455	2,009	Germany
