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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Forty-third Meeting
Geneva, 5-9 July 2004

PROJECT PROPOSALS: BARBADOS

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

Refrigeration

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| • Refrigerant management plan: import-export licensing system and establishment of refrigeration and air-conditioning association | UNEP |
| • Refrigerant management plan: monitoring the activities in the RMP | UNDP |
| • Refrigerant management plan: technical assistance to the MAC and end-users sectors | UNDP |

PROJECT EVALUATION SHEET BARBADOS

SECTOR: Refrigeration ODS use in sector (2003): 8.6 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Titles:

- (a) Refrigerant management plan: import-export licensing system and establishment of refrigeration and air-conditioning association
- (b) Refrigerant management plan: monitoring the activities in the RMP
- (c) Refrigerant management plan: technical assistance to the MAC and end-users sectors

Project Data	Refrigerant management plan		
	(a)	(b)	(c)
Enterprise consumption (ODP tonnes)			
Project impact (ODP tonnes)	n/a	n/a	3.2
Project duration (months)	30	30	30
Initial amount requested (US \$)			
Final project cost (US \$):	78,000	26,150	172,611
Incremental capital cost (a)			
Contingency cost (b)			
Incremental operating cost (c)			
Total project cost (a+b+c)	78,000	26,150	172,611
Local ownership (%)	100	100	100
Export component (%)	0	0	0
Amount requested (US \$)	78,000	26,150	172,611
Cost effectiveness (US \$/kg.)	n/a	n/a	n/a
Counterpart funding confirmed?	n/a	n/a	n/a
National coordinating agency		National Ozone Unit	
Implementing agency	UNEP	UNDP	UNDP

Secretariat's Recommendations			
Amount recommended (US \$)	78,000	26,150	172,611
Project impact (ODP tonnes)	n/a	n/a	3.2
Cost effectiveness (US \$/kg)	n/a	n/a	n/a
Implementing agency support cost (US \$)	10,140	2,354	15,535
Total cost to Multilateral Fund (US \$)	88,140	28,504	188,146

PROJECT DESCRIPTION

1. The Government of Barbados has submitted a refrigerant management plan (RMP) project for consideration by the Executive Committee at its 43rd Meeting.

ODS consumption

2. In 2003, Barbados reported a total consumption of 8.6 ODP tonnes of CFCs, used for servicing domestic refrigerators (1.0 ODP tonnes), commercial and industrial refrigeration systems (3.0 ODP tonnes) and MAC units (4.6 ODP tonnes). The CFC baseline for compliance is 21.5 ODP tonnes.

3. In 1993 (at the time of the preparation of the Barbados country programme), there were about 8,000 vehicles fitted with a MAC unit. Currently, there are about 80,000 vehicles fitted with a MAC unit, 32,000 of which use CFC-12 refrigerant.

4. There are about 100,000 domestic refrigerators in operation (30,000 based on CFC-12 refrigerant). 15,000 units are serviced annually. There are about 20,000 units in commercial refrigeration (6,000 based on CFC-12 refrigerant); these systems are serviced on average once every 2 years with an average charge of 2 kg of refrigerant.

5. The industrial refrigeration sub-sector consists of 1,000 walk-in freezers used by the tourism and food industries, 600 of which are CFC-12 based with an average charge of 18 kg of refrigerant. Generally, the new industrial refrigeration systems are still fitted with a CFC-12 compressor (for example, 5 CFC-12 based systems were installed between May and August 2003). The average life of the systems is 20 years; the systems are serviced every 2 years with an average recharge of 6.8 kg of CFC-12 per service.

6. The refrigeration servicing sector in Barbados comprises 200 technicians in the formal sector and another 100 to 150 in the informal sector. Fifty-four technicians have received formal training in recovery and recycling of refrigerants and were certified. Technicians from the informal sector have not been exposed to the training.

7. The current prices of refrigerants per kg are: US \$4.58 for CFC-12, US \$10.06 for HFC-134a and US \$17.71 for R502.

ODS legislation

8. The drafting of ODS legislation was proposed in 1998 but has not so far been pursued by the Government. Currently, the Ozone Unit has drafted a licensing system. Through a voluntary programme by the industrial sector, several end-users are switching to non-CFC alternatives when acquiring new equipment.

Recovery and recycling programme

9. At its 18th Meeting, the Executive Committee approved a UNIDO recovery and recycling programme (US \$165,170). Through this project, one CFC reclaim machine, 25 recovery

machines and ancillary equipment were provided. In addition, 54 refrigeration servicing technicians were trained. Eighteen recovery machines were distributed to technicians who have received training; the remaining 7 machines and the CFC reclaim machine were retained by the training centre to be used in the training of students.

10. The amount of refrigerants recovered through the recovery machines in operation is difficult to assess; technicians who recover refrigerants recharge the systems with the recovered gas at the end of their service operation and do not record the quantities. However, it is reported that in addition to CFC-12, other refrigerants have been recovered and reused (HFC-134a, HCFC-22 and R502).

11. The CFC reclamation equipment has not been in operation, since a faulty part of the equipment has never been replaced.

Sub-projects in the RMP

12. The RMP project, as submitted, consists of the following sub-projects:

- (a) Development of an import/export licensing system, training of enforcement personnel, and establishment of a refrigeration association (US \$78,000), to develop an importer registration and licensing system and a quota system; implement a ban on the importation of CFC-based technologies; provide guidelines on how to deal with illegal trade of CFCs; train over 470 customs officers; and establish a refrigeration servicing association;
- (b) Technical assistance for the refrigeration servicing and MAC sub-sectors (US \$172,611), to provide equipment for servicing refrigeration systems, establish a recovery/recycling scheme, an incentive programme for the retrofit of CFC-12-based MACs to HFC-134a refrigerant, and conduct training workshops for service technicians in retrofitting and the use of recovery and recycling machines; and
- (c) Monitoring activities (US \$26,150): to monitor the activities proposed in the RMP project.

13. The Barbados RMP project was submitted with an official letter signed by the Permanent Secretary of the Ministry of Housing, Lands and the Environment of Barbados stating that Barbados has already voluntarily complied with the 2005 CFC reduction limit (i.e., the 2003 reported CFC consumption is 2.1 ODP tonnes below the 2005 consumption limit), which is a clear indication, by the Government of Barbados, to fully comply with the Montreal Protocol's control measures. The RMP for Barbados was approved by the Cabinet.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

14. The Secretariat notes that the 2003 CFC consumption in Barbados (8.6 ODP tonnes) is 12.9 ODP tonnes below the Barbados's CFC baseline consumption of 21.5 ODP tonnes.

Issues related to CFC consumption

15. The Secretariat discussed with UNDP and UNEP issues related to the calculation of the level of CFC consumption in Barbados, including the number of CFC-based refrigeration systems still in operation; the average lifetime of the refrigeration equipment; whether CFC-12 is being used for servicing non-CFC based MAC systems; and the fact that the majority of the industrial refrigeration systems are based on CFC-12 refrigerant and the new systems being built locally are fitted with CFC-12 compressors.

16. In this regard, the Secretariat was informed, that because the industrial refrigeration systems are custom-built on site, when owners are given the choice of refrigerants and compressors they generally prefer the less expensive CFC-12 option. Regarding the CFC-based MAC systems, it was reported that since CFC-based compressors are readily available on the market, technicians repair the MAC unit and replace the compressor with similar equipment, if needed, thereby extending the life of the system to equal that of the vehicle. Currently, HFC-134a-based MAC units are not serviced with CFC-12 even though CFC-12 is cheaper.

Policy related issues

17. Regarding the status of the development of ODS regulations, the Secretariat was informed that the draft licensing system would need to be re-drafted by a legal expert to ensure consistency with other regulations in the country.

Issues related to the activities proposed in the RMP

18. The Secretariat and UNDP discussed the request for 21 MAC recovery/recycling machines in addition to the machines provided in the original RMP project, notwithstanding that the amount of CFCs so far recovered is almost nil. The Secretariat and UNDP also discussed the phase-out of CFCs used in the industrial refrigeration sub-sector taking into account that new industrial refrigeration systems are still being fitted with a CFC-12 compressor. Subsequently, UNDP pointed out that the RMP proposes to address the cost differential between refrigerants through tax measures. Additionally, as the amount of imported CFCs is reduced (in accordance with the Montreal Protocol's allowable levels) and the import restrictions under the proposed licensing system are enforced, the CFC supplies would be reduced to levels below the projected demand and thus larger amounts of CFCs would be recovered. Concerning the apparently increasing dependency on CFC-12 arising from new CFC-12 installations, UNDP indicated that the proposed ODS legislation would include a ban on the importation of CFC-based equipment, including compressors. Furthermore, the technical assistance component of the RMP would be adjusted to also include assistance to major CFC-end-users to retrofit their installations to non-CFC technologies.

19. The Secretariat also inquired whether UNDP and UNEP had examined the possibility of leveraging additional funding for the acquisition of recovery/recycling units which could be used for both HFCs and CFCs refrigerants (as required by Decision 38/38). The Secretariat was informed that this matter had been considered during the preparation of the RMP project. Since the time required to secure GEF funding is rather long, and given the urgency to commence implementation of the RMP to achieve the 2007 phase-out target, it was decided not to delay the submission of the proposal. However, in the case of two CFC-11-based chillers in operation in the Sheraton Mall (with a total refrigerant charge of 1.3 ODP tonnes), it was decided that the GEF could be approached to support a transition to a suitable non-CFC alternative using energy savings as the lever to secure funding.

RECOMMENDATION

20. The Fund Secretariat recommends blanket approval of the project with associated support costs at the funding level shown in the table below, on the understanding that:

- (a) The Government of Barbados would have flexibility in utilizing the resources available under the technical assistance for the MAC and end-users sectors sub-project, to address specific needs that might arise during project implementation;
- (b) To the extent possible, the sub-project on technical assistance for the MAC and end-users sectors 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, this sub-project should not commence until the legislation controlling CFC imports is in place and measures have been taken to ensure that the local market prices of CFCs and non-ODS refrigerants are at least similar; and
- (c) The UNDP and UNEP would provide appropriate monitoring throughout project implementation.

	Project Title	Project Funding (US\$)	Support Cost (US\$)	Implementing Agency
(a)	Refrigerant management plan: import-export licensing system and establishment of refrigeration and air-conditioning association	78,000	10,140	UNEP
(b)	Refrigerant management plan: monitoring the activities	26,150	2,354	UNDP
(c)	Refrigerant management plan: technical assistance to the MAC and end-user sectors	172,611	15,535	UNDP
