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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-seventh Meeting
Montreal, 17-19 July 2002

PROJECT PROPOSALS: KUWAIT

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

Refrigeration

• Implementation of the refrigerant management plan: monitoring	UNEP
• Implementation of the refrigerant management plan: training of customs officers in monitoring of ODS	UNEP
• Implementation of the refrigerant management plan: training programme on good refrigerant management practices and hydrocarbon (HC) refrigerants safe handling	UNEP
• Implementation of the refrigerant management plan: national recovery and recycling	UNIDO

PROJECT EVALUATION SHEET
KUWAIT

SECTOR: Refrigeration ODS use in sector (2000): 416 ODP tonnes

Sub-sector cost-effectiveness thresholds: n/a

Project Titles:

(a) Implementation of the refrigerant management plan: monitoring
(b) Implementation of the refrigerant management plan: training of customs officers in monitoring of ODS
(c) Implementation of the refrigerant management plan: training programme on good refrigerant management practices and hydrocarbon (HC) refrigerants safe handling
(d) Implementation of the refrigerant management plan: national recovery and recycling

Project Data	**Refrigerant management plan**			
	Monitoring	**Training custom officers**	**Training ref***	**R&R**
Enterprise consumption (ODP tonnes)				413.00
Project impact (ODP tonnes)				64.00
Project duration (months)	36	18	24	36
Initial amount requested (US $)	33,000	55,335	100,575	710,000
Final project cost (US $):				
Incremental capital cost (a)				410,560
Contingency cost (b)				38,256
Incremental operating cost (c)				
Total project cost (a+b+c)	27,000	53,445	95,325	448,816
Local ownership (%)	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%
Amount requested (US $)	27,000	53,445	95,325	448,816
Cost effectiveness (US $/kg.)				11.80
Counterpart funding confirmed?				
National coordinating agency	Environment Public Authority			
Implementing agency	UNEP	UNEP	UNEP	UNIDO

Secretariat's Recommendations				
Amount recommended (US $)	27,000	53,445	95,325	448,816
Project impact (ODP tonnes)				64.00
Cost effectiveness (US $/kg)				11.80
Implementing agency support cost (US $)	3,510	6,948	12,392	22,441
Total cost to Multilateral Fund (US $)	30,510	60,393	107,717	471,257

*Includes two training programmes for refrigeration technicians

PROJECT DESCRIPTION

1. The Kuwait country programme submitted for consideration by the Executive Committee at its 37th Meeting (UNEP/OzL.Pro/ExCom/37/62) includes a refrigerant management plan (RMP) project proposal which will be jointly implemented by UNEP and UNIDO.

The refrigeration sector

2. The total 2000 CFC consumption has been calculated at 420 ODP tonnes, used for servicing about 1.37 million domestic refrigerators (41 ODP tonnes), industrial and commercial refrigeration equipment (113.1 ODP tonnes), 565,000 MAC units (112 ODP tonnes) and chillers (147 ODP tonnes).

3. Two enterprises that manufacture refrigerators and water coolers (Al-Hasawi Refrigerators and Water Coolers Factory and Al-Ghanim Company) have already converted their processes to non-ODS technology. One additional manufacturer, Golden Sward, is still producing CFC-12 based water coolers (about 1,000 units per year) with a total annual consumption of 2.5 ODP tonnes of CFC-12. The insulation foam is imported or locally manufactured using HCFC-22 and/or HCFC-141b with polyol.

4. The majority of the importing agencies and local manufacturers of domestic/commercial refrigerators have their own maintenance workshops with adequate servicing equipment, including recovery/recycling equipment. They have well-trained technicians. However, CFC consumption from these workshops represents only 10 per cent of the total consumption. The informal sector consists of about 900 small maintenance workshops with one to three uncertified technicians. The quality of maintenance provided by these workshops is very low; no proper equipment is used (i.e., compressors are used instead of vacuum pumps, no recovery/recycling units are used), and technicians are inadequately trained and are not certified and/or not licensed for the job. Due to the difficulties in reaching technicians in this sector in order for training, training programmes through funded projects will be proposed to train about 110 technicians only, equal to about 25% of the total technicians in this sector.

5. The refrigeration systems in medium-sized supermarkets and wholesale stores are usually in good operating conditions and are replaced every 5-10 years. The maintenance of the equipment is through contracts with main air-conditioning and refrigeration maintenance contractors.

6. Most large buildings have chilled water systems operating with CFC-12 or CFC-11, with capacities ranging between 100 and 1,500 tonnes. Currently, CFC-based chillers are not permitted to be imported. Maintenance of these systems is carried out mostly by main maintenance companies who are either CFCs importers or purchase CFCs from the local market. These companies have well trained technicians and are fully aware of ozone protection and other environmental issues.

7. Due to public awareness campaigns carried out for many years by the Environment Public Authority and the National Ozone Committee, enforcement of ODS-related regulations and CFC-based chillers have already been replaced with non-CFC refrigerant in a number of Government offices and in some private buildings. Due to the large number of buildings in the extended private sectors which use CFC-12 or CFC-11 chillers such as banks, factories, shopping and residential complexes, hotels and entertainment buildings, many of these buildings are still using CFC based chillers. With the high cost of these chilled water systems, exerted efforts and funding are needed to persuade the owners to shift to non-ODS chillers. There is a need to develop a project proposal within the RMP specifically for changing the CFC chillers to the alternatives.

Policy measures

8. The Government of Kuwait is proposing to: prohibit imports of ODS-based equipment and installation of new enterprises producing and/or assembling equipment, foams, or aerosols using ODS; closely monitor the effective adherence of ODS import quotas and licenses; prohibit expansion of existing industry requiring use of ODS technology; prohibit venting of ODS to the atmosphere and apply high leak prevention procedures; make mandatory the use of recovery/recycling equipment; establish good maintenance practices in the servicing of refrigeration equipment; and establish a technicians certification system.

Sub-projects in the RMP

9. The RMP includes requests for a training programme for customs officers (US $55,335); a training programme on good refrigerant management practices (US $67,200); a training programme on hydrocarbon refrigerants safe handling (US $33,375); a national recovery and recycling project (US $710,000); and monitoring the sub-projects in the RMP (US $33,000).

10. Through the implementation of the RMP, the Government of Kuwait proposes to phase out 85 per cent of the CFC baseline consumption (481 tonnes) by 2007.

11. The Ozone Unit supported by the National Ozone Committee will be responsible for the monitoring, co-ordination and implementation of proposed phase-out activities in the RMP.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

12. The RMP includes a training programme in good service practice and a training programme on hydrocarbon refrigerants. Furthermore, in addition to the training equipment requested in the training programme in good practices, US $9,500 was requested for equipment for hydrocarbon refrigerants training. Upon advice from the Secretariat, UNEP agreed to combine the two training programmes into one with the corresponding cost adjustments.

13. The Secretariat requested UNIDO to explain the basis used for calculating the number of recovery machines (48 high capacity units and 100 regular capacity units) and recycling centres (8 in total). The Secretariat was advised that the high capacity recovery machines requested will be distributed among the existing main companies maintaining large industrial and commercial refrigeration and air conditioning installations, and the regular capacity machines will be distributed among the existing medium-size refrigeration servicing companies that are carrying the repair and maintenance of small and medium commercial chillers and refrigeration systems. It is also proposed to establish two recycling centres with two recycling machines each.

14. The Secretariat also informed UNIDO that the unitary price of several of the equipment requested in the proposal was higher than the price of the same equipment in similar projects so far approved. Subsequently, UNIDO agreed to adjust the costs accordingly.

15. Upon a request by the Fund Secretariat, the Government of Kuwait has submitted an official letter stating its commitment, responsibilities and financial implications associated with Decisions 31/48, 32/10 and 33/13.

RECOMMENDATIONS

16. The Fund Secretariat recommends blanket approval of the projects at the funding level indicated below:

	Project Title	Project Funding (US$)	Support Cost (US$)	Implementing Agency
(a)	Implementation of the refrigerant management plan: monitoring	27,000	3,510	UNEP
(b)	Implementation of the refrigerant management plan: training of customs officers in monitoring of ODS	53,445	6,948	UNEP
(c)	Implementation of the refrigerant management plan: training programme on good refrigerant management practices and hydrocarbon (HC) refrigerants safe handling	95,325	12,392	UNEP
(d)	Implementation of the refrigerant management plan: national recovery and recycling	448,816	22,441	UNIDO

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