



**United Nations
Environment
Programme**



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

Twentieth Meeting
Montreal, 16-18 October 1996

PROJECT PROPOSAL: JORDAN

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

Refrigeration

- Phasing out CFC at the Abdin Industrial Est Co.

UNIDO

**PROJECT EVALUATION SHEET
JORDAN**

SECTOR: **REFRIGERATION** ODS use in sector (1993): 150 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial refrigeration 15.21 US \$/kg

Project Title:

Phasing out of CFC at the Abdin Industrial Est. Co.

Project Data	Commercial Refrigeration
	Abdin
ODS phase-out (ODP tonnes)	10.4
Proposed project duration (Yrs)	1.5
Incremental capital cost (US \$)	92,220
Contingency (%)	10
Incremental operational cost (US \$)	59,908
Total project cost (US \$)	152,128
Local ownership (%)	100
Export component (%)	0
Amount requested (US \$) {Original}	152,128
{Revised}	116,928
Cost effectiveness (US \$/kg)	11.24
National Coordinating Agency	MMRAE
Implementing Agency	UNIDO
Technical review completed?	Yes

<i>Secretariat's Recommendations:</i>	
Amount recommended (US \$)	116,928
Project impact (ODP tonnes)	10.4
Cost effectiveness (US \$/kg)	11.24
Implementing Agency support cost (US \$)	15,200
Total cost to Multilateral Fund (US \$)	132,128

PROJECT DESCRIPTION

Phasing out of CFC at the Abdin Industrial Est. Co.

1. ODS consumption in the commercial refrigeration subsector is estimated at 15,0 MT. The sector comprises of two commercial equipment manufacturing enterprises and a number of small service companies. This is the first project in the commercial refrigeration subsector in Jordan.
2. Abdin Co. has 30% of market share in production of commercial refrigeration equipment. The company manufactures water chillers, refrigerators, display cases and modular cold stores. The total output was 1365 units of unitary equipment and 250 prefabricated cold rooms in 1995. Abdin is committed to phase out CFCs by converting its foaming operation to HCFC-141b blowing agent and adopting HFC-134a and HFC based blends as refrigerant. Cyclopentane was considered as candidate for foam blowing but has not been selected due to required considerable investments and extensive training programmes. No further funding will be requested by the company from the Fund for future conversion to non-ODS technologies.
3. Conversion to HFC-134a refrigerant entails replacement of existing leak detectors and evacuation/charging systems with new equipment, suitable for HFC-134a refrigerant as well as redesign and modification of refrigeration systems.
4. The conversion to HCFC-141b based foam formulation involves no investment. The existing low pressure Cannon foaming machine can be used with HCFC-141b with little modification. Currently CFC-11 based foam system is purchased in the pre-mixed form. HCFC-141b based system can be purchased and used in the same way.
5. The company requests incremental operational cost associated with higher cost of components and chemicals for 6 months' duration.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENT

1. The chosen technologies are proven. The choice of interim HCFC technologies has been fully explained.

RECOMMENDATION

1. The Fund Secretariat recommends blanket approval of the project with associated costs at the funding level shown in the table below:

<u>Project Title</u>	<u>Project Cost</u> <u>US \$</u>	<u>Support</u> <u>Cost US \$</u>	<u>Implementing</u> <u>Agency</u>
Phasing out of CFC at the Abdin Industrial Est. Co	116,928	15,200	UNIDO