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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Twenty-third Meeting
Montreal, 12-14 November 1997

PROJECT PROPOSALS: IRAN

This documents includes the comments and recommendations of the Fund Secretariat on the following project proposals:

Foam

• Phasing out of CFC-11 from flexible slabstock foam manufacturing at Masshad Foam	UNIDO

Refrigeration

• Phasing out ODS at Zagross II company, Iran	UNIDO
• Phasing out ODS at Electro Steel company, Iran	UNIDO
• Phasing out ODS at Yakh Chavan Mfg. company	UNIDO
• Phasing out ODS at Iran Compressor Manufacturing company (ICMC)	UNIDO
• Phasing out ODS at Yakh Saran company, Iran	UNIDO

PROJECT EVALUATION SHEET
IRAN

SECTOR: FOAM ODS use in sector (1993): 744 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible US $6.23/kg

Project Title:
Phasing out of CFC 11 from flexible slabstock foam manufacturing at MASHHAD FOAM

Project Data	**Flexible slabstock**
	MASHHAD
ODS phase-out (ODP tonnes)	90
Proposed project duration (months)	12
Incremental capital cost (US $)	511,500
- including contingency (%)	10
Incremental operational cost (US $)	110,000
Total project cost (US $)	621,500
Local ownership (%)	100
Export component (%)	
Amount requested (US $) {Original}	621,500
{Revised}	
Cost effectiveness (US $/kg)	6.90
National Coordinating Agency	Department of the Environment (DOE), Iran
Implementing Agency	UNIDO
Technical review completed?	Yes

Secretariat's Recommendations:	
Amount recommended (US $)	Pending
Project impact (ODP tonnes)	
Cost effectiveness (US $/kg)	
Implementing Agency support cost (US $)	
Total cost to Multilateral Fund (US $)	

PROJECT DESCRIPTION

Foam Sector Profile

Sector ODS consumption (1993) reported in country programme	744 tonnes ODP
Most recent consumption data	not available
ODS to be phased out in approved projects (as at July 1997)	1550 tonnes ODP
ODS phased out (as at July 1997)	0
ODS to be phased out in current proposed projects	90 tonnes ODP
Latest (1995) CFC-11 consumption reported according to Art.7	2950 tonnes ODP

Phasing out of CFC 11 from flexible slabstock foam manufacturing at MASHHAD FOAM

1. The company Mashhad Foam will convert from the use of CFC-11 in the manufacture of flexible slabstock foam used for the production of furniture, mattresses and textile lamination industries. Mashhad Foam operates a Laader Berg F-8 Maxfoam machine with a capacity of 240 kg/min.

2. The chosen replacement alternative is Liquid Carbon Dioxide (LCD), a method of blowing low density foam utilizing liquid carbon dioxide as a blowing agent. The project will be implemented through modification of existing production facilities and installation of supplementary equipment and instruments. The associated cost of equipment amounts to US $465,000. The capital cost associated with trials, technology transfer and training is US $100,000, while the cost of contingency is US $56,500. Incremental operating costs and savings are to be determined following completion of the guidelines on LCD technology.

Equipment or Components to be Destroyed or Rendered Unusable

3. A certification of the destruction of the old equipment or components to be replaced should be issued by an independant international inspection agency.

Impact of Project on 1999 Freeze

4. Since this project is expected to be completed beginning 1999 phasing out 90 MT of CFC-11 in addition to 290 MT of CFC-11 to be phased out under three similar projects approved by the 22nd ExCom, it is considered as among the priorities of the country to meet the 1999 freeze target.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

1. The Executive Committee at its Twenty-second Meeting requested the Fund Secretariat and the Implementing Agencies to finalize their discussions on the guidelines for LCD projects and present their recommendations to the Committee alongside the projects which may be submitted to the Twenty-third Meeting for approval. As at 20 October 1997 there were still ongoing discussions among the Implementing Agencies and the Fund Secretariat with the view to finalizing the recommendations.

2. The final project cost of this and the other LCD projects will be communicated to the Sub-Committee on Project Review should agreement be reached on the guidelines.

PROJECT EVALUATION SHEET
IRAN

SECTOR: REFRIGERATION ODS use in sector (1991): 1630 ODP tonnes

Sub-sector cost-effectiveness thresholds: Commercial 15.21 US $/kg
Domestic 13.76 US /$/kg

Project Titles:

(a) Phasing out ODS at Electro Steel Co.
(b) Phasing out ODS at Yakh Chavan Mfg. Co.
(c) Phasing out ODS at Yakh Saran Co.
(d) Phasing out ODS at Zagross II Co.
(e) Phasing out ODS at Iran Compressor Manufacturing Co. (ICMC)

Project Data	**Commercial Refrigeration**				**Compressor**
	Electro Steel	Yakh Chavan	Yakh Saran	Zagross II	Iran Compressor
ODS phase-out (ODP tonnes)	120	41.75	34	34	180
Proposed project duration (months)	24	24	24	24	24
Incremental capital cost (US $)	816,508	527,802	458,663	444,858	1,360,550
- including contingency (%)	10	10	10	10	10
Incremental operational cost (US $)	81,651	not claimed	not claimed	not claimed	not claimed
Total project cost (US $)	898,159	527,802	458,663	444,858	1,360,550
Local ownership (%)	100	100	100	100	100
Export component (%)	0	0	0	0	0
Amount requested (US $) {Original}	1,082,769	633,952	485,408	499,752	1,360,550
{Revised}	898,159	527,802	458,663	444,858	
Cost effectiveness (US $/kg)	7.48	12.64	13.49	13.08	n/a
National Coordinating Agency	Department of Environment				
Implementing Agency	UNIDO				
Technical review completed?	Yes				

Secretariat's Recommendations:					
Amount recommended (US $)	898,159	527,802	458,663	444,858	
Project impact (ODP tonnes)	120	41.75	34	34	
Cost effectiveness (US $/kg)	7.48	12.64	13.49	13.08	
Implementing Agency support cost (US $)	116,761	68,614	59,626	57,832	
Total cost to Multilateral Fund (US $)	1,014,920	596,416	518,289	502,690	

PROJECT DESCRIPTION

(a) Phasing out of ODS at Electro Steel company
(b) Phasing out of ODS at Yakh Saran company
(c) Phasing out of ODS at Yakh Chavan MFG company
(d) Phasing out of ODS at Zagross II company

1. ODS consumption in the commercial sector is estimated at 1,630 mt (1993). The projects for Electro Steel, Yakh Saran, Yakh Chavan and Zagross II companies account for 50% of CFC consumption by SMEs in the commercial and industrial refrigeration sub-sector in Iran.

2. According to UNIDO "the projects will be completed before the end of 1999 and thus will contribute to the freeze target of the country by phasing out 230 ODP tonnes of CFCs".

3. Electro Steel consumes 120 mt CFCs in the production of 13,000 units of a variety of display cases, chest freezers, coolers, cold chambers, and water coolers.

4. Yakh Saran consumes 33 mt CFCs in the production of 5,500 units of a variety of display cases, chest, ice cream and upright freezers, coolers, cold chambers, and water coolers.

5. Yakh Chavan MFG consumes 41.75 mt CFCs in the production of 27,000 units of chest freezers, and cold rooms and refrigeration equipment for major government sectors such as defense, national oil and dairy companies.

6. Zagross II consumes 34 mt CFCs in the production of chest freezers, water coolers, and air-conditioning units.

7. The four companies will convert from CFC-11 to cyclopentane as a blowing agent. Requirements for cyclopentane conversion include: new high pressure foaming machines, new mixing stations, gas detector systems and fire protection systems, nitrogen injection systems, safety modifications, training, and the modification of equipment so that they are explosion proof. The four companies will share part of the cost associated with the conversion.

8. HFC 134a will replace CFC-12 as a refrigerant in the four companies. Funds are requested for: replacement of CFC-12 charging boards and leak detectors, retrofit of existing vacuum pumps, redesign of models, manufacturing of prototypes and laboratory and field test equipment.

9. Electro Steel is requesting 10% of the capital cost as incremental operating cost per year for a period of two years.

10. The companies shall provide evidence that they have scrapped the redundant equipment and will recover any proceeds from their sale to the project.

(e) Phasing out of ODS at Iran Compressor Manufacturing Company (ICMC)

1. There are two main compressor manufacturers in the Islamic Republic of Iran, Iran Compressor Manufacturing Company (ICMC) and PARS Compressor.

2. ICMC is located in Glazvin. The factory has two main production lines, the older was established in the 1970s using technology and compressor designs supplied by Westinghouse and has a capacity of approximately 350,000 per year. The conversion of the old line is not requested.

3. The second line was commissioned in 1994 based on a technology transfer agreement with Necchi Compressor Co. of Pavia, Italy. The production capacity of this line is 1,000,000 units per year (4 compressor models) based on a two shift operation.

4. ICMC produced about 35,000 units in 1995, 81,000 units in 1996, and 53,000 units in the first six months in 1997.

5. The level of automation of the new line is medium compared to European facilities but higher than average for Article 5 countries. The majority of machining operations take place on automatic machining centres or CNC equipment, with transfer of components from machine to machine or from one line to another partly manual and partly mechanical.

6. Each machining line is equipped with a quality control station with detailed component specifications and corresponding pre-settings for machine tools and gauges. There is also a central metrology department which is very well equipped with sophisticated instruments.

7. The majority of components for compressor are manufactured or machined in the factory. Sintered piston blanks and cast iron blanks for the piston and valve plate are bought in and machined in-house. The Principle components which are machined in the factory and the number of operations/machines associated with each are summarized below.

8. The project objective will be met by converting the existing manufacturing lines as necessary to produce a new design of compressor suitable for HFC-134a refrigerant. The existing range of four models will be replaced by four new models designed to provide approximately the same performance and duties as the current units.

9. The technology transfer and HFC-134a design will be supplied by a world class compressor manufacturer, this will probably be Necchi, who have already provided

preliminary advice and technical data on the conversion process and have expressed a willingness to provide the required technology transfer.

10. The conversion to HFC-134a technology will involve change in design, modification of dehydration oven, modification and/or replacement of existing washing machines, replacement of oil charging station. Dimensional changes of some of the important components in the compressor will require retooling pertaining to the production of crank shaft, valve plate, outlit pipe, stator machine and assembly line. Additionally, testing equipment will be modified and expanded to be compatible with HFC-134a.

11. UNIDO stated that "In line with the general conditions of the Multilateral Fund for the Implementation of the Montreal Protocol the Counterpart Enterprise commits itself to destroy all equipment replaced by the Fund in order to prevent their application for CFC using technology or product".

12. According to UNIDO "The project will be completed before the end of 1999 and will therefore allow the domestic appliances manufacturers, which are currently in the process of converting to HFC-134a technology, to obtain domestically manufactured HFC-134a compressors. This project will therefore contribute to the freeze target of the Islamic Republic of Iran".

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

(a) Phasing out of ODS at Electro Steel company
(b) Phasing out of ODS at Yakh Saran company
(c) Phasing out of ODS at Yakh Chavan MFG company
(d) Phasing out of ODS at Zagross II company

1. UNIDO provided information on cost sharing of certain equipment items in each of the four companies proposals. However, the baseline equipment and their capacity listed in each project indicate that the items slated for cost sharing may not be eligible for Multilateral Fund finance.

2. The Secretariat and UNIDO discussed and agreed on the revised capital costs for the four companies.

3. Three of the companies did not request incremental operating cost, as this would have rendered project costs higher than allowed for by the threshold value cut off. The fourth company, Electro Steel accepted 10% of the capital cost as compensation for incremental operating cost.

(e) Phasing out ODS at Iran Compressor Manufacturing Co. (ICMC)

1. The Executive Committee approved two projects for the conversion of 11 domestic refrigerator manufacturers in the Islamic Republic of Iran whose total reported production was 1,103,000 refrigerators. The first project was approved in 1993 and the second in 1995 for UNIDO's implementation.

2. The Executive Committee approved the incremental capital costs of the two projects, and four months incremental operating costs for the first project and the equivalence of 10% of the incremental capital costs as incremental operating costs for the second project.

3. The approved operating costs for the two projects included the costs associated with the supply of a total of 256,586 HFC-134a compressors in the first year of operation.

4. Decision 22/26 inter alia states:

"(b) For countries that are seeking funding for conversion of a compressor manufacturer, in order to be eligible for incremental operational costs, they must first submit information on their 1995 production of compressors and downstream user products. If those data show that compressor production was equal to or greater than the production of the downstream equipment producers, no funds shall be provided for incremental operational costs associated with the compressors;

(c) For countries that are seeking funding for conversion of compressor manufacturers that produced less than the number of units produced by the downstream users, the eligible incremental operational costs associated with compressors for downstream users shall be reduced in accordance with the following example: if a country produced 100 refrigerators, but is seeking compensation for the production of 90 compressors, the eligible incremental costs for the downstream users would be 10 per cent of the level otherwise eligible for funding in a distributive manner;"

5. UNIDO will provide information on the number of compressors and refrigerators produced in Iran in 1995.

RECOMMENDATIONS

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

Project Title	Project Cost US $	Support Cost US $	Implementing Agency
(a) Phasing out ODS at Electro Steel Co.	898,159	116,761	UNIDO
(b) Phasing out ODS at Yakh Chavan Mfg. Co	527,802	68,614	UNIDO
(c) Phasing out ODS at Yakh Saran Co.	458,663	59,626	UNIDO
(d) Phasing out ODS at Zagross II Co	444,858	57,832	UNIDO

2. The Executive Committee is requested to consider the eligibility of the project "Phasing out ODS at Iran Compressor Manufacturing Co. (ICMC)" in the light of Decision 22/26 and of the 1995 production figures for both compressors and downstream users.