



**United Nations
Environment
Programme**

Distr.
LIMITED

UNEP/OzL.Pro/ExCom/34/31
19 June 2001



ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-fourth Meeting
Montreal, 18-20 July 2001

PROJECT PROPOSALS: IRAN

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

Foam:

- Conversion of the use of CFC to LCD in the manufacture of flexible foam at Iranogharb Germany
- Conversion from CFC-11 to water-blown technology in the manufacture of flexible molded and integral skin polyurethane foam at Abre Sanati Iran UNDP

Refrigeration:

- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Arjah Boroudat Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Roshan Ind. Group UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Tehran Shirak Co. UNIDO
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Ojan Cooling Industries UNDP

- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Sanaye Part UNDP
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Avaj Sarma Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Donyaye Mojdeh Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Gasso Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Novin Enjemad Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Takran Mobbarad Co. UNIDO
- Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Zarifan Mashad Co. UNIDO
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Boloorin Yazd Refrigerator Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Electro Ara Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at General Industries UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ghaynar Khazar Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Golsarma Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Hanzad Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sana Commercial Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Sarmaye Sepahan Co. UNDP

- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Shagayegh Boroudat Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Yakhchalsazi Yazd Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Zenoz Sanaat Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ideal Sardsir Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Mersun Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Parsa Sazan Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Rezvan Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sepand Afroz Co. UNDP
- Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Yakhchalsazi Anzabi Co. UNDP

**PROJECT EVALUATION SHEET
IRAN**

SECTOR: Foam ODS use in sector (2000): 2,100 ODP tonnes

Sub-sector cost-effectiveness thresholds: Flexible Slabstock US \$6.23/kg
Integral Skin US \$16.86/kg

Project Titles:

- (a) Conversion of the use of CFC to LCD in the manufacture of flexible foam at Iranogharb
(b) Conversion from CFC-11 to water-blown technology in the manufacture of flexible molded and integral skin polyurethane foam at Abre Sanati Iran

Project Data	Flexible slabstock	Integral skin
	Iranogharb	Abre Sanati
Enterprise consumption (ODP tonnes)		48.35
Project impact (ODP tonnes)	62.00	47.50
Project duration (months)	16	36
Initial amount requested (US \$)	387,416	424,850
Final project cost (US \$):		
Incremental capital cost (a)	542,000	130,000
Contingency cost (b)	49,200	13,000
Incremental operating cost (c)	-9,285	201,407
Total project cost (a+b+c)	581,915	344,407
Local ownership (%)	100%	100%
Export component (%)	0%	0%
Amount requested (US \$)	387,416	344,407
Cost effectiveness (US \$/kg.)	6.23	7.25
Counterpart funding confirmed?		
National coordinating agency	Department of Environment	
Implementing agency	Germany	UNDP

Secretariat's Recommendations		
Amount recommended (US \$)	387,416	344,407
Project impact (ODP tonnes)	62.00	47.50
Cost effectiveness (US \$/kg)	6.23	7.25
Implementing agency support cost (US \$)	50,364	44,773
Total cost to Multilateral Fund (US \$)	437,780	389,180

PROJECT DESCRIPTION

Sector background

- Latest available total ODS consumption (1999)	5,926.80 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	4,571.70 ODP tonnes
- Consumption of Annex A Group I substances for the year 2000*	4,399.00 ODP tonnes
- Baseline consumption of CFCs in foam sector	2,400.00 ODP tonnes
- Consumption of CFCs in foam sector in 2000*	2,100.00 ODP tonnes
- Funds approved for investment projects in foam sector as of end of 2000	US \$6,684,732.00
- Quantity of CFC to be phased out in investment projects in foam sector as of end of 2000	1,876.60 ODP tonnes
- Quantity of CFC phased out from approved investment projects in the foam sector as of end of 2000	1,200.00 ODP tonnes
- Quantity of CFCs in approved investment projects in the foam sector not yet completed as of end of 2000	676.60 ODP tonnes
- Quantity of CFCs remaining to be phased out as of end of 2000	843.40 ODP tonnes

*Based on data submitted to the Fund Secretariat by the Government of Iran on 2 May 2001.

Flexible Slabstock Foam

Iranogharb

1. Iranogharb consumed 62 ODP tonnes of CFC-11 in 2000 in the production of flexible slabstock foam for mattresses and furniture cushions. This project will phase out the entire 62 tonnes of CFC-11 by converting to the non-ODS technology of Liquid Carbon Dioxide (LCD). The company operates a 350 kg/min continuous block machine manufactured and installed in 1978.

2. The project will be implemented through modification of existing production facilities and installation of supplementary equipment and instruments. These include the LCD system (US \$402,000) and trials, technical support, training, and installation (US \$90,000). There will be operational savings of US \$9,285. The incremental capital cost is US \$542,000 and the total project cost is US \$581,915.

Flexible Molded and Integral Skin Foam

Abre Sanati Iran

3. Abre Sanati Iran (established in 1980) consumed 48.35 ODP tonnes of CFC-11 between April 1999 and March 2000 for manufacturing foam for applications in the automotive and furniture industries. The company intends to phase out the use of 38.85 ODP tonnes of CFC-11 in its flexible molded foam production by converting to water-based systems, and 9.5 ODP

tonnes in its integral skin foam production by converting to HCFC-141b and partial water technology with conversion to HFC-based technology the likely permanent solution.

4. The company operates two 30 kg/min low-pressure dispensers in 1980 and 1994, two 30kg/min high-pressure dispensers installed 1983 and one 40 kg/min high-pressure dispenser installed in 1984, and 20 in-house fabricated fiberglass molds installed in 1994.

5. For the conversion process, retrofitting of gaskets, seals, hoses, etc. has been requested for the existing dispensers for a total of US \$70,000. The replacement of fiberglass molds with metal lined epoxy molds and temperature control systems at US \$30,000. Other capital costs proposed for the conversion include the need for technical assistance, trials, and training at US \$45,000. The incremental capital cost (including 10% contingency) is US \$159,500 and the incremental operating cost is US \$265,350. The total project cost amounts to US \$424,850.

6. A total of 47.50 ODP tonnes of CFC-11 will be eliminated with the project's implementation with residual ODS of 0.85 ODP tonnes per year.

Justification for conversion to HCFC-141b technology

7. The following has been provided as the justification for the use of HCFC-141b:

The feasible conversion technology for integral skin foam was determined to be the interim step of HCFC-141b based systems until technologies for safe CFC-free alternatives become mature and commercially viable. Water-blown technology was found to be too expensive and to produce unsatisfactory skin properties. In addition, the use of HCFC-141b technology was reported as being a security precaution due to the danger of hydrocarbons being flammable and the factory not being readily equipped to handle large hazards. Other reasons included the expenses of re-training the employees and concern for increased investment. HCFC-141b technology was therefore deemed easier, faster, and less expensive to implement than any other technology.

8. The Secretariat has received a letter from the Government of the Islamic Republic of Iran endorsing the use of HCFC-141b by Abre Sanati Iran which is available on request.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Flexible slabstock

9. The components of the project are consistent with similar projects approved and implemented in Iran and other Article 5 countries.

10. Following a discussion of the blowing agent prices with the implementing agency (GTZ) the incremental operational savings were revised. However this revision did not affect the eligible grant of the project since it exceeded the threshold funding limit.

Integral skin

11. The Secretariat and UNDP discussed issues relating to the incremental costs of the project against the background of Decision 33/2 and reached agreements which are reflected in the project costs level of grant being recommended for approval.

Actions on relevant sections of Decision 33/2

12. The Secretariat received a letter of transmittal of the Abre Sanati Iran project from the Government of the Islamic Republic of Iran in which it stated, inter alia, consistent with the Executive Committee Decision 33/2 (c) that:

- (a) The National Ozone Unit has validated the total CFC-11 consumption of 154.07 ODP tonnes to be phased out by the companies and retained in its records for future verification.
- (b) The Government of the Islamic Republic of Iran has been advised that its agreement with the project indicates a commitment to ensure that the validated phase out figure of 154.07 tonnes was realized and yielded a sustained reduction from its 2000 foam and refrigeration sector consumptions.

13. The Secretariat also received signed commitment notes from the Manager of Abre Sanati Iran in which the company inter alia affirmed its commitment to completely phase out the CFC-11 and not to revert to its use after conversion, to co-operate with the implementing agency to return any unused contingency funds and funds deemed to have been used in situations of identified serious funding irregularities as well as other commitments stipulated under Decision 33/2 and other relevant rules governing project approval.

14. The above documents are available in the Secretariat and may be made available on request.

15. The Government's letter of transmittal did not cover Iranogharb, a project for conversion to LCD technology. Neither did the Secretariat receive any declaration from the company regarding the conversion to LCD technology. The attention of the implementing agency (GTZ) was drawn to this omission.

RECOMMENDATIONS

16. The Fund Secretariat recommends:

- (a) Blanket approval of the Iranogharb and Abre Sanati Iran projects with the funding level and associated implementing agency support costs as indicated in the table below to be implemented by the Government of Germany (GTZ) and UNDP respectively.

- (b) That the total funds approved for the Iranogharb project be offset against the contribution of the Government of Germany for the years 2000 and 2001.

	Project Title	Project Funding (US\$)	Support Cost (US\$)	Implementing Agency
(a)	Conversion of the use of CFC to LCD in the manufacture of flexible foam at Iranogharb	387,416	50,364	Germany
(b)	Conversion from CFC-11 to water-blown technology in the manufacture of flexible molded and integral skin polyurethane foam at Abre Sanati Iran	344,407	44,773	UNDP

17. The Secretariat further recommends that the Executive Committee takes note with appreciation of the commitments made by the Government of the Islamic Republic of Iran and Abre Sanati Iran as stated in paragraphs 12 and 13 above.

**PROJECT EVALUATION SHEET
IRAN**

SECTOR: Refrigeration ODS use in sector (1999): 1,920 ODP tonnes

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

Project Titles:

- (a) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Arjah Boroudat Co.
- (b) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Roshan Ind. Group
- (c) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Tehran Shirak Co.

Project Data	Commercial	Commercial	Commercial
	*Arjah Boroudat	*Roshan	*Tehran Shirak
Enterprise consumption (ODP tonnes)	28.61	19.43	21.42
Project impact (ODP tonnes)	27.40	18.56	20.50
Project duration (months)	28	28	28
Initial amount requested (US \$)	209,425	203,960	202,836
Final project cost (US \$):			
Incremental capital cost (a)	170,000	173,500	170,000
Contingency cost (b)	14,500	14,850	14,500
Incremental operating cost (c)	24,925	15,610	18,336
Total project cost (a+b+c)	209,425	203,960	202,836
Local ownership (%)	100%	100%	100%
Export component (%)	0%	0%	0%
Amount requested (US \$)	209,425	203,960	202,836
Cost effectiveness (US \$/kg.)	7.64	11.00	9.90
Counterpart funding confirmed?	Yes	Yes	Yes
National coordinating agency	Department of Environment		
Implementing agency	UNIDO		

Secretariat's Recommendations			
Amount recommended (US \$)	209,425	203,960	202,836
Project impact (ODP tonnes)	27.40	18.56	20.50
Cost effectiveness (US \$/kg)	7.64	11.00	9.90
Implementing agency support cost (US \$)	27,225	26,515	26,369
Total cost to Multilateral Fund (US \$)	236,650	230,475	229,205

*Projects were submitted to the 32nd Meeting and subsequently deferred until the 34th Meeting. Projects are resubmitted under the year 2000 Business Plan.

PROJECT EVALUATION SHEET
IRAN

SECTOR: ODS use in sector (1999): 1,920 ODP tonnes

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

Project Titles:

- (d) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Ojan Cooling Industries
- (e) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Sanaye Part
- (f) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Avaj Sarma Co.
- (g) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Donyaye Mojdeh Co.

Project Data	Commercial	Commercial	Commercial	Commercial
	Ojan Cooling	Sanaye Part	Avaj Sarma	Donyaye
Enterprise consumption (ODP tonnes)	7.96	8.70	15.74	16.01
Project impact (ODP tonnes)	7.51	8.19	15.19	15.43
Project duration (months)	36	36	28	28
Initial amount requested (US \$)	114,212	124,616	199,577	198,720
Final project cost (US \$):				
Incremental capital cost (a)	141,000	140,500	144,000	158,000
Contingency cost (b)	14,100	14,050	12,400	13,800
Incremental operating cost (c)	54,222	55,000	20,077	19,220
Total project cost (a+b+c)	209,322	209,550	176,477	191,020
Local ownership (%)	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%
Amount requested (US \$)	110,863	114,770	176,477	191,020
Cost effectiveness (US \$/kg.)	14.76	14.01	11.62	12.38
Counterpart funding confirmed?	Yes	Yes	Yes	Yes
National coordinating agency	Department of Environment			
Implementing agency	UNDP		UNIDO	

Secretariat's Recommendations				
Amount recommended (US \$)	110,863	114,770	176,477	191,020
Project impact (ODP tonnes)	7.51	8.19	15.19	15.43
Cost effectiveness (US \$/kg)	14.76	14.01	11.62	12.38
Implementing agency support cost (US \$)	14,412	14,920	22,942	24,833
Total cost to Multilateral Fund (US \$)	125,275	129,690	199,419	215,853

PROJECT EVALUATION SHEET IRAN

SECTOR: Refrigeration ODS use in sector (1999): 1,920 ODP tonnes

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

Project Titles:

- (h) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Gasso Co.
- (i) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Novin Enjemad Co.
- (j) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Takran Mobbarad Co.
- (k) Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Zarifan Mashad Co.

Project Data	Commercial	Commercial	Commercial	Commercial
	Gasso	Novin	Takran	Zarifan
Enterprise consumption (ODP tonnes)	11.57	10.44	9.98	22.97
Project impact (ODP tonnes)	11.70	10.08	9.61	21.98
Project duration (months)	28	28	28	28
Initial amount requested (US \$)	164,832	148,350	139,964	207,150
Final project cost (US \$):				
Incremental capital cost (a)	131,000	119,000	99,000	164,000
Contingency cost (b)	12,100	5,700	8,900	13,900
Incremental operating cost (c)	15,132	14,002	11,964	22,650
Total project cost (a+b+c)	158,232	138,702	119,864	200,550
Local ownership (%)	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%
Amount requested (US \$)	158,232	138,702	119,864	200,550
Cost effectiveness (US \$/kg.)	14.13	13.76	12.47	9.12
Counterpart funding confirmed?	Yes	Yes	Yes	Yes
National coordinating agency	Department of Environment			
Implementing agency	UNIDO			

Secretariat's Recommendations				
Amount recommended (US \$)	158,232	138,702	119,864	200,550
Project impact (ODP tonnes)	11.70	10.08	9.61	21.98
Cost effectiveness (US \$/kg)	14.13	13.76	12.47	9.12
Implementing agency support cost (US \$)	20,570	18,031	15,582	26,072
Total cost to Multilateral Fund (US \$)	178,802	156,733	135,446	226,622

PROJECT EVALUATION SHEET IRAN

SECTOR: Refrigeration ODS use in sector (1999): 1,920 ODP tonnes

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

Project Titles:

- (l) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Boloorin Yazd Refrigerator Co.
- (m) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Electro Ara Co.
- (n) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at General Industries
- (o) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ghaynar Khazar Co.
- (p) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Golsarma Co.
- (q) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Hanzad Co.

Project Data	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic
	*Boloorin Yazd	*Electro Ara	*General Industries	*Ghaynar Khazar	*Golsarma	*Hanzad
Enterprise consumption (ODP tonnes)	21.83	13.82	33.16	17.88	30.09	21.05
Project impact (ODP tonnes)	20.53	12.99	31.12	16.80	28.33	19.83
Project duration (months)	36	36	36	36	36	36
Initial amount requested (US \$)	212,320	178,784	428,197	191,092	230,066	199,627
Final project cost (US \$):						
Incremental capital cost (a)	156,000	140,500	411,000	144,000	156,000	144,000
Contingency cost (b)	15,600	14,050	41,100	14,400	15,600	14,400
Incremental operating cost (c)	40,720	26,549	63,828	32,692	58,466	41,227
Total project cost (a+b+c)	212,320	181,099	515,928	191,092	230,066	199,627
Local ownership (%)	100%	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%	0%
Amount requested (US \$)	212,320	178,784	428,197	191,092	230,066	199,627
Cost effectiveness (US \$/kg.)	10.34	13.94	13.76	11.37	8.12	10.07
Counterpart funding confirmed?	Yes	Yes	Yes	Yes	Yes	Yes
National coordinating agency	Department of Environment					
Implementing agency	UNDP					

Secretariat's Recommendations						
Amount recommended (US \$)	212,320	178,784	428,197	191,092	230,066	199,627
Project impact (ODP tonnes)	20.53	12.99	31.12	16.80	28.33	19.83
Cost effectiveness (US \$/kg)	10.34	13.94	13.76	11.37	8.12	10.07
Implementing agency support cost (US \$)	27,602	23,242	55,666	24,842	29,909	25,952
Total cost to Multilateral Fund (US \$)	239,922	202,026	483,863	215,934	259,975	225,579

*Projects were submitted to the 32nd Meeting and subsequently deferred until the 34th Meeting. Projects are resubmitted under the year 2000 Business Plan.

PROJECT EVALUATION SHEET IRAN

SECTOR: Refrigeration ODS use in sector (1999): 1,920 ODP tonnes

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

Project Titles:

- (r) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sana Commercial Co.
- (s) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Sarmaye Sepahan Co.
- (t) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Shagayegh Boroudat Co.
- (u) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Yakhchalsazi Yazd Co.
- (v) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Zenoz Sanaat Co.

Project Data	Domestic	Domestic	Domestic	Domestic	Domestic
	*Sana Commercial	*Sarmaye Sepahan	*Shagayegh Boroudat	*Yakhchalsazi Yazd	*Zenoz Sanaat
Enterprise consumption (ODP tonnes)	12.04	11.47	10.65	31.88	10.81
Project impact (ODP tonnes)	11.36	10.79	10.03	29.96	10.18
Project duration (months)	36	36	36	36	36
Initial amount requested (US \$)	156,286	148,525	137,985	248,646	140,036
Final project cost (US \$):					
Incremental capital cost (a)	141,000	139,500	139,500	172,000	139,500
Contingency cost (b)	14,100	13,950	13,950	17,200	13,950
Incremental operating cost (c)	23,702	22,232	20,561	5,446	21,809
Total project cost (a+b+c)	178,802	175,682	174,011	194,646	175,259
Local ownership (%)	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%
Amount requested (US \$)	156,286	148,525	137,985	248,646	140,036
Cost effectiveness (US \$/kg.)	13.76	13.76	13.76	8.30	13.76
Counterpart funding confirmed?	Yes	Yes	Yes	Yes	Yes
National coordinating agency	Department of Environment				
Implementing agency	UNDP				

<i>Secretariat's Recommendations</i>					
Amount recommended (US \$)	156,286	148,525	137,985	248,646	140,036
Project impact (ODP tonnes)	11.36	10.79	10.03	29.96	10.18
Cost effectiveness (US \$/kg)	13.76	13.76	13.76	8.30	13.76
Implementing agency support cost (US \$)	20,317	19,308	17,938	32,324	18,205
Total cost to Multilateral Fund (US \$)	176,603	167,833	155,923	280,970	158,241

*Projects were submitted to the 32nd Meeting and subsequently deferred until the 34th Meeting. Projects are resubmitted under the year 2000 Business Plan.

PROJECT EVALUATION SHEET
IRAN

SECTOR: Refrigeration ODS use in sector (1999): 1,920 ODP tonnes

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

PROJECT TITLES:

- (w) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ideal Sardsir Co.
- (x) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Mersun Co.
- (y) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Parsa Sazan Co.
- (z) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Rezvan Co.
- (aa) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sepand Afroz Co.
- (bb) Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Yakhchalsazi Anzabi Co.

Project Data	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic
	Ideal Sardsir	Mersun	Parsa Sazan	Rezvan	Sepand Afroz	Yakhchalsazi
Enterprise consumption (ODP tonnes)	17.18	12.56	21.27	14.03	13.31	10.71
Project impact (ODP tonnes)	16.20	11.84	20.05	13.24	12.56	10.10
Project duration (months)	36	36	36	36	36	36
Initial amount requested (US \$)	187,907	162,891	212,845	182,182	172,881	138,935
Final project cost (US \$):						
Incremental capital cost (a)	140,500	140,500	155,500	140,500	140,500	139,500
Contingency cost (b)	14,050	14,050	15,550	14,050	14,050	13,950
Incremental operating cost (c)	33,357	22,981	41,795	27,764	26,284	18,877
Total project cost (a+b+c)	187,907	177,531	212,845	182,314	180,834	172,327
Local ownership (%)	100%	100%	100%	100%	100%	100%
Export component (%)	0%	0%	0%	0%	0%	0%
Amount requested (US \$)	187,907	162,891	212,845	182,182	172,881	138,935
Cost effectiveness (US \$/kg.)	11.60	13.76	10.62	13.76	13.76	13.76
Counterpart funding confirmed?	Yes	Yes	Yes	Yes	Yes	Yes
National coordinating agency	Department of Environment					
Implementing agency	UNDP					

Secretariat's Recommendations						
Amount recommended (US \$)	187,907	162,891	212,845	182,182	172,881	138,935
Project impact (ODP tonnes)	16.20	11.84	20.05	13.24	12.56	10.10
Cost effectiveness (US \$/kg)	11.60	13.76	10.62	13.76	13.76	13.76
Implementing agency support cost (US \$)	24,428	21,176	27,670	23,684	22,475	18,062
Total cost to Multilateral Fund (US \$)	212,335	184,067	240,515	205,866	195,356	156,997

PROJECT DESCRIPTION

Sector Background

- Latest available total ODS consumption (1999)	4,990.00 ODP tonnes
- Baseline consumption of Annex A Group I substances (CFCs)	4,571.00 ODP tonnes
- Consumption of Annex A Group I substances for the year 1999	4,405.00 ODP tonnes
- Baseline consumption of CFCs in refrigeration sector	2,075.00 ODP tonnes
- Consumption of CFCs in refrigeration sector in 1999	1,920.00 ODP tonnes
- Funds approved for investment projects in refrigeration sector as of July 2000 (31 st Meeting)	US \$28,569,557.00
- Quantity of CFC to be phased out in investment projects in refrigeration sector as of July 2000	1,992.00 ODP tonnes

18. The 1999 ODS consumption in the refrigeration sector in Iran was recently confirmed by the Government of Iran at the level of 1,920 ODP tonnes including ODS consumption for servicing. In the domestic and commercial refrigeration sub-sectors, there are about 50 large and medium-sized manufacturers and many small-scale enterprises.

19. The Executive Committee has approved about US \$28,569,557 for 37 projects to phase out 1,992 ODP tonnes of CFC for enterprises manufacturing refrigeration equipment in the refrigeration sector. According to information from the Government of Iran, about 75 small- and medium-sized domestic and commercial refrigeration enterprises remain to be converted through implementation of individual and umbrella investment projects.

Fourteen refrigeration enterprises

20. Fourteen domestic and commercial refrigeration projects for small- and medium-sized enterprises with similar backgrounds as listed in the tables on pages 1, 4 and 5 were submitted for consideration at the 32nd Meeting of the Executive Committee. These projects were reviewed by the Secretariat and all incremental capital and operating costs were agreed with the Implementing Agencies concerned. However, several issues were raised related to the list of remaining refrigeration enterprises in Iran, reliability of data on ODS consumption in the refrigeration sector and the need for evidence of a clear commitment to phase out ODP. The projects were deferred to the 34th Meeting of the Executive Committee while retaining them in the 2000 business plans of UNIDO and UNDP (Decision 32/65).

Fourteen new refrigeration projects in Iran submitted to the 34th Meeting

21. Additionally, fourteen domestic and commercial refrigeration projects are being submitted for consideration at the 34th Meeting of the Executive Committee as listed above. Of those, eight were prepared by UNDP and six by UNIDO. The fourteen enterprises consume 135.83 ODP tonnes of CFC-11 and 59.71 ODP tonnes of CFC-12 (in 1999) in the manufacture

of domestic and commercial refrigeration equipment. All of the enterprises manufacture similar equipment (refrigerators, domestic and commercial freezers and refrigerator/freezer combo units), and operate low-pressure foam dispensers which are predominantly locally made, assorted foaming moulds and jigs, production and portable refrigerant charging machines, vacuum pumps and leak detectors in the baseline.

22. The total phase out of 192.46 ODP tonnes of CFC-11 and CFC-12 will be achieved by converting CFC-11 based technology to HCFC-141b as the foam blowing agent, and CFC-12 to HFC-134a as the refrigerant. Under the current projects, the existing low-pressure machines will be replaced by high-pressure dispensers. All enterprises will require provision of industrial or portable charging units, new vacuum pumps and retrofitting of existing vacuum pumps and leak detectors suitable for HFC-134a duty. Other costs include re-design, testing, trials, technical assistance and training. Incremental operating costs are requested by the enterprises reflecting the higher cost of chemicals and an increase in foam density.

Justification for the use of HCFC-141b

23. Justification for the use of HCFC-141b by the companies has been provided in each project document by the agencies. The Government of Iran has also provided letters endorsing the use of HCFC-141b by the enterprises.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

24. Since the 32nd Executive Committee Meeting, the Secretariat has been working very closely with the Government of Iran, UNDP and UNIDO to establish reliable figures for ODS consumption in the refrigeration sector in Iran. This work has now been completed. The 2000 ODS consumption in the refrigeration sector is 1,752 ODP tonnes, including both manufacturing of new equipment and servicing. About 500 ODP tonnes will potentially be phased out through implementation of ongoing approved projects. This leaves 1,252 ODP tonnes still to be addressed. Of this amount, about 732 ODP tonnes is for the manufacturing sub-sector of which the 28 projects submitted to the 34th Meeting will address 476 ODP tonnes. The remaining 520 ODP tonnes is consumed in the servicing sector and will be addressed through the implementation of the RMP, currently under preparation by UNIDO. The Government of Iran has provided the Secretariat with an the updated list of remaining enterprises indicating their production levels and ODS consumption.

25. The Government of Iran has confirmed its commitments to comply with ODP phase out schedule and requirements of the Montreal Protocol and provided the list of specific actions on the part of the Government to support these commitments. The letter of the Government of Iran in this respect is available in the Secretariat.

26. The Secretariat discussed with UNIDO the cost of replacement of aged low pressure foaming machines with new high pressure foam dispensers in Avaj Sarma and Takran. The cost of new machines has been discounted in accordance with the existing policy of the Executive

Committee. Since all the refrigeration appliances produced by Novin and Takran are equipped with compressors below 250 wt capacity these two projects have been considered under the rules and guidelines applicable for domestic refrigeration sub-sector. The levels of grant for these two companies have been calculated using the threshold of US \$13.76/kg ODP.

27. The Secretariat has discussed with UNDP the implications of Decision 31/45 on the new sector for installation, assembly and servicing for Sanaye and Ojan. Part of incremental operating cost was recognised as ineligible.

RECOMMENDATIONS

28. The Fund secretariat recommends blanket approval of the commercial and domestic refrigeration projects from UNIDO and UNDP with the level of funding and associated support costs as indicated below.

	Project Title	Project Funding (US\$)	Support Cost (US\$)	Implementing Agency
(a)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Arjah Boroudat Co.	209,425	27,225	UNIDO
(b)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Roshan Ind. Group	203,960	26,515	UNIDO
(c)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Tehran Shirak Co.	202,836	26,369	UNIDO
(d)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Ojan Cooling Industries	110,863	14,412	UNDP
(e)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration equipment at Sanaye Part	114,770	14,920	UNDP
(f)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Avaj Sarma Co.	176,477	22,942	UNIDO
(g)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Donyaye Mojdeh Co.	191,020	24,833	UNIDO
(h)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Gasso Co.	158,232	20,570	UNIDO
(i)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and commercial refrigeration at the Novin Enjemad Co.	138,702	18,031	UNIDO
(j)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of commercial refrigeration at the Takran Mobbarad Co.	119,864	15,582	UNIDO
(k)	Conversion from CFC-11 to HCFC-141b and CFC-12 to HFC-134a technology in the manufacture of domestic and	200,550	26,072	UNIDO

	commercial refrigeration at the Zarifan Mashad Co.			
(l)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Boloorin Yazd Refrigerator Co.	212,320	27,602	UNDP
(m)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Electro Ara Co.	178,784	23,242	UNDP
(n)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at General Industries	428,197	55,666	UNDP
(o)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ghaynar Khazar Co.	191,092	24,842	UNDP
(p)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Golsarma Co.	230,066	29,909	UNDP
(q)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Hanzad Co.	199,627	25,952	UNDP
(r)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sana Commercial Co.	156,286	20,317	UNDP
(s)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Sarmaye Sepahan Co.	148,525	19,308	UNDP
(t)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Shagayegh Boroudat Co.	137,985	17,938	UNDP
(u)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators and freezers at Yakhchalsazi Yazd Co.	248,646	32,324	UNDP
(v)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Zenoz Sanaat Co.	140,036	18,205	UNDP
(w)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Ideal Sardsir Co.	187,907	24,428	UNDP
(x)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Mersun Co.	162,891	21,176	UNDP
(y)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Parsa Sazan Co.	212,845	27,670	UNDP
(z)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Rezvan Co.	182,182	23,684	UNDP
(aa)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Sepand Afroz Co.	172,881	22,475	UNDP
(bb)	Conversion from CFC-11 to HCFC-141b technology and from CFC-12 to HFC-134a technology in the manufacture of domestic refrigerators at Yakhchalsazi Anzabi Co.	138,935	18,062	UNDP