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THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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**FINAL REPORT ON THE 1999 EVALUATION OF REFRIGERATION PROJECTS
AND DRAFT FOLLOW-UP ACTION PLAN**

Introduction

1. In the following, final conclusions and recommendations resulting from the evaluations of refrigeration projects are presented by the Senior Monitoring & Evaluation Officer. In elaborating this final report and draft follow-up action plan, the written comments received by the Implementing Agencies and NOUs on the draft evaluation reports as well as the results of discussions in the Secretariat and in the workshop held in Montreal on 7 and 8 February 2000, with the Implementing Agencies and Evaluation Consultants were taken into account.

2. Three Evaluation Teams had visited 28 companies in 11 countries in Africa, Latin America and Asia. Details of the sample of refrigeration projects visited are contained in the report on the Implementation of the 1999 Work Programme for Monitoring and Evaluation presented to the 29th Meeting of the Executive Committee (see UNEP/OzL.Pro/ExCom/29/5, pp. 4-6). The sample visited represents 20% of the total number of 144 refrigeration projects completed so far. Although the visits to the enterprises were usually limited to a few hours in most cases, the Teams' Reports brought interesting findings and recommendations (see the Preliminary Summary presented to the 29th Meeting of the Executive Committee in document 29/5, Addendum 1, pp. 14-25).

3. The Regional Synthesis papers and the project case studies prepared by the Consultants are available on request and will be placed also in a new section "Monitoring and Evaluation" in the web site of the Multilateral Fund Secretariat (<http://www.unmfs.org>).

I ODS Phase Out, implementation delays, costs and overall rating

4. In 20 projects, the ODS phase out was fully realized, in two cases slightly higher than foreseen in the project document, while in seven projects, the actual phase out was slightly lower than planned. The Evaluation Missions identified in some projects discrepancies in data on CFC consumption included in Project Documents and PCRs and actual CFC phase out (see attached annex). In several instances, actual CFC consumption data were corrected on the basis of the inquiries of the Consultants. In doing so, the Consultants reported repeated difficulties in understanding the way the ODS phase out had been calculated in the project documents and in the PCRs.

5. Delays of more than 12 months occurred in four projects, 11 projects had delays of between one and nine months, eight projects were completed as planned and three earlier than expected. In many cases, substantial savings were made, although this picture will change to some extent when projects that are not yet financially closed make outstanding payments and finalize their accounts.

6. The overall rating using the new scheme proposed in the revised draft PCR format shows three exceptionally successful projects, nine highly satisfactory, nine satisfactory, one less satisfactory and one unsatisfactory project. The self-assessment by the Implementing Agencies in the PCRs had indicated one project as highly satisfactory, seven satisfactory as planned and 14 as satisfactory, though not as planned (see Annex 1).

Action Proposed for the Secretariat and Implementing Agencies:

7. *To work out and apply definitions and procedures leading to more transparency and consistency in calculating ODS phase out in project documents and PCRs.*

II Role of the Multilateral Fund and the Enterprises in Funding the Conversion

8. Evaluation Missions have identified that the enterprises frequently used conversions to non-ODS technologies as an opportunity for modernization, rearrangement and enhancement of production, all of which are associated with technological upgrade, thereby requiring additional resources. In a number of cases, the enterprises spent their own resources to pay for higher priced equipment from specific suppliers rather than accept lower priced equipment offered through international bidding. The preliminary summary of the synthesis reports (Document 29/5 Add. 1) indicates that volume and purpose of counterpart funding in the companies visited were generally not very well documented. It was often difficult to assess whether the counterpart funding was fully required for conversion (eligible incremental cost), for modernization and enhancement of production, or for the higher priced equipment.

9. *Action is taken by the Multilateral Fund Secretariat in cooperation with the Implementing Agencies to revise the PCR format in order to include information on counterpart funding. The data to be provided should be detailed enough to show the purpose and reason of the funding provided by the enterprise and to follow up on commitments made prior to the project's approval by the Executive Committee.*

III Irreversibility of Conversion

10. The Evaluation Teams recommended that the Secretariat, in cooperation with the Implementing Agencies, should supplement Decision 22/38 by developing guidelines for the destruction and disposal of equipment after conversion. By defining procedures for the equipment's destruction and its verification, and by establishing precise lists of equipment to be destroyed, the reluctance of enterprises to destroy potentially useful spare parts might be easier to overcome.

Actions Proposed to the Executive Committee:

11. *Decision 28/2 should be expanded to include:*

- (a) *To request the Agencies to withhold, wherever possible, part of the project funding or reimbursement of cost until proof of disposal and destruction of equipment has been provided.*

Actions Proposed for the Secretariat and Implementing Agencies:

12. To establish lists of key parts for standard equipment which need to be destroyed or rendered unusable while other parts to be specified could be further used as spare parts or in a Service Department (e.g. leak detectors).

IV Project Identification and Preparation

13. The Evaluation Missions had recommended that the NOUs should be actively involved in the project preparation. This is indeed an important point and has become regular practice in more and more countries in recent years, particularly in countries with strong NOUs where they were actively involved, while in some other cases their role is still limited.

Actions Proposed to Implementing Agencies and NOUs:

14. Implementing Agencies should involve NOUs in all cases in project identification and preparation, should inform them about the purpose and outcome of all missions of staff and consultants and should continue to use Regional Network Meetings as well as Bilateral Meetings for discussions and briefings.

V Project Implementation

15. Apart from the issue of counterpart funding which has been dealt with under 1.2 above, the Evaluation Missions have raised the issue of incremental operating costs (IOC) spent by some enterprises to bolster otherwise insufficient funds for eligible capital equipment. This is in line with Decision 20/6 of the Executive Committee noting, however, that this decision stipulates that in such cases a report must be submitted to the Executive Committee providing an explanation and justification for the transfer.

Actions Recommended to the Secretariat and the Implementing Agencies:

16. In the PCRs, more detailed information should be provided concerning the use of funding for IOC, and in cases where transfers take place from operating cost budget to capital costs, in accordance with Decision 20/6, paragraph b, reports should be provided by the Implementing Agencies as part of the PCR, the format of which will be adjusted accordingly.

VI Monitoring & Reporting

17. The Evaluation Teams recommended a number of measures on how to improve the content, completeness and timeliness of PCRs.

18. Action is taken by the Secretariat in cooperation with the Implementing Agencies to revise the PCR format and inform the Executive Committee accordingly.

Overall Rating of Refrigeration Projects Evaluated

Country	Code	Company	Agency	ODP To Be Phased Out As Per Inventory	ODP To Be Phased Out As Per Evaluation	ODP Phased Out As Per PCR	ODP Phased Out As Per Evaluation	Difference of ODP Phased Out/ Planned and Achieved as per Evaluation	ODP Points	Date Approved	Accepted Completion Date As Per Progress Report	Actual Date Completion As Per Progress Report	Delay in implementation (months)	Delays Points	Planned Date of Completion As Per PCR	Date of Completion As Per Evaluation
Chile	CHI/REF/07/INV/18	Frigorent Frigorifico	IBRD	0.31	0.14	0.03	0.14	0.0	0	Jun-92	Oct-96	Oct-96	0	360	Jun-96	Feb-97
Chile	CHI/REF/07/INV/21	Mimet	IBRD	47.80	47.20	34.06	42.00	-5.2	-30	Jun-92	Dec-96	Dec-96	0	360	Jun-96	Feb-97
Chile	CHI/REF/07/INV/25	Supermercado Vicuna McKenna	IBRD	0.63	0.19	0.17	0.19	0.0	0	Jun-92	Mar-97	Feb-97	-1	380	Jun-96	Feb-97
China	CPR/REF/13/INV/71	Chang Ling Co. Ltd.	IBRD	70.00	70.00	72.0	69.40	-0.6	-2	Jul-94	Sep-97	Sep-97	0	360	Jul-96	Sep-97
China	CPR/REF/22/INV/204	Hualing Refrigerator	UNIDO	280.00	280.00	95.0 prelim. for 1998	280.00	0.0	0	May-97	Jun-99	Dec-97	-18	720	May-99	Dec-97
China	CPR/REF/16/INV/115	Haier Refrigerator Factory (foam part)	Germany	174.00	174.00	203.0	174.00	0.0	0	Mar-95	Jan-00	Mar-95	0	360	Mar-95	Jun-95
China	CPR/REF/16/INV/116	Haier Refrigerator Factory (refrigeration part)	USA	29.00	29.00	No PCR as yet	29.00	0.0	0	Mar-95	Jul-97	Not yet completed	n.a	n.a	n.a	n.a
Colombia	COL/REF/13/INV/06	Icasa	UNDP	72.00	56.70	49.33	56.70	0.0	0	Jul-94	Oct-97	Oct-97	0	360	Sep-95	Oct-97
Colombia	COL/REF/13/INV/08	Corelsa	UNDP	22.00	22.00	n.a.	22.00	0.0	0	Jul-94	Oct-97	Not yet completed	n.a	n.a		
Colombia	COL/REF/18/INV/21	Unilemh (Challenger)	UNDP	17.00	34.20	34.96	34.86	0.7	5	Nov-95	Oct-97	Oct-97	0	360	May-97	Oct-97
Costa Rica	COS/REF/18/INV/08	Atlas Electrica	UNDP	27.00	49.97	49.97	49.97	0.0	0	Nov-95	Sep-97	May-98	8	200	May-97	May-98
Egypt	EGY/REF/15/INV/44	Royal Engineering/Fricool	UNDP	20.30	20.78	20.6	20.78	0.0	0	Dec-94	Dec-97	Sep-98	9	180	Dec-95	Nov-98
Egypt	EGY/REF/13/INV/32	Delta Industrial	UNIDO	97.00	97.00	67.0	97.00	0.0	0	Jul-94	Jan-96	May-97	16	40	Jan-96	May-97
Egypt	EGY/REF/15/INV/38	HelWan	UNIDO	7.50	7.50	7.5	7.50	0.0	0	Dec-94	Jun-96	Dec-98	30	-240	Jul-96	Dec-98
India	IND/REF/10/INV/08	Blue Star	IBRD	36.00	36.00	36.0	35.30	-0.7	-5	Jun-93	Jun-97	Dec-97	6	240	Jun-96	Dec-97
India	IND/REF/18/INV/62	V. Krishna & Co.	IBRD	14.80	14.80	PCR due	14.00	-0.8	-14	Nov-95	Aug-97	Sep-98	13	100	n.a	n.a
India	IND/REF/19/INV/90	Seepra Refrigeration Ltd.	IBRD	15.00	15.00	15.0	14.20	-0.8	-14	May-96	Feb-98	Jul-98	5	260	Nov-97	Jun-98
Malaysia	MAL/REF/15/INV/51	MelCom	IBRD	99.73	99.73	99.7	87.60	-12.1	-33	Dec-94	Jan-96	Jan-96	0	360	Dec-97	Jan-96
Malaysia	MAL/REF/12/INV/29	Sharp-Roxy	UNDP	65.00	65.00	48.6	65.00	0.0	0	Mar-94	Jun-97	Dec-97	6	240	Mar-96	Nov-98
Mexico	MEX/REF/05/INV/61	Gigante I	IBRD	38.00	14.40	14.40	14.40	0.0	0	Nov-91	Jun-97	Sep-97	3	300	Jan-98	Sep-99
Mexico	MEX/REF/05/INV/09	Ojeda	IBRD	13.00	13.00	13.00	13.00	0.0	0	Nov-91	Nov-92	Dec-95	38	-400	Nov-92	Mar-95
Mexico	MEX/REF/15/INV/30	Enresa Refrigerator	UNDP	47.00	47.00	47.00	47.00	0.0	0	Dec-94	Jul-97	Sep-97	2	320	Dec-95	Sep-97
Mexico	MEX/REF/23/INV/68	Torrey	UNIDO	15.05	15.01	n.a.	15.10	0.1	1	Nov-97	Jun-99	Not yet completed	n.a	n.a	n.a	n.a
Thailand	THA/REF/10/INV/17	Thai Toshiba Electric Industries (Phase I)	IBRD	0.00	0.00	n.a.	n.a.	n.a	n.a	Jun-93	Jun-96	Jan-97	7	220	Jun-95	Jun-96
Thailand	THA/REF/21/INV/62	Thai Toshiba Electric Industries (Phase II)	IBRD	89.00	96.00	89.0	89.00	-7.0	-19	Feb-97	Feb-98	Jan-97	-13	620	Feb-98	Jan-97
Thailand	THA/REF/13/INV/33	Sanden	UNDP	21.00	21.00	88.0	21.00	0.0	0	Jul-94	Sep-97	Jun-98	9	180	Jul-95	Jun-98
Tunisia	TUN/REF/19/INV/17	Six small refrigerator manufacturers	UNIDO	78.50	78.50	78.5	n.a.	n.a	n.a	May-96	May-97	May-97	0	360	May-97	n.a
Tunisia	TUN/REF/19/INV/17	Sotufem((Subproject)	UNIDO	17.00	17.00	n.a.	17.00	0.0	0	May-96	May-97	n.a.	n.a	n.a	May-97	May-97
Tunisia	TUN/REF/19/INV/17	Gan (Subproject)	UNIDO	32.00	32.00	n.a.	32.00	0.0	0	May-96	May-97	n.a.	n.a	n.a	May-97	May-97
Tunisia	TUN/REF/23/INV/27	At 7 Manufacturers	UNIDO	29.00	29.00	29.0	n.a.	n.a	n.a	Nov-97	Nov-98	Dec-98	1	340	Apr-99	n.a
Tunisia	TUN/REF/23/INV/27	Frijo Baf. (SubProject)	UNIDO	1.50	1.50	n.a.	1.50	0.0	0	Nov-97	Nov-98	n.a.	n.a	n.a	Apr-99	Dec-98
Vietnam	VIE/REF/15/INV/04	SEAPRODEX Co.	UNIDO	40.00	40.30	n.a.	40.30	0.0	0	Dec-94	Jun-96	Dec-96	6	240	Jul-96	Dec-96

Overall Rating of Refrigeration Projects Evaluated

Country	Code	Company	Cost-Effectiveness Planned As Inventory (US\$/kg)	Cost-Effectiveness As Per PCR (US\$/kg)	Cost-Effectiveness As Per Evaluation (US\$/kg)***	Funds Approved As Per Inventory	Funds Disbursed As Per Progress Report	Difference	Project Financially Closed	Expenditures Points	Funds Approved As Per PCR	Funds Disbursed As Per PCR	Rating by IA in PCR*	Total Points	New Rating**
Chile	CHI/REF/07/INV/18	Frigorent Frigorifico	67.22	1,093.11	144.04	20,166	20,166	0	X	0	20,166	36,512	3	360	3
Chile	CHI/REF/07/INV/21	Mimet	2.83	3.79	2.23	95,570	93,672	1,898	X	2	93,672	183,770	3	332	3
Chile	CHI/REF/07/INV/25	Supermercado Vicuna McKenna	9.26	519.01	29.25	5,558	5,558	0	X	0	5,558	87,183	3	380	2
China	CPR/REF/13/INV/71	Chang Ling Co. Ltd.	12.19	10.62	11.92	853,000	827,400	25,600	X	15	980,000	968,504	3	373	2
China	CPR/REF/22/INV/204	Hualing Refrigerator	3.14	7.06	2.33	879,788	652,299	227,489		33	879,788	671,242	2	753	1
China	CPR/REF/16/INV/115	Haier Refrigerator Factory (foam part)	16.63	6.50	7.68	1,336,918	1,336,918	0	X	0	1,336,918	1,336,918	2	360	3
China	CPR/REF/16/INV/116	Haier Refrigerator Factory (refrigeration part)	16.63	n.a.	27.83	1,643,865	807,044	836,821		1,186	n.a.	n.a.	n.a.	n.a.	n.a.
Colombia	COL/REF/13/INV/06	Icasa	19.47	26.18	18.56	1,410,680	1,052,557	358,123		260	1,410,680	1,291,427	3	620	1
Colombia	COL/REF/13/INV/08	Corelsa	38.61	n.a.	31.24	853,432	687,331	166,101		310	n.a.	n.a.	n.a.	n.a.	n.a.
Colombia	COL/REF/18/INV/21	Unilemh (Challenger)	9.14	4.39	4.40	155,350	153,457	1,893		2	155,350	153,457	3	367	2
Costa Rica	COS/REF/18/INV/08	Atlas Electrica	13.89	7.50	7.50	375,000	375,000	0		0	375,000	375,002	3	200	3
Egypt	EGY/REF/15/INV/44	Royal Engineering/Fricool	26.55	26.13	19.72	539,000	409,869	129,131		255	539,000	539,000	3	435	2
Egypt	EGY/REF/13/INV/32	Delta Industrial	26.93	37.08	25.52	2,611,986	2,474,969	137,017		58	2,611,986	2,848,134	2	98	4
Egypt	EGY/REF/15/INV/38	HelWan	85.90	81.79	72.61	644,239	544,578	99,661		546	644,239	613,448	3	306	3
India	IND/REF/10/INV/08	Blue Star	15.75	11.42	11.65	420,496	411,140	9,356		11	555,450	554,529	2	246	3
India	IND/REF/18/INV/62	V. Krishna & Co.	9.80	n.a.	3.42	147,020	47,868	99,152		291	n.a.	n.a.	n.a.	377	2
India	IND/REF/19/INV/90	Seeptra Refrigeration Ltd.	7.83	6.17	7.35	171,910	104,330	67,580		196	171,910	115,396	3	442	2
Malaysia	MAL/REF/15/INV/51	MelCom	12.77	12.80	14.09	1,276,500	1,234,337	42,163	X	20	1,276,500	1,234,337	2	347	3
Malaysia	MAL/REF/12/INV/29	Sharp-Roxy	14.80	17.67	13.21	962,000	858,568	103,432		65	962,000	858,785	3	305	2
Mexico	MEX/REF/05/INV/61	Gigante 1	13.06	34.40	34.47	496,380	496,380	0		0	496,380	496,380	2	300	2
Mexico	MEX/REF/05/INV/09	Ojeda	17.30	16.27	16.27	225,000	211,543	13,457	X	43	225,000	211,542	1	-357	5
Mexico	MEX/REF/15/INV/30	Enresa Refrigerator	18.45	17.26	17.26	867,033	811,406	55,627		49	867,033	811,406	3	369	2
Mexico	MEX/REF/23/INV/68	Torrey	15.15	n.a.	0.22	228,165	3,334	224,831		612	n.a.	n.a.	n.a.	n.a.	n.a.
Thailand	THA/REF/10/INV/17	Thai Toshiba Electric Industries (Phase I)	7.83		n.a.	823,000	667,037	155,963	X	n.a.	823,000	648,526	(2)	n.a.	n.a.
Thailand	THA/REF/21/INV/62	Thai Toshiba Electric Industries (Phase II)	12.80	10.84	3.35	316,957	297,733	19,224	X	9	316,957	297,733	2	610	1
Thailand	THA/REF/13/INV/33	Sanden	25.42	6.06	25.42	533,800	533,800	0		0	533,800	533,800	3	180	3
Tunisia	TUN/REF/19/INV/17	Six small refrigerator manufacturers	9.74	7.84	n.a.	764,557	633,735	130,822		n.a.	764,557	635,348	2	n.a.	n.a.
Tunisia	TUN/REF/19/INV/17	Sotufem (Subproject)	7.11	n.a.	n.a.	n.a.	n.a.	n.a.		n.a.	n.a.	n.a.	(2)	n.a.	n.a.
Tunisia	TUN/REF/19/INV/17	Gan (Subproject)	5.99	n.a.	n.a.	n.a.	n.a.	n.a.		n.a.	n.a.	n.a.	(2)	n.a.	n.a.
Tunisia	TUN/REF/23/INV/27	At 7 Manufacturers	12.90	12.9	n.a.	374,111	72,830	301,281		n.a.	374,111	368,395	2	n.a.	n.a.
Tunisia	TUN/REF/23/INV/27	Frigo Baf. (SubProject)	59.97	n.a.	n.a.	n.a.	n.a.	n.a.		n.a.	n.a.	n.a.	(2)	n.a.	n.a.
Vietnam	VIE/REF/15/INV/04	SEAPRODEX Co.	12.43	n.a.	12.33	497,070	497,070	0		0	497,070	497,070	3	240	3

* Overall assessment by Implementing Agencies so far:

- 1 - Highly satisfactory, more than planned (1)
- 2 - Satisfactory, as planned (7)
- 3 - Satisfactory, though not as planned (14)

4 - Unsatisfactory, less than planned (0)

5- Unacceptable (0)

*** Cost Effectiveness As Per Evaluation = ODP Phased Out As Per Evaluation/Funds Disbursed As Per Progress Report/1000

Note: Some disbursed figures are provisional data

** New overall rating proposed:

- 1 - Exceptionally Successful (more than 480 points) (3)
- 2 - Highly Satisfactory (between 360-420 points) (9)
- 3 - Satisfactory (between 120-360 points) (9)
- 4 - Less Satisfactory (between 120-0 points) (1)
- 5 - Unsatisfactory (less than 0 points) (1)