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PROJECT COMPLETION REPORT

SECTION 1: PROJECT DATA

1.1	Country:	Mexico
1.2	Project Number: (as per inventory)	MEX/REF/23/INV/70 (MP/MEX/97/174)
1.3	Project Title:	Phasing out CFC-11 and CFC-12 at Nieto S.A.
1.4	Date of Approval of the Project:	23th ExCom Meeting in Nov 1997
1.5	Percentage of National Ownership:	100% private company
1.6	Implementing Agency:	UNIDO
1.7	Local Executing Agency/ Financial Intermediary:	N.A.
1.8	National Coordinating Agency:	Instituto Nacional de Ecologia
1.9	Scheduled Date of Completion:	September 1998
1.10	Actual Date of Completion:	December 1998
1.11	Date of Project Completion Report:	October 1999
1.12	Completion Report Done By: (Implementing Agency/National Agency)	UNIDO

Prepared by: R. Serpa — Date: October 1999
Revised by: E. Puerto-Ferre — Date: October 1999

SECTION 2: EXECUTIVE SUMMARY

ITEM	PLAN/ APPROVED	ACTUAL	NATIONAL SECTOR IMPACT*	COMMENT
ODS phase-out (in ODP tonnes)	24.6	24.6	1.2% Refrigeration 0.8% Foam	
Budget and expenditure (US$)	353,976	353,976	N/A	
Cost-effectiveness (in US$/kg)	14.37	14.37	N/A	
Project Implementation: (in months)	10	10	N/A	
Project duration	10	10	N/A	
Start up of project activities at country level as stated by Article 5 Party concerned	December 97	December 11, 1997	N/A	
Grant agreement submitted to beneficiary	-	May 18, 1998	N/A	
Grant agreement signature	-	May 18, 1998	N/A	
Inspection of new and modified equipment	May 98	May 18, 1998	N/A	
Funds transferred	August 98	September 98	N/A	
Submission of completion report	October 98	May 99	N/A	

* *Expressed in percentage of National/Sector consumption.*

Note:

As this is a retroactive payment project, main activities in the project were devoted to checking and verification the equipment purchased by the company, as well as the invoices of the suppliers.

Overall Assessment of the Project: *A brief description of no more than 300 words of the degree the project achieved its objective(s), major problems encountered and lessons learnt.*

The project has been initiated and prepared in 1997 based on the Mexican Country Programme for the phase out of ozone depleting substances. The objective of this project was apply the criteria established at the 22nd meeting of the ExCom, referent to the retroactive funds.
Following approval by the Ex Com the project was carried out in four stages:

1. Inspection of the activities undertaken by the company and the new and modified equipment.
2. Inspection and verification of the invoices.
3. Verification of the booking of entries (Recording of transactions)
4. Transfer of the retroactive funds for equipment and incremental operating costs.

Among the technological options presently available the counterpart chose to replace CFC-12 by HFC-134a. As for the replacement of CFC-11 as a blowing agent for polyurethyane foam, the company decided to select HFC-141b.

The company had replaced the following machinery and equipment:

3 charging boards have been replaced by boards suitable for HFC-134a;

3 leak detectors were replaced by 1 special leak detector for HFC-134a;

The 14 old vacuum pumps were retrofitted and 6 new one purchased;

The performance test and cooling circuits redesigned were carried out for each model.

SECTION 3: ODS PHASE OUT

Pre-Conversion

3.1 Main Lines of Products Manufactured:

Production of refrigerators units. (Displays, refrigerators, bottle coolers, freezers, etc)

3.2 Annual Production Level:

36.0 MT average (29.3 tons CFC-11 and 6.8 CFC-12) were used in 1994 to manufacture 28,467 units.

44.8 MT average (35.0 tons CFC-11 and 9.8 CFC-12) were used in 1995 to manufacture 29,297 units.

0 MT average (0 tons CFC-11 and 0 CFC-12) were used in 1996 to manufacture 29,965 units.

3.3 ODS Consumed:

ODS (1):	**CFC-11**	Quantity (ODP tonnes):	**21.5 MT**
ODS (2):	**CFC-12**	Quantity (ODP tonnes):	**5.5 MT**
Total:	**average**	Quantity (ODP tonnes):	**26.9 MT**
National Impact:	**2%**		

Post-Conversion

3.4 Year of Project Commissioned: End of 1,995. Retroactive Payment.

3.5 Year of Commencement of New Production: 1,996

3.6 The Transition of ODS-based to Non-ODS-based Production

Year	Units Produced with ODSs	ODSs Consumed (ODP tonnes)	Units Produced with Substitutes	Substitutes Consumed (tonnes)
1994	28,467 units	36.1 MT	-	-
1995	29,297 units	44,85 MT	-	-
1996	0 units	0 MT	29,965 units	21.6 MT
1997*	0 units	0 MT	38,954 units	28 MT
Total	57,764 units	80,95 MT	68,919 units	49.6 MT

* Year of project approval

3.7 If there is a variance between the ODS phase-out target in the project document and the actual ODS phase-out, please explain.

N.A.

SECTION 4: TECHNOLOGY CHOICE

ITEM	PRE-CONVERSION	POST-CONVERSION
4.1 Technology Choice		
Technology employed	CFC-11& CFC-12	HFC-141b & HFC-134a
Environmental impact	ODP = 1	ODP = 0.11 & 0.00
Determining factor for choice	The company chose to replace CFC-12 by HFC-134a and decided to select HFC-141b as an intermediate substitute for CFC-11	The choice was suitable
Technology change after approval and reason for change	N.A.	N.A.
4.2 Availability	Commercially available	Commercially available
No. of months spent in acquiring the technology	N.A.	N.A.
Reason for delay (if any)	N.A.	N.A.
4.3 Safety (where applicable)		
Main safety hazard		
Measures implemented		
Standard applied		International standards were applied.
Certification by*		Instituto Nacional de Ecologia

* *Please attach copies of certification*

4.4 Is there any problem encountered in the implementation of the replacement technology? If yes, please elaborate briefly.

N.A.

SECTION 5: BUDGET AND EXPENDITURES

This is a status report on project expenditures at the time of preparing the project completion report with the understanding that a full financial completion report will be prepared as a supplement once the accounts of the project are closed.

5.1 Summary

ITEM	PLAN/APPROVED (US$)	EXPENDITURE (TO-DATE) (US$)	DIFFERENCE/ COMMENT (US$)
Incremental capital cost	140,800	140,800	0
Incremental operating cost	213,176	213,176	0
Contingency cost	0	0	0
Total	353,976	353,976	0
ODS phase-out (kg/ODP)	24,600	24,600	
Cost-effectiveness ($/kg.)	14.37	14.37	

5.2 Budget and Expenditure on Incremental Capital Cost

ITEM*	APPROVED	EXPENDITURE	DIFFERENCE	REASON
General consultancy services & technology transfer	10,000	10,000	0	
Equipment	130,800	130,800	0	
Contingencies	0	0	0	
Incremental operating cost, two years	213,176	213,976	0	
Total Investment	353,976	353,976	0	Retroactive Payment

**List of equipment approved in the project document (additional equipment should be so indicated).*

5.3 Budget and Expenditure on Incremental Operating Cost

CFC-11 PHASE OUT							
Prodution using CFC				Prodution using HFC-141b			
	%	Price US$/kg	Cost US$/kg	%	Price US$/kg	Cost US$/kg	
Polyol	37	2.25	0.8325	38	2.25	0.855	
MDI	49	3.1	1.519	56	3.1	1.736	
ABA	14	4.2	0.588	6	5.5	0.33	
Total	100	$/kg	2.940	100	$/kg	2.291	
kg of foam per unit			8.55			9.41	
Total cost US$/unit			25.13			27.47	
Incremental cost difference US$			2.34	per unit			
CFC-12 PHASE OUT							
				kg	US$/kg	Total	
Average charge CFC-12				0.33	4.40	1.47	
HFC-134 a charge				0.30	5.30	1.59	
Difference					0.12		
Incremental cost difference US$			0.12	per unit			
Modification				Incremental Cost (US$)			
	HCF-134a compressor				3		
	Capillary tube modification				0.2		
	Evaporator and condenser modification				0.5		
	3 AA drier				0.2		
	HFC-134a refrigerant				0.12		
	Extra polyurethane foam because oh higher				2.34		
	density (+10%)						
TOTAL					6.36	US$per unit	
INCREMENTAL OPERATING COSTS							
Number of units (average per year during period 94 to 96)					**19,255**	**units**	
Incremental operating costs one year operation					**122,515**	**US$**	
Coeficient for N.P.V.				1.74			
Incremental operating costs two years operation					**213,176**	**US$**	

5.4 Budget and Expenditure on Contingency Cost

	ITEM(s)	EXPENDITURE
CONTINGENCY FUNDS	**Total**	0
	Approved	0
	Difference	0

SECTION 6: IMPLEMENTATION EFFICIENCY

ITEM	AS PLANNED		DELAY/COMMENT
	YES	NO	
6.1 Project Schedule	X		
Project duration	X		
Start of project activities at country level as stated by Article 5 Party concerned	X		
Grant agreement submitted to beneficiary	X		
Grant agreement signature	X		
Inspection of new and modified equipment	X		
Funds transferred		X	
Submission of completion report	X		

6.4 Please describe any major problems encountered in project implementation and what was the major cause of delay.

No delays in project implement.

SECTION 7: DISPOSAL OF ODS-BASED PRODUCTION EQUIPMENT

7.1 List of Equipment Rendered Unusable

LIST OF EQUIPMENT RENDERED UNUSABLE (The Baseline)*		DISPOSAL IMPLEMENTED			
Name of Equipment	Description **	Method of Disposal	Date of Disposal	Implementer	Certified By
N.A.	N.A.	-	-	-	-

* *List of equipment rendered unusable in the project document*

** *Description should include Model No. And Serial No.*

7.2 Describe briefly the process of destruction and attach copies of certification of destruction.

SECTION 8: OVERALL ASSESSMENT OF PROJECT

Using three quantifiable indicators, namely ODS phase-out (plan v. actual) cost and speed of completion (plan v. actual), give an overall assessment of the project in the scale below.

{ } Highly satisfactory, more than planned
{X} Satisfactory, as planned
{ } Satisfactory, though not as planned
{ } Unsatisfactory, less than planned
{ } Unacceptable

Comments from Government:

SECTION 9: LESSONS LEARNT

State any lessons that can be drawn from this project that will benefit future projects.

Verification of equipment invoices and the recording of transactions in company's books is a very consuming time task. A lot of attention has to be paid in order to avoid mistakes. Excellent cooperation from the company's side is requested.