



**United Nations
Environment
Programme**

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/65/32
20 October 2011

ORIGINAL: ENGLISH



EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-fifth Meeting
Bali, Indonesia, 13-17 November 2011

PROJECT PROPOSAL: EGYPT

This document consists of the comments and recommendation of the Fund Secretariat on the following project proposal:

Phase-out

- HCFC phase-out management plan (stage I, first tranche)

UNIDO/UNDP

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Egypt

(I) PROJECT TITLE	AGENCY
HCFC phase out plan (Stage I)	UNDP, UNIDO (lead)

(II) LATEST ARTICLE 7 DATA	Year: 2010	375.9 (ODP tonnes)
-----------------------------------	------------	--------------------

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2010	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.1				0.1
HCFC-141b		126.2							126.2
HCFC-141b in Polyols		100.9							100.9
HCFC-142b		1.9			14.3				16.2
HCFC-22		18.3		175.2	38.5				232.0

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline (estimate):	386.27	Starting point for sustained aggregate reductions:	484.61
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	63.9	Remaining:	911.06

(V) BUSINESS PLAN		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	21.5	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.0
	Funding (US \$)	1,075,000	1,075,000	0	0	0	0	0	0	0	0	2,150,000
UNIDO	ODS phase-out (ODP tonnes)	16.3	0.5	0.5	0.5							17.8
	Funding (US \$)	1,045,975	43,975	43,975	43,975	0	0	0	0	0	0	1,177,900

(VI) PROJECT DATA			2010*	2011	2012	2013	2014	2015	Total
Montreal Protocol consumption limits				n/a	n/a	386.27	386.27	347.64	n/a
Maximum allowable consumption (ODP tonnes)				n/a	n/a	386.27	386.27	347.64	n/a
Project Costs requested in principle(US\$)	UNDP	Project costs	1,479,000	2,000,000	2,000,000	0	716,400	0	6,195,400
		Support costs	115,463	150,000	150,000	0	53,730	0	469,193
	UNIDO	Project costs	892,840	950,000	250,000	0	232,575	0	2,325,415
		Support costs	66,963	71,250	18,750	0	17,443	0	174,406
Total project costs requested in principle (US \$)			2,371,840	2,950,000	2,250,000	0	948,975	0	8,520,815
Total support costs requested in principle (US \$)			182,426	221,250	168,750	0	71,173	0	643,599
Total funds requested in principle (US\$)			2,554,266	3,171,250	2,418,750	0	1,020,148	0	9,164,414

* Approved at the 62nd meeting.

(VII) Request for funding for the first tranche (2011)		
Agency	Funds requested (US \$)	Support costs (US \$)
UNDP	2,000,000	150,000
UNIDO	950,000	71,250
Funding request:	Approval of funding for the first tranche (2011) as indicated above	
Secretariat's recommendation:	Individual consideration	

PROJECT DESCRIPTION

1. On behalf of the Government of Egypt, UNIDO, as the lead implementing agency, has submitted to the 65th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost of US \$13,169,464, consisting of US \$5,635,064 plus agency support costs of US \$422,630 for UNIDO, and US \$6,615,600 plus agency support costs of US \$496,170 for UNDP, as originally submitted. Implementation of the activities included in stage I of the HPMP will phase out 229.56 ODP tonnes of HCFCs. These amounts include US \$1,315,580 plus agency support costs of US \$98,670 for UNIDO for three foam projects to phase out 26.50 ODP tonnes of HCFC-141b, approved at the 62nd meeting, and US \$1,479,000 plus agency support costs of US \$115,463 for UNDP for four foam projects to phase-out 37.40 ODP tonnes of HCFC-141b, also approved at the 62nd meeting. The total amount of 229.56 ODP tonnes of HCFCs to be phased out will allow the Government to meet the Montreal Protocol's compliance target of the 10 per cent per cent reduction by 2015, and will contribute towards the 35 per cent reduction in 2020.

2. The first tranche for stage I being requested at this meeting amounts to (as originally submitted) US \$660,200 plus agency support costs of US \$49,515 for UNIDO and US \$2,000,000 plus agency support costs of US \$150,000 for UNDP (these figures exclude the level of funding of the seven HCFC phase-out projects previously approved for UNIDO and UNDP).

Background

3. Egypt, with a total population of 83.1 million inhabitants, has ratified all the amendments to the Montreal Protocol.

ODS policy and regulatory framework

4. Ministerial Decree No. 77 of 2000 issued by Egypt's Ministry of State for Environmental Affairs prohibits the importation of all ODS, including HCFCs, without a permit issued by the Egyptian Environmental Affairs Agency (EEAA). In addition, Decree No. 139 of 2003 issued by the Ministry of Trade and Industry bans imports of new and used equipment containing ODS. The quota system for HCFCs will be established consistent with the strategies and consumption levels proposed in the HPMP and will be enforced to regulate the consumption of all HCFCs.

HCFC consumption and sector distribution

5. HCFC consumption in Egypt increased from 3,939.06 metric tonnes (mt) (249.14 ODP tonnes) in 2006 to 5,964.03 mt (396.60 ODP tonnes) in 2009, and then decreased to 5,640.57 mt (375.93 ODP tonnes) in 2010, as shown in Table 1. The baseline for compliance has been estimated at 386.26 ODP tonnes.

Table 1. HCFC consumption in Egypt (Article 7 data)

HCFC	2006	2007	2008	2009	2010*	Baseline
Metric tonnes						
HCFC-22	3,319.00	4,696.23	4,178.60	4,515.34	4,218.98	4,367.16
HCFC-123	3.08		2.00	7.00	3.50	5.25
HCFC-124	313.43	32.40			0.39	0.20
HCFC-141b	587.40	1,411.75	970.13	1,208.97	1,147.55	1,178.26
HCFC-142b	29.58	291.14	243.61	232.72	270.54	251.63
Total (mt)	4,252.49	6,431.52	5,394.34	5,964.03	5,640.96	5,802.50

HCFC	2006	2007	2008	2009	2010*	Baseline
ODP tonnes						
HCFC-22	182.55	258.29	229.82	248.34	232.04	240.19
HCFC-123	0.06	-	0.04	0.14	0.07	0.11
HCFC-124	6.90	0.71			0.01	0.00
HCFC-141b	64.61	155.29	106.71	132.99	126.23	129.61
HCFC-142b	1.92	18.92	15.83	15.13	17.59	16.36
Total (ODP tonnes)	256.04	433.21	352.40	396.60	375.94	386.27

6. Additionally, polyols containing HCFC-141b are imported into the country, with a consumption of 917.00 mt (100.87 ODP tonnes) in 2010 as shown in Table 2.

Table 2. HCFC-141b contained in imported pre-blended polyols in Egypt

HCFC in imported polyols	2006	2007	2008	2009	2010	Baseline*
Metric tonnes	363.55	900.41	818.55	963.00	917.00	893.99
ODP tonnes	39.99	99.05	90.04	105.93	100.87	98.34

(*) 2007-2009 average consumption.

7. The two main HCFCs consumed in Egypt are HCFC-22 and HCFC-141b, representing 95.6 per cent of total consumption in the country. Measured in metric tonnes, HCFC-22 and HCFC-141b represented 74.8 per cent and 20.3 per cent respectively of the total HCFC imports in 2010, while measured in ODP tonnes, HCFC-22 and HCFC-141b represented 61.7 per cent and 33.6 per cent, respectively.

Foam sector

8. HCFC-141b is currently used in the manufacturing of polyurethane rigid and integral skin foams by some 100 enterprises. Small amounts of HCFC-22 and HCFC-142b are also used for the manufacturing of extruded polystyrene foam boards by two enterprises.

9. Three Article 5-owned systems houses, namely Baalbaki, Obeigi Chemical (United Arab Emirates owned-capital), and Technocom and one multinational (Dow Chemical), locally manufacture foam systems for the foam industry. The prevalent foam production technology is based on the use of fully formulated systems (FFS), which are sold as a two-component system comprising two drums (one containing the polyol, the blowing agent (i.e., HCFC-141b) and other chemicals in accordance with the intended application, and the other containing methylene di-isocyanate or MDI). The use of FFS obviates the need for the expensive and inconvenient step (for most manufacturers) of in-house pre-blending of polyol with the blowing agent. HCFC-141b is imported mainly by systems houses that pre-mix it with polyol before selling on the market. These systems houses and four other systems suppliers (namely KPI, Beta/Succo, Bayer and Redachem) also sell FFS imported from facilities outside Egypt (including Kuwait, Saudi Arabia and United Arab Emirates), to make up for shortfalls in meeting market demand. Therefore all FFS for similar applications (locally pre-blended or imported) are treated the same, both commercially and industrially.

10. Eleven enterprises manufacturing domestic refrigerators are using 590.30 mt (64.93 ODP tonnes) of HCFC-141b for the production of insulation foam as shown in Table 3. Some of these enterprises have experience with hydrocarbon production technology having had some production lines already converted to hydrocarbon. Some other enterprises had expanded their operations resulting in parallel production of domestic refrigerators and freezers using cyclopentane and HCFC-141b in parallel lines within the same facility, while a few other enterprises were established after the 21 September 2007 cut-off date.

Table 3. Enterprises manufacturing insulation foam for refrigeration equipment in Egypt

Enterprise	HCFC consumption (mt)			2009-2010 average	
	2008	2009	2010	(mt)	(ODP tonnes)
Mondial Freezers Co.(*)	60.00	60.00	72.00	60.00	6.60
Delta Electrical Appliances(*)	74.00	81.00	97.20	80.90	8.90
El Araby for Engineering Industries (*)	45.00	100.00	120.00	100.00	11.00
Delta Industrial Co. (Ideal) - Almaza	62.00	61.00	73.20	67.10	7.38
Delta Industrial Co.	45.00	73.00	87.60	80.30	8.83
Technopol Egypt For Industry and Trade	28.20	27.00	32.40	29.70	3.27
Electrostar Engineering Industries Co	9.00	11.00	13.20	12.10	1.33
Kiriazzi Refrigerators Manufacturing Co.	120.00	148.00	100.00	124.00	13.64
Industrial Star Factories(**)	8.00	7.00	8.40	7.70	0.85
Kiriazzi Gas Co. (water heaters)(**)	20.00	15.00	20.00	17.50	1.93
Mondial for Home Appliances(**)	0.00	10.00	12.00	11.00	1.21
Total	471.20	593.00	636.00	590.30	64.93

(*) HCFC consumption under the "2009-2010 average consumption" column represents the amount of HCFCs to be phased out in projects approved at the 62nd meeting.

(**) Established after the cut-off date of 21 September 2007.

11. The additional 89 foam enterprises are manufacturing insulation foam for water heaters and truck bodies, thermoware, spray foam and integral skin foam with a total consumption of 1,242.60 mt (136.69 ODP tonnes) of HCFC-141b as shown in Table 4. There are only eight enterprises with HCFC-141b consumption higher than 25.00 mt (2.75 ODP tonnes). In view of the low HCFC-141b consumption, almost 90 per cent of these enterprises depend on FFS bought from the local system houses or from enterprises importing them from system houses in the region.

Table 4. Enterprises manufacturing non-appliance foam in Egypt

Sector/Subsector	Enterprises		HCFC-141b(*)		% of total
	Number	% of total	(mt)	(ODP tonnes)	
Rigid insulation foam					
Water heaters	9	10.1	143.10	15.74	11.5
Thermoware	4	4.5	36.00	3.96	2.9
Panels, blocks, doors	44	49.4	714.10	78.55	57.5
Spay foam/pipe-in-pipe/others	13	14.6	265.40	29.19	21.4
Subtotal	70	78.7	1,158.60	127.45	93.2
Rigid non-insulation foam					
Packaging	1	1.1	9.00	0.99	0.7
Decorative and filling	7	7.9	48.80	5.37	3.9
Subtotal	8	9.0	57.80	6.36	4.7
Integral skin foam	11	12.4	26.20	2.88	2.1
Total	89		1,242.60	136.69	

(*) 2009-2010 average consumption.

12. Extruded polystyrene (XPS) foam is manufacture by two enterprises, one of which (Decomix) was established in 2008. The blowing agents used by these enterprises are HCFC-22 (only by Decomix), small amounts of HCFC-142b/HCFC-22 (pure) as well as substantial amounts of R-406A by both enterprises, a chemical usually used as a refrigerant containing 55 per cent of HCFC-22, 41 per cent of HCFC-142b and 4 per cent of isobutane. The quantity of R-406A used by these enterprises in relation to the amount of HCFCs in the sector has risen from 42 per cent in 2008 to 71 per cent in 2010 (Table 5).

Table 5. Enterprises manufacturing extruded polystyrene foams in Egypt

HCFC	2008			2009			2010		
	Advechem	Decomix*	Total	Advechem	Decomix*	Total	Advechem	Decomix*	Total
Metric tonnes									
HCFC-22	25.98	55.80	81.78	28.18	36.79	64.97	25.70	20.64	46.34
HCFC-142b	19.67	-	19.67	18.48	5.19	23.67	19.74	4.75	24.49
Total (mt)	45.65	55.80	101.45	46.66	41.98	88.64	45.44	25.39	70.83
ODP tonnes									
HCFC-22	1.43	3.07	4.50	1.55	2.02	3.57	1.41	1.14	2.55
HCFC-142b	1.28	-	1.28	1.20	0.34	1.54	1.28	0.31	1.59
Total (ODP t)	2.71	3.07	5.78	2.75	2.36	5.11	2.70	1.44	4.14

(*) Decomix was established after the cut-off date of 21 September 2007.

Refrigeration sector

13. Except for a small amount of HCFC-22 used in the XPS foam sub-sector, all HCFC-22 imports are used in the refrigeration and air conditioning (RAC) sector as shown in Table 6. Over 76 per cent of the total HCFC-22 consumption in 2010 was used by 12 enterprises manufacturing predominantly air-conditioners, chillers and, to a lesser extent, water coolers and cold stores. During the survey for the preparation of the HPMP, most of the enterprises were reluctant to provide detailed information on their production operations. An in-depth survey will be undertaken prior to the submission of a plan to phase out HCFC-22 in the manufacturing sector. The remaining consumption is used for after-market servicing by equipment manufacturers and suppliers, and for servicing refrigeration equipment by service workshops.

Table 6. Sector distribution of HCFC-22 consumption in Egypt

Description	2007	2008	2009	2010
Metric tonnes				
Manufacturing	1,749.80	2,742.72	3,527.97	3,185.92
After sale servicing	308.58	481.01	621.88	855.40
General servicing/maintenance	98.48	93.62	111.79	139.85
Total (mt)	2,156.86	3,317.35	4,261.64	4,181.17
ODP tonnes				
Manufacturing	96.24	150.85	194.04	175.23
After sale servicing	16.97	26.46	34.20	47.05
General servicing/maintenance	5.42	5.15	6.15	7.69
Total (ODP tonnes)	118.63	182.45	234.39	229.96

14. A total of 17 service workshops were identified, of which 13 service HCFC-22-based equipment, three service HCFC-123-based equipment and one uses very small amounts of HCFC-142b (Table 7).

Table 7. HCFC consumption in refrigeration service workshops in Egypt

HCFC/Service workshop	Metric tonnes			ODP tonnes		
	2007	2008	2009	2007	2008	2009
HCFC-22						
The Petroleum and Consultation Projects	0.18	0.19	0.19	0.01	0.01	0.01
Telecom Egypt	20.00	20.00	23.00	1.10	1.10	1.27
Misr for Import and Export Company	16.70	16.70	19.21	0.92	0.92	1.06

HCFC/Service workshop	Metric tonnes			ODP tonnes		
	2007	2008	2009	2007	2008	2009
Suez Canal Authority	-	1.60	1.90	-	0.09	0.10
Metro Market Company	3.54	5.16	5.93	0.19	0.28	0.33
Farag Allah	17.69	24.84	28.57	0.97	1.37	1.57
Petrochemicals	18.24	2.81	3.24	1.00	0.15	0.18
Misr Tourist	1.18	-	1.36	0.06	-	0.07
Alexandria Mills and Bakeries	1.50	2.00	2.30	0.08	0.11	0.13
MisrAluminum	3.99	3.25	3.73	0.22	0.18	0.21
Marine Navigation	5.15	4.71	5.42	0.28	0.26	0.30
Misr Company for Chemical Industry	4.00	6.00	6.90	0.22	0.33	0.38
York for Cooling and Air-conditioning	5.19	5.01	5.51	0.29	0.28	0.30
Total HCFC-22	97.35	92.26	107.24	5.35	5.07	5.90
HCFC-123						
Al-Ahram	-	-	2.42	-	-	0.05
York for Cooling and Air-conditioning	1.00	1.20	1.38	0.02	0.02	0.03
Pyramiza Hotel	-	-	0.58	-	-	0.01
Total HCFC-123	1.00	1.20	4.37	0.02	0.02	0.09
HCFC-142b						
Egyptian Iron and Steel Co	0.14	0.16	0.18	0.01	0.01	0.01
Total HCFC-142b	0.14	0.16	0.18	0.01	0.01	0.01
Grand total	98.48	93.62	111.79	5.38	5.11	6.00

HCFC phase-out strategy

15. The Government of Egypt's overarching strategy is based on accelerated phase-out in accordance with decision XIX/6 of the Parties. Priority is given to the phase-out of HCFC-141b consumption through the introduction of commercially available, cost-effective and sustainable low global warming potential (GWP) technologies that do not place an unwanted financial burden on the recipient enterprises. The Government will explore alternative technologies that could make cost-effective use of its resources (i.e., natural gas in vapour compression refrigeration applications) and will establish a national Task Force to develop guidelines and norms for the safe use of natural refrigerants (i.e., hydrocarbon-based, carbon dioxide, ammonia and water). The Government will continue to explore options for co-funding in order to maximize the resources available to stakeholders, especially in the RAC servicing sector.

16. The main activities to be implemented during stage I of the HPMP are: conversion of foam enterprises to non-HCFC based technologies, enabling activities in the refrigeration servicing sector, including safety norms, and support to the project implementation and monitoring unit.

Conversion of the foam manufacturing enterprises

17. In view of the low HCFC-141b consumption, almost 90 per cent of these enterprises depend on FFS bought from the local system houses or from companies importing them from systems houses in the region. These characteristics of the foam sector pose challenges to the design of a phase-out strategy that would be cost-effective and devoid of implementation delays. Therefore, the strategy adopted for this sector is based on the conversion of the enterprises manufacturing insulation foam for refrigeration equipment, and the conversion of all other rigid foam enterprises.

Conversion of enterprises manufacturing insulation foam for refrigeration equipment

18. The objective of the project is to convert the HCFC-141b-based insulation foam lines of 11 domestic and refrigeration manufacturing enterprises to cyclopentane technology. Total funding of US \$1,315,580 was approved for UNIDO at the 62nd meeting for the conversion of the following three enterprises to a non-HCFC-141b blowing agent:

- (a) Conversion from HCFC-141b to cyclopentane in the manufacture of polyurethane foam at Mondial Freezers Company (US \$436,300), with a total phase-out of 60.00 mt (6.60 ODP tonnes) of HCFC-141b;
- (b) Conversion from HCFC-141b to cyclopentane in the manufacture of polyurethane foam at Delta Electric Appliances (US \$422,740), with a total phase-out of 80.91 mt (8.90 ODP tonnes) of HCFC-141b; and
- (c) Conversion from HCFC-141b to cyclopentane in the manufacture of polyurethane foam at El-Araby Co. for Engineering Industries (US \$456,540), with a total phase-out of 100.00 mt (11.00 ODP tonnes) of HCFC-141b.

19. One additional enterprise manufacturing insulation foam for refrigeration equipment, namely Kiriazi Refrigerators Factory (Kiriazi), is proposed to be converted to cyclopentane technology during implementation of stage I of the HPMP. The enterprise is one of the largest enterprises manufacturing appliances, including refrigerators and freezers (100,000 freezers manufactured in 2009). In 2009, the enterprise established a new production line in its own facility; it also manufactures refrigeration equipment at another facility that was converted to cyclopentane with Multilateral Fund support. Conversion to cyclopentane technology will require installation of a cyclopentane storage tank, retrofitting of the three foam machines in the baseline, a pre-mixing facility, safety related equipment, trials, training and technical assistance, at a total cost of US \$905,700 (i.e., US \$1,047,000 in capital cost and -US \$141,300 in operating savings).

20. For the remaining seven enterprises the Government is proposing to undertake an in-depth survey and submit a comprehensive phase-out plan in 2012. The cost of the conversion of these enterprises has been estimated at US \$3,854,064 (including US \$1,315,580 already approved) with an associated phase-out of 614.30 mt (67.57 ODP tonnes) of HCFC-141b, as shown in Table 8.

Table 8. Cost for the conversion of enterprises manufacturing insulation foam for refrigeration equipment

Enterprise	HCFC-141b consumption		Estimated cost (US \$)
	(mt)	(ODP tonnes)	
Funded at the 62nd meeting			
Mondial Freezers Co.	60.00	6.60	436,300
Delta Electrical Appliances	80.90	8.90	422,740
El Araby for Engineering Industries	100.00	11.00	456,540
Subtotal (already funded)	240.90	26.50	1,315,580
To be converted in stage I			
Kiriazi Refrigerators Manufacturing Co.	148.00	16.28	905,700
Remaining enterprises			
Delta Industrial Co. (Ideal) - Almaza	67.10	7.38	545,300
Delta Industrial Co.	80.30	8.83	625,537
Technopol Egypt For Industry and Trade	29.70	3.27	231,363
Electrostar Engineering Industries Co	12.10	1.33	94,259

Enterprise	HCFC-141b consumption		Estimated cost (US \$)
	(mt)	(ODP tonnes)	
Industrial Star Factories	7.70	0.85	-
Kiriazzi Gas Co. (water heaters)	17.50	1.93	136,325
Mondial for Home Appliances	11.00	1.21	-
Subtotal (remaining enterprises)	225.40	24.79	1,632,784
Total	614.30	67.57	3,854,064

Conversion of all other rigid foam enterprises

21. The objective of the project is to convert all the foam enterprises manufacturing rigid and integral foam products to low GWP alternative technologies. Six enterprises, five of which have an HCFC-141b consumption higher than 30.00 mt (3.30 ODP tonnes), will be converted individually; enterprise consuming between 0.50 and 30.00 mt (0.06 to 3.30 ODP tonnes) will be converted with the support from their systems suppliers or systems distributors; and the phase-out of the remaining foam users with a consumption below 0.50 mt (0.06 ODP tonnes) will be achieved through a technical assistance programme.

22. Total funding of US \$1,479,000 was approved for UNDP at the 62nd meeting for the conversion of the following four enterprises to a non-HCFC-141b blowing agent:

- (a) Conversion from HCFC-141b to methyl formate in the manufacture of polyurethane spray foams at Specialized Engineering Contracting Co., (US \$178,000), with a total phase-out of 102.00 mt (11.22 ODP tonnes) of HCFC-141b;
- (b) Conversion from HCFC-141b to n-pentane in the manufacture of polyurethane rigid insulation foam panels at MOG Engineering and Industry (US \$790,400), with a total phase-out of 126.00 mt (13.86 ODP tonnes) of HCFC-141b;
- (c) Conversion from HCFC-141b to methyl formate in the manufacture of polyurethane rigid insulation foam water heaters at Fresh Electric Home Appliances (US \$124,500), with a total phase-out of 22.00 mt (2.42 ODP tonnes) of HCFC-141b; and
- (d) Conversion from HCFC-141b to n-pentane in the manufacture of polyurethane rigid insulation foam panels at Cairo Foam (US \$386,100), with a total phase-out of 90.00 mt (9.90 ODP tonnes) of HCFC-141b.

23. The remaining two foam enterprises will be converted during stage I of the HPMP. Based on the technical feasibility, cost, and impact to the environment, both enterprises selected cyclopentane as the replacement technology. A brief description of the two enterprises is presented below:

- (a) Reftruck manufactures insulated foams for trucks and panels. Production is based on insulation panels with a core of rigid polyurethane foam sandwiched between fibreglass-reinforced polyester resin sheets. The company converted its CFC-11 discontinuous panel to cyclopentane technology with the assistance from the Multilateral Fund (US \$385,000 approved for UNDP at the 12th meeting). The block line and the laminator, the current main product lines, were established using HCFC-141b as a foam blowing agent in 2006. The project is aimed at converting the block dispenser and the continuous line to the use of cyclopentane. Conversion of the enterprise includes retrofitting the foam dispensers of the continuous line and the block foam; safety-related equipment; safety audits; trials and training; and

- (b) Al Fateh for Engineering and General Contracting manufactures insulating sandwich panels for cold stores and construction. The enterprise originally manufactured its cold storage panels on a discontinuous line and its construction panels on a continuous line. Both lines were converted to cyclopentane through the Multilateral Fund (US \$496,000 approved for UNDP at the 12th meeting). In 2005-2006 the enterprise installed a new continuous line based on HCFC-141b pre-blended system. The most cost-effective approach is to install a three-component dispenser; a hydrocarbon unloading system; safety-related equipment; safety audits; trials and training.

24. The total cost of converting the two enterprises has been estimated at US \$1,020,300 with a cost-effectiveness of US \$4.78, as shown in Table 9.

Table 9. Estimated cost for the conversion of two foam enterprises in Egypt

Enterprise	HCFC-141b (tonnes)		Cost (US \$)		Total	CE (US\$/kg)
	Metric	ODP	Capital	Operating		
Refrtruck	106.00	11.66	632,500	(24,500)	608,000	5.74
Al Fateh	107.50	11.83	423,500	(11,200)	412,300	3.84
Total	213.50	23.49	1,056,000	(35,700)	1,020,300	4.78

25. The conversion of 81 small and medium sized enterprises (SMEs) with the support from their systems suppliers or systems distributors, to be implemented during stage I of the HPMP, will result in the phase-out of 666.20 mt (73.28 ODP tonnes) of HCFC-141b. The Government considered it important to seek assistance from all systems houses and suppliers at the same time given the fact that the foam enterprises can purchase FFS from any of them. The main products manufactured by the foam enterprises are: water heaters; sandwich panels and blocks; spray foam; pipe insulation; decorative foam; and integral skin foams. Twenty-one enterprises consumed nearly 67 per cent of the total HCFC-141b. Nineteen enterprises with a total consumption of 116.10 mt (12.77 ODP tonnes) had previously received assistance from the Fund to convert from CFCs. The distribution of the foam enterprises by estimated level of HCFC-141b consumption is presented in Table 10.

Table 10. Distribution of SMEs by estimated level of HCFC-141b consumption

Range (mt)	No. enterprises	% total enterprises	HCFC-141b consumption		% total consumption
			mt	ODP tonnes	
>0.5 < 1.0	13	16.05	8.40	0.92	1.26
>1.0 < 2.0	10	12.35	16.90	1.86	2.54
>2.0 < 5.0	23	28.40	83.20	9.15	12.49
>5.0 < 10.0	14	17.28	111.50	12.27	16.74
>10.0 < 20.0	8	9.88	113.80	12.52	17.08
>20.0 < 35.0	13	16.05	332.40	36.56	49.89
Total	81	100.00	666.20	73.28	100.00

26. During the preparation of the HPMP, the technical and economic aspects of all available technologies for the replacement of HCFC-141b were discussed with all stakeholders. The application of methyl formate resulted in the lowest conversion costs and therefore it was selected as the default cost structure that will be applied regardless of the chosen technology. The introduction of methyl formate requires retrofitting the equipment at the three locally owned systems houses and retrofitting the baseline equipment at the foam enterprises.

27. At the systems houses, capital costs will be provided to retrofit the facilities, including explosion-proofing of blending tanks and pumps (US \$30,000 for each tank and pump); nitrogen dispenser (US \$8,000); emission monitors (US \$2,000 each) and safety-related systems (US \$10,000); testing equipment (up to US \$25,000); technology transfer (US \$40,000); and contingencies (calculated at 10 per cent of the capital costs). An additional US \$1,000 per customer of the systems house is included for project management, amounting to US \$81,000. US \$30,000 is also requested for the retrofit of foam equipment (owned by the systems houses). No capital costs will be provided to the foreign-owned systems houses to retrofit their facilities.

28. At the enterprise level, capital costs will be provided for retrofitting the existing equipment in the baseline: US \$10,000 for each low-pressure dispenser; US \$15,000 for each high-pressure dispenser; US \$5,000 for each spray dispenser; and US \$15,000 for a new dispenser. An additional US \$3,000 for each piece of equipment in the baseline is provided for trials, testing and training. Contingencies are calculated at 10 per cent of the capital costs. Operating costs have been calculated on the basis of baseline prices and formulations from systems houses and replacement formulations from technology providers, as well as the information gathered by UNDP from the methyl formate validation project. Accordingly, operating costs were estimated at US \$0.15 per kilogram of formulated polyol system used.

29. The total cost for the conversion of the systems houses and their foam customers has been estimated at US \$3,742,300, as shown in Table 11 below. The cost-effectiveness value of the project is US \$5.62/kg.

Table 11. Estimated cost for the conversion for the systems houses and their SME customers

Equipment	Total cost (US\$)
Systems houses	
Equipment	351,000
Project management	81,000
Technology transfer	320,000
Contingency	75,200
Total systems houses	827,200
Foam enterprises	
Equipment	2,015,850
Trials, testing and training	243,000
Operating costs	656,250
Total foam enterprises	2,915,100
Total cost	3,742,300
HCFC-141b consumption (mt)	666.20
Cost-effectiveness (US\$/kg)	5.62

30. Stage I of the HPMP also includes the phase-out of 86.00 mt (9.46 ODP tonnes) of HCFC-141b used by some 350 “micro” users (with an average annual consumption of 0.25 mt (0.03 ODP tonnes) of HCFC-141b through a technical assistance programme. It includes four workshops (one for each systems house and its distributors); procurement of 10 small pipe-in-pipe dispensers for the system houses and distributors to be used as rental equipment, and distribution of 400 safety kits (boots, gloves, respirators and aprons) among end-users. The estimated cost of the programme is US \$374,000 with a cost-effectiveness of US \$4.35/kg.

Activities in the refrigeration servicing sector

31. Stage I of the HPMP includes several activities to be carried out in preparation for a seamless transition to the use of hydrocarbon-based refrigerants for suitable types of air conditioners available in Egypt. As HCFC-22 consumption is progressively reduced, there will be the tendency for end-users to switch to cheaper and more energy efficient refrigerants, such as R-290 (propane). Accordingly, the HPMP proposes to implement the following specific enabling activities, at a total cost of US \$1,114,000, with an associated phase-out of 247.55 mt (13.61 ODP tonnes of HCFC-22 (calculated at US \$4.50/kg).

- (a) Establishment and operation of three demonstration centres for retrofit/conversion of air-conditioners to propane (R-290), including recovery, reclamation and recycling of HCFC-22 (US \$360,000);
- (b) Operation of two training centres for initial train-the-trainer activities, seminars, and workshops, and for the design of a certification programme focusing on the use of hydrocarbon and other natural refrigerants (US \$388,200);
- (c) Pilot conversion of HCFC-based equipment to propane refrigerant (US \$205,800);
- (d) Regulatory programme for the establishment of standards, rules and code of practice for use of hydrocarbon and other natural refrigerants (US \$60,000); and
- (e) Use of local resources in RAC conversions, including the demonstration on applicability, scope, cost scenarios and implementation modalities of absorption refrigeration technology (using natural gas) as a cost-effective alternative to phase out HCFC-22 in RAC servicing (US \$100,000).

Project implementation and monitoring unit

32. An HPMP Coordinating Unit managed by a coordinator and supported by two assistants, will be established within the National Ozone Unit (NOU). The NOU will follow all programmes and projects in the assigned sectors from inception to completion, and will follow post-completion operations. The total cost of this component is US \$667,000.

Total cost of stage I of the HPMP

33. The total cost of the activities proposed in stage I of the HPMP to be funded through the Multilateral Fund amounts to US \$12,250,664 (excluding agency support costs). These activities will result in the phase-out of 224.81 ODP tonnes of HCFCs with an overall cost-effectiveness of US \$5.65/kg (Table 12).

Table 12. Overall cost of stage I of the HPMP for Egypt

Enterprise	HCFC-141b		HCFC-22		Cost (US \$)
	(mt)	(ODP t)	(mt)	(ODP t)	
Insulation foam for refrigeration equipment					
Three enterprises funded at the 62 nd meeting	240.90	26.50			1,315,580
Conversion of Kiriazi Refrigerators	148.00	16.28			905,700
Remaining 7 enterprises	225.40	24.79			1,632,784
All other rigid foam enterprises					
Four enterprises funded at the 62 nd meeting	340.00	37.40			1,479,000
Conversion of two additional enterprises	213.50	23.49			1,020,300

Enterprise	HCFC-141b		HCFC-22		Cost (US \$)
	(mt)	(ODP t)	(mt)	(ODP t)	
Conversion of SMEs through systems houses	666.20	73.28			3,742,300
Technical assistance programme	86.00	9.46			374,000
Enabling activities in the servicing sector					
Three demonstration centres			80.00	4.40	360,000
Training centres			86.27	4.74	388,200
Pilot conversion of HCFC-based equipment			45.73	2.52	205,800
Regulatory programme for standards			13.33	0.73	60,000
Local resources in RAC conversions			22.22	1.22	100,000
Project monitoring unit					667,000
Total	1,920.00	211.20	247.55	13.61	12,250,664
Cost effectiveness(*)					5.65

(*) Excluding funding for the project monitoring unit

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

34. The Secretariat reviewed the HPMP for Egypt in the context of the guidelines for the preparation of HPMPs (decision 54/39), the criteria for funding HCFC phase-out in the consumption sector agreed at the 60th meeting (decision 60/44), subsequent decisions on HPMPs and the 2011-2014 business plan of the Multilateral Fund. The Secretariat discussed technical and cost-related issues with UNIDO and UNDP, which were satisfactorily addressed as summarized below.

Implementation of activities under the NPP

35. In reviewing the progress report on the implementation of the national CFC phase-out plan (NPP) for Egypt submitted to the 65th meeting (and presented in document UNEP/OzL.Pro/ExCom/65/12), it was noted that a balance of US \$821,850 was available as of 31 December 2010 (i.e., the latest progress report submitted by UNIDO). Given that except for CFCs used for the manufacture of metered dose inhalers (MDIs), all other uses had been completely phased out by 2009, the Secretariat proposed to utilize the remaining balance in activities to address the phase-out of HCFCs. In responding to this proposal, UNIDO indicated that implementation of the NPP is still in progress. As of January 2011, US \$664,000 was still available for activities that would ensure zero consumption of CFCs. The incentive programme for the retrofit of large CFC-based equipment is ongoing. Part of the refrigeration equipment of the National Railway Company is being retrofitted. Furthermore, a computerized customs control and data management system for ODS, including HCFCs, is being developed. This system will link the NOU with the enforcement bodies.

36. UNIDO also explained that the CFC consumption of 172.50 ODP tonnes reported by the Government of Egypt under Article 7 of the Montreal Protocol for 2010 was related to the production of MDIs. This consumption was 54.90 ODP tonnes below the 227.40 ODP tonnes allowed by the Parties for essential uses. The project for the complete phase-out of CFCs used in MDIs is expected to be completed by the end of 2011.

Starting point for aggregate reduction in HCFC consumption

37. The Government of Egypt submitted a request for funding seven stand-alone HCFC phase-out projects to the 62nd meeting, as described in document UNEP/OzL.Pro/ExCom/62/30. The information provided on the level of HCFC consumption was based on thorough surveys conducted by the Government with HCFC equipment manufacturers, chemical suppliers and industry experts. Despite full

consultation with key stakeholders, the use of HCFC-141b contained in imported pre-blended polyols was not reported at the time of the submission of these projects. Based on the information presented in the document submitted to the 62nd meeting, the Executive Committee approved the seven projects and, *inter alia*, “noted that the Government of Egypt had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption an estimated baseline of 420.4 ODP tonnes calculated using actual consumption reported in 2009 and estimated consumption for 2010” (decision 62/32(b)). Since then the Government of Egypt has reported its 2010 HCFC consumption under Article 7, and therefore, the baseline for compliance has been established at 386.27 ODP tonnes.

38. As explained by UNIDO and UNDP the widespread use of imported polyols containing HCFC-141b was only identified during the final stage of preparation of the HPMP, given that all polyols, both pure (i.e., not containing HCFC-141b) and already containing HCFC-141b (i.e., pre-blended), are currently imported under one customs code. To determine the actual levels of HCFC-141b used as a foam blowing agent, the Government of Egypt, with the assistance of UNIDO and UNDP, collected information from the customs authority on the amounts of polyols imported in 2009 and 2010, and also from the local systems houses on the nature of imported polyols and their HCFC-141b content. Through this process the quantities of pure polyols and polyols premixed with HCFC-141b were calculated for 2009 and 2010. The amounts of HCFC-141b for earlier years were based on total imports as found in information provided by the identified importers and exporters. Moreover, all enterprises except those manufacturing insulation foam for domestic and commercial refrigerators are categorized as SMEs, the majority of which purchase FFS directly from the systems houses or systems suppliers. As both, the systems houses and systems suppliers also import FFS (i.e., some containing HCFC-141b) to make up for shortfalls in market demand, the foam enterprises are unable to discriminate between locally manufactured or imported FFS. The Secretariat notes that the ratio between the HCFC-141b baseline for compliance (1,178.26 mt (129.61 ODP tonnes)) and the 2007-2009 average amount of HCFC-141b contained in imported polyols is 57:43. HCFC-141b contained in imported polyols has not been included in the consumption reported for 2009 and 2010.

39. Based on discussions with UNIDO and UNDP, the Secretariat notes the challenges faced by the Government of Egypt in identifying the amounts of HCFC-141b contained in imported polyols. Given that polyols containing HCFC-141b are imported into the country and based on the explanation provided by UNIDO and UNDP, the Executive Committee might wish to reconsider a revision to the starting point for Egypt in light of decision 61/47 (*inter alia*, “to include in the starting point for aggregate reduction of HCFC consumption the annual amount of HCFC-141b contained in imported polyol systems during the 2007-2009 period). If this were the case, the revised starting point for aggregate reduction in HCFC consumption in Egypt would be based on an estimated baseline of 386.27 ODP tonnes, calculated using actual consumption of 396.60 ODP tonnes and 375.93 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol plus the 2007-2009 average amount of HCFC-141b contained in imported pre-blended polyols of 98.34 ODP tonnes resulting in 484.61 ODP tonnes.

Change of ownership in approved projects

40. Subsequent to the submission of the HPMP for Egypt to the 65th meeting, the Government of Egypt informed UNIDO that the Olympic Group, which comprises Delta Electrical Appliances; Delta Industrial Co. (Ideal) – Almaza; and Delta Industrial Co., was purchased by a non-Article 5 foreign enterprise, and is therefore ineligible for funding. Accordingly, UNIDO informed the Secretariat that the project approved at 62nd meeting for the conversion of Delta Electric Appliances with an associated consumption of 80.91 mt (8.90 ODP tonnes) of HCFC-141b, will be cancelled and the approved funding of US \$422,740 (plus agency support costs of US \$31,706) will be returned to the Multilateral Fund at the 66th meeting.

Second-stage conversion enterprises

41. The majority of the foam and refrigeration manufacturing enterprises in Egypt converted their production lines from CFC to non-HCFC technologies. In the polyurethane foam sector, only five out of 30 manufacturing enterprises converted to HCFC-141b, accounting for about 35 per cent of the total CFC-11 consumption phased out in the sector (220.00 ODP tonnes). In the manufacturing of insulation foam for domestic and commercial refrigerators, cyclopentane was the preferred replacement for CFC-11 foam blowing agent while HFC-134a was used to replace CFC-12 as a refrigerant. Only one out of 19 enterprises chose HCFC-141b (81.82 mt or 9.00 ODP tonnes) as the alternative blowing agent. The only enterprise manufacturing extruded polystyrene foam (XPS) converted from CFC-12 (196.00 ODP tonnes) to a mixture of HCFC-22/HCFC-142b. The phase-out of HCFCs in the production of XPS foams is proposed during stage II of the HPMP.

42. Two enterprises covered under stage I of the HPMP, namely Reftruck and Al Fateh, received assistance from the Multilateral Fund for converting from CFC-based technologies.

- (a) Through a project approved at the 12th meeting (at a total cost of US \$385,000 for UNDP), Reftruck successfully converted its foam line from CFC-11 to cyclopentane technology. However, in 2006 the enterprise decided to install two new production lines based on HCFC-141b technology. UNDP also explained that after Reftruck converted to cyclopentane it experienced technical problems with the insulation foam installed in small trucks, and assumed that those problems were associated with the use of cyclopentane. Consequently it moved this part of the production to the block line (cutting panels from blocks), and maintained the cyclopentane production line for applications where the problem was not experienced. Currently an expert hired directly by Reftruck is addressing the technical issue and preparing the operations for full use of cyclopentane. The Secretariat notes that the project included in the HPMP relates only to the new production lines established in 2006;
- (b) Similarly, through a project approved at the 12th meeting (at a total cost of US \$496,000 for UNDP), Al Fateh converted its two foam lines from CFC-11 to cyclopentane technology. Given this fact, an explanation was sought of the reasons for introducing HCFC-141b technology for the newer line. UNDP explained that the two lines that were converted to cyclopentane are fully operational. They are used, however, with HCFC-141b due to technical problems with the pre-blender (i.e., 59.00 mt (6.49 ODP tonnes)). The enterprise then decided to install a third continuous line which is based on HCFC-141b technology. During the preparation of the project proposal, it was agreed that any additional expenditures related to the two lines that had been converted with the assistance from the Fund would be covered by the enterprise. UNDP also explained that the project included in the HPMP has been designed to convert only the third line and that the polyols would be fed directly from drums. The Secretariat notes that the cost of the project included in the HPMP relates only to the new production line with an associated consumption of 48.50 mt (5.34 ODP tonnes). The Secretariat also notes that once the production line has been converted to cyclopentane technology, a total of 107.50 mt (11.83 ODP tonnes) of HCFC-141b will be phased out (and deducted from the starting point).

43. In regard to the systems houses project, UNDP explained that the 19 second-stage conversion enterprises (representing 17.4 per cent of the total HCFC-141b consumption) could not be excluded given that the Government's strategy is based on conversion of all systems houses and systems suppliers in

order to avoid market distortions. Furthermore, no new equipment will be provided to second-stage conversion enterprises.

44. Although the action plan for the phase-out of HCFC-22 used by refrigeration and air conditioning manufacturing enterprises has not been prepared, it is expected that it would be above the cost-effectiveness value of US \$5.41/kg associated with the phase-out of HCFC-141b used in the manufacturing of rigid foams.

Technical and cost-related issues

Phase-out of HCFC-141b as a foam blowing agent

45. During stage I, the HPMP proposed to further develop a sector plan to phase out the use of 225.40 mt (24.79 ODP tonnes) of HCFC-141b in remaining domestic and commercial refrigeration manufacturing enterprises, at an estimated cost of US \$1,632,784. Given that all the activities proposed in stage I of the HPMP must be fully developed prior to its submission to the Executive Committee, and given that two of the enterprises were recently purchased by foreign multinational companies (i.e., Delta Industrial Co. (Ideal) – Almaza; and Delta Industrial Co.) the Secretariat was unable to recommend these elements for approval. Subsequently, UNIDO agreed to include this phase-out plan in stage II of the HPMP.

46. The following technical and cost issues related to the three individual phase-out projects were discussed and satisfactorily addressed:

- (a) The request for funding the conversion of the Kiriazi Refrigerators Manufacturing Co. was first submitted by UNIDO to the 62nd meeting. As additional information requested regarding the equipment that was used at the enterprise could not be provided on time, the project was withdrawn. Based on the additional information provided in the revised project, funding for conversion of the manufacturing line that was installed in 2009 was deducted, as it was ineligible. The funding requested for the retrofit of the two foam dispensers was adjusted given their technical characteristics and age (a reduction of US \$30,000); the costs for commissioning, production trials and production optimization were rationalized (an adjustment of US \$80,000). Incremental operating savings were recalculated based on the amount of HCFC-141b used by the two eligible production lines; and
- (b) With regard to the Reftruck and Al Fateh conversion projects (UNDP), the requested funding of US \$160,000 for the replacement of the foam dispenser was reduced by US \$60,000 given the output of the in-house 100 kg/min foam machine in Al Fateh. The costs for safety audit, technology transfer, training, trials and commissioning were rationalized (a reduction of US \$35,000), given that the two enterprises will be converted at the same time to the same alternative technology.

47. The total agreed cost of converting the three enterprises is US \$1,480,375 with an overall cost-effectiveness of US \$4.39/kg as shown in Table 13.

Table 13. Agreed cost for the conversion of three foam enterprises in Egypt

Enterprise	HCFC-141b (tonnes)		Cost (US \$)		Total	CE (US\$/kg)
	Metric	ODP	Capital	Operating		
Kiriazi	124.00	13.64	643,500	(78,925)	564,575	4.55

Enterprise	HCFC-141b (tonnes)		Cost (US \$)		Total	CE (US\$/kg)
	Metric	ODP	Capital	Operating		
Refrtruck	106.00	11.66	594,000	(24,500)	569,500	5.37
Al Fateh	107.50	11.83	357,500	(11,200)	346,300	3.22
Total	337.50	37.13	1,595,000	(114,625)	1,480,375	4.39

48. With regard to the conversion of 81 SMEs with the support of their systems suppliers or systems distributors, UNDP explained that systems houses and systems suppliers, as well as downstream foam users, have not been exposed to the new alternative technologies being introduced. Therefore, they would each need testing equipment to prove that the essential properties of the foam are maintained. UNDP also explained that during the preparation of the project proposal it attempted, to the extent possible, to exclude all non-eligible foam enterprises due to foreign ownership or equipment that was established post the 21 September 2007 cut-off date. However, the eligibility of each enterprise will be further validated in the field during the implementation of the project. Any enterprise that would be found to be ineligible will not receive assistance from the Multilateral Fund. This information would be reported to the Executive Committee.

49. One of the systems houses is owned by United Arab Emirates' capital. Noting that this Article 5 country, together with the Republic of Korea and Singapore, were urged not to seek assistance from the Multilateral Fund, UNDP deducted the funding that was requested for enabling production of polyols using an alternative blowing agent from the overall cost of the project.

50. With regard to the technical assistance for the 350 "micro" foam users, it was noted that the actual consumption was about 22.30 mt (2.45 ODP tonnes) which was lower than originally estimated. Given the low level of consumption by these users, it was agreed that assistance would be provided to them through their systems houses and systems suppliers rather than through a stand-alone technical assistance programme. UNDP reviewed the project component accordingly. The total agreed cost for the conversion of the systems houses and their foam customers, including the "micro" users, is US \$3,800,600 with a cost-effectiveness of US \$5.52/kg as shown in Table 14.

Table 14. Agreed cost for the conversion for the systems houses and their SME customers*

Equipment	Total cost (US\$)
Systems houses	
Equipment	410,000
Project management	81,000
Technology transfer	320,000
Contingency	81,100
Total systems houses	892,100
Foam enterprises	
Equipment	1,839,300
Trials, testing and training	243,000
Operating costs	826,200
Total foam enterprises	2,908,500
Total cost	3,800,600
HCFC-141b consumption (mt)	688.50
Cost-effectiveness (US\$/kg)	5.52

(*) Including the 350 "micro" users.

Regulatory actions by the Government of Egypt

51. UNIDO and UNDP confirmed that the HCFC import quota system, including HCFC-141b contained in imported pre-blended polyols and all HCFC refrigerant blends will come into effect by 1 June 2012 to ensure that HCFC amounts imported into the country conform with the Government's strategy. All importers and distributors of HCFCs or their blends would be required to provide biannual reports of all imports of these substances. The Government of Egypt will also implement the following actions with regard to the consumption of HCFC-141b:

- (a) Enterprises that import FFS from neighbouring countries and have systems houses operating in Egypt would be encouraged to import pure HCFC-141b for locally pre-blending instead of importing polyols containing HCFC-141b. If necessary, economic incentive and/or disincentive measures will be instituted to reduce the import of such FFS;
- (b) The conversion of systems houses to new non-ODS systems will be accelerated to ensure sustainable phase-out of HCFC-141b in the foam sector;
- (c) All enterprises that manufacture HCFC-141b-based foam which are owned by foreign entities will be obliged to completely phase-out their consumption of HCFC-141b by 31 December 2013;
- (d) With effect from 1 January 2015 no permit will be issued to any foreign-owned enterprise manufacturing foam blown with HCFC-141b for importing HCFC-141b pure or contained in FFS;
- (e) With effect from 1 January 2019 the use of HCFC-141b for manufacturing polyurethane foam in Egypt will be banned; and
- (f) All enterprises converted through the HPMP will be subject to random post-implementation inspections during a period of two years, after which random inspection may be carried out as necessary.

Enabling activities in the refrigeration and air conditioning sector

52. With regard to the need for implementing the proposed enabling activities in the refrigeration and air conditioning sector given that the phase-out activities in the foam sector will meet at least up to the 2015 control target UNIDO explained that the main objective for these activities is to initiate non-investment activities that would prepare the Government of Egypt and put it in a position to provide direction and leadership to assure the safe use of natural refrigerants, in particular propane, as a viable and cost-effective alternative refrigerant in residential air conditioners. Given the very high population of split and window air conditioners, the success of these activities could lead to cost savings for the country. In view of the phase-out activities included in stage I of the HPMP, the Government of Egypt agreed to reduce the funding request to US \$502,000, with an associated phase-out of 6.14 ODP tonnes, as shown in Table 15.

Table 15. Agreed cost for enabling activities in the refrigeration and air conditioning sector

Enterprise	HCFC-22		Cost (US \$)
	(mt)	(ODP t)	
Three demonstration centres	41.11	2.26	185,000

Enterprise	HCFC-22		Cost (US \$)
	(mt)	(ODP t)	
Training centres	52.44	2.88	236,000
Regulatory programme for standards	10.00	0.55	45,000
Local resources in RAC conversions	8.00	0.44	36,000
Total	111.56	6.14	502,000

Project monitoring unit

53. UNDP explained that the NOU will continue to have general responsibility for the overall implementation of the ODS programme. However, in view of the complex nature of the HPMP, the lengthy plan implementation period, the need for interdepartmental support, close tracking and continuous monitoring of activities as well as broad and sustained awareness and support of civil society, a project management and coordination unit will be directly responsible for the implementation of specific activities included in the HPMP. After further discussions, the level of funding agreed for this unit is US \$366,000.

Overall agreed cost of the HPMP

54. The total cost of the activities proposed in stage I of the HPMP to be funded through the Multilateral Fund amounts to US \$8,520,815 (excluding agency support costs). These activities will result in the phase-out of 174.00 ODP tonnes of HCFCs with an overall cost-effectiveness of US \$4.98/kg (Table 16).

Table 16. Overall agreed cost of stage I of the HPMP for Egypt

Enterprise	HCFC-141b		HCFC-22		Cost (US \$)
	(mt)	(ODP t)	(mt)	(ODP t)	
Insulation foam for refrigeration equipment					
Two enterprises funded at the 62 nd meeting(*)	159.99	17.60			892,840
Conversion of Kiriazi Refrigerators	124.00	13.64			564,575
Remaining 7 enterprises(**)	0.00	0.00			0
All other rigid foam enterprises					
Four enterprises funded at the 62 nd meeting	340.00	37.40			1,479,000
Conversion of two additional enterprises	213.50	23.49			915,800
Conversion of SMEs through systems houses	688.50	75.74			3,800,600
Technical assistance programme(***)	0.00	0.00			0
Enabling activities in the servicing sector					
Centres for training and certification			41.11	2.26	185,000
One demonstration service centre			52.44	2.88	236,000
Pilot conversion of HCFC-based equipment			0.00	0.00	0
Regulatory programme for standards and codes			10.00	0.55	45,000
Local resources for enabling activities			8.00	0.44	36,000
Project monitoring unit					
Total	1,525.99	167.87	111.55	6.13	8,520,815
Cost effectiveness(****)					4.98

(*) Excluding the conversion of Delta Electric Appliances approved at the 62nd meeting at a total funding of US \$422,740 and an associated phase-out of 80.91 mt (8.90 ODP tonnes) of HCFC-141, since it was purchased by a non-Article 5 owned enterprise.

(**) To be submitted in stage II of the HPMP.

(***) Included in the systems houses component.

(****) Excluding funding for the project monitoring unit.

55. The total amount of HCFCs to be phased out during stage I of the HPMP is 174.00 ODP tonnes, consisting of 95.69 ODP tonnes of pure HCFC-141b, 72.18 ODP tonnes of HCFC-141b contained in imported polyols, and 6.13 ODP tonnes of HCFC-22. The total amount of 101.82 ODP tonnes of HCFCs imported pure is equivalent to 26.4 per cent of the HCFC baseline of 386.27 ODP tonnes. Given the high level of HCFC consumption to be phased out, implementation of stage I should assist Egypt to make progress towards meeting its control measures beyond 2015. UNIDO explained that the NOU, as the responsible entity of the Government of Egypt for the implementation of the Montreal Protocol, strongly supports an accelerated phase down of its HCFC consumption to reduce it by 25 per cent by 2015. The measures taken in the HPMP strive to phase out HCFC-141b as soon as possible with a view to completely eliminate its consumption by 2020. Moreover, the Government of Egypt is also ready to start reductions in HCFC-22 consumption. In order to achieve this objective, enabling activities for alternative technologies in the RAC sector will be conducted to prepare for implementation of HCFC free technology. The activities in this sector are to be understood as a continuation of the phase-out activities implemented under the CFC national phase-out plan.

Impact on the climate

56. The implementation of stage I of the HPMP in Egypt would avoid the emission into the atmosphere of some 1,089,557 tonnes of CO₂-equivalent associated with the conversion of the HCFC-141b-based foam enterprises, as shown in Table 17.

Table 17. Impact on the climate

Substance	GWP	Tonnes/year	CO₂-eq (tonnes/year)
Before conversion			
HCFC-141b	725	1,525.99	1,106,343
Total			
After conversion			
Methyl formate/cyclopentane	20	839.29	16,786
Net impact			(1,089,557)

Co-financing

57. In response to decision 54/39(h) on potential financial incentives and opportunities for additional resources to maximize the environmental benefits from HPMPs pursuant to paragraph 11(b) of decision XIX/6 of the Nineteenth Meeting of the Parties, during the preparation of the HPMP UNIDO engaged consultants with expertise in investments and global financial mechanisms to explore incentives and opportunities, including potential additional financing through the carbon market. Among the tasks undertaken were an analysis of the cost of various phase-out scenarios based on alternative technologies and their impact on the climate; a cost analysis of the various HCFC replacement scenarios for both the foam and refrigeration sectors; creating an accounting framework to estimate the climate benefit from the conversion of HCFCs taking into account the various technologies available; describing and designing financial schemes to support the phase-out of HCFCs and, consequently, evaluate appropriate financial instruments (including the carbon market instruments), with development banks, commercial banks and public-private partnerships, which may be utilized for financial resources to support the HCFC phase-out; and designing the cost-analysis-based financial scheme necessary to support the phase-out of HCFCs in Egypt.

2011-2014 business plan of the Multilateral Fund

58. Table 18 shows the level of funding and amounts of HCFCs to be phased out according to the 2011-2014 business plan of the Multilateral Fund. The level of funding requested for the implementation of stage I of the HPMP of US \$6,148,975 plus agency support cost (excluding the foam enterprises approved at the 62nd meeting), is higher than that in the business plan (US \$3,371,875), since it is associated with a much larger amount of HCFCs to be phased out during implementation of stage I of the HPMP (i.e., 119.00 ODP tonnes).

Table 18. 2011-2014 business plan of the Multilateral Fund

Agency	2011	2012	2013	2014	Total
Funding (US\$)					
UNIDO	1,089,950	43,975	43,975	43,975	1,221,875
UNDP	1,075,000	1,075,000			2,150,000
Total	2,164,950	1,118,975	43,975	43,975	3,371,875
Impact (ODP tonnes)					
UNIDO	16.80	0.50	0.50	0.50	18.30
UNDP	21.53	21.53			43.07
Total	38.33	22.03	0.50	0.50	61.37

Draft Agreement

59. A draft Agreement between the Government of Egypt and the Executive Committee for HCFC phase-out is contained in Annex I to the present document. The draft Agreement includes clauses on actions to be taken in case any enterprise to be converted to a non HCFC technology included in the HPMP that would be found to be ineligible under the guidelines of the Multilateral Fund, or for the introduction of an alternative technology other than that proposed in the HPMP during implementation of the project.

RECOMMENDATION

60. In light of the above comments by the Secretariat, in particular paragraphs 37 to 39 (request for the revision of the starting point) and 55 (phase-out beyond the 10 per cent of the baseline), the Executive Committee may wish to consider:

- (a) Noting the request by UNIDO for the cancellation of the project for the conversion from HCFC-141b to cyclopentane in the manufacture of polyurethane foam at Delta Electric Appliances, approved at the 62nd meeting of the Executive Committee, with a total phase-out of 80.91 mt (8.90 ODP tonnes) of HCFC-141b given that the enterprise had been purchased by a non-Article 5 capital, and that the approved funding of US \$422,740 plus agency support costs of US \$31,706 will be returned to the Multilateral Fund at the 66th meeting;
- (b) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Egypt for the period 2011 to 2015 to meet the 10 per cent reduction in HCFC consumption, at the amount of US \$6,610,148, consisting of US \$ 1,432,575 plus agency support costs of US \$107,443 for UNIDO, and US \$4,716,400 plus agency support costs of US \$353,730 for UNDP;

- (c) Noting that stage I of the HPMP also covers US \$892,840 plus agency support costs of US \$66,963 for UNIDO for two foam projects to phase out 17.60 ODP tonnes of HCFC-141b approved at the 62nd meeting, and US \$1,479,000 plus agency support costs of US \$115,463 for UNDP for four foam projects to phase out 37.40 ODP tonnes of HCFC-141b also approved at the 62nd meeting;
- (d) Noting a revised starting point for sustained aggregate reduction in HCFC consumption calculated on the basis of an estimated baseline of 386.27 ODP tonnes, using actual consumption of 396.60 ODP tonnes and 375.93 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 98.34 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 484.61 ODP tonnes;
- (e) Noting the deduction of 55.00 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption for six projects approved at the 62nd meeting, and deducting a further 119.00 ODP tonnes of HCFCs for the implementation of stage I of the HPMP;
- (f) Approving the draft Agreement between the Government of Egypt and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex I to the present document;
- (g) Requesting the Fund Secretariat, once the baseline data were known, to update Appendix 2-A to the Agreement to include the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting change in the levels of maximum allowable consumption; and
- (h) Approving the first tranche of stage I of the HPMP for Egypt, and the corresponding implementation plan, at the amount of US \$3,171,250, consisting of US \$950,000 plus agency support costs of US \$71,250 for UNIDO, and US \$2,000,000 plus agency support costs of US \$150,000 for UNDP.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF EGYPT AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS

1. This Agreement represents the understanding of the Government of Egypt (the “Country”) and the Executive Committee with respect to the reduction of controlled use of the ozone-depleting substances (ODS) set out in Appendix 1-A (“The Substances”) to a sustained level of 347.64 ODP tonnes by 1 January 2015 in compliance with Montreal Protocol schedules, with the understanding that this figure is to be revised one single time, once the baseline consumption for compliance has been established based on Article 7 data.
2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A (“The Targets, and Funding”) in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances that exceeds the level defined in row 1.2 of Appendix 2-A as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances that exceeds the level defined in rows 4.1.3, 4.2.3, 4.3.3, 4.4.3 and 4.5.3.
3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees, in principle, to provide the funding set out in row 3.1 of Appendix 2-A to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).
4. The Country agrees to implement this Agreement in accordance with the HCFC phase-out sector plans submitted. In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.
5. The Executive Committee will not provide the Funding in accordance with the Funding Approval Schedule unless the Country satisfies the following conditions at least eight weeks in advance of the applicable Executive Committee meeting set out in the Funding Approval Schedule:
 - (a) That the Country had met the Targets set out in row 1.2 of Appendix 2-A for all relevant years. Relevant years are all years since the year in which this Agreement was approved. Years for which no obligation for reporting of country programme data exists at the date of the Executive Committee meeting at which the funding request is being presented are exempted;
 - (b) That the meeting of these Targets has been independently verified, unless the Executive Committee decided that such verification would not be required;
 - (c) That the Country had submitted annual implementation reports in the form of Appendix 4-A (“Format of Implementation Reports and Plans”) covering each previous calendar year; that it had achieved a significant level of implementation of activities initiated with previously approved tranches; and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent;

- (d) That the Country has submitted an annual implementation plan in the form of Appendix 4-A covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen; and
- (e) That, for all submissions from the 68th meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the Country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this Agreement.

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A (“Monitoring Institutions and Roles”) will monitor and report on implementation of the activities in the previous annual implementation plans in accordance with their roles and responsibilities set out in Appendix 5-A. This monitoring will also be subject to independent verification as described in paragraph 4 above.

7. The Executive Committee agrees that the Country may have the flexibility to reallocate the approved funds, or part of the funds, according to the evolving circumstances to achieve the smoothest reduction of consumption and phase-out of the Substances specified in Appendix 1-A:

- (a) Reallocations categorized as major changes must be documented in advance either in an annual implementation plan submitted as foreseen in sub-paragraph 5(d) above, or as a revision to an existing annual implementation plan to be submitted eight weeks prior to any meeting of the Executive Committee, for its approval. Major changes would relate to:
 - (i) Issues potentially concerning the rules and policies of the Multilateral Fund;
 - (ii) Changes which would modify any clause of this Agreement;
 - (iii) Changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches; and
 - (iv) Provision of funding for programmes or activities not included in the current endorsed annual implementation plan, or removal of an activity in the annual implementation plan, with a cost greater than 30 per cent of the total cost of the last approved tranche;
- (b) Reallocations not categorized as major changes may be incorporated in the approved annual implementation plan, under implementation at the time, and reported to the Executive Committee in the subsequent annual implementation report;
- (c) Should the Country decide during implementation of the agreement to introduce an alternative technology other than that proposed in the approved HPMP, this would require approval by the Executive Committee as part of an Annual Implementation Plan or the revision of the approved plan. Any submission of such a request for change in technology would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable. The Country agrees that potential savings in incremental costs related to the change of technology would decrease the overall funding level under this Agreement accordingly;
- (d) Any enterprise to be converted to non HCFC technology included in the approved HPMP and that would be found to be ineligible under the guidelines of the Multilateral Fund

(i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), will not receive assistance. This information would be reported to the Executive Committee as part of the Annual Implementation Plan; and

- (e) Any remaining funds will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sub-sector, in particular:

- (a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and
- (b) The Country and the bilateral and implementing agencies involved will take full account of the requirements of decisions 41/100 and 49/6 during the implementation of the plan.

9. The Country agrees to assume overall responsibility for the management and implementation of this Agreement and of all activities undertaken by it or on its behalf to fulfil the obligations under this Agreement. UNIDO has agreed to be the lead implementing agency (the “Lead IA”) and UNDP has agreed to be the cooperating implementing agency (the “Cooperating IA”) under the lead of the Lead IA in respect of the Country’s activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of any of the agencies taking part in this Agreement.

10. The Lead IA will be responsible for ensuring co-ordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per sub-paragraph 5(b). This responsibility includes the necessity to co-ordinate with the Cooperating IA to ensure appropriate timing and sequence of activities in the implementation. The Cooperating IA will support the Lead IA by implementing the activities listed in Appendix 6-B under the overall co-ordination of the Lead IA. The Lead IA and Cooperating IA have reached consensus on the arrangements regarding inter-agency planning, reporting and responsibilities under this Agreement to facilitate a co-ordinated implementation of the Plan, including regular co-ordination meetings. The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IA with the fees set out in rows 2.2, and 2.4 of Appendix 2-A.

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in row 1.2 of Appendix 2-A or otherwise does not comply with this Agreement, then the Country agrees that it will not be entitled to the Funding in accordance with the Funding Approval Schedule. At the discretion of the Executive Committee, funding will be reinstated according to a revised Funding Approval Schedule determined by the Executive Committee after the Country has demonstrated that it has satisfied all of its obligations that were due to be met prior to receipt of the next tranche of funding under the Funding Approval Schedule. The Country acknowledges that the Executive Committee may reduce the amount of the Funding by the amount set out in Appendix 7-A (“Reductions in Funding for Failure to Comply”) in respect of each ODP kg of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the Country did not comply with this Agreement, and take related decisions. Once these decisions are taken, this specific case will not be an impediment for future tranches as per paragraph 5 above.

12. The Funding of this Agreement will not be modified on the basis of any future Executive Committee decision that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee, the Lead IA and the Cooperating IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IA with access to the information necessary to verify compliance with this Agreement.

14. The completion of stage I of the HPMP and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption level has been specified in Appendix 2-A. Should there at that time still be activities that are outstanding, and which were foreseen in the Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion will be delayed until the end of the year following the implementation of the remaining activities. The reporting requirements as per sub-paragraphs 1(a), 1(b), 1(d), and 1(e) of Appendix 4-A will continue until the time of the completion unless otherwise specified by the Executive Committee.

15. All of the conditions set out in this Agreement are undertaken solely within the context of the Montreal Protocol and as specified in this Agreement. All terms used in this Agreement have the meaning ascribed to them in the Montreal Protocol unless otherwise defined herein.

APPENDICES

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in consumption (ODP tonnes)
HCFC-22	C	I	240.19
HCFC-123	C	I	0.11
HCFC-141b	C	I	129.61
HCFC-142b	C	I	16.36
Sub-total			386.27
HCFC-141b in imported polyol			98.34
Total			484.61

APPENDIX 2-A: THE TARGETS, AND FUNDING

		2010*	2011	2012	2013	2014	2015	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	0	0	0	386.27	386.27	347.64	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	0	0	0	386.27	386.27	347.64	n/a
2.1	Lead IA (UNIDO) agreed funding (US \$)	892,840	950,000	250,000	0	232,575	0	2,325,415
2.2	Support costs for Lead IA (US \$)	66,963	71,250	18,750	0	17,443	0	174,406
2.3	Cooperating IA (UNDP) agreed funding (US \$)	1,479,000	2,000,000	2,000,000	0	716,400	0	6,195,400
2.4	Support costs for Cooperating IA (US \$)	115,463	150,000	150,000	0	53,730	0	469,193
3.1	Total agreed funding (US \$)	2,371,840	2,950,000	2,250,000	0	948,975	0	8,520,815
3.2	Total support cost (US \$)	182,426	221,250	168,750	0	71,173	0	643,599
3.3	Total agreed costs (US \$)	2,554,266	3,171,250	2,418,750	0	1,020,148	0	9,164,414
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)							6.13
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)							0
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)							234.06
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)							0
4.2.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)							0
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)							0.11
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)							64.34
4.3.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)							31.35
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)							33.92
4.4.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)							0
4.4.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)							0
4.4.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)							16.36
4.5.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)							48.53
4.5.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)							23.65
4.5.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)							26.16

* Approved at the 61st meeting.

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the last meeting of the year specified in Appendix 2-A.

APPENDIX 4-A: FORMAT OF IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Implementation Report and Plan for each tranche request will consist of five parts:
 - (a) A narrative report, with data provided by calendar year, regarding the progress since the year prior to the previous report, reflecting the situation of the Country in regard to phase out of the Substances, how the different activities contribute to it, and how they relate to each other. The report should include ODS phase-out as a direct result from the implementation of activities, by substance, and the alternative technology used and the related phase-in of alternatives, to allow the Secretariat to provide to the Executive Committee information about the resulting change in climate relevant emissions. The report should further highlight successes, experiences, and challenges related to the different activities included in the Plan, reflecting any changes in the circumstances in the Country, and providing other relevant information. The report should also include information on and justification for any changes vis-à-vis the previously submitted Annual Implementation Plan(s), such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes. The narrative report will cover all relevant years specified in sub-paragraph 5(a) of the Agreement and can in addition also include information on activities in the current year;
 - (b) A verification report of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;
 - (c) A written description of the activities to be undertaken until and including the year of the planned submission of the next tranche request, highlighting the interdependence of the activities, and taking into account experiences made and progress achieved in the implementation of earlier tranches; the data in the plan will be provided by calendar year. The description should also include a reference to the overall plan and progress achieved, as well as any possible changes to the overall plan that are foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain in detail such changes to the overall plan. This description of future activities can be submitted as a part of the same document as the narrative report under sub-paragraph (b) above;
 - (d) A set of quantitative information for all annual implementation reports and annual implementation plans, submitted through an online database. This quantitative information, to be submitted by calendar year with each tranche request, will be amending the narratives and description for the report (see sub-paragraph 1(a) above) and the plan (see sub-paragraph 1(c) above), the annual implementation plan and any changes to the overall plan, and will cover the same time periods and activities; and
 - (e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The National Ozone Unit (NOU) is an integral part of the Ministry of State for Environmental Affairs under the direct responsibility of the Egyptian Environmental Affairs Agency (EEAA). The NOU will continue to have general responsibility for the implementation of the ODS programmes, including the HPMP. However, in view of the complex nature of the HPMP, the lengthy plan implementation period, requiring interdepartmental support, close tracking and continuous monitoring of activities as well as broad and sustained awareness and support of civil society, coordination and management will be supported by a multidisciplinary, interdepartmental committee. The coordination and management scheme also draws on the experiences and lessons learned from implementation of past projects and special plans.
2. Under the direct supervision of NOU an HPMP Coordinating Unit (HPCU) will be established within the NOU. The Programme Coordinator will be responsible for direct management of one of the two main technical areas (foam and RAC), will the Assistant Programme Coordinator will follow all programmes and projects in the assigned sectors from inception to completion and post-completion operations and make regular reports that will be reviewed with recommendations by a coordinating committee.
3. In support of the HPCU the national HPMP Task Force will be reconstituted by the EEAA into the national HPMP Coordinating Committee (HPCC) with a Chairperson not later than 3 months following approval of the HPMP. The terms of reference of the Committee will be prepared by the EEAA with the support of the Lead IA within the same period.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities, including at least the following:
 - (a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's HPMP;
 - (b) Assisting the Country in preparation of the Implementation Plans and subsequent reports as per Appendix 4-A;
 - (c) Providing independent verification to the Executive Committee that the Targets have been met and associated annual activities have been completed as indicated in the Implementation Plan consistent with Appendix 4-A;
 - (d) Ensuring that the experiences and progress is reflected in updates of the overall plan and in future annual implementation plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
 - (e) Fulfilling the reporting requirements for the annual implementation reports, annual implementation plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee. The reporting requirements include the reporting about activities undertaken by the Cooperating IA;
 - (f) Ensuring that appropriate independent technical experts carry out the technical reviews;
 - (g) Carrying out required supervision missions;
 - (h) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Implementation Plan and accurate data reporting;

- (i) Co-ordinating the activities of the Cooperating IA, and ensuring appropriate sequence of activities;
- (j) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country and the Cooperating IA, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators; and
- (l) Providing assistance with policy, management and technical support when required.

2. After consultation with the Country and taking into account any views expressed, the Lead IA will select and mandate an independent entity to carry out the verification of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement and sub-paragraph 1(b) of Appendix 4-A.

APPENDIX 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCY

1. The cooperating IA will be responsible for a range of activities. These activities are specified in the overall plan further, but include at least the following:

- (a) Providing policy development assistance when required;
- (b) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a co-ordinated sequence in the activities; and
- (c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A.

APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$87 per ODP kg of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met.

- - - - -