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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-fifth Meeting
Montreal, 16-20 November 2015

PROJECT PROPOSAL: LEBANON

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

Phase-out

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

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Lebanon

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (Stage II)	UNDP (lead)	n/a	n/a

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2014	69.69 (ODP tonnes)
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2014	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-141b		8.6		2.6					11.2
HCFC-22				5.6	26.5				32.1
HCFC-141b in imported pre-blended polyol		25.5							25.5

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	73.50	Starting point for sustained aggregate reductions:	73.50
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	24.5	Remaining:	49.07

(V) BUSINESS PLAN		2015	2016	2017	2018	2019	2020	Total
UNDP	ODS phase-out (ODP tonnes)	4.03	4.03	4.03	4.03	4.03	4.03	24.15
	Funding (US \$)	213,371	213,371	213,371	385,602	385,602	385,602	1,796,920

(VI) PROJECT DATA		2015	2016	2017	2018	2019	2020	2021	2022-2023	2024	2025	Total
Montreal Protocol consumption limits		66.15	66.15	66.15	66.15	66.15	47.78	47.78	47.78	47.78	23.88	n/a
Maximum allowable consumption (ODP tonnes)		66.15	66.15	60.64	60.64	48.71	36.78	36.78	36.78	27.58	18.39	n/a
Project costs requested in principle (US \$)	UNDP	2,410,000	0	0	1,114,000	0	0	420,462	0	259,364	0	4,203,826
	Project costs											
	Support costs	168,700	0	0	77,980	0	0	29,432	0	18,155	0	294,268
Total project costs requested in principle (US\$)		2,410,000	0	0	1,114,000	0	0	420,462	0	259,364	0	4,203,826
Total support costs requested in principle (US\$)		168,700	0	0	77,980	0	0	29,432	0	18,155	0	294,268
Total funds requested in principle (US \$)		2,578,700	0	0	1,191,980	0	0	449,894	0	277,519	0	4,498,094

(VII) Request for funding for the first tranche (2015)		
Agency	Funds requested (US \$)	Support costs (US \$)
UNDP	2,410,000	168,700
Funding request:	Approval of funding for the first tranche (2015) as indicated above	
Secretariat's recommendation:	For individual consideration	

PROJECT DESCRIPTION

1. On behalf of the Government of Lebanon, UNDP as the designated implementing agency, has submitted to the 75th meeting stage II of the HCFC phase-out management plan (HPMP), in the amount of US \$6,448,520, plus agency support costs of US \$451,396. The implementation of stage II¹ of the HPMP will phase out 45.72 ODP tonnes of HCFCs to meet the 67.5 per cent reduction in HCFC consumption by 2025, as originally submitted.

2. UNDP has also submitted a request for funding the first tranche of stage II of the HPMP at the amount of US \$2,500,000, plus agency support costs of US \$175,000 as originally submitted.

HCFC consumption

3. The Government of Lebanon reported a consumption of 69.69 ODP tonnes of HCFC in 2014. The 2010-2014 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Lebanon (2010-2014 Article 7 data)

HCFC	2010	2011	2012	2013	2014	Baseline
Metric tonnes						
HCFC-22	727.11	709.57	756.20	610.00	581.00	653.55
HCFC-123	5.00	5.00	0.00	0.49	0.00	2.50
HCFC-141b	441.34	483.00	482.50	355.00	343.00	341.18
Total (metric tonnes)	1,173.45	1,197.57	1,238.70	965.49	924.00	997.23
ODP tonnes						
HCFC-22	39.9	39.03	41.59	33.55	31.96	35.95
HCFC-123	0.1	0.10	0.00	0.01	0.00	0.05
HCFC-141b	48.5	53.13	53.08	39.05	37.73	37.53
Total (ODP tonnes)	88.6	92.26	94.67	72.61	69.69	73.50

4. Due to economic growth in the country, consumption of HCFCs increased to 94.67 ODP tonnes in 2012 and, since then, it has gradually decreased to 69.69 ODP tonnes in 2014, i.e., 3.54 ODP tonnes above the maximum allowable consumption of 66.15 ODP tonnes in 2015. The reduction in consumption was attributed to control measures in place for imports of HCFCs and the implementation of the phase-out activities associated with stage I of the HPMP.

5. Based on the survey conducted for the preparation of stage II of the HPMP, 36.61 ODP tonnes of HCFC-141b (representing over 53 per cent of the total HCFC consumption in 2014) was used for the manufacturing of foam panels and insulation foam for refrigeration equipment; 5.53 ODP tonnes of HCFC-22 (8 per cent) was used for the manufacturing of refrigeration and air-conditioning (RAC) equipment; and 26.57 ODP tonnes of HCFC-22 (over 38 per cent) was used for servicing refrigeration and air-conditioning equipment, as shown in Table 2.

Table 2: Distribution of HCFC consumption (2014)

Sector	HCFC-22		HCFC-141b		Total	
	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)
Manufacturing						
Air conditioning (AC)	59.70	3.28	16.85	1.85	76.55	5.14
Refrigeration	40.80	2.24	12.87	1.42	53.67	3.66
Foams	-	-	303.10	33.34	303.10	33.34
Subtotal	100.50	5.53	332.82	36.61	433.32	42.14

¹ Stage I of the HPMP was approved at the 64th meeting to meet the 17.5 per cent reduction of HCFC consumption by 1 January 2017.

Sector	HCFC-22		HCFC-141b		Total	
	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)
Servicing	483.00	26.57	-	-	483.00	26.57
Total	583.50	32.09	332.82	36.61	916.32	68.70

6. There are 46 enterprises manufacturing RAC equipment, five of which consume over 3.30 ODP tonnes of HCFC-22 (60 per cent of the total amount used in manufacturing), and the remaining 41 are small-sized enterprises with a total consumption of 2.23 ODP tonnes. There are also 17 enterprises manufacturing discontinuous foam panels, four of which consume 27.72 ODP tonnes of HCFC-141b, with the consumption of the remaining 13 enterprises ranging from 0.01 to 1.32 ODP tonnes. Only one foam enterprise was converted during stage I of the HPMP.

7. Currently, 24.92 and 1.65 ODP tonnes of HCFC-22 are used for servicing air-conditioning (AC) and refrigeration equipment, respectively. The demand for HCFC-22 in the servicing sector is expected to grow over the next five years due to AC systems installed in recent years and the tendency by end-users to maintain their old equipment in operation beyond its useful life.

Legal framework

8. Overarching Law 253 established in 1993 after Lebanon ratified the Vienna Convention and the Montreal Protocol forms the basis for the regulatory framework for ODS. In 2003, guidelines to control and monitor ODS consumption were put in place. The licensing system for import and export of ODS established in 2009 was amended to include registration and licensing of HCFC importers and quota management for HCFC, and was approved by the State Council in November 2014. The national ozone unit (NOU), with the support of the Customs Authorities and Tariff Department, is incorporating the Harmonized Item Description and Coding System (HS), for more efficient and effective monitoring of imports and exports of HCFCs.

9. The Government of Lebanon has already issued HCFC import quotas for 2015 of 58.0 ODP tonnes, which is 8.15 ODP tonnes lower than the 66.15 ODP tonnes allowed under the Montreal Protocol and its Agreement with the Executive Committee for stage I of the HPMP for that year.

Progress report on the implementation of stage I of the HPMP

10. Stage I of the HPMP for Lebanon was approved at the 64th meeting with the commitment of the Government to reduce its HCFC baseline consumption by 17.5 per cent by 2017. This reduction would be achieved through the conversion of two of the largest HCFC-consuming enterprises in the country, namely Lematic and Dalal Steel Industries. Lematic, the sole manufacturer of residential AC equipment, converted six different models of residential split AC to HFC-410A technology, with a total phase-out of 90.00 mt (4.95 ODP tonnes) of HCFC-22; while the Dalal Steel converted its polyurethane (PU) foam sandwich panel production to cyclopentane, with a total phase-out of 137.27 mt (15.10 ODP tonnes) of HCFC-141b. The conversion of the manufacturing sector was supported with technical workshops targeting small and medium sized enterprises (SMEs), and dissemination of technical information.

11. Stage I of the HPMP did not include specific activities for the refrigeration servicing sector, as the conversion in the manufacturing sector would be sufficient for the country to meet its HCFC reduction targets. The third tranche of stage I of the HPMP², submitted to the 74th meeting, included activities in the servicing sector to be implemented between 2015 and 2017 with funding balances from the completed investment projects. Based on the amended work plan, the Agreement between the Government and the

² UNEP/OzL.Pro/ExCom/74/38.

Executive Committee was revised to reflect an overall phase-out of 24.50 ODP tonnes, equivalent to 33 per cent of HCFC baseline consumption³.

12. As of October 2015, of the US \$2,370,349 approved for stage I of the HPMP, US \$2,185,000 had been disbursed, and the balance of US \$185,349 will be disbursed in 2016 and 2017.

HCFC phase-out strategy for stage II

13. To maintain the momentum achieved in stage I of the HPMP, the Government of Lebanon, with assistance from UNDP, developed stage II of the HPMP, which proposes to phase out an additional 756.20 mt (57.11 ODP tonnes) of HCFCs by 2025. Of this amount, the Government is requesting funding only for 652.64 mt (45.72 ODP tonnes) to be deducted from the remaining consumption eligible for funding of 691.40 mt (49.07 ODP tonnes); an additional 103.56 mt (11.39 ODP tonnes) will be phased out without assistance from the Multilateral Fund, as shown in Table 3.

Table 3. Overview of the HCFC phase-out associated with stage II of the HPMP for Lebanon

Description	HCFC-141b		HCFC-22		Total	
	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)
Foam manufacturing	282.10	31.03	-	-	282.10	31.03
AC manufacturing	-	-	59.70	3.28	59.70	3.28
Servicing sector	-	-	414.40	22.79	414.40	22.79
Total	282.10	31.03	474.10	26.08	756.20	57.11
Funded phase-out	178.54	19.64	474.10	26.08	652.64	45.71
Voluntary phase-out	103.56	11.39	-	-	103.56	11.39

14. By taking this approach, the Government will phase out approximately 96 per cent of its HCFC baseline after stage II of the HPMP is completed. However, the Government will commit to meet only the 67.5 per cent reduction in HCFC baseline consumption by 2025. Table 4 presents an overview of the remaining HCFC consumption in Lebanon after the completion of stages I and II.

Table 4. Overview of the remaining HCFC consumption in Lebanon

Description	HCFC-22		HCFC-141b		HCFC-123		Total	
	mt	(ODP tonnes)	mt	(ODP tonnes)	mt	(ODP tonnes)	mt	(ODP tonnes)
Starting point	653.55	35.95	341.18	37.53	5.00	0.05	999.73	73.53
Reduction in stage I	171.09	9.41	137.27	15.10	-	-	308.36	24.51
Remaining consumption after stage I	482.46	26.54	203.91	22.43	5.00	0.05	691.37	49.02
Reduction proposed in stage II (actual)	474.10	26.08	282.10	31.03	-	-	756.20	57.11
Reduction in stage II (funded)	474.10	26.08	178.50	19.64	-	-	652.64	45.71
Remaining consumption for future stages	8.36	0.46	25.41	2.80	5.00	0.05	38.73	3.31

Activities in the manufacturing sector

Foam sector

15. There are 17 remaining enterprises, four large, two medium sized and 11 small sized enterprises. Except for the one enterprise that was converted during stage I, none have received prior assistance to phase out ODS. Most enterprises blend their own systems in-house, while the smaller ones purchase pre-blended systems. There are a few chemical suppliers that import HCFC-141b into Lebanon, and a systems house that produces pre-blended polyols for various foam applications.

³ Decision 74/46.

Conversion of the four large manufacturers of sandwich panels (Mezher, Awkal and Saydah (AS and Co), Kilzi and ProFoam)

16. The four enterprises with a total consumption of 252.2 mt (27.74 ODP tonnes) of HCFC-141b will convert to cyclopentane technology. The conversion entails providing storage tanks for cyclopentane, pre-mixing stations, providing seven high-pressure foam machines and retrofitting three foam dispensers, retrofitting jigs and moulds, safety-related equipment and systems, technical assistance and training. The incremental capital cost (ICC) has been estimated at US \$3,055,800; and incremental operating savings of US \$170,500, at a cost-effectiveness of US \$16.90/kg. The proposal also included co-financing for all four enterprises at US \$1,216,105. While the total consumption of the four enterprises will be phased out, the cost of the conversions was calculated based on only 170 mt (18.75 ODP tonnes) of eligible consumption of HCFC-141b.

Conversion of one systems house (Hakim Company for Industry and Trade) and two small sized sandwich panel manufacturers (Prometal and SPEC)

17. The systems house is proposing the development of customized low-GWP alternative formulations (i.e., HFO) for the foam end-users, through retrofitting the foam equipment, provision of a closed-system premixing station, an autoclave reactor, retrofit of assorted jigs and moulds, trials for validation of the new formulations, technical assistance and training of plant operators, at the total cost of US \$297,000.

18. The two small enterprises producing discontinuous panels have selected to convert to HFO technology through technical assistance, including support for equipment upgrade, trials and testing at a total cost of US \$33,000, and incremental operating cost estimated at US \$71,250 (i.e., total costs of US \$87,680), at a cost-effectiveness of US \$10.96/kg in line with decision 75/50(c)(iii).

Technical assistance for the foam sector

19. In addition, five technical assistance workshops will be provided that would allow the foam industry to keep abreast of the latest technological developments, share information and exchange experiences on alternatives, and document results for wider acceptance. The cost of this component is US \$60,000, with no associated phase-out.

20. Table 5 summarizes the cost of the conversion of the foam enterprises as originally submitted:

Table 5. Summary of conversions in the foam enterprises

Enterprise	HCFC-141b		Capital cost (US \$)	Operating cost (US \$)	Total (US \$)	Co-financing (US \$)	Funding requested (US \$)	CE (US\$/kg)
	(mt)	(ODP tonnes)						
Discontinuous panel enterprises converting to cyclopentane								
Mezher	60.00	6.60	1,072,500	-60,000	1,012,500	425,100	587,400	9.79
Awkal and Saydah	42.00	4.62	896,500	-42,000	854,500	443,320	411,180	9.79
Kilizi Industries	32.00	3.52	477,400	-32,000	445,400	132,120	313,280	9.79
Pro-foam pack	36.50	4.02	609,400	-36,500	572,900	215,565	357,335	9.79
Sub-total	170.50*	18.76*	3,055,800	-170,500	2,885,300	1,216,105	1,669,195	9.79
Discontinuous panel enterprises converting to HFO								
Prometal	3.50	0.39	16,500	31,290	47,790	n/a	38,360**	13.65
Spec	4.50	0.50	16,500	40,230	56,730	n/a	49,320**	12.61
Subtotal	8.00	0.88	33,000	71,520	104,520	0	87,680	10.96
Systems house	240.00***	26.40***	297,000	n/a	297,000	n/a	297,000	n/a
Technical	n/a	n/a	n/a	n/a	60,000	n/a	60,000	n/a

Enterprise	HCFC-141b		Capital cost (US \$)	Operating cost (US \$)	Total (US \$)	Co-financing (US \$)	Funding requested (US \$)	CE (US\$/kg)
	(mt)	(ODP tonnes)						
assistance								
Total	178.5	19.64	3,385,800	-98,980	3,346,820	1,216,105	2,113,875	11.84

*Actual phase out would be 252.2 mt (27.7 ODP tonnes) but only this amount will be deducted from remaining eligible consumption

** Cost adjusted according to eligible incremental costs (10.96/kg).

**Estimated 2014 consumption of systems house, tonnage not associated with funding.

Air-conditioning sector

21. Stage II includes the conversion of three manufacturers of light commercial air-conditioning equipment, two commercial AC and cold room manufacturers also consuming HCFC-141b for insulation foam in transport refrigeration and cold rooms; and small amounts of HCFC-22 used in small-sized enterprises in the refrigeration sector with limited technical capabilities, to be addressed after 2020.

Conversion of three enterprises manufacturing light commercial AC (UNIC, Industrial and Commercial Refrigeration, Frigo Liban) and two small commercial air-conditioning and cold room manufacturers (CGI Cold stores and Iceberg)

22. The three enterprises manufacturing light commercial AC equipment with a total consumption of 35.60 mt (1.96 ODP tonnes) will convert to HFC-32 technology. The conversion includes system component and process redesign for HFC-32; heat exchanger processing modifications; sheet metal processing modifications; and refrigerant charging. It also includes industrial leak detectors and modifications in quality inspection, safety-related components, technical assistance, trials and testing; and training. The capital total cost has been estimated at US \$357,500 and operating costs of US \$219,885 associated with the increased cost of the compressors (i.e., a total cost of US \$577,385 at a cost-effectiveness of US \$16.22/kg).

23. The two small commercial air-conditioning manufacturers with a consumption of 24.10 mt (1.32 ODP tonnes) of HCFC-22 and 16.85 mt (1.85 ODP tonnes) of HCFC-141b in foam insulation, will convert to HFC-32 (refrigerant) and HFO (foam). The conversions consist of modifications in sheet metal fabrication, and retrofit of the foam dispenser; refrigerant-charging equipment, leak detectors, and vacuum pumps; safety-related systems; trials, training and technical assistance. In addition, they will include support for equipment upgrade, and incremental operating costs for the use of HFOs. The capital total cost has been estimated at US \$288,430 and operating costs of US \$151,830 (i.e., a total cost of US \$440,260 at a cost-effectiveness of US \$10.75/kg).

24. Technical assistance will be provided to the RAC industry through workshops for dissemination of information on low-GWP alternatives in the form of workshops, with a total cost of US \$90,000, with no associated phase-out.

25. The total costs for the RAC sector plan, as originally submitted, are summarized in the Table 6.

Table 6. Summary of the conversions of RAC enterprises and other activities in the RAC sector

Enterprise	HCFC-22		HCFC-141b		Total HCFC		Capital cost (US \$)	Operating cost (US \$)	Total (US \$)	CE (US \$/kg)
	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)				
Light commercial air-conditioner										
UNIC	16.00	0.88	0.00	0.00	16.00	0.88	134,750	96,720	231,470	14.47
Industrial and Commercial Refrigerators	2.80	0.15	0.00	0.00	2.80	0.15	99,000	17,640	116,640	41.66
Frigo Liban	16.80	0.92	0.00	0.00	16.80	0.92	123,750	105,525	229,275	13.65
Sub-total	35.60	1.96	0.00	0.00	35.60	1.96	357,500	219,885	577,385	16.22

Enterprise	HCFC-22		HCFC-141b		Total HCFC		Capital cost (US \$)	Operating cost (US \$)	Total (US \$)	CE (US \$/kg)
	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)	(mt)	(ODP tonnes)				
Commercial cold rooms										
CGI Cold Stores (Halawany)	11.50	0.63	2.85	0.31	14.35	0.95	118,170	72,450	190,620	13.28
Iceberg (Farjallah)	12.60	0.69	14.00	1.54	26.60	2.23	170,260	79,380	249,640	9.38
Sub-total	24.10	1.33	16.85	1.85	40.95	3.18	288,430	151,830	440,260	10.75
Total manufacturing	59.70	3.28	16.85	1.85	76.55	5.14	645,930	371,715	1,017,645	14.47
Technical assistance	n/a	n/a	n/a	n/a	n/a	n/a	90,000	0	90,000	n/a
Total	59.70	3.28	16.85	1.85	76.55	5.14	735,930	371,715	1,107,645	14.47

Activities in the refrigeration-servicing sector

26. Stage II of the HPMP also proposes to phase-out 414.4 mt (22.79 ODP tonnes) of HCFC-22 used in the refrigeration servicing sector with a total cost of US \$1,989,000 through the following activities:

- (a) Training programmes, including one train-the-trainer workshop for 25 trainers and 35 two-day trainings for 700 refrigeration servicing technicians (US \$370,000);
- (b) Equipment support for 11 training centres at vocational schools, including reclamation equipment, recovery units, vacuum pumps, basic refrigeration equipment, and demonstration kits (US \$286,000);
- (c) Equipment support for servicing technicians, including one lot each of recovery unit, vacuum pump, leak detectors, and basic service tools (US \$875,000);
- (d) Technical support for 20 reclamation centres, including two training programmes, recovery equipment and accessories; (US \$430,000); and
- (e) Awareness raising through the development and distribution of materials and creating a servicing-sector association to disseminate information relevant to the servicing sector (US \$28,000).

Regulatory support for stage II of the HPMP

27. The Government of Lebanon proposes to prohibit the use of HCFC-141b in sandwich panels by 1 January 2019; enforce a ban on new HCFC-based equipment by 1 December 2020; prohibit the manufacture, import and sale of HCFC-based air-conditioners by 1 January 2021; and implement mandatory technician certification and training for service technicians before they can use flammable refrigerants by 1 January 2020.

Project monitoring and implementation unit

28. The project management unit (PMU) under the Ministry of Environment (MOE) will coordinate the implementation of stage II of the HPMP. The PMU will provide support for the proposed regulatory actions; be responsible for awareness and other capacity-building activities; coordinate with stakeholders, organize equipment purchasing; provide financial management of project funds; facilitate project evaluation and organize meetings. The cost of the PMU has been estimated at US \$1,238,000, representing 20 per cent of the total cost of stage II the HPMP.

Total cost of stage II of the HPMP

29. The total cost of stage II of the HPMP for Lebanon to be funded through the Multilateral Fund has been estimated at US \$6,448,520, as originally submitted. The proposed phase-out activities will result in the phase-out of 57.1 ODP tonnes of HCFCs with an overall cost-effectiveness of US \$8.53/kg. Detailed activities and cost break down, as originally submitted, are shown in Table 7.

Table 7. Summary of proposed activities and cost of stage II of the HPMP for Lebanon

Description	ODP tonnes			Total cost (US \$)	CE (US \$/kg)
	HCFC-22	HCFC-141b	Total		
Foam sector plan	0	29.15	29.15	2,053,875	7.97
Foam- technical assistance	0	0	0	60,000	-
AC sector plan	3.28	1.85	5.13	1,017,645	14.40
AC- technical assistance	0	0	0	90,000	-
Servicing sector activities	22.79	0	22.79	1,989,000	4.80
Project management unit	-	-	-	1,238,000	-
HCFC reductions in stage II (actual)	26.08	31.03	57.10	-	8.53**
Funded	26.08	19.64	45.72	6,448,520	9.88**
Unfunded phase-out		11.39	11.39	-	-
Total HCFC phase-out in stage II	26.08	31.03	57.10	-	8.53**

*UNDP indicated that the Government of Lebanon would only request funding for this eligible consumption, the rest will be phased out at no additional cost to the Fund

** Funds requested for PMU were included in calculation

SECRETARIAT'S COMMENTS AND RECCOMENDATIONS**COMMENTS**

30. The Secretariat reviewed stage II of the HPMP for Lebanon in light of existing guidelines of the Executive Committee, the criteria for funding HCFC phase-out in the consumption sector for stage II of HPMPs (decision 74/50), and the 2016-2020 business plan of the Multilateral Fund.

Overarching strategy for stage II

31. The Secretariat and UNDP discussed the scope of stage II of the HPMP, taking into account that the total amount of HCFCs that would be phased out (i.e., 70.22 ODP tonnes) through the implementation of stage I (24.5 ODP tonnes) and stage II (45.72 ODP tonnes) would represent 95.8 per cent of the HCFC baseline for consumption (i.e., remaining eligible consumption of 3.27 ODP tonnes from the baseline of 73.5 ODP tonnes). However, the Government is committing only to meet the 67.5 per cent reduction target through stage II.

32. UNDP explained that the high amount of HCFC that would be phased out in stage II is the most feasible approach for Lebanon, as it would allow the country to develop a long-term strategy that would enable complete phase-out in the AC and foam manufacturing sectors, with only SMEs remaining, and put in place bans on the import of HCFCs for manufacturing.

33. Subsequent to discussions where several phase-out targets were considered, the Government of Lebanon, through UNDP, agreed to the following approach for stage II:

- (a) A commitment to reduce consumption by 50 per cent of its HCFC consumption baseline in 2020, and by 75 per cent in 2025;

- (b) Total phase-out of HCFC-141b used in the manufacture of sandwich panels for the foam from 1 January 2019, and imposing a ban on imports of HCFC-141b in bulk and contained in imported pre-blended polyols from 1 January 2020;
- (c) Total phase-out of HCFC-22 in the air-conditioning manufacturing sectors from 1 January 2021;
- (d) Imposing a ban on all imports of HCFC-22 except for servicing applications from 1 January 2025;
- (e) Phasing-out of 180.00 mt (9.90 ODP tonnes) of HCFC-22 in the servicing sector through training and equipment support to control increasing demand for servicing equipment; and
- (f) Stage III of the HPMP for Lebanon will address the remaining consumption of 235.82 mt (12.97 ODP tonnes) of HCFC-22 used in the servicing sector.

34. The revised strategy for stage II of the HPMP will achieve the phase-out of 52.01 ODP tonnes of HCFC, of which 36.05 ODP tonnes would be deducted from the country's remaining eligible consumption.

Foam sector plan

35. In responding to the Secretariat's concern regarding the inclusion of one systems house in the foam sector plan, UNDP informed the Secretariat that the Government had decided to remove it from the sector plan for a number of reasons, including uncertainty regarding downstream users and potential technology. The systems house has committed to converting on its own.

36. The Secretariat and UNDP also discussed issues related to the proposed conversion of enterprises producing foam discontinuous panels, particularly costs of equipment, technology selection and availability of foam formulations in the local market (especially for the two enterprises that will be converting to HFOs. UNDP explained that HFOs are currently under development in different parts of the world including West Asia. A supplier of the HFO technology had been contacted who confirmed that the supply of HFOs is expected to increase in these markets from early 2017, when the two enterprises are scheduled for conversion. Costs of the equipment for the larger enterprises were adjusted, and the total cost was agreed at US \$1,946,875, at a cost-effectiveness value of US \$6.60/kg.

37. In order to strengthen the commitment under stage II, the Government also decided to provide technical assistance for the 11 SMEs using 37.9 mt (4.17 ODP tonnes) of HCFC-141b for insulation in the production of solar and electric water heaters from 2017, which was originally proposed for stage III. Funding for converting these SMEs to HFO technology was agreed on the basis of technical assistance for equipment upgrade, trials and testing, at a total cost of US \$190,000, at a cost-effectiveness of US \$5.01/kg from 2017. This funding will be distributed to the enterprises to be designated by the Government in consultation with UNDP.

38. In discussions on the cost of the technical support to the foam sector UNDP agreed to reduce it to US \$55,000 (from US \$60,000) and subsumed it within the overall cost of the foam sector, resulting in a cost-effectiveness of US \$9.79/kg.

RAC sector plan

39. Technical and cost items proposed in the conversion of the AC enterprises were discussed. Cost reductions were agreed on high pressure dispensers and vacuum pumps, and rationalization of other costs

(i.e., fire protection and new electrical fittings), resulting an overall cost of US \$865,025 for the investment component in the air-conditioning sector.

40. UNDP also agreed to include the small refrigeration-manufacturing enterprises (with an estimated consumption of 40.74 mt (2.24 ODP tonnes) of HCFC-22 and 12.81 mt (1.41 ODP tonnes) of HCFC-141b) for phase-out in stage II. Because of their very small consumption, there are no cost-effective ways of assisting them to convert other than through technical assistance and technical information outreach. The Government of Lebanon will address this consumption at the same time as the AC sector, where they will be provided with the technical information and support. It was also agreed to maintain the technical support component for the refrigeration sector at the level originally requested.

Activities in the servicing sector

41. With regard to the concern on the high amount of HCFC-22 (22.79 ODP tonnes) to be phased out in the servicing sector during stage II, UNDP explained that the absence of specific activities for this sector in stage I made it difficult to control demand, and there were concerns about growth HCFC consumption in this sector. Providing assistance through good practice training and equipment support will assist in managing and reducing this demand. In addition, as total phase-out in the AC manufacturing sector is expected to be completed in stage II, the elements required to support this through servicing have to be put in place.

42. With regard to the training, capacity-building and equipment provision, and information outreach for SMEs in the revised action plan for the third tranche of stage I as approved at the 74th meeting (US \$380,866 with an associated phase-out of 4.50 ODP tonnes of HCFC-22), UNDP acknowledged that as those activities were already planned until 2017, the activities planned in stage II would commence only in 2018, and be complementary to those in stage I. They would include better containment of refrigerants and leakage control, and the enforcement of HCFC import quotas, among others, which will reduce the amount of HCFC-22 used for refrigeration servicing.

43. In concluding the discussions, UNDP agreed to reduce the amount of HCFC-22 to be phased out in the servicing sector to 180.60 mt (9.90 ODP tonnes), with an associated cost of US \$864,760 (calculated at US \$4.80/kg).

Activities for project management and implementation

44. Following a discussion in which the Secretariat pointed out that funds for project management and monitoring (PMU) should simply be for coordination and monitoring, as technical assistance was already provided with other components of stage II of the HPMP, the PMU cost was revised to US \$382,166.

Verification

45. The verification report confirmed that the Government is strictly implementing a licensing and quota system for HCFC imports and exports, and verified that the total consumption of HCFCs in the country for 2014 was 69.69 ODP tonnes. The report concluded that the Government is committed to phasing out HCFCs in the country.

Revised overall cost of the HPMP stage II

46. Based on adjustments in the cost of the investment projects, reduction of tonnage for the servicing sector, and adjustment in the cost for the PMU, the agreed cost of the activities proposed in stage II of the HPMP amounts to US \$4,203,826 (excluding agency support costs) to achieve the phase-out of

601.07 mt (50.66 ODP tonnes), of which 451.00 mt (36.05 ODP tonnes) will be deducted from the remaining consumption eligible for funding of Lebanon, as shown in Table 8.

Table 8. Agreed costs of stage II of the HPMP

Strategy component	ODP tonnes			Agreed funding (US \$)	CE (US \$/kg)
	HCFC-22	HCFC-141b	Total		
Foam sector plan	0.00	29.15	29.15	1,946,875	6.60
Other foam (water heaters)	0.00	4.17	4.17		
Foam technical assistance	0.00	0.00	0.00		
Air-conditioning sector plan	3.28	1.85	5.13	865,025	11.30
RAC - technical assistance	2.24	1.41	3.66	90,000	
Servicing sector activities	9.91	n/a	9.91	864,760	4.80
PMU	-	-	-	382,166	
HCFC to be phased out	15.43	36.6	52.01	-	6.99
HCFC to be funded	13.62	22.43	36.05	4,203,826	9.3

Staged phase-out

47. Based on the revised strategy for stage II of the HPMP, the Government of Lebanon commits to: achieving accelerated reductions of 50 per cent of the CFC baseline for compliance in 2020 and 75 per cent in 2025; achieving total phase-out of HCFC-141b for the manufacture of sandwich panels by 1 January 2019, and ban on imports of HCFC-141b in bulk of contained in imported pre-blended polyols by 1 January 2020; banning the manufacture, import and sale of HCFC-based ACs from 1 January 2021, and limiting the use of HCFC-22 in servicing applications by 31 December 2025.

Estimated impact on the climate

48. A calculation of the impact on the climate of HCFC consumption through the investment components of stage I of the HPMP in Lebanon based on the GWP values of the HCFCs and alternative substances introduced and their level of consumption before and after conversion has been carried out. The climate impact of the foam sector conversion is determined based on the current consumption of 332 mt of HCFC-141b in all foam enterprises, which has a climate impact of 240,700 tonnes of CO₂ equivalent. The replacement technologies, cyclopentane (GWP 25) and HFO (GWP 6), show a climate impact of 3,975 tonnes of CO₂ equivalent and 180 tonnes of CO₂ equivalent respectively. Consequently, the climate impact of the conversion in the foam sector will be a decrease of 236,545 tonnes of CO₂ equivalent, summarized in Table 9.

Table 9. Climate impact calculation for conversion in the foam sector

Substance	GWP	Tonnes/year	CO ₂ -eq (tonnes/year)
Before conversion			
HCFC-141b	725	332	240,700
After conversion			
HFO-1234ze	6	30	(180)
Hydrocarbons	25	159	(3,975)
Net impact			236,545

49. Table 10 presents the climate impact in the air-conditioning sector.

Table 10. Climate impact in the air-conditioning sector

Input	Note: All data displayed is <i>specific</i> to the case investigated and is <i>not generic</i> information about the performance of one alternative; performance can differ significantly depending on the case.		
Generic			
Country		[-]	Lebanon
Company data (name, location)		[-]	UNIC; Industrial & Commercial Refrigerators; CGI (Halawani); Frigo Liban;

			Iceberg (Farjallah)
	Select system type	[list]	Air-conditioning including chillers
General refrigeration information			
	HCFC to be replaced	[-]	HCFC-22
	Amount of refrigerant per unit	[kg]	between 5 and 80; average 34
	No. of units	[-]	1753
	Refrigeration capacity	[kW]	between 2 and 300
Selection of alternative with minimum environmental impact			
	Share of exports (all countries)	[%]	0
Calculation of the climate impact			
	Alternative refrigerant (more than one possible)	[list]	HFC-410A; HFC-32; HC-290
Output	<i>Note: The output is calculated as the climate impact of the refrigerant systems in their lifetime as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible</i>		
	Country		Lebanon
Identification of the alternative technology with minimum climate impact			
	List of alternatives for identification of the one with minimum climate impact	[Sorted list, best = top (% deviation from HCFC)]	HC-290 (-27%) HC-600a (-25%) HFC-32 (-22%) HFC-1234yf (-21%) HCFC-22 HFC-410A (0%)
Calculation of the climate impact			
	Per unit, over lifetime (for information only):		
	Energy consumption	[kWh]	380,000
	Direct climate impact (substance)	[kg CO ₂ equiv]	89,000
	Indirect climate impact (energy): In country	[kg CO ₂ equiv]	274,000
	Indirect climate impact (energy): Global average	[kg CO ₂ equiv]	0
Calculation of the climate impact of the conversion			
	Alternative refrigerant 1		HFC-410A
	<i>Total direct impact (post conversion – baseline)*</i>	[t CO ₂ equiv]	7,900
	<i>Indirect impact (country)**</i>	[t CO ₂ equiv]	-4,900
	<i>Indirect impact (outside country)**</i>	[t CO ₂ equiv]	0
	<i>Total indirect impact</i>	[t CO ₂ equiv]	-4,900
	Total impact	[t CO ₂ equiv]	639,400
	Alternative refrigerant 2		HFC-32
	<i>Total direct impact (post conversion – baseline)*</i>	[t CO ₂ equiv]	-104,100
	<i>Indirect impact (country)**</i>	[t CO ₂ equiv]	-33,000
	<i>Indirect impact (outside country)**</i>	[t CO ₂ equiv]	0
	<i>Total indirect impact</i>	[t CO ₂ equiv]	-33,000
	Total impact	[t CO ₂ equiv]	499,280
	Alternative refrigerant 3		HC-290
	<i>Total direct impact (post conversion – baseline)*</i>	[t CO ₂ equiv]	-155,700
	<i>Total indirect impact (country)**</i>	[t CO ₂ equiv]	-16,900
	<i>Total indirect impact (outside country)**</i>	[t CO ₂ equiv]	0
	<i>Total indirect impact**</i>	[t CO ₂ equiv]	-16,900
	Total impact	[t CO ₂ equiv]	463,700
*Direct impact: Different impact between alternative technology and HCFC technology for the substance-related emissions.			
**Indirect impact: Difference in impact between alternative technology and HCFC technology for the energy-consumption-related emissions of CO ₂ when generating electricity.			

50. The total impact on the climate of the refrigerant selection in the air-conditioning sector, calculated with the revised multilateral climate impact indicator (MCII)⁴, is a decrease in climate relevant emissions by 137,209 tonnes of CO₂ equivalent (i.e., 22 per cent), resulting in a climate impact of 499,280 tonnes of CO₂ equivalent (from the baseline of 636,489 tonnes of CO₂ equivalent emissions with the use of HCFC-22).

⁴ Decision 73/65, *inter alia*, to note that the Secretariat would calculate the impact on the climate of investment projects in the refrigeration and air-conditioning manufacturing sectors, applying the revised MCII model resulting from the work referred to in sub-paragraph (b) above

51. In addition, the proposed technical assistance activities in the HPMP for the servicing sector, which include the introduction of better servicing practices and enforcement of HCFC import controls, would also reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogram (kg) of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO₂-equivalent tonnes.

Co-financing

52. Under stage II of the HPMP, some co-financing (i.e., US \$443,305) is being provided by the individual enterprises, as the cost of the conversion is higher than the assistance provided by the Multilateral Fund. In addition, the Government will provide in-kind assistance in the form of local staff and experts in order to support the phase-out of SMEs in refrigeration, which is included in stage II only for technical assistance.

2015-2017 business plan of the Multilateral Fund

53. UNDP is requesting US \$4,203,826 plus support costs for implementation of stage II of the HPMP. This value requested for the 2015-2017 period of US 2,578,700, including support costs, is above the total amount in the business plan for UNDP.

Draft Agreement

54. A draft Agreement between the Government of Lebanon and the Executive Committee for the phase-out of HCFCs in stage II of the HPMP is contained in Annex I to the present document.

RECOMMENDATION

55. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Lebanon for the period from 2015 to 2025 to reduce HCFC consumption by 75 per cent of its baseline, in the amount of US \$4,203,826 plus agency support costs of US \$294,268 for UNDP;
- (b) Noting that the Government of Lebanon has committed to reducing HCFC consumption by 18 per cent of its baseline by 2017, 50 per cent by 2020, and 75 per cent by 2025;
- (c) Noting the commitment of the Government of Lebanon to issue a ban on imports of HCFC-141b in bulk and contained in imported pre-blended polyols by 1 January 2020, and for HCFC-22, except for servicing, by 1 January 2026;
- (d) Deducting an additional 36.05 ODP tonnes (451.6 mt) of HCFCs from the remaining HCFC consumption eligible for funding in Lebanon;
- (e) Approving the draft Agreement between the Government of Lebanon and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage II of the HPMP, contained in Annex I to the present document; and
- (f) Approving the first tranche of stage II of the HPMP for Lebanon, and the corresponding tranche implementation plans, at the amount of US \$2,410,000, plus agency support costs of US \$168,700 for UNDP.

**DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF LEBANON AND THE
EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN
CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH
STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN**

Purpose

1. This Agreement represents the understanding of the Government of Lebanon (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 18.39 ODP tonnes by 1 January 2025 in compliance with Montreal Protocol schedule.

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. and 4.3.3. (remaining consumption eligible for funding).

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 stage II of the HCFC phase-out management plan (HPMP) approved (“the Plan”). 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.

Conditions for funding release

5. The Executive Committee will only provide the Funding in accordance with the Funding Approval Schedule when 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 has 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 there are no due country programme implementation reports 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 for all relevant years, unless the Executive Committee decided that such verification would not be required;
- (c) That the Country had submitted a Tranche Implementation Report in the form of Appendix 4-A (“Format of Tranche 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; and

- (d) That the Country has submitted a Tranche 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 the first tranche that is due on a year after the date of completion of the previous stage of the HPMP (as defined in paragraph 14 of the Agreement associated to the previous stage), all tranches from the previous stage have been completed, remaining funds have been returned to the Multilateral Fund (as established in paragraph 7 of the Agreement associated to the previous stage) and the corresponding project completion reports have been submitted to the Executive Committee.

Monitoring

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 Tranche Implementation Plans in accordance with their roles and responsibilities set out in the same appendix.

Flexibility in the reallocation of funds

7. The Executive Committee agrees that the Country may have the flexibility to reallocate part or all of the approved 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 a Tranche Implementation Plan as foreseen in sub-paragraph 5(d) above, or as a revision to an existing Tranche 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 Tranche Implementation Plan, or removal of an activity in the Tranche 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 Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the subsequent Tranche Implementation Report;
- (c) Should the Country decide during implementation of the Agreement to introduce an alternative technology other than that proposed in the Plan, this would require approval

by the Executive Committee as part of a Tranche 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 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 Plan and that would be found to be ineligible under the policies of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), would not receive financial assistance. This information would be reported as part of the Tranche Implementation Plan;
- (e) The Country commits to examining the possibility of using pre-blended systems with low-global warming potential blowing agents instead of blending them in-house, for those foam enterprises covered under the Plan, should this be technically viable, economically feasible and acceptable to the enterprises; and
- (f) Any remaining funds held by the bilateral or implementing agencies or the country under the Plan will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

Considerations for the refrigeration servicing sector

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

- (a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation;
- (b) The Country would take into consideration relevant actions that could minimize adverse climate impact when phasing out HCFC in the refrigeration servicing sector; and
- (c) The Country would be encouraged to consider, as needed and feasible, the development of regulations and codes of practice; the adoption of standards for the safe introduction of flammable and/or toxic refrigerants; the implementation of measures to limit the import of HCFC-based equipment and to facilitate the introduction of energy-efficient and climate-friendly alternatives; and implementation of activities in the refrigeration servicing sector on training of technicians and introduction of good service practices such as the safe handling of refrigerants, containment and recovery and recycling and reuse of refrigerants rather than retrofitting.

Bilateral and implementing agencies

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. UNDP has agreed to be the lead implementing agency (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 the Lead IA 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). The Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in row 2.2 of Appendix 2-A.

Non-compliance with the Agreement

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 kilogram 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 decisions are taken, the specific case of not compliance with this Agreement will not be an impediment for the provision of funding 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 decisions 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 and the Lead IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to the information necessary to verify compliance with this Agreement.

Date of completion

14. The completion of the Plan 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 at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion of the Plan 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 of the Plan unless otherwise specified by the Executive Committee.

Validity

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	35.95
HCFC-123	C	I	0.05
HCFC-141b	C	I	37.53
Total	C	I	73.50

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2015	2016	2017	2018	2019	2020	2021	2022-2023	2024	2025	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	66.15	66.15	66.15	66.15	66.15	47.78	47.78	47.78	47.78	23.88	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	66.15	66.15	60.64	60.64	48.71	36.78	36.78	36.78	27.58	18.39	n/a
2.1	Lead IA (UNDP) agreed funding	2,410,000	0	0	1,114,000	0	0	420,462	0	259,364	0	4,203,826
2.2	Support costs for Lead IA	168,700	0	0	77,980	0	0	29,432	0	18,155	0	294,268
3.1	Total agreed funding (US \$)	2,410,000	0	0	1,114,000	0	0	420,462	0	259,364	0	4,203,826
3.2	Total support costs (US \$)	168,700	0	0	77,980	0	0	29,432	0	18,155	0	294,268
3.3	Total agreed costs (US \$)	2,578,700	0	0	1,191,980	0	0	449,894	0	277,519	0	4,498,094
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)											13.57
4.1.2	Phase-out of HCFC-22 to be achieved in the previous stage (ODP tonnes)											9.41
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)											12.97
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)											0.05
4.2.2	Phase-out of HCFC-123 to be achieved in the previous stage (ODP tonnes)											0
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)											0
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)											22.43
4.3.2	Phase-out of HCFC-141b to be achieved in the previous stage (ODP tonnes)											15.10
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)											0

*Date of completion of stage I as per stage I Agreement: anticipate in 2017

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

APPENDIX 4-A: FORMAT OF TRANCHE IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Tranche Implementation Report and Plans for each tranche request will consist of five parts:

- (a) A narrative report, with data provided by tranche, describing the progress achieved since 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 the amount of ODS phased 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 Tranche 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;
- (b) An independent verification report of the Plan results and the consumption of the Substances, 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 during the period covered by the requested tranche, highlighting implementation milestones, the time of completion and 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 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 Tranche Implementation Reports and Plans, submitted through an online database; and
- (e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

2. In the event that in a particular year two stages of the HPMP are being implemented in parallel, the following considerations should be taken in preparing the Tranche Implementation Reports and Plans:

- (a) The Tranche Implementation Reports and Plans referred to as part of this Agreement, will exclusively refer to activities and funds covered by this Agreement; and
- (b) If the stages under implementation have different HCFC consumption targets under Appendix 2-A of each Agreement in a particular year, the lower HCFC consumption target will be used as reference for compliance with these Agreements and will be the basis for the independent verification.

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

3. The monitoring process will be managed by the Ministry of Environment through the National Ozone Unit (NOU) with the assistance of the Lead IA.

4. The consumption will be monitored and determined based on official import and export data for the Substances recorded by relevant government departments.

5. The NOU shall compile and report the following data and information on an annual basis on or before the relevant due dates:

- (a) Annual reports on consumption of the Substances to be submitted to the Ozone Secretariat; and
- (b) Annual reports on progress of implementation of the HPMP to be submitted to the Executive Committee of the Multilateral Fund.

6. The NOU and Lead IA will engage an independent and qualified entity to carry out a qualitative and quantitative performance evaluation of the HPMP implementation.

7. The evaluating entity shall have full access to relevant technical and financial information related to implementation of the HPMP.

8. The evaluating entity shall prepare and submit to the NOU and the Lead IA, a consolidated draft report at the end of each annual implementation plan, comprising of the findings of the evaluation and recommendations for improvements or adjustments, if any. The draft report shall include the status of the Country's compliance with the provisions of this Agreement.

9. Upon incorporating the comments and explanations as may be applicable, from the NOU and Lead IA, the evaluating entity shall finalize the report and submit to the NOU and Lead IA.

10. The NOU shall endorse the final report and the Lead IA shall submit the same to the relevant meeting of the Executive Committee along with the annual implementation plan and reports.

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 Tranche Implementation Reports and Plans as per Appendix 4-A;
 - (c) Providing independent verification to the Executive Committee that the Targets have been met and associated tranche activities have been completed as indicated in the Tranche 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 Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
 - (e) Fulfilling the reporting requirements for the Tranche Implementation Reports and Plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee;
 - (f) In the event that the last funding tranche is requested one or more years prior to the last year for which a consumption target had been established, annual tranche implementation reports and, where applicable, verification reports on the current stage of the Plan should be submitted until all activities foreseen had been completed and HCFC consumption targets had been met;
 - (g) Ensuring that appropriate independent technical experts carry out the technical reviews;
 - (h) Carrying out required supervision missions;
 - (i) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
 - (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 the allocation of the reductions to the different budget items and to the funding of the Lead IA;
 - (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 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 \$147 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, on the understanding that the maximum funding reduction would not exceed the funding level of the tranche being requested. Additional measures might be considered in cases where non-compliance extends for two consecutive years.

2. In the event that the penalty needs to be applied for a year in which there are two Agreements in force (two stages of the HPMP being implemented in parallel) with different penalty levels, the application of the penalty will be determined on a case-by-case basis taking into consideration the specific sectors that lead to the non-compliance. If it is not possible to determine a sector, or both stages are addressing the same sector, the penalty level to be applied would be the largest.
