UNITED NATIONS

EP

United Nations Environment Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/68/22
9 November 2012

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-eighth meeting
Montreal, 3-7 December 2012

PROJECT PROPOSAL: BAHRAIN

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

Phase-out

- HCFC phase-out management plan (stage I, first tranche) — UNEP and UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Bahrain

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

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2011	57.32 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2011
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123									
HCFC-124									
HCFC-141b					0.6				0.6
HCFC-141b in imported pre-blended Polyols		6.9							6.9
HCFC-142b									
HCFC-22				44.7	12.1				56.7

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	51.9	Starting point for sustained aggregate reductions:	61.39
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.0	Remaining:	32.72

(V) BUSINESS PLAN		2012	2013	2014	2015	2016	2017	2018	2019	Total
UNEP	ODS phase-out (ODP tonnes)		0.9		1.0		1.0		1.0	3.9
	Funding (US $)	63,894	79,868		87,124		79,204		79,204	389,294
UNIDO	ODS phase-out (ODP tonnes)	11.3	9.8	0.0	1.7					22.8
	Funding (US $)	1,223,674	1,714,211		116,494	0	0	0	0	3,054,379

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	51.9	51.9	46.71	46.71	46.71	46.71	46.71	33.74	n/a
Maximum allowable consumption (ODP tonnes)			n/a	51.77	51.77	46.58	46.45	45.39	43.54	37.27	29.72	n/a
Project costs requested in principle(US $)	UNEP	Project costs	120,000	0	145,000	0	125,000	0	55,000	0	25,000	470,000
		Support costs	15,600	0	18,850	0	16,250	0	7,150	0	3,250	61,100
	UNIDO	Project costs	460,500		405,000	0	950,500	0	701,506	0	132,500	2,650,006
		Support costs	32,235	0	28,350	0	66,535	0	49,105	0	9,275	185,500
Total project costs requested in principle (US $)			580,500	0	550,000	0	1,075,500	0	756,506	0	157,500	3,120,006
Total support costs requested in principle (US $)			47,835	0	47,200	0	82,785	0	56,255	0	12,525	246,600
Total funds requested in principle (US $)			628,335	0	597,200	0	1,158,285	0	812,761	0	170,025	3,366,606

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Bahrain - continuation

(VII) Request for funding for the first tranche (2012)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNEP	120,000	15,600
UNIDO	460,500	32,235

Funding request:	Approval of funding for the first tranche (2012) as indicated above
Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Bahrain UNEP, as the lead implementing agency, has re-submitted to the 68th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost, as originally submitted, of US $3,590,224, plus agency support costs of US $71,600 for UNEP and agency support costs of US $212,116 for UNIDO. The HPMP proposes strategies and activities to achieve a 35 per cent reduction in HCFC consumption by 2020.

2. The first tranche for stage I being requested at this meeting amounts to US $150,000, plus agency support costs of US $19,179 for UNEP, and US $736,599, plus agency support costs of US $51,562 for UNIDO.

Background

Previous submission

3. In a previous submission of the HPMP to the 65th meeting, the Government of Bahrain had proposed to use, as maximum allowable consumption for the HPMP Agreement, HCFC levels in excess of those prescribed by the Montreal Protocol. At that time, UNEP had advised that the Government believed that the conversion of the manufacturing capacity at Awal Gulf Manufacture Company (AGM), constituting 80 per cent of the country's consumption, could not be carried out before 2014, given the regional market for its products in combination with the regional situation in terms of priorities for HCFC phase-out, without risking the commercial sustainability of the enterprise. At that time, the Secretariat had discussed with UNEP several options on how to support Bahrain to stay in compliance, including different scenarios for HCFC reductions. At the 65th meeting, the Executive Committee discussed the situation described in document UNEP/OzL.Pro/ExCom/65/23. During the meeting, several members commented that the mandate of the Executive Committee did not permit it to approve a project that condoned non-compliance under the Montreal Protocol. Only the Parties could make such a decision. Subsequently, the representative of UNEP reported that Bahrain had decided to withdraw the project proposal.

ODS regulations

4. Bahrain acceded to the Montreal Protocol in 1990. The country also acceded to the subsequent amendments to the Montreal Protocol except for the Beijing Amendment, which is at the final stage of the accession process. The Public Commission for the Protection of Marine Resources, Environment and Wildlife is the national body responsible for the implementation of the Montreal Protocol. The National Ozone Office (NOO), was established under the Commission to co-ordinate all of the activities during implementation. Bahrain has established regulations through legislative Decree No. 21 and Ministerial Order No. 1 of 1999 and a licensing system which, *inter alia*, controls the import, export and consumption of ozone-depleting substances (ODS). HCFCs, HCFC blends and pre-blended polyols have been included in the current licensing system since 2008. The Government has submitted a letter to inform the Executive Committee that Bahrain has established an enforceable licensing and quota system for HCFC imports and exports. The system will be implemented as of 2013 and is capable of ensuring the country's compliance with the Montreal Protocol control targets.

HCFC consumption and sector distribution

5. All HCFCs used in Bahrain are imported as the country does not have any HCFC production capacity. The only HCFCs consumed are HCFC-22 and HCFC-141b. In 2011, HCFC-22 constituted 99.5 per cent (metric tonnes (mt) based) of the total HCFC consumption in the country. The remaining 0.5 per cent (HCFC-141b) is used for flushing/cleaning of refrigeration equipment. Bahrain also imports HCFC-141b contained in pre-blended polyols which has not been reported under Article 7 of the Montreal Protocol and is not considered consumption. The survey data is consistent with the Article 7

data. Table 1 shows HCFC consumption and use levels in Bahrain. The HCFC baseline for compliance has been established at 51.9 ODP tonnes.

Table 1: HCFC consumption

Year	Article 7 data						HCFC-141b contained in imported pre-blended polyols *	
	HCFC-22		HCFC-141b		Total			
	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t
2007	512.83	28.21	4.30	0.47	517.13	28.7	83.87	9.23
2008	702.30	38.63	1.16	0.13	703.46	38.8	97.50	10.73
2009	807.16	44.39	6.20	0.68	813.36	45.1	94.25	10.37
2010	1,064.36	58.54	1.74	0.19	1,066.10	58.7	109.50	12.05
2011	1,031.10	56.71	5.50	0.61	1,036.60	57.32	62.75	6.90

*not reported under Article 7

Sector distribution

6. HCFC-22 is mainly used as a refrigerant in the manufacturing of refrigeration and air-conditioning equipment, for charging newly assembled refrigeration and air-conditioning units and servicing existing units. HCFC-141b contained in pre-blended polyols is used for manufacturing polyurethane rigid insulation foam for doors and cabinets of freezers and refrigerated display units. In 2011, HCFC consumption in the manufacturing sector accounted for 78.32 per cent (mt based) of total HCFC consumption, excluding HCFC-141b in pre-blended polyols as shown in Table 2.

Table 2: Sector distribution of HCFCs for 2011

Substance	RAC manufacturing		RAC servicing		Total consumption		Pre-blended polyols*	
	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t
HCFC-141b	0.00	0.00	5.50	0.61	5.50	0.61	91.87	10.11
HCFC-22	811.90	44.65	219.20	12.06	1031.10	56.71		
Total HCFC	811.90	44.65	224.70	12.66	1036.60	57.32	91.87	10.11

*note: average use of 2007 to 2009, not reported under Article 7.

Servicing sector

7. Total air-conditioning equipment using HCFC-22 installed in the country was estimated at 1,373,886 units. The average charge for different types of equipment was estimated and used to calculate the total installed capacity. A summary of the installed capacity and HCFC consumption in the servicing sector is shown in Table 3.

Table 3: HCFC-22 consumption distribution in the servicing sector (2010 data)

Type of equipment	Total no. of units	Installed capacity		Service demand	
		mt	ODP t	mt	ODP t
Window AC	1,129,672	790.77	43.49	103.20	5.68
Mini split AC < 10.5 kW	181,848	667.38	36.71	90.74	4.99
Mini split AC > 10.5 kW	10,474	62.84	3.46	8.47	0.47
Ducted split AC	5,487	38.41	2.11	8.39	0.46
Package - roof top AC	44,101	220.51	12.13	15.40	0.85
Chillers	2,304	138.24	7.60	19.92	1.10
Total	1,373,886	1,918.15	105.50	246.13	13.54

Manufacturing sector

8. The manufacturing sector consists of one large enterprise, (AGM, consuming 811.9 mt (44.65 ODP tonnes) of HCFC-22 as refrigerant and using HCFC-141b contained in pre-blended polyols for insulation foam); one small enterprise, Awal Refrigeration and Air-Conditioning (ARAC, using HCFC-141b contained in pre-blended polyols for insulation foam); and many very small enterprises (using HCFC-141b contained in pre-blended polyols for spray foam). A summary of HCFC consumption in the manufacturing sector is shown in Table 4.

Table 4: HCFC use in the manufacturing sector

Year	2007	2008	2009	2010	2011	Average of 2007-2009
Awal Gulf Manufacturing Co. (AGM)						
HCFC-22 refrigerant (mt)	419.74	600.00	662.80	742.50	811.90	n/a
HCFC-22 refrigerant (ODP t)	23.09	33.00	36.45	40.84	44.65	n/a
HCFC-141b contained in pre-blended polyols (mt)*	12.40	15.10	18.60	22.50	12.05	15.37
HCFC-141b contained in pre-blended polyols (ODP t)*	1.36	1.66	2.05	2.48	1.33	1.69
Awal Refrigeration and Air-Conditioning (ARAC)						
HCFC-141b contained in pre-blended polyols (mt)*	0.48	0.51	0.53	0.54	0.00	0.51
HCFC-141b contained in pre-blended polyols (ODP t)*	0.05	0.06	0.06	0.06	0.00	0.06
Spray foam (several small enterprises and contractors)						
HCFC-141b contained in pre-blended polyols (mt)*	70.99	81.89	75.12	86.46	50.70	76.00
HCFC-141b contained in pre-blended polyols (ODP t)*	7.81	9.01	8.26	9.51	5.58	8.36
Total						
HCFC-22 refrigerant (mt)	419.74	600.00	662.80	742.50	811.90	n/a
HCFC-22 refrigerant (ODP t)	23.09	33.00	36.45	40.84	44.65	n/a
HCFC-141b contained in pre-blended polyols (mt)*	83.87	97.50	94.25	109.50	62.75	91.87
HCFC-141b contained in pre-blended polyols (ODP t)*	9.23	10.73	10.37	12.05	6.90	10.11

*Not reported under Article 7

Air-conditioning manufacturing sub-sector

9. AGM is the only enterprise in the air-conditioning manufacturing sector. It was established in 1994 and is 100 per cent Bahraini-owned, producing a wide range of air-conditioning units using HCFC-22 as refrigerant. Eighty-five per cent of its production is exported to other Article 5 countries. Details of AGM's production and related consumption are shown in Table 5.

Table 5: Air-conditioning equipment production and HCFC-22 consumption at AGM

Year	**Type of equipment (capacity)**				**Total**
	Window AC (2.6-5.2 kW)	Split AC (5.3-14.7 kW)	Central AC (10.5-87.9 kW)	Water cooling unit	
Production (units)					
2008	210,210	163,800	11,700	4,290	390,000
2009	216,678	168,840	12,060	4,422	402,000
2010	242,550	189,000	13,500	4,950	450,000

Year	Type of equipment (capacity)	Total	Year	Type of equipment (capacity)	Total
2011	257,726	198,989	18,123	6,041	480,879
Consumption of HCFC-22 (mt)					
2008	231.10	283.08	78.00	7.80	599.98
2009	246.00	323.30	85.00	8.50	662.80
2010	270.40	362.00	100.10	10.00	742.50
2011	291.20	384.40	128.10	8.30	812.00

10. AGM produces all of its product components in-house except for the compressors, which are imported from various sources. AGM has a total of three air-conditioning (AC) manufacturing lines, one for window units, one for split units and one for central AC, as well as a heat exchanger for all of its products.

Foam manufacturing sector

11. Based on the average use from 2007 to 2009, 82.3 per cent of the HCFC-141b contained in pre-blended polyols is used by some contractors to provide insulation using spray foam; 16.7 per cent is used by AGM while the remaining 1 per cent is used by ARAC, as shown in Table 4.

12. AGM has two manufacturing lines for making foam for the doors and cabinets of freezers and coolers. The cabinet line was established in 2000 and equipped with a high-pressure dispenser and a horizontal carousel with five holding fixtures on a semi-automatic assembly line. The door line is also equipped with a high-pressure dispenser but has a vertical carousel with six holding fixtures. ARAC produces a wide range of refrigeration equipment such as cold rooms, freezers and display cabinets. It was established in 1991 and is 100 per cent Bahraini. Due to the low level of use at ARAC and the scattered nature of the spray foam users, the phase-out of HCFC-141b pre-blended polyols in these applications will be addressed as part of a technical assistance programme.

Forecast of HCFC consumption

13. Bahrain forecasts its HCFC consumption at an average growth of 9 per cent from 2012 to 2015 based on its current economic development and population growth under an unconstrained scenario. With the implementation of the HPMP, Bahrain's total HCFC consumption will be curbed significantly and will remain below the consumption limit set by the Montreal Protocol, as shown in Table 6.

Table 6: Forecast consumption of HCFCs

Year	2011*	2012	2013	2014	2015	2016	2017	2018	2019	2020
Montreal Protocol limits			51.9	51.9	46.7	46.7	46.7	46.7	46.7	33.7
Unconstrained scenario										
HCFC-22 (manufacturing)	44.7	42.2	49.5	52.5	55.6	59	62.5	66.2	70.2	74.4
HCFC-141b (servicing)	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1	1
HCFC-22 (servicing)	12	21.2	2.5	14.6	15.4	16.4	17.4	18.4	19.5	20.7
Total consumption (import)	57.3	64.0	52.7	67.8	71.8	76.2	80.8	85.5	90.7	96.1
HPMP (constraint) scenario										
HCFC-22 (manufacturing) HPMP	44.7	42.2	42.4	40.9	36.9	36.3	35.5	34.2	29	22.6
HCFC-141b (servicing) HPMP	0.6	0.6	0.2	0.2	0.1	0	0	0	0	0
HCFC-22 (servicing) HPMP	12	21.2	9.3	10.8	9.7	10.4	9.9	9.4	8.3	7.2
Total consumption	57.3	64.0	51.9	51.9	46.7	46.7	45.4	43.6	37.3	29.8

*Reported Article 7 data

HCFC phase-out strategy

14. The Government of Bahrain is proposing to follow the Montreal Protocol schedule and to adopt a staged approach in order to achieve complete phase-out of HCFCs by 2030, except for a service tail to 2040. This submission only contains stage I of the HPMP to meet a 35 per cent reduction in consumption, as compared to the baseline, by 2020.

15. The HPMP proposed that Bahrain's overarching strategy will have to be flexible due to its HCFC consumption distribution pattern, where AGM consumes 86 per cent (in ODP tonnes) of the country's baseline consumption in 2011 and exports 85 per cent of its HCFC-containing products, creating a dependence on the technology choices in its export markets. The strategy for phasing out HCFCs is heavily dependent on AGM being able to convert part or all of its product lines to non-HCFC alternatives, which are technically and economically viable when operating in high ambient temperature conditions. AGM has limitations in terms of selecting the technology since it is primarily an original equipment manufacturer, with more than 70 per cent of its products sold under regional brands, including to manufacturers in neighbouring countries, such as United Arab Emirates, or Kuwait and Saudi Arabia where there will be no conversion of enterprises to non-HCFC alternatives in the air-conditioning manufacturing sector during stage I of the HPMPs due to different priorities.

16. UNEP and UNIDO advised that after the withdrawal of the original submission during the 65th meeting, they had extended consultations with AGM, key technology providers and the Government of Bahrain, seeking to develop alternative strategies that would meet Montreal Protocol requirements with minimum negative social and economic impacts on Bahrain. As a result, the following strategy enabling Bahrain to meet the Montreal Protocol control targets up to the 35 per cent reduction by 2020, has been agreed:

(a) With regard to AGM's HCFC-22 consumption:

(i) Freezing the consumption of HCFC-22 for each production line at the baseline level;

(ii) Establishing a stockpile of 220 mt (12.1 ODP tonnes) of HCFC-22 before 2013 for subsequent use over a period of 4-5 years to cover the difference between actual use and allowable consumption, to allow time for trials on alternative refrigerants to be conducted, and their results to be verified and accepted;

(iii) Converting the production line for central AC to HFC-410A or HFC-407C, which are currently the only alternatives available, and where it remains unclear when more climate-benign alternatives will emerge. The enterprise will phase out 128.1 mt (7.05 ODP tonnes) of HCFC-22 by 2017. This will provide sufficient time for regulations to come into effect on import controls of HFC-based products from linked markets within Gulf countries, making the conversion economically sustainable;

(iv) Improving the product and optimizing the production process in the split AC production line, leading to a smaller refrigerant charge per unit. At the same time, trials and product tests would be conducted to use alternatives with a lower global warming potential (GWP) than HCFC-22, i.e., HC-290 (propane) and/or HFC-32; and

(v) Converting the split AC production line to HC-290 or HFC-32 once the product trial and test is completed, by 2018 at the latest, thus phasing out 254.9 mt (14.02 ODP tonnes) of HCFC-22;

(b) Converting from the use of HCFC-141b contained in imported pre-blended polyols to using cyclopentane at AGM, as well as technical assistance to small users to phase out HCFC-141b pre-blended polyols; and

(c) Training technicians and policy support in the servicing sector to reduce consumption through good servicing practices and leakage control.

17. In order to enable the country to comply with the consumption controls for HCFC under the Montreal Protocol, Bahrain has already started to implement some components of the above strategy. During 2012, AGM moved the production of central AC to a new location and plans to gradually convert the central AC line to HFC-410A/407C during the next couple of years as per market requirements. The enterprise has invested in some equipment (vacuum pumps, charging equipment, and helium leak detection) and is willing to bear the cost of product development and trials to complete the conversion. Bahrain requested assistance from the Multilateral Fund for covering incremental operating costs and additional equipment (four vacuum pumps) needed for completing the conversion. The operating costs requested were calculated on the basis of 6-month duration, in comparison to the usual duration of twelve month, resulting in an accordingly reduced funding request.

Monitoring, coordination and verification

18. Project monitoring and coordination (PMU) of activities are planned to take place throughout the implementation period at a total cost of US $245,000 (including US $20,000 from the TPMP). The National Ozone Committee (NOC) of Bahrain will be established to address policy issues and will provide strategic direction during HCFC phase-out. An independent agency will be selected to conduct independent monitoring and verification of achievement during implementation of the HPMP. The NOO will provide support and coordination to ensure that the selected monitoring body has access to all information and resources. Progress reporting will be carried out by the NOO with support from UNEP and UNIDO.

Total cost of the HPMP

19. The total cost of stage I of the HPMP for Bahrain has been estimated at US $3,590,224 to phase out 493.45 mt (27.14 ODP tonnes) of HCFCs by 2020, representing 52.3 per cent of the baseline. Additionally, stage I of the HPMP will also phase out 18.18 mt (2.00 ODP tonnes) of HCFC-141b contained in imported pre-blended polyols. The detailed activities and cost breakdown are presented in Table 7.

Table 7: Specific activities, cost and proposed period of implementation

Description of activities	Contribution from TPMP remaining balance (US $)	UNEP (US $)	UNIDO (US $)	Total Funding (US $)	Phase-out tonnage (ODP t)	Implementation period
Activities related to compliance						
Conversion of central AC line to HFC-410A/HFC-407C			20,000	20,000	7.05	2012-2017
Incremental operating cost for central AC calculated at US $6.3/kg for 6 months			403,521	403,521		2014-2017
Setting up a pre-production line for the conversion of small window AC units to HC-290 or HFC-32			284,780	284,780	14.02	2012-2014
Conversion of small AC line to HFC-32 or HC-290 and training for servicing network			1,062,220	1,062,220		2016-2020

Description of activities	Contribution from TPMP remaining balance (US $)	UNEP (US $)	UNIDO (US $)	Total Funding (US $)	Phase-out tonnage (ODP t)	Implementation period
Incremental operating cost for split AC calculated at US $6.3/kg for six months			802,884	802,884		2018-2020
Updating policy and regulations	45,000	130,000	-	130,000	6.07	2012-2020
Technical assistance to the servicing sector, including updating vocational curriculum, developing standard, training of technicians	40,000	205,000	-	205,000		2012-2020
National HCFC reclamation programme			161,600	161,600		2012-2020
Activities not related to compliance						
Conversion of HCFC-141b in pre-blended polyols to cyclopentane at AGM			220,219	220,219	2.00	2012-2014
Technical assistance to the small consumers in the foam sector			75,000	75,000	-	2012-2020
Co-ordinating activities						
Project implementation, monitoring and verification	20,000	225,000		225,000		2012-2020
Total	105,000	560,000	3,030,224	3,590,224	29.14*	2012-2020

(*) Including 2.00 ODP tonnes of HCFC-141b contained in imported pre-blended polyols.

SECRETARIAT COMMENTS AND RECOMMENDATION

COMMENTS

20. The Secretariat reviewed the HPMP for Bahrain 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 2012-2014 business plan of the Multilateral Fund. The Secretariat discussed technical and cost issues as presented below.

HCFC consumption and starting point

21. During the review of the HPMP at the 65th meeting, the Secretariat discussed the issue of stockpiling in the servicing sector (see paragraphs 22 to 25 of document UNEP/OzL.Pro/ExCom/65/23). Subsequently Bahrain agreed to adjust the starting point in the servicing sector from 257 mt to 246 mt. The starting point for Bahrain was calculated at 61.39 ODP tonnes as shown in Table 8.

Table 8: Starting point for HCFC phase-out

Substance	Foam		Manufacturing		Servicing		Substance total	
	mt	ODP t	mt	ODP t	mt	ODP t	Mt	ODP t
HCFC-22	0.0	0.00	682.5	37.54	242.0	13.31	924.5	50.84
HCFC-141b	0.0	0.00	0.0	0.00	4.0	0.44	4.0	0.44
HCFC-141b contained in imported pre-blended polyols*	91.9	10.11	0.0	0.00	0.0	0.00	91.9	10.11
Grand total	91.9	10.11	682.5	37.54	246.0	13.75	1,020.3	61.39

*note: average use of 2007 to 2009

HCFC-141b in pre-blended polyols

22. The Secretariat observed that the cost for the conversion of AGM from HCFC-141b-based pre-blended polyols to cyclopentane was estimated at US $607,825 (excluding support costs), with a significant amount of funding for safety. Bahrain was only requesting US $220,219, as this represents the cost effectiveness threshold of US $9.79/kg. The Secretariat also noted that the phase-out of HCFC-141b will not contribute to achieving the compliance target, and that the country already undertakes activities to phase out a significant part of its baseline consumption. The Secretariat queried whether it would be possible to use another low-GWP technology with lower incremental costs. UNIDO advised that AGM is not convinced that such technologies are sufficiently sustainable in terms of product quality in the climate conditions prevailing in the region and could not agree to convert to any of the available technologies with low conversion costs. In light of the above and knowing that spray foam users would face a similar situation, UNIDO agreed to the Secretariat`s recommendation that the country could submit a foam sector plan covering the total use of HCFC-141b in imported pre-blended polyols during the implementation of stage I, after a decision on a suitable replacement technology has been made, and subject to sufficient funding being allocated in the business plan.

Technology choice in refrigeration manufacturing at AGM

23. Bahrain's situation with regard to reaching compliance with any HCFC control measures is challenging because of the overbearing influence of a single manufacturer in the country. Moreover, that manufacturer in turn relies, for the selection of alternatives, on the market acceptance of those alternatives in the countries to which it exports. This implies that some conversion has to be undertaken immediately. Emerging alternative technologies with a much lower GWP than HCFC-22 for air-conditioning products are flammable, and their design challenges increase -- and likely market acceptance decrease -- with the size of the unit. Consequently, while HFC-32 and HC-290 are short- and mid-term alternatives for smaller units, the situation for larger units is not clear. Any conversion which would be carried out immediately to have an impact on the 2015 compliance targets would have to involve HFC-410A and/or HFC-407C. The manufacturer, advised by the agencies, decided to convert immediately the production line which has the largest products, and therefore the lowest likelihood of an alternative with a lower climate impact being developed to allow industrial production in the mid-future. The next conversion selected was that of split air conditioners, which is less price-sensitive than the window air conditioners and can therefore more easily accommodate cost increases as compared to HCFC-22 or HFC-410A systems. According to the current status of development, the only alternative available in the near future would be HFC-32; however, during the conversion period, HC-290 (propane) technology might be sufficiently developed to be introduced for that use, with a substantially higher climate benefit than HFC-32. The choice of HC-290 or HFC-32 has no impact on incremental cost. The Secretariat found the logic of the technology choice compelling if one takes also into account the potential of non-compliance and the resulting need to act immediately.

Cost for the conversion of production capacity at AGM

24. During the review of investment component costs, the Secretariat requested from UNEP and UNIDO additional information necessary to evaluate eligibility and incremental cost, including a description of baseline equipment and the dates of installation. Based on the information provided by the agencies and subsequent discussions with them, agreement was reached on the eligible incremental cost for the conversion, with a reduction of US $85,000 in the conversion cost for split air conditioners.

25. The Secretariat noted, within the investment component, funding for the supply of installation and servicing tools and equipment to the servicing department of AGM was requested, in order to allow servicing and maintenance of their products with HFC-32 or HC-290. As the activities are benefitting the servicing sector therefore have to be accounted for by calculating HCFC reductions on the basis of US $4.50/kg and the agreed cost of US $135,000. The Secretariat advised UNEP accordingly.

Funding in the servicing sector

26. The Secretariat noted that funding was requested for setting up and implementing an e-licensing system. According to UNEP, a regional approach is being proposed to address the illegal trade in ODS. The proposed e-licensing system will accelerate data reporting and compilation, facilitate the identification of gaps between licensed and imported shipments soon after they might occur, support local and regional efforts to monitor and curb illegal trade, and facilitate the process of ODS licensing. The e-licensing system is intended to be part of the HPMPs for Iraq, Kuwait, Oman, Qatar, Saudi Arabia, the Syria Arab Republic and Yemen. Part of the funds for the e-licensing system is to be pooled among all participating countries to make it possible to program a generic system will cater to the region's needs. The remaining funds will be used for each country to customize the generic version to its particular needs and establish the conditions for its use. The funds are subject to the cost effectiveness value for the servicing sector established in decision 60/44(f)(xv).

Monitoring, coordination and verification

27. The cost for the PMU has been agreed at US $100,000 plus US $45,000 for verification, and is amended by a further US $20,000 associated with funding remaining from the implementation of the TPMP.

Overall cost

28. The overall cost of the HPMP and the associated phase-out is shown in Table 9 , which also shows the re-allocation of US $105,000 approved previously for the implementation of the TPMP.

Table 9: Overall cost of the HPMP

Activity	Cost (US $)		Phase-out		CE (US $)	Agency
	Transferred from TPMP	Requested under HPMP	mt	ODP t		
AGM - central units (rooftop etc.) to HFC-410A						
ICC	0	20,000	128.1	7.05	3.31	UNIDO
IOC	0	403,521				
Sub-total	0	423,521				
AGM - split room air conditioners to HC or HFC-32						
ICC	0	1,262,000	254.9	14.02	8.1	UNIDO
IOC	0	802,885				
Sub-total	0	2,064,885				
Servicing sector assistance						
Update curricula	15,000	0	79.2	4.36	4.50	UNEP
Code of good practice and certification scheme	25,000	70,000				
National standards and codes, for good practices, facilitating certification, introducing flammables	0	80,000				
Awareness raising for low-GWP solutions		15,000				
HC training for small room ac		30,000				
Reclamation programme	0	161,600				UNIDO
Sub-total	40,000	356,600				UNEP / UNIDO
Policy and regulation						
Awareness raising for new regulation	15,000	10,000	28.9	1.59	4.50	UNEP
E-licensing system	0	50,000				
Customs training and refrigerant identifiers	30,000	70,000				
Sub-total	45,000	130,000				
PMU and verification						

Activity	Cost (US $)		Phase-out		CE (US $)	Agency
	Transferred from TPMP	Requested under HPMP	mt	ODP t		
PMU, verification	20,000	145,000	-	-	-	UNEP
Voluntary reductions in remaining eligible consumption						
Voluntary reduction in the service sector*			30.0	1.65	-	-
Total funded	105,000	3,120,006	491.1	27.02	6.35	UNEP / UNIDO
Total	-	-	521.1	28.67	-	-

*The Government of Bahrain agreed to a voluntary reduction of 30.0 mt (1.65 ODP tonnes) associated with the funding of US $135,000 for the servicing network in AGM calculated at US $4.50/kg, and deducted from the starting point.

29. The Secretariat recognized the particular situation of Bahrain, where one enterprise consumes more than 70 per cent of the country's baseline, and the country had been in serious danger of non-compliance, had approached the Executive Committee with its concern, and had developed, with UNEP and UNIDO's support, a strategy to avoid non-compliance which is in line with existing Executive Committee guidelines. In order to achieve compliance, the country will stockpile, at its own cost, substantial quantities of HCFC-22, underlining the need to achieve real reduction in consumption in the service sector as well. On this basis, the Secretariat decided to agree to the total phase-out of 28.67 ODP tonnes of HCFCs in stage I, which accounts for 55 per cent of the baseline, even though Bahrain commits only to a reduction of 42.8 per cent of the baseline by 2020. In addition, the Secretariat is not in a position to recommend commitment and funding beyond 2020. The Executive Committee may wish to consider whether extended commitment is required in this case.

Impact on the climate

30. The climate impact indicator was used to understand the changes in climate-relevant emissions caused by the conversion of the central AC manufacturing line at AGM to HFC-410A and HFC-407C and the split AC line at the same enterprise to HFC-32 or HC-290, as well as the impact of conversion to other potential alternatives.

31. A comparison between the alternatives considered for the central AC line, HFC-410A and HFC-407C, shows that HFC-407C would have substantial advantages in terms of climate impact; it is considered essentially climate neutral, and will lead to a moderate increase in energy efficiency. However, technical considerations such as possibly larger heat exchangers, availability of refrigerant, and service issues specific to the HFC-407C refrigerant might tip the decision of the manufacturer toward HFC-410A.

32. The comparison of the different options for the split AC clearly shows that, already, significant reductions in climate impact can be expected with HFC-32, while HC-290 would reduce it by another 50 per cent. In comparison, the use of HFC-410A, not planned for this conversion, leads to an increase in climate impact.

33. The results of the different calculations are provided in Table 10. On the assumption that the manufacturer selects HFC-410A as a replacement for the central AC line and HFC-32 for the split AC line, the climate impact of both conversions would be a reduction of 419,000 tonnes of CO_2 equivalent, due to the relatively high refrigerant emissions of split units and the lower emissions of central units. If HFC-407C and HC-290 were to be selected, the climate impact would be even lower, with a reduction of 702,000 tonnes of CO_2 equivalent for both conversions.

Table 10: Climate impact indicator for the investment project

Input	**Generic**			
	Country	[-]	**Bahrain**	
	Company data (name, location)	[-]	**Awal Gulf Manufacture Company**	

	Select system type	[list]	AC on site assembly	AC factory assembly
	General refrigeration information			
	HCFC to be replaced	[-]	HCFC-22	HCFC-22
	Amount of refrigerant per unit	[kg]	1.93	7.07
	No. of units	[-]	132,073	18,119
	Refrigeration capacity	[W]	8,790	32,000
	Selection of alternative with minimum environmental impact			
	Share of exports (all countries)	[%]	85%	85%
	Calculation of the climate impact			
	Alternative refrigerant (more than one possible)	[list]	HFC-410A; HFC-32; HC-290	HFC-410A; HFC-32; HFC-407C
All data displayed is specific to the case investigated and is not generic information about the performance of one alternative; performance can differ significantly depending on the case.				
Output	*Note: The output is calculated as the climate impact of the refrigerant systems in their life time as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible*			
	Country			
	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-600a (-30%)	HC-600a (-23%)
			HC-290 (-26%)	HC-290 (-19%)
			HFC-134a (-7%)	HFC-134a (-5%)
			HCFC-22	HFC-407C (-1%)
			HFC-407C (0%)	HCFC-22
			HFC-410A (6%)	HFC-410A (6%)
	Calculation of the climate impact			
	Per unit, over lifetime (for information only):			
	Currently used refrigerant		HCFC-22	HCFC-22
	Energy consumption	[kWh]	817,298,728	404,724,333
	Direct climate impact (substance)	[kg CO_2 equiv]	678,215	236,501
	Indirect climate impact (energy): In country	[kg CO_2 equiv]	498,068	246,642
	Indirect climate impact (energy): Global average	[kg CO_2 equiv]	1,472,939	729,161
	Calculation of the climate impact of the conversion			
	Selected refrigerant		HFC-410A	HFC-410A
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*18,340.00*	*6,396.00*
	*Indirect impact (country)***	*[t CO_2 equiv]*	*36,874.00*	*18,798.00*
	*Indirect impact (outside country)***	*[t CO_2 equiv]*	*102,251*	*51,852*
	Total indirect impact	*[t CO_2 equiv]*	*139,125.00*	*70,650.00*
	Total impact of the selected refrigerant	**[t CO_2 equiv]**	**157,465**	**77,046**
	Alternative refrigerant		HFC-32	HFC-32
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*-453,036*	*-157,978*
	*Total indirect impact (country)***	*[t CO_2 equiv]*	*-11,022*	*-1,797*
	*Total indirect impact (outside country)***	*[t CO2 equiv]*	*-32148*	*-5174*
	*Total indirect impact***	*[t CO_2 equiv]*	*-43,170*	*-6,971*
	Total impact of alternative refrigerant	**[t CO_2 equiv]**	**-496,206**	**-164,949**
	Alternative refrigerant		HC-290	HFC-407C
	*Total direct impact (post conversion – baseline)**	*[t CO_2 equiv]*	*-675,118*	*-12,191*
	*Total indirect impact (country)***	*[t CO_2 equiv]*	*-4,432*	*1,449*
	*Total indirect impact (outside country)***	*[t CO_2 equiv]*	*-13047*	*753*
	*Total indirect impact***	*[t CO_2 equiv]*	*-17,479*	*2,202*
	Total impact of alternative refrigerant	**[t CO_2 equiv]**	**-692,597**	**-9,989**

*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.

34. In the servicing sector, the proposed technical assistance activities in the HPMP, which include the introduction of better servicing practices and enforcement of HCFC import controls, will reduce the amount of HCFC-22 used for refrigeration servicing. Although the impact on the climate of the activities in the servicing sector was not specifically assessed in the HPMP, the activities planned by Bahrain, in particular technical assistance to servicing technicians on refrigerant recovery and reuse indicate that it is likely that the country will achieve the level of 46,303 CO_2-equivalent tonnes that would not be emitted into the atmosphere, assuming phase-out of 10 per cent of the servicing sector compared to the baseline. However, at this time, the Secretariat is not in a position to quantitatively estimate the impact on the climate. The impact might be established through an assessment of implementation reports by, *inter alia*, comparing the levels of refrigerants used annually from the beginning of HPMP implementation, the reported amounts of refrigerants being recovered and recycled, the number of technicians trained and the HCFC-22-based equipment being retrofitted.

Co-financing

35. 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, UNEP reported that Bahrain is considering setting up a co-financing scheme to support the relevant enterprise to conduct the conversion project, as the actual cost of completing the conversion would be much higher than the amount that would be eligible under the Multilateral Fund. This co-financing scheme would involve technical assistance and facilitating access to a range of public finance instruments.

2012-2014 business plan of the Multilateral Fund

36. UNEP and UNIDO are requesting US $3,120,006 plus support costs for the implementation of stage I of the HPMP. The total value requested for the 2012-2014 period of US $1,225,535 including support costs is below that in the business plan.

Draft Agreement

37. A draft Agreement between the Government of Bahrain and the Executive Committee for HCFC phase-out is contained in Annex I to the present document.

RECOMMENDATION

38. The Executive Committee may wish to consider:

(a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Bahrain for the period 2012 to 2020 to reduce HCFC consumption by 42 per cent of the baseline, at the amount of US $3,366,606 consisting of US $470,000, plus agency support costs of US $61,100 for UNEP, and US $2,650,006 plus agency support costs of US $185,500 for UNIDO;

(b) Noting that the Government had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 51.9 ODP tonnes, calculated using actual consumption of 45.1 ODP tonnes and 58.7 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 10.11 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, and deduct 0.62 ODP tonnes imported for stockpile, resulting in 61.39 ODP tonnes;

(c) Deducting 28.67 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;

(d) Approving the draft Agreement between the Government of Bahrain and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex I to the present document;

(e) Approving the first tranche of stage I of the HPMP for Bahrain, and the corresponding implementation plan, at the amount of US $628,335, consisting of US $120,000, plus agency support costs of US $15,600 for UNEP, and US $460,500, plus agency support costs of US $32,235 for UNIDO;

(f) Urging the Government of Bahrain to ratify the Beijing Amendment to the Montreal Protocol as soon as possible;

(g) Allowing the submission of the foam sector plan during the implementation of stage I of the HPMP; and

(h) Approving the reallocation of funding remaining from the terminal phase-out management plan of US $105,000 plus agency support cost for UNEP, as agreed by the Government of Bahrain in line with the implementation plan provided.

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Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF KINGDOM OF BAHRAIN 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 the Kingdom of Bahrain (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 29.72 ODP tonnes by 1 January 2020 in compliance with Montreal Protocol schedules.

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 eligible consumption).

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; and

(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.

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; and

(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. UNEP has agreed to be the lead implementing agency (the "Lead IA") and UNIDO has agreed to be the cooperating implementing agency/agencies (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	50.84
HCFC-141b	C	I	0.44
Sub-total			51.29
HCFC-141b contained in imported pre-blended polyols	C	I	10.11
Total			61.39

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	51.90	51.90	46.71	46.71	46.71	46.71	46.71	33.74	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	51.77	51.77	46.58	46.45	45.39	43.54	37.27	29.72	n/a
2.1	Lead IA (UNEP) agreed funding (US $)	120,000	0	145,000	0	125,000	0	55,000	0	25,000	470,000
2.2	Support costs for Lead IA (US $)	15,600	0	18,850	0	16,250	0	7,150	0	3,250	61,100
2.3	Cooperating IA (UNIDO) agreed funding (US $)	460,500		405,000	0	950,500	0	701,506	0	132,500	2,650,006
2.4	Support costs for Cooperating IA (US $)	32,235	0	28,350	0	66,535	0	49,105	0	9,275	185,500
3.1	Total agreed funding (US $)	580,500	0	550,000	0	1,075,500	0	756,506	0	157,500	3,120,006
3.2	Total support costs (US $)	47,835	0	47,200	0	82,785	0	56,255	0	12,525	246,600
3.3	Total agreed costs (US $)	628,335	0	597,200	0	1,158,285	0	812,761	0	170,025	3,366,606
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)										28.23
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)										0.00
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)										22.61
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)										0.44
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)										0.00
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)										0.00
4.3.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)										0.00
4.3.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)										0.00
4.3.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)										10.11

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. All of the monitoring activities will be co-ordinated and managed by the National Ozone Unit (NOU) and the two implementing agencies through the project funding, which is included within this HPMP.

2. The Lead IA will have a particularly prominent role in the monitoring arrangements because of its mandate to monitor ODS imports, whose records will be used as a cross-checking reference in all the monitoring programmes for the different projects within the HPMP. The Lead IA, along with the Cooperating IA will also undertake the challenging task of monitoring illegal ODS imports and exports and advise the appropriate national agencies through the National Ozone Office.

3. In order to ensure that all activities are taking place as planned in the HPMP and to ensure close collaboration between the Lead and the Cooperating IAs, a project implementation and monitoring component is included in the project. This will cover the implementation activities, the day-to-day follow-up, and the selected consultants will advise the NOU, the Lead and the Cooperating IAs if necessary corrective measures are required.

4. The goal of the component is to monitor effectiveness of implementation of the HPMP, including reductions of HCFC consumption levels, and to measure the impact of the project activities on the overall phase out strategy and programme. The Government of Bahrain in consultation with the Lead and the Cooperating IAs will select and contract an independent local organization/firm to undertake this task and report annually on the outcomes and deliverables of the HPMP.

5. The NOU will be responsible for providing the selected organization with all relevant information in possession, full information on NOU activities and partners, and the necessary support/documentation to ensure its access to relevant official institutions and other organizations; and providing the reasonable support in independent data collection.

6. The selected organization will be responsible for:

   (a) Developing and presenting to the Lead IA, the Cooperating IA and the NOU the approach to independent monitoring of the terminal phase-out management plan implementation;

   (b) Undertaking independent monitoring of all the activities implemented in the HPMP;

   (c) Presenting reports on HPMP implementation status and HCFC consumption in the country on half-yearly basis;

   (d) Preparing periodic (annual) assessment of the consumption of ODS and evaluating the impact of the projects being undertaken; and

   (e) Taking into consideration comments and recommendations of the Lead IA, the Cooperating IA and the NOU on activities and react accordingly.

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, including at least the following:

(a) Providing assistance for policy development 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 $214 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.

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