UNITED NATIONS

EP

United Nations Environment Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/68/39
8 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: SAUDI ARABIA

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) UNIDO and UNEP

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Saudi Arabia

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

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2011	1,750.8 (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					0.3				0.3
HCFC-124									
HCFC-141b		369.3		22.0					391.3
HCFC-142b		139.8							139.8
HCFC-22		75.4		562.2	578.2				1,215.8
HCFC-415b				2.0	0.7				2.7

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	1,468.7	Starting point for sustained aggregate reductions:	1,468.7
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.0	Remaining:	780.29

(V) BUSINESS PLAN		2012	2013	2014	2015	Total
UNIDO	ODS phase-out (ODP tonnes)	53.3	50.0	52.6	50.0	205.9
	Funding (US $)	3,036,537	2,841,415	2,993,176	4,226,705	13,097,833
UNEP	ODS phase-out (ODP tonnes)		13.3			13.3
	Funding (US $)	67,225	739,478			806,704

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	1,468.69	1,468.69	1,321.82	1,321.82	1,321.82	1,321.82	1,321.82	954.65	n/a
Maximum allowable consumption (ODP tonnes)			n/a	1,468.69	1,378.39	1,321.82	1,321.82	1,321.82	980.82	980.82	954.65	n/a
Project costs requested in principle(US $)	UNIDO	Project costs	2,169,600	2,971,487	1,200,000	1,766,600	850,000	1,047,375	400,000	185,583	170,625	10,761,270
		Support costs	151,872	208,004	84,000	123,662	59,500	73,316	28,000	12,991	11,944	753,289
	UNEP	Project costs	290,400	0	0	250,400	0	123,125	0	0	56,875	720,800
		Support costs	35,973	0	0	31,018	0	15,253	0	0	7,045	89,288
Total project costs requested in principle (US $)			2,460,000	2,971,487	1,200,000	2,017,000	850,000	1,170,500	400,000	185,583	227,500	11,482,070
Total support costs requested in principle (US $)			187,845	208,004	84,000	154,680	59,500	88,569	28,000	12,991	18,989	842,578
Total funds requested in principle (US $)			2,647,845	3,179,491	1,284,000	2,171,680	909,500	1,259,069	428,000	198,574	246,489	12,324,648

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Saudi Arabia - continuation

(VII) Request for funding for the first tranche (2012)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNIDO	2,169,600	151,872
UNEP	290,400	35,973

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 Saudi Arabia UNIDO, as the lead implementing agency, has submitted to the 68th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost of US $15,750,882, consisting of US $13,246,521 plus agency support costs of US $935,850 for UNIDO, US $1,180,100 plus agency support costs of US $139,811 for UNEP and US $220,000 plus support costs of US $28,600 for the Government of Japan. These amounts include the funding of US $2,096,418, comprising US $1,718,901 plus support costs of US $128,917 for UNIDO, and US $220,000 plus support costs of US $28,600 for the Government of Japan for two foam projects for the phase-out of 180.6 ODP tonnes[1] of HCFC-22 and HCFC-142b from the manufacture of extruded polystyrene (XPS) foam, approved at the 62nd meeting of the Executive Committee (decision 62/35). The implementation of stage I of the HPMP will phase out 686 ODP tonnes of HCFCs and assist Saudi Arabia in meeting the Montreal Protocol's compliance target of the 10 per cent reduction by 2015.

2. The first tranche for stage I of the HPMP being requested at this meeting amounts to US $5,083,088, consisting of US $4,611,048, plus agency support costs of US $322,773 for UNIDO, and US $472,040, plus agency support costs of US $55,924 for UNEP, as originally submitted.

Background

3. Saudi Arabia, with a total population of 27 million inhabitants, has ratified the London and Copenhagen Amendments and is currently in the process of ratifying the Montreal and the Beijing Amendments. In line with decision V/4 of the Meeting of the Parties, Saudi Arabia was reclassified as a Party operating under paragraph 1 of Article 5 of the Protocol in 1994 after submission of its 1986, 1989 and 1992 data to the Ozone Secretariat. Saudi Arabia received for the first time Multilateral Fund assistance at the 49th meeting for the preparation of its country programme (decision 49/18).

ODS policy and regulatory framework

4. The Presidency of Meteorology and Environment (PME) is responsible for all environmental issues in Saudi Arabia. A National Ozone Unit (NOU) has been established within the PME to carry out day to day implementation of the Montreal Protocol including policy development, data collection and reporting, and implementing public awareness programmes. The National Ozone Committee (NOC) composed of relevant governmental authorities is responsible for providing the necessary supervision and advice to the NOU with regards to all activities directed to phase out ozone-depleting substances (ODS).

5. The Government of Saudi Arabia has issued several orders and decrees to control the import and use of ODS including an import licensing system. Consistent with the established legislation, all major industries converted to non-CFC alternatives in the aerosol, foam, refrigeration and solvent sectors without any financial support from the Multilateral Fund. With regard to HCFCs, imports of bulk HCFCs have been under the licensing system since 2008. The NOU clears HCFC imports before being released by customs, checks shipment documents and in some cases undertakes physical inspections. The quota system is being updated to include HCFCs and is expected to be in place and operational by December 2012. The Government of Saudi Arabia confirmed that the national system of licensing and quotas for ODS control, including HCFC imports is in place and when updated will be capable of ensuring the country's compliance with the Montreal Protocol HCFC phase-out schedule.

[1] In document UNEP/OzL.Pro/ExCom/62/46 and the related decision 62/35, the calculation of the reduction of consumption related to the conversion of the XPS sector had been erroneous; instead of 179.4 ODP tonnes, the correct figure should had been 180.6 ODP tonnes. The Secretariat used the correct figure in this document.

HCFC consumption and sector distribution

6. All the HCFCs used in Saudi Arabia are imported, there is no production and exports are occasional and negligible. HCFC consumption increased from 12,268 metric tonnes (mt) (735.8 ODP tonnes) in 2006 to 27,893 mt (1,750.1 ODP tonnes) in 2011, as shown in Table 1. Additionally, 420 mt (46.2 ODP tonnes) of HCFC-141b was imported in pre-blended polyols in 2011. The HCFC baseline for compliance is 1,468.7 ODP tonnes.

Table 1: HCFC consumption reported under Article 7 of the Montreal Protocol

Substance	2006	2007	2008	2009	2010	2011	Baseline
Metric tonnes (mt)							
HCFC-22	10,315.0	13,561.0	17,532.8	16,677.0	20,110.0	22,172.0	18,393.5
HCFC-123	228.0	165.0	5.0	2.5	16.5	14.0	9.5
HCFC-141b	1,150.0	1,035.0	1,535.0	3,000.0	3,200.0	3,557.0	3,100.0
HCFC-142b	575.0	520.0	647.0	1,765.0	1,800.0	2,150.0	1,782.5
Total mt	12,268.0	15,281.0	19,719.8	21,444.5	25,126.5	27,893.0	23,285.5
ODP tonnes							
HCFC-22	567.3	745.9	964.3	917.2	1,106.1	1,219.5	1,011.6
HCFC-123	4.6	3.3	0.1	0.1	0.3	0.3	0.2
HCFC-141b	126.5	113.9	168.9	330.0	352.0	391.3	341.0
HCFC-142b	37.4	33.8	42.1	114.7	117.0	139.8	115.9
Total ODP tonnes	735.8	896.8	1,175.3	1,362.0	1,575.4	1,750.1	1,468.7

7. The steady growth in HCFC-22 consumption from 2006 to 2011, as mentioned above, was mainly due to the increased demand for manufacturing and servicing residential and commercial air-conditioning equipment and to an increase in the manufacturing of XPS foam, which can also be seen in the increased consumption of HCFC-142b. The consumption of HCFC-141b in the manufacturing of rigid polyurethane (PU) foam products also increased significantly after 2008 due to the promulgation of new building regulations with more stringent energy efficiency requirements.

8. HCFC-22 and HCFC-141b represent 92 per cent of total HCFC consumption in Saudi Arabia, both in metric and ODP tonnes. HCFC-22 is used in the refrigeration and air-conditioning manufacturing, assembly and servicing sectors as well as in the XPS manufacturing sector. HCFC-123 is primarily used to service large air-conditioning systems (chillers), as well as for some refrigeration manufacturing uses. HCFC-141b is mainly used in the manufacture of rigid and integral skin polyurethane foams. As mentioned above, HCFC-142b is used in the production of XPS foams. Other uses of HCFCs include aerosol propellant and some very small amounts used as process agents in manufacturing other compounds. The consumption of HCFCs by sector is presented in Table 2.

Table 2: Sectoral distribution by type of HCFC used in the baseline years (average 2009-2010)

Substance	Refrigeration and air-conditioning		XPS foam	PU foam*	Total	Percen-tage of total
	Manufacturing	Servicing				
Metric tonnes (mt)						
HCFC-22	8,130.0	9,050.0	1,213.5		18,393.5	79
HCFC-141b	150.0			2,950.0	3,100.0	13
HCFC-142b			1,782.5		1,782.5	8
HCFC-123	1.5	8.0			9.5	0
Total mt	8,281.5	9,058.0	2,996.0	2,950.0	23,285.5	
Share %	35	39	13	13		
ODP tonnes						
HCFC-22	447.2	497.8	66.7	-	1,011.6	69
HCFC-141b	16.5	-	-	324.5	341.0	23
HCFC-142b	-	-	115.9	-	115.9	8
HCFC-123	0.0	0.2	-	-	0.2	0
Total ODP tonnes	463.7	497.9	182.6	324.5	1,468.7	
Share %	31	34	12	22		

* Includes an estimated of 677 mt of exports of HCFC-141b in locally pre-blended polyols

HCFC consumption in the foam sector

Extruded polystyrene manufacturing

9. There are only four HCFC-consuming enterprises in this sector, using a blend of HCFC-22 and HCFC-142b in manufacturing XPS. Two of the enterprises, Al Watania and Arabian Chemical Company (ACC), are phasing out the use of HCFC-22 and HCFC-142b with assistance from the Multilateral Fund. The other two enterprises, which established their XPS lines after the cut-off date, will also eliminate the use of HCFC-22 and HCFC-142b with their own resources. The Government of Saudi Arabia will not provide an import quota for HCFC-142b beginning in 2014, effectively ending the consumption of HCFCs in the XPS sector by the end of 2013. The phase-out of 180.6 ODP tonnes of HCFCs in the XPS manufacturing sector represents 12 per cent of the HCFC consumption baseline.

10. The two assisted enterprises are currently implementing their projects. Due to specific fire rating for XPS boards required by building codes in Saudi Arabia, the enterprises are exploring the possibility to change the technology from pure butane to butane mixed with other low GWP blowing agent, which will require additional co-financing. Project completion is expected during 2013.

PU foam manufacturing

11. In 2011 the PU foam manufacturing sector consumed 3,357 mt (369.3 ODP tonnes) of HCFC-141b. Approximately 1,187 mt (130.6 ODP tonnes) were consumed in bulk by the 19 largest enterprises in the country. The remainder 2,170 mt (238.7 ODP tonnes) was imported by seven systems houses to blend in polyols for the local manufacturers (1,437 mt or 158.7 ODP tonnes), predominantly small and medium-size enterprises (SMEs) (1,211 mt or 133.21 ODP tonnes), or for export (633 mt or 69.6 ODP tonnes) and stocks (100 mt or 11 ODP tonnes). In addition to the reported consumption of HCFC-141b, three international systems houses imported in 2011 420 mt (46.2 ODP tonnes) of HCFC-141b contained in pre-blended polyols to supply the local market. Table 3 shows the use of HCFC-141b in its different forms.

Table 3: Use of HCFC-141b between 2007 and 2011

Application	No. of enter-prises	HCFC-141b						
		2007 (mt)	2008 (mt)	2009 (mt)	2010 (mt)	2011 (mt)	Base-line (mt)	Base-line (ODP tonnes)
Pure HCFC-141b								
Block	1*	27.5	22.1	26.0	31.0	35.0	28.5	3.1
Pipe insulation	1	48.1	70.6	73.3	76.1	79.0	74.7	8.2
Commercial refrig.	1	84.0	93.0	95.8	98.8	101.9	97.3	10.7
Continuous panels	7	333.5	363.8	577.4	532.1	637.1	554.7	61.0
Discontinuous panels	4	119.2	113.0	113.1	116.6	102.5	114.8	12.6
Water heaters	1	74.0	69.6	70.4	83.4	115.4	76.9	8.5
Spray**	5	61.6	55.8	56.3	51.9	116.1	54.1	6.0
Subtotal	19	747.9	788.0	1,012.3	989.9	1,187.0	1,001.1	110.1
HCFC-141b in locally pre-blended polyols								
Large enterprises	19	12.0	25.0	102.0	130.0	156.0	116.0	12.8
SMEs	91	287.0	416.0	1,150.0	972.3	1,211.0	1,061.1	116.7
Other small companies	20	5.0	50.0	0.0	0.0	70.0	0.0	0.0
Stocks	7	0.1	19.0	19.5	170.0	100.0	94.8	10.4
Exported in pre-blended polyols***		368.0	375.0	616.2	738.0	633.0	677.1	74.5
Subtotal		672.1	885.0	1,887.7	2,010.3	2,170.0	1,949.0	214.4
Grand total		1,420.0	1,673.0	2,900.0	3,000.0	3,357.0	2,950.0	324.0
HCFC-141b in imported pre-blended polyols not reported as consumption								
Panels and spray foam enterprises		-	-	-	-	420.0		

* The block foam enterprise is Saptex, which is already counted in continuous panels

** One enterprise consuming 50 mt (Sanam) is not eligible for funding as it started operations in 2011

*** Estimated, not official figure

HCFC consumption in the refrigeration and air-conditioning sector

Manufacturing, assembling and installation

12. The RAC sector is made up by nine large enterprises manufacturing appliances and commercial refrigeration equipment, and a large number of SMEs manufacturing, assembling, installing and servicing air-conditioners, condensing units, large and small-scale commercial refrigeration equipment, cold stores, and process cooling. A major sub-sector is the production of unitary and split-air conditioners up to 18 kW central air-conditioning systems, air-handling units and chillers above 18 kW. The petrochemical industry is also a major consumer of refrigerants. Larger chillers are imported.

13. Although enterprises in the sector are in general capable of or already producing non-HCFC equipment, the market for HCFC-based equipment remains significant. Six of the manufacturing enterprises have expressed an interest to phase out of HCFCs. Some of them have already the capability to manufacture products using HFC-134a, R-407C or R-410A. Table 4 shows the consumption from 2008 to 2011 of HCFC-22 by six of the largest RAC manufacturers and SMEs.

Table 4: HCFC used in the manufacturing of the RAC equipment

Enterprise	Consumption in metric tonnes			
	2008	2009	2010	2011
AL-Salem A.C.CO (Johson control)	38	40	42	43
Alessa Ind.	839	791	661	790
LG-Shaker Co. Ltd.	-	11	436	872
The Saudi Factory For Elec. Appliances	66	16	72	86
Zamil	2,396	1,522	1,677	2,876
SAMCO El – Juffali & co for A.C.	580	480	500	500
Remainder of sector	2,777	3,943	6,372	5,451
Total	6,696	6,803	9,760	10,618

Refrigeration and air-conditioning servicing sector

14. The servicing sector consumed 10,586 mt (582.2 ODP tonnes) of HCFC-22 in 2011, representing 39 per cent of the total consumption. The HPMP sub-divides the service sector into three categories: small and medium-sized workshops servicing domestic and small commercial equipment (64 per cent of the sector consumption), commercial and industrial service workshops (14 per cent of the sector consumption), and a large number of smaller, unidentified users of HCFC-22, as well as servicing of chillers (22 per cent of the sector consumption).

15. The number of technicians providing servicing in Saudi Arabia has grown from around 15,000 in 2006 to 19,000 in 2010. Technicians have various levels of qualifications and might work independently or in one of the 700 large and 6,500 small workshops.

16. The current retail prices of HCFC and non-HCFC alternatives per kilogramme are as follows: US $4.55 to 5.50 for HCFC-22, US $2.50 for HCFC-141b, US $18 for HCFC-123, US $10 to 12 for HFC-134a, US $17 for R-404A, US $15 for R-407C, US $15.50 for R-410A and US $2.70 for pentane.

HCFC phase-out strategy and activities

17. The overarching strategy of the Government of Saudi Arabia is to adopt a staged approach to achieve the complete phase-out of its HCFC consumption in line or possibly ahead of the Montreal Protocol. Stage I is focused on the phase-out of HCFCs in the foam manufacturing sector, combined with establishment of policy instruments and assistance to reduce the use of virgin HCFC-22 in the refrigeration servicing sector. The phase-out activities in the HPMP, including the previously approved activities in the XPS sector will lead to the complete phase-out of HCFC-141b and HCFC-142b consumption before 2018. Stages II and III will focus on the RAC manufacturing and servicing sectors.

Policies and regulations

18. The HPMP indicates that the existing regulatory regime has proven to be effective during the CFC, CTC and halon phase-out. It is therefore proposed that the NOC continues to operate and is mandated to set up legal and technical task forces to achieve a number of objectives, which include among them:

(a) Import controls and limiting future use of HCFCs, including establishing and reviewing the annual quota of control substances, manufacturing and equipment import bans, and the introduction of an e-licensing system;

(b) Improving servicing practices, including a ban on venting, licensing of all establishments dealing with and handling ODS, labelling requirements and banning non-refillable refrigerant containers; and

(c) Preparing draft decrees and decisions as advised by the NOU and facilitating inter-ministerial legal consultation.

19. Subsequently, during stage II, Saudi Arabia will start focussing on introducing incentives for the early-retirement of large HCFC-based applications. It is expected that natural attrition with continued replacement by non-HCFC equipment and application of declining quotas will reduce the demand and permit reductions consistent with the obligations.

Phase-out activities in the foam sector

Conversion of individual enterprises to pentane technology

20. Out of the 19 largest foam-producing enterprises in the country, 18 are eligible for funding[2]. The project comprises the conversion of the 18 eligible enterprises consuming 1,137 mt (125.1 ODP tonnes) mostly in rigid PU applications in 2011. Fourteen enterprises will convert to pentane technology while four spray foam enterprises (66.1 mt or 7.3 ODP tonnes) will convert either to water blown technology, HFC-245fa or unsaturated HFCs, depending on further technical development and cost.

21. Conversion to HC technology in commercial refrigeration, discontinuous panels, and water heaters will involve the installation of pentane storage tanks; pre-mixing stations suitable for flammable blowing agents; nitrogen supply system; HP foam dispensers, safety related equipment and systems; and trials, training for plants maintenance and safety audits.

22. Conversion to HC technology in the continuous panels application involves the installation of pentane storage tanks, replacement of the foaming machine metering units; replacement of circulating saw cutter by belt cutter; nitrogen supply system; mixing head suitable for pentane; dynamic mixer for components suitable to pentane; modification of foam manipulator; safety related equipment and systems; and trials, training for plants maintenance and safety audits.

23. Conversion to HC technology in the rigid block and pipe insulation manufacturing involves the installation of pentane storage tanks, nitrogen supply system; refurbishment equipment and addition of pentane metering unit; safety related equipment and systems; and trials, training for plants maintenance and safety audit.

24. The total cost of the project consisting of US $8,260,000 incremental capital cost and US $759,680 operating savings has been estimated at US $7,500,320, and the cost effectiveness is US $6.60/kg. The consumption by application and the incremental costs are presented in Table 5.

[2] Spray foam enterprise Sanam consuming 50 mt of HCFC-141b is not eligible for funding as started operations in 2011.

Table 5: Total cost of the conversion of 18 foam enterprises included in stage I of the HPMP

Application	No. of enterprises	HCFC-141b		US $		
		(mt)	(ODP tonnes)	ICC	IOC	TOTAL
Block foam/pipe insulation	1*	35.0	3.9	340,000	(23,385)	316,615
Pipe insulation	1	79.0	8.7	340,000	(52,783)	287,217
Commercial refrigeration	1	101.9	11.2	520,000	(68,084)	451,916
Continuous sandwich panel	7	637.1	70.1	4,445,000	(425,675)	4,019,325
Discontinuous sandwich panel	4	102.5	11.3	1,740,000	(68,485)	1,671,515
Water heaters	1	115.4	12.7	435,000	(77,104)	357,896
Spray	4	66.1	7.3	440,000	(44,164)	395,836
Total	18	1,137.0	125.1	8,260,000	(759,680)	7,500,320

* The block foam enterprise is Saptex, which is already counted in continuous panels

Technical assistance to systems houses

25. Five locally-owned systems houses will receive technical assistance for customizing formulations using hydrocarbons and HFOs ensuring the availability of cost-effective alternatives, particularly to SMEs, and reducing the capital and operating costs required for their conversion to non-HCFC blowing agents. The project will provide the systems houses with pilot-scale facilities for customizing trials, evaluation and validation of non-HCFC formulations, including hydrocarbon storage and handling systems, pre-mixing stations for two blenders, retrofitting of the existing foam dispensers for trials, laboratory and monitoring equipment, pumps, piping, nitrogen dispenser and other safety adaptations, and contingencies. The total cost of the project is US $1,440,000. The systems houses involved and the costs are presented in Table 6.

Table 6: Technical assistance for systems houses

Systems house*	Article 5 ownership	HCFC-141b		Cost (US $)
		(mt)	(ODP tonnes)	
Henkel	49 %	52.0	5.7	160,000
Huntsman APC Limited	49 %	1,200.0	132.0	320,000
Jundi Chemicals	100 %	220.0	24.2	320,000
Saptex Co	100 %	395.0	43.5	320,000
Saudi urethane chemicals co. (Succo)	94 %	284.0	31.2	320,000
Total		2,151.0	236.61	1,440,000

(*) Two additional systems houses, DOW and Qahtani, are not eligible for funding

Technical assistance for the PU foam sector – downstream users

26. A total of 91 SMEs consuming 1,211 mt of HCFC-141b supplied by local systems houses, will receive technical know-how and demonstration installations in each sub-sector using customized formulations using hydrocarbons and HFOs for most of the applications, and HFC-245fa for spray foam. The phase-out approach requires SMEs to effectively self-fund phase out, but provides technical support, technology transfer and funding of localized trials and testing. The project includes workshops, regulatory support and coordination, advertisement and communications and project management per enterprise to be implemented with UNEPs assistance (US $155,100); and trials, technology transfer and training for each enterprise to be implemented with UNIDO's assistance (US $929,500). The total cost of the project is US $1,084,600.

27. The total cost of the phase-out activities in the foam sector included in stage I of the HPMP has been estimated at US $10,024,920 with an overall cost-effectiveness of US $4.27/kg. By providing this assistance, the remaining consumption of HCFC-141b used by other SMEs, non-eligible enterprises and for exports estimated at 1,009 mt (110.9 ODP tonnes) will be phased-out at the same time with no additional funding from the Multilateral Fund.

Phase-out activities in the refrigeration and air-conditioning servicing sector

28. Although the initial national reduction targets can be met through phase-out of HCFC-141b and HCFC-142b in the foam sector, the Government of Saudi Arabia believes it necessary to start addressing the growing consumption of HCFC-22 in the servicing sector. The HPMP includes the following activities for this sector:

(a) An emissions reduction programme that includes the certification of 1,000 technicians, workshops, information dissemination, and amendment of the Government's procurement policy to ensure that new installations in Government buildings are HCFC-free;

(b) A recovery, recycling and reclamation (RRR) programme which aims to make RRR mandatory and establish a RRR infrastructure by establishing reclaiming centres and providing recovery equipment to certified technicians; and

(c) A low-GWP refrigerants promotion programme consisting of an awareness-raising campaign on HCFC-22 phase-out and associated regulatory measures and a demonstration project to introduce carbon dioxide and ammonia cascade systems in the supermarket's sector.

29. The estimated cost of the proposed activities in the servicing sector in stage I is US $1,932,800. The impact of the project is 430 mt (24 ODP tonnes) of HCFC-22 and the cost-effectiveness is US $4.50/kg. The Government of Saudi Arabia proposes to phase out the remainder of a 35 per cent reduction in the servicing sector with its own resources, resulting in a phase-out of an additional 2,604 mt (143 ODP tonnes) of HCFC-22 in the servicing sector.

Policy instruments to reduce and control HCFC to be established with support from the HPMP

30. This component consists of a combination of regulations, policies and technical assistance. The regulations and policies include *inter-alia:* the establishment of a licensing and quota system for all HCFC-based equipment; ban on any new manufacturing of HCFC-based products, mandatory recovery and recycling of refrigerants; ban on imports of used HCFC-based equipment; and enforcement of the regulations. The technical assistance includes training for customs and other relevant authorities in monitoring HCFC trade, review of the national vocational curricula and certification programme to include HCFCs and alternatives, development of a national code of good practices, and evaluation of new and emerging alternatives in Saudi Arabia. The estimated cost of these non-investment activities in stage I is US $250,000. The impact of the project is 56 mt (3 ODP tonnes) of HCFC-22 and the cost effectiveness is US $4.50/kg.

Overall cost of stage I of the HPMP

31. The total cost of stage I of the HPMP to meet the Montreal Protocol's HCFC compliance targets up to and including the 10 per cent reduction by 2015 has been estimated by the agencies at US $14,646,621 and is presented in Table 7, with an overall cost effectiveness of US $2.64/kg.

Table 7: Cost of stage I of the HPMP

Sector	Activity	Implementing agency	Substance	Impact mt	Impact ODP t	Funding requested (US $)	Percentage of baseline
Activities already approved at the 62nd meeting						**1,938,901**	
XPS	Two enterprises XPS sector	UNIDO	HCFC-22 HCFC-142b	908	55.0	1,718,901	4%
		Japan				220,000	
Activities requested at the 68th meeting							
PU Foam	18 large enterprises	UNIDO	HCFC-141b	2,348	258.3	7,500,320	18%
	5 systems houses					1,440,000	
	Technical assistance to 91 SMEs					929,500	
		UNEP				155,100	
Sub-total PU foam						10,024,920	
RAC servicing sector and non-investment activities	Emissions reduction programme	UNIDO	HCFC-22	430	23.7	525,000	2%
	Promotion of low-GWP refrigerants					200,000	
	Recovery and Reclaiming					1,207,800	
	Regulations and custom training	UNEP	HCFC-22	56	3.1	250,000	
Sub-total servicing and non-investment activities						2,182,800	
Project monitoring and implementation unit		UNIDO				250,000	
		UNEP				250,000	
Total stage I activities requested at the 68th meeting						12,707,720	
Total stage I funded by the Multilateral Fund				3,742	340.3	14,646,621	23%
HCFC reductions funded by the Government of Saudi Arabia							
PU foam ****			HCFC-141b	602	66.2		5%
XPS sector			HCFC-22	775	42.6		9%
			HCFC-142b	1,276.5	83.0		
RAC servicing sector			HCFC-22	2,604	143.0		10%
Grant total stage I of the HPMP				8,999	675.1	14,646,621	47%
HCFC-141b contained in imported pre-blended polyols				420	46		
Grant total stage I of the HPMP - consumption and pre-blended polyols				9,419	721.4	14,646,621	

**** Phase-out based on 2011 consumption would be larger; capped not to exceed baseline level

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

32. The Secretariat reviewed the HPMP for Saudi Arabia 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.

Starting point for aggregate reduction in HCFC consumption

33. At the 62nd meeting of the Executive Committee, in approving the investment project for the phase-out of HCFC-22 and HCFC-142b in the manufacturing of XPS foam in two enterprises, the Government of Saudi Arabia had agreed to establish as its starting point for sustained aggregate reduction

in HCFC consumption the estimated baseline of 1,464.1 ODP tonnes, calculated using actual consumption reported in 2009 and estimated consumption for 2010.

34. With the present submission, the Government of Saudi Arabia has agreed to modify its starting point to the established HCFC baseline of 1,468.7 ODP tonnes, calculated using actual consumption of 1,362.0 ODP tonnes and 1,575.4 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol. The Government of Saudi Arabia has also agreed not to add to the starting point the use of HCFC-141b contained in imported pre-blended polyol systems as this use is going to be phased out without assistance from the Multilateral Fund.

Status of ratification of the Montreal and Beijing amendments

35. UNIDO explained that the Government of Saudi Arabia has initiated the necessary steps to ratify the Montreal and Beijing Amendments, pending only signature of the King.

Status of implementation of the NPP

36. The Secretariat noted the lack of information about the implementation of the NPP in the HPMP proposal, and recalled that during the 61st meeting when approving the second tranche of the NPP, the Executive Committee requested a progress report no later than the 64th meeting, accompanied by a verification report for 2009 covering CFC, CTC, TCA and halon consumption; the verification report provided to the 61st meeting had only covered CFCs, while the phase-out plan covered also the other substances. None of the information had been submitted prior to or with the submission of the HPMP.

37. Subsequently, UNIDO submitted a draft progress report on the implementation of the NPP. Training was provided for 45 master trainers for all 15 entry ports and 240 customs officers. Twenty-five refrigerant identifiers were distributed. For service technicians, a train the trainers workshop on good practice in refrigeration was carried out. The related curricula were updated. Training equipment for five training centres has been delivered. According to UNIDO, the training of technicians is supposed to commence at the end of 2012. As compared to the objectives under the NPP, training for 1,500 refrigeration technicians as well as 750 customs officers is outstanding. Six hundred forty sets of equipment were provided. A certification system for refrigeration technicians had originally been planned but not implemented, and the related legislation to limit access to refrigerant to certified technicians is currently not in place. The import of disposable refrigerant cylinders, currently not prohibited, would render such a certification system currently useless, since it simplifies un-authorized access to refrigerant significantly if compared to the use of expensive refillable cylinders. An e-licensing system was also to be implemented under the NPP.

38. Based on the information available, it appears that the equipment supply component of the NPP has been implemented. In contrast, the implementation of the non-investment component is insufficient and remains significantly below target. The certification system, envisioned when planning the NPP needed to establish a link between training provided and technicians hired to handle refrigerant, appears to have not progressed and the related changes necessary in the legal system have apparently not been designed and implemented. However, Saudi Arabia has been in full compliance with the complete phase-out of CFC, CTC and halon in 2010.

Foam sector plan

Reasons to include a PU foam sector plan in stage I of the HPMP in Saudi Arabia

39. In view of the large amount of HCFC reductions proposed in the submission, the Secretariat recalled that, at the 62nd meeting, the Government of Saudi Arabia had concluded that the most feasible option for meeting the 2013 and 2015 control targets was to phase out HCFC consumption used in the

XPS sector given the availability of alternative technologies and the significant level of consumption equivalent to 12.3 per cent of the estimated baseline for compliance. Furthermore, as of 1 January 2013, the Government planned to introduce a decree banning the two XPS foam producers established after 21 September 2007 from producing XPS foam using HCFCs. The projects approved and the regulatory measure to be introduced by the Government would ensure the complete phase-out of HCFCs in the XPS foam sector and would allow Saudi Arabia to comply with the reduction targets up to 2015. On that basis, the additional HCFC consumption in the PU foam, refrigeration and air conditioning manufacturing and servicing sectors proposed in stage I could be addressed in stage II.

40. In this regard UNIDO explained that the benefit of addressing the entire foam sector now would achieve a much better cost-effectiveness as there is a general acceptance among foam manufacturers that the entire sector can be converted at the same time on a fair and equitable basis, resulting in a very cost-effective solution as the industry will co-finance the majority of the phase out. However if the conversion were to take place in several stages or were delayed, the competitive nature of the sector would significantly diminish the incentive for conversion. The most likely scenario would be that foam manufacturers delay conversion as long as possible and would require fully funded projects in line with individually assessed eligibility criteria. This would increase the overall cost considerably.

41. The Secretariat noted the following: a) the PU foam sector plan as proposed had already an acceptable cost effectiveness; b) by including the additional consumption to be phased out without assistance from the Multilateral Fund (i.e. 1,429 mt or 157.19 ODP tonnes including imported and exported HCFC-based polyols) the cost-effectiveness further improves from US $4.27/kg to US $2.65/kg; c) with the proposed strategy Saudi Arabia will achieve the total phase-out of 3,357 mt (369.27 ODP tonnes) of HCFC-141b well before 2020; and d) the level of funds requested of US $10,024,920 is consistent with the allocation for Saudi Arabia in UNIDO's 2012-2014 Business Plan. On this basis, the Secretariat undertook a detailed review of the proposal for consideration by the Executive Committee.

Selection of alternative technologies

42. The Secretariat and UNIDO discussed the selection of HFC-245fa as one of the possible technologies for the four spray foam enterprises (66 mt of HCFC-141b) and the possibility to use instead other low-GWP alternatives. UNIDO indicated that the other technologies considered were water based and unsaturated HFCs, but HFC-245fa is the best alternative today in Saudi Arabia and the region based on performance, price and availability in comparison with emerging low-GWP HFCs. While the possibility to leave spray foam for a future stage was considered, upon further discussion it was concluded that the most effective way to ensure total phase-out of HCFC-141b was by addressing all applications. It was therefore agreed that for the spray foam enterprises, project implementation would start within stage I but later than for the other applications, except where alternatives with lower GWP were available. The systems houses will test formulations with existing and emerging low GWP technologies until 2016, if by then there is no technically and economically feasible alternative for this application the project will introduce formulations of HFC-245fa reduced by 50 per cent with water (i.e. each mt of HCFC-141b will be replaced by 0.5 mt of HFC).

HCFC-141b contained in imported pre-blended polyols

43. With regard to the HCFC-141b contained in imported pre blended polyols and HCFC-141b exported in domestically blended polyols, UNIDO advised that the only information available was for 2011 (420 mt), which could be collected as part of the HPMP survey. UNIDO also clarified that the figure provided for exports (633 mt in 2011) is an estimate. By 2018 the Government of Saudi Arabia will discontinue issuing a quota for the import of bulk HCFC-141b and will ban the import of HCFC-141b contained in pre-blended polyols, as well as the export of domestically blended HCFC polyols. UNIDO also confirmed that given this strategy, no imports of HCFC-141b contained in pre-blended polyols between 2007 and 2009 would be added to the starting point and the HCFC-141b exported in polyols would be deducted from the starting point. The Government is not seeking any MLF funding for HCFC-141b in pre-blended polyols.

44. Noting the large increase in HCFC-141b consumption in 2009, the possibility of additional production capacity installed after the cut-off date was scrutinized. UNIDO partially attributed the increased consumption to the significant improvement made in registering and reporting ODS imports through the implementation of the NPP, and to an increased demand in the building insulation applications driven by Government policies on energy efficiency in buildings.

Technical and cost issues related to the foam sector plan

45. During the project review process, the Secretariat noted that in general the unitary costs proposed for major pieces of equipment such as storage tanks, pre-mixers, dispensers, and safety-related equipment were in line with those estimated in other approvals, except for the block foam/pipe insulation applications, where the equipment and the safety cost seemed overestimated. UNIDO agreed to reduce the cost of equipment and safety items for these applications from US $280,000 to US$181,500.

46. In line with other enterprises, the fund request for the enterprise Saptex that operates as a systems house and manufactures continuous panels and block foam was reduced to US $280,000 as there are common items in the manufacturing of panels and block foam.

47. After an analysis of the baseline equipment for the 18 large enterprises provided by UNIDO, it was concluded that there is no increase in installed capacity in the enterprises except for the spray foam enterprise Sanam that started manufacturing after the cut-off date and is not receiving assistance.

48. For the 91 SMEs included in the project, as the assistance is limited to technical assistance and no incremental capital or operating costs are being requested from the Multilateral Fund, the confirmation that the enterprises were established before the cut-off date suffices. Given the large number of enterprises and the fact that most of the information was gathered with the assistance of the systems houses, several of them were not visited during the preparation of the HPMP and the cut-off date could not be verified. As agreed in similar cases in the past, the Secretariat proposed that, upon project implementation, UNIDO verify the eligibility of all enterprises, and that the funding associated with any enterprise found to be partially or totally ineligible will be returned to the Fund. A standard clause to this effect (clause 7(d)) is included in the draft Agreement between the Government of Saudi Arabia and the Executive Committee.

49. At the conclusion of the discussion on incremental costs, UNIDO also agreed on small reductions proposed for the training and trials. Accordingly, the overall total cost of the conversion of the 18 foam enterprises was reduced from US $7,500,320 to US $6,882,370 with a cost effectiveness of US $6.05/kg.

Issues related to technical assistance for systems houses

50. Upon a request to further elaborate on the approach proposed to ensure phase out of HCFC-141b in SMEs and the specific role of the systems houses, UNIDO explained that the strategy is based on three elements: conversion of eligible systems houses to enable them to supply suitable non-HCFC polyol systems to all applications; establishment of a conversion support fund to which eligible downstream foam enterprises would have access, technical assistance required to modify their equipment and processes; and supporting activities to raise awareness to engage stakeholders and manage implementation of downstream conversion activities. The systems houses will assess the needs of downstream foam enterprises in terms of polyols systems and provide them the required technical assistance in coordination with UNIDO. If a particular foam enterprise is found to be non-eligible, the funding associated with this enterprise would be returned to the Multilateral Fund.

51. Upon application of non-Article 5 ownership discounts to the systems houses, the agreed cost for the systems house component is US $1,254,400, and the technical assistance to 91 SMEs is US $1,070,300. The total cost of the project to assist 91 SMEs to phase out 1,211 mt of HCFC-141b through systems houses is US $2,324,700 and its cost-effectiveness is US $1.92 per kg. The total agreed cost for the conversion of the eligible foam enterprises amounts to US $9,207,070, with a cost-effectiveness of US $3.92 per kg.

52. By receiving this assistance the Government of Saudi Arabia commits to:

(a) Deducting 2,348 mt (258.28 ODP tonnes) of HCFC-141b associated with eligible foam enterprises assisted by the Multilateral Fund;

(b) Deducting the remaining HCFC-141b imported into the country (752 mt or 82.72 ODP tonnes)[3];

(c) Discontinuing any imports of bulk HCFC-141b contained in imported pre-blended polyols by 1 January 2018; and

(d) Issuing a ban on import and export of HCFC-141b as a component of blended chemicals for its use in the production of PU foams or as solvents or any other application by 1 January 2018.

53. Table 8 presents the summary of the foams sector plan, impact and cost.

[3] Phase-out based on 2011 consumption would be larger; capped not to exceed baseline level

Table 8: Agreed cost for the activities in the foam sector in Saudi Arabia

Activity	HCFC reduction		Cost item	Fund agreed (US $)	CE (US $/kg)
	(mt)	(ODP t)			
18 large enterprises	1,137.0	125.1	ICC	7,642,050	
			IOC	(759,680)	
			Subtotal	6,882,370	6.05
Technical assistance to 91 SMEs through 5 systems houses	1,211.0	133.2	Systems houses	1,254,400	
			SMEs	1,070,300	
			Subtotal	2,324,700	1.92
Total assistance by the Multilateral Fund	2,348.0	258.3		9,207,070	3.92
Activities previously approved					
XPS foam sector phase-out	402.0	22.11	HCFC-22	1,938,901	2.14
	506.0	32.89	HCFC-142b		
Total activities previously approved	908.0	55.0		1,938,901	2.14

Refrigeration and air-conditioning servicing sector

54. Further to the Secretariat's questions regarding the implementation of the NPP, the agencies pointed out that the servicing sector consumption of 9,240 mt per year (baseline figure; 350 g per capita, 508.2 ODP tonnes) points to massive challenges in service quality and refrigerant conservation. The agencies advised further about the lack of minimum service quality standards and enforcement of standards, the lack of appropriate technician education, the poor servicing equipment and the lack of an enforceable certification scheme. They stressed the need for denial of access to refrigerant by non-certified technicians, banning use of HCFCs in new refrigeration and air-conditioning systems, the adoption of innovative, and sustainable approaches to recovery/reuse/reclaim in, and that an enforceable certification scheme should take into account the structure of the service providers in the sector including the very significant proportion of expatriates. In addition, training would need to be provided to enable technicians to handle alternatives which are flammable or otherwise hazardous.

55. The Secretariat is in full agreement with the analysis provided by the agencies, but noted that would key activities have been implemented under the NPP, some of the challenges the sector faces would to date contribute less to the high consumption of HCFCs in the servicing sector today. Based on discussions with implementing agencies, the Secretariat re-considered the analysis of barriers to appropriate servicing, and concluded that the demand for servicing by the end user from the refrigeration technician in Saudi Arabia and, presumably, other countries in the region resulted simply from topping up the refrigerant charge of the system. There are a number of reasons to do so, such as the relatively high-hourly wages for technicians in comparison to low-refrigerant cost making it more economical to top-up as compared to conducting an elaborate leak-search-and-repair process, and the very high inconvenience which a failing air-conditioning system imposes on residents, increasing the desire for rapid top-up without waiting for the leak search and repair. Should the lack of market demand for proper servicing be a major issue, training and equipment supply alone would be insufficient to achieve changes in the servicing consumption pattern, and the lack of demand for qualified servicing would actually continue to draw unqualified and ill-equipped personnel into the market.

56. Based on this, the Secretariat suggested considering a firm commitment to undertake measures and actions to facilitate reduction in the demand for low-effort servicing, i.e. top-up, such as substantial increases in refrigerant prices, enforceable maintenance standards, enforceable minimum education requirements, enforceable minimum service requirements / frequency of service, etc. The Secretariat also noted that in the unique case of Saudi Arabia, a reduction of HCFC-22 import quotas in parallel with the

compliance targets would have little effect, since substantial amounts of HCFC-22 were used for XPS production, a use currently being phased out. This would suggest that HCFC-22 might retain its low cost in the national market.

57. UNIDO, on behalf of the Government of Saudi Arabia, and the Secretariat agreed to introduce into Appendix 8-A to the Agreement between the Government and the Executive Committee a condition, which provides Saudi Arabia with some time to implement the outstanding NPP activities for the servicing sector and to prepare HCFC-related activities, such as outstanding training under the NPP, development of training modules for the HPMP, as well as introduction of a certification system for technicians and means to enforce it. These activities will be funded through funds remaining from the implementation of the NPP (US $540,000). In addition, the Government will develop a strategy and commit to its implementation on how to incentivise equipment owners and users to demand high-quality servicing including leak-search and –repair instead of topping up. The implementation of the necessary framework for a certification system as well as a comprehensive strategy are preconditions for funding large-scale implementation in the servicing sector. From 2015 onwards, further funding for the servicing sector implementation foreseen in the HPMP will be withheld until these conditions are fully in place.

Non-investment component

58. In light of the considerations presented above, and taking into account the existing balance of the NPP (US $540,000), UNIDO and the Secretariat discussed the necessary activities for the servicing sector, and established an integrated approach which focusses on enabling technicians to provide servicing according to good practices, while at the same time trying to improve demand for such quality servicing. The plan integrates remaining funds from the NPP implementation into the sector approach.

59. From now until 2015, the curriculum for all vocational schools would be upgraded to include refrigerant conservation and alternative refrigerants, including flammable refrigerants. Five schools will be equipped with training equipment, and the trainers will be trained, at a cost of US $280,000. Remaining activities under the NPP with a value of US $540,000 have been reprogrammed into the HPMP, and would include establishing an e-licensing scheme for import control, customs training, a technician certification scheme including enforcing exclusion of non-certified technicians from access to refrigerant, establishing a monitoring and enforcement system for the end user and servicing sector oversight, the banning of disposable cylinders, and pilot training of 250 technicians. Depending on the successful implementation of key activities, funding for the servicing sector for the year 2015 until the end of stage I will be available at a level of US $1,495,000. The related activities include establishment of five reclamation centres in the country, training of 1,000 technicians, and recovery and tool sets for 500 technicians. Another 750 technicians will be trained in that second phase of stage I from further funds still available under the NPP.

Total agreed cost for stage I of the HPMP

60. The detailed activities and costs agreed for stage I of the HPMP are provided in Table 9. The related reduction in consumption and their relation to the baseline are shown in Table 10. These activities will result in direct HCFC reductions of 279.97 ODP tonnes at a total cost of US $11,482,070 with an overall cost effectiveness of US $4.19/kg (excluding previously approved activities).

Table 9: Detailed activities and costs agreed for stage I of the HPMP

Sector	Project / Activity	Substance	Impact mt	Funds requested (US $)	Agency	CE (US $)
Activities previously approved						
XPS foam - sector phase-out		HCFC-22	402.0	1,938,901	UNIDO/Japan	2.14
		HCFC-142b	506.0			
Sub-total for activities previously approved			**908.0**	**1,938,901**		
Activities requested at the 68th meeting						
PU Foam - sector phase-out	Investment project 20 large enterprises	HCFC-141b	1,137.0	6,882,370	UNIDO	3.92
	Support for systems houses		1,211.0	1,254,400		
	Technical assistance for SMEs			929,500		
				140,800	UNEP	
Sub-total for PU foam sector			**2,348.0**	**9,207,070**		
Service sector	*Remaining activities from the NPP*	*HCFC-22*	*-120*	*-540,000*	*UNIDO/UNEP*	*n/a*
	Licensing, customs and technician certification, training preparations		62.2	280,000	UNEP	4.50
	Reclamation centers, equipment support and large scale training		332.2	50,000	UNEP	
				1,445,000	UNIDO	
Sub-total for service sector			**394.4**	**1,775,000**	-	
Project Management Unit (PMU)				250,000	UNEP	-
				250,000	UNIDO	
Sub-total for PMU				**500,000**	-	
Additional HCFC consumption/use reductions by the Government of Saudi Arabia**						
	Related to the service sector	HCFC-22	2,638.6	0		0.59
	Related to the XPS sector***		775.0			0.66
	Related to the XPS sector ***	HCFC-142b ****	1,276.5			
	Related to the PU foam sector	HCFC-141b ****	602.0			3.12
		HCFC-141b *	420.0			n/a
	Related to the refrigeration / AC manufacturing sector	HCFC-141b ****	150.0			n/a
Sub-total for additional HCFC consumption/use reductions by the Government of Saudi Arabia			5,862.1	0		n/a
Total activities newly requested and related Government reductions			6,553.0	11,482,070		1.75
Total of funded and Government reductions incl. XPS			9,512.5	13,420,971		1.41

* HCFC-141b contained in imported pre-blended polyols; unknown baseline

** Cost effectiveness (CE) provided for the combination of funded phase-out and voluntary contribution

*** Reductions have been noted when approving the phase-out for the XPS sector (decision 62/35)

**** Phase-out based on 2011 consumption would be larger; capped not to exceed baseline level

Table 10: Phase-out agreed for stage I of the HPMP

Sector	Project / Activity	Substance	Impact mt	Impact ODP	Percentage of sector baseline	Percentage of country baseline
Activities previously approved						
XPS foam - sector phase-out		HCFC-22	402.0	22.11	12.24%	3.74%
		HCFC-142b	506.0	32.89	18.21%	
Sub-total for activities previously approved			**908.0**	**55.00**	**30.45%**	**3.74%**
Activities requested at the 68th Executive Committee						
PU Foam - sector phase-out	Investment project 20 large enterprises	HCFC-141b	1,137.0	125.07	36.94%	8.52%
	Support for systems houses					
	Technical assistance for SMEs		1,211.0	133.21	41.05%	9.07%
Sub-total for PU foam sector			**2,348.0**	**258.28**	**79.59%**	**17.59%**
Service sector	*Remaining activities from the NPP*	HCFC-22	*(120.0)*	*(6.60)*	*0*	*n/a*
	Licensing, customs and technician certification, training preparations		62.2	3.42	0.67%	0.23%
	Reclamation centres, equipment support and large scale training		332.2	18.27	3.59%	1.24%
Sub-total for service sector			**394.4**	**21.69**	**4.27%**	**1.48%**
Additional HCFC consumption/use reductions by the Government of Saudi Arabia**						
	Related to the service sector	HCFC-22	2,638.6	145.12	28.53%	9.88%
	Related to the XPS sector***		775.0	42.63	65.85%	2.90%
	Related to the XPS sector ***	HCFC-142b****	1,276.5	82.97	108.45%	5.65%
	Related to the PU foam sector	HCFC-141b *****	602.0	66.22	20.41%	4.51%
		HCFC-141b (*)	420.0	46.20	n/a	n/a
	Related to the refrigeration / AC manufacturing sector	HCFC-141b *****	150.0	16.50	3.63%	1.12%
Sub-total for additional HCFC consumption/use reductions by the Government of Saudi Arabia			**5,862.1**	**399.64**	**n/a**	**24.06%**
Total for activities for which funding is provided under the HPMP stage I			3,650.4	334.97	n/a	22.81%
Total of funded and Government reductions			**9,512.5**	**734.61**	**n/a**	**46.87%**

* HCFC-141b contained in imported pre-blended polyols; unknown baseline

** Cost effectiveness (CE) provided for the combination of funded phase-out and voluntary contribution

*** Reductions have been noted when approving the phase-out for the XPS sector (decision 62/35)

**** Phase-out based on 2011 consumption would be larger; capped not to exceed baseline level

61. The phase-out of 334.97 ODP tonnes associated with the XPS and the PU foam enterprises eligible for funding and the activities in the servicing sector represents 22.81 per cent of the HCFC baseline (which is in line with decision 66/5(a)(iii)). The phase-out of 270.72 ODP tonnes of HCFC-22 and HCFC-142b in the XPS manufacturing sector and the refrigeration servicing sector, and the phase-out of 66.22 ODP tonnes of HCFC-141b used by non-eligible enterprises or exported in pre-blended polyols, represent an additional 20.41 per cent of the baseline that the Government will phase-out without assistance from the Multilateral Fund. Therefore, implementation of stage I of the HPMP will result in a reduction of 46.87 per cent of the HCFC baseline. By undertaking the agreed revised strategy, the Government of Saudi Arabia commits to reducing 35 per cent of the baseline by 2020, on the understanding that it could submit stage II of the HPMP not earlier than 2015.

2012-2014 business plan of the Multilateral Fund

62. UNIDO and UNEP are requesting US $11,482,070 plus support costs for the implementation of stage I of the HPMP. The total value requested for the period 2012-2014 of US $7,111,336 including support costs is below that in the business plan.

Impact on the climate

63. The implementation of the conversion of HCFC-141b to pentane, other low-GWP alternatives and HFC-245fa in the PU foam sector would avoid the emission into the atmosphere of some 2.3 million tonnes of CO_2 equivalent as shown in Table 11. The conversion of the two XPS enterprises to butane would avoid the emission into the atmosphere of some 1,896,480 tonnes of CO_2 equivalent, and the sectoral phase-out agreed would yield a total reduction of 6,247,945 CO_2 tonnes.

Table 11: Climate impact of the projects in the foam sector in stage I of the HPMP

Conversion of 18 large enterprises funded by the Multilateral Fund			
Substance	**GWP**	**Tonnes/year**	**CO_2-eq (tonnes/year)**
Before conversion			
HCFC-141b	725	1,137	824,325
After conversion			
Pentane (1,070 mt)	20	659	13,180
HFC-245fa (66.1 mt)	1,030	76	77,975
Net impact			733,170
Conversion of 91 SMEs funded by the Multilateral Fund			
Before conversion	**GWP**	**Tonnes/year**	**CO_2-eq (tonnes/year)**
HCFC-141b	725	1,211	877,975
After conversion			
Pentane (90 %)	20	671	13,414
HFC-245fa (10 %)	1,030	139	142,857
Net impact			721,704
Phase out of HCFC-141b not funded by the Multilateral Fund			
Before conversion	**GWP**	**Tonnes/year**	**CO2-eq (tonnes/year)**
HCFC-141b	725	1,429.0	1,036,025
After conversion			
Hydrocarbons (30 %)	20	264.0	5,276
Other low GWP alternatives (60 %)	20	967.0	19,346
HFC-245fa (10%)	1,030	164	168,573
Net impact			842,830
Grand Total			2,297,704

64. The proposed technical assistance activities in the servicing sector, which include the introduction of incentives to demand high service quality and leak reduction by end users, better containment of refrigerants and leakage control, and the enforcement of HCFC import quotas, will reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogramme of HCFC-22 not emitted due to better refrigeration practices results in savings of approximately 1.8 CO_2-equivalent tonnes. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Saudi Arabia, in particular its efforts to improve servicing practices, refrigerant recovery and reuse indicate that the implementation of the HPMP will reduce the emission of refrigerants into the atmosphere therefore resulting in benefits on climate. However, at this time, a more accurate quantitatively assessment on the impact on climate cannot be conducted. The impact might be established through an assessment of implementation reports by, *inter alia*, comparing the levels of refrigerants used annually from the commencement of the implementation of the HPMP, the reported amounts of refrigerants being recovered and recycled, the number of technicians trained and the HCFC-22 based equipment being retrofitted.

Co-financing

65. 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, UNIDO indicated that in addition to the large co-financing to be provided by the beneficiary enterprises and other enterprises not assisted, efforts have been made to identify ways and means to obtaining future climate change related funding based on current UNFCCC requirements, but it has been concluded that current Clean Development Mechanism (CDM) methodologies are not applicable to the sectors being assisted in Saudi Arabia. It would have to be further investigated as to whether CDM methodologies could be expanded to a new methodological approach covering the entire HCFC servicing sector.

Draft Agreement

66. A draft Agreement between the Government of Saudi Arabia and the Executive Committee for HCFC phase-out is contained in Annex I of the present document.

RECOMMENDATION

67. In light of the information provided above, the Executive Committee may wish to consider:

(a) Requesting UNIDO to submit, to the 69th meeting, a verification of CFC, CTC, TCA and halon for the years 2009 and 2010 as well as a complete implementation report on the national ODS phase-out plan (NPP), and not to accept a submission of the second tranche request for the HPMP without prior submission of both verification and implementation reports;

(b) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Saudi Arabia for the period 2012 to 2020 to reduce HCFC consumption by 35 per cent of the baseline, at the amount of US $12,324,648, consisting of US $10,761,270, plus agency support costs of US $753,289 for UNIDO, and US $720,800, plus agency support costs of US $89,288 for UNEP; and noting that the two projects to phase out 180.6 ODP tonnes of HCFC-22 and HCFC-142b in the extruded polystyrene (XPS) foam sector at the amount of US $1,718,901 plus support costs of US $128,917 for UNIDO and US $220,000 plus support costs of US $28,600 for the Government of Japan, had already been approved at the 62nd meeting of the Executive Committee and had been included in the stage I of HPMP.

(c) Noting that with the amounts referred to in paragraph (b) above, the total funding for stage I of the HPMP for Saudi Arabia amounts to US $13,420,971 plus agency support cot of US $1,000,094;

(d) Noting that the Government of Saudi Arabia had agreed to modify its starting point for sustained aggregate reduction in HCFC consumption the established baseline of 1,468.7 ODP tonnes, calculated using actual consumption of 1,362.0 ODP tonnes and 1,575.4 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol;

(e) Noting the commitment of the Government of Saudi Arabia to issue a ban on import and export of HCFC-141b either in pure form or as a component of blended chemicals for its use in the production of polyurethane (PU) foams or as solvents or any other application by 1 January 2018;

(f) Noting the deduction of 180.6 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption for the two projects approved at the 62nd meeting and deducting a further 507.81 ODP tonnes of HCFCs for the implementation of stage I of the HPMP;

(g) Noting that approval of stage I of the HPMP did not preclude Saudi Arabia from submitting, not earlier than 2015, a proposal to achieve a reduction in HCFCs beyond that addressed in stage I of the HPMP;

(h) Requesting the implementing agencies not to implement any conversion to HFC-245fa in the spray foam sector prior to 1 January 2016, and to actively pursue establishing low global warming potential alternatives for that sub-sector prior to this date;

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

(j) Requesting UNIDO to submit, as part of the request for the second tranche, detailed data regarding the refrigeration and air conditioning manufacturing sector, including the names of all eligible enterprises, their level of HCFC consumption, whether additional capacity had been established prior to the cut-off date, ownership, products manufactured, and information to allow assessment whether the enterprises would be seen as essentially performing installation, assembly or manufacturing of refrigeration and/or air conditioning equipment;

(k) Approving the first tranche of stage I of the HPMP for Saudi Arabia, and the corresponding implementation plan, at the amount of US $2,647,845, consisting of US $2,169,600 plus agency support costs of US $151,872 for UNIDO, and US $290,400 plus agency support costs of US $35,973 for UNEP;

(l) To approve the reallocation of funding remaining from the national ODS phase-out management plan (NPP) in the amount of US $540,000, plus agency support costs for UNIDO as agreed by the Government of Saudi Arabia, in line with the implementation plan provided; and

(m) To urge the Government of Saudi Arabia to ratify the Montreal and the Beijing Amendments as soon as possible.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF SAUDI ARABIA 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 Saudi Arabia (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 954.65 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 rows 1.2, 1.3 and 1.4 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 rows 1.2, 1.3 and 1.4 of Appendix 2-A as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances that exceeds the level defined in rows 4.1.3, 4.2.3, 4.3.3 and 4.4.3 (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 rows 1.2, 1.3 and 1.4 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 rows 1.2, 1.3 and 1.4 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;

(e) That the country has met the conditions set out in Appendix 8-A.

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;

(e) The Country commits to examining the possibility of using pre-blended hydrocarbon systems instead of blending them in-house, for those foam enterprises covered under the umbrella project, should this be technically viable, economically feasible and acceptable to the enterprises; and

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

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

(a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and

(b) The Country and the bilateral and implementing agencies involved will take full account of the requirements of decisions 41/100 and 49/6 during the implementation of the plan.

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

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

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in rows 1.2, 1.3 or 1.4 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	1,011.64
HCFC-123	C	I	0.19
HCFC-141b	C	I	341.00
HCFC-142b	C	I	115.86
Total			1,468.69

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	1,468.69	1,468.69	1,321.82	1,321.82	1,321.82	1,321.82	1,321.82	954.65	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	1,468.69	1,378.39	1,321.82	1,321.82	1,321.82	980.82	980.82	954.65	n/a
1.3	Maximum allowable total consumption of HCFC-141b	n/a	n/a	n/a	n/a	n/a	0.00	0.00	0.00	0.00	n/a
1.4	Maximum allowable total consumption of HCFC-142b	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/a
2.1	Lead IA (UNIDO) agreed funding (US $)	2,169,600	2,971,487	1,200,000	1,766,600	850,000	1,047,375	400,000	185,583	170,625	10,761,270
2.2	Support costs for Lead IA (US $)	151,872	208,004	84,000	123,662	59,500	73,316	28,000	12,991	11,944	753,289
2.3	Cooperating IA (UNEP) agreed funding (US $)	290,400	0	0	250,400	0	123,125	0	0	56,875	720,800
2.4	Support costs for Cooperating IA (US $)	35,973	0	0	31,018	0	15,253	0	0	7,045	89,288
3.1	Total agreed funding (US $)	2,460,000	2,971,487	1,200,000	2,017,000	850,000	1,170,500	400,000	185,583	227,500	11,482,070
3.2	Total support costs (US $)	187,845	208,004	84,000	154,680	59,500	88,569	28,000	12,991	18,989	842,578
3.3	Total agreed costs (US $)	2,647,845	3,179,491	1,284,000	2,171,680	909,500	1,259,069	428,000	198,574	246,489	12,324,648
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)										166.81
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes) *										64.74
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)										780.09
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)										0.00
4.2.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)										0.00
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)										0.19
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)										341.00
4.3.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)										0.00
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)										0.00
4.4.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)										0.00
4.4.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes) *										115.86
4.4.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)										0.00

*The Agreement also covers two projects approved at the 62nd meeting of the Executive Committee for implementation by UNIDO and Japan with an associated phase-out of 180.6 ODP tonnes of HCFC-22 and HCFC 142b from the manufacture of extruded polystyrene (XPS) foam at a funding level of US $1,938,901 plus agency support costs (decision 62/35), and subjects these projects to the same monitoring and reporting obligations as valid for all other activities under stage I of the HPMP.

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

APPENDIX 4-A: FORMAT OF IMPLEMENTATION REPORTS AND PLANS

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

(a) A narrative report, with data provided by calendar year, regarding the progress since the year prior to the previous report, reflecting the situation of the Country in regard to phase out of the Substances, how the different activities contribute to it, and how they relate to each other. The report should include ODS phase-out as a direct result from the implementation of activities, by substance, and the alternative technology used and the related phase-in of alternatives, to allow the Secretariat to provide to the Executive Committee information about the resulting change in climate relevant emissions. The report should further highlight successes, experiences, and challenges related to the different activities included in the Plan, reflecting any changes in the circumstances in the Country, and providing other relevant information. The report should also include information on and justification for any changes vis-à-vis the previously submitted Annual Implementation Plan(s), such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes. The narrative report will cover all relevant years specified in sub-paragraph 5(a) of the Agreement and can in addition also include information on activities in the current year;

(b) A verification report of the HPMP results and the consumption of the Substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;

(c) A written description of the activities to be undertaken until and including the year of the planned submission of the next tranche request, highlighting the interdependence of the activities, and taking into account experiences made and progress achieved in the implementation of earlier tranches; the data in the plan will be provided by calendar year. The description should also include a reference to the overall plan and progress achieved, as well as any possible changes to the overall plan that are foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain in detail such changes to the overall plan. This description of future activities can be submitted as a part of the same document as the narrative report under sub-paragraph (b) above;

(d) A set of quantitative information for all annual implementation reports and annual implementation plans, submitted through an online database. This quantitative information, to be submitted by calendar year with each tranche request, will be amending the narratives and description for the report (see sub-paragraph 1(a) above) and the plan (see sub-paragraph 1(c) above), the annual implementation plan and any changes to the overall plan, and will cover the same time periods and activities; and

(e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The National Ozone Unit (NOU) in close cooperation with relevant authorities will monitor the consumption data of all HCFCs. The two agencies will work together on consumption data reconciliation. Inspections by the NOU staff at converted enterprises are foreseen to ensure sustained HCFC phase-out after project completion. The licensing system will be a tool to monitor and ensure compliance with the control measures.

2. The NOU will liaise with importers and retailers of ODS to obtain HCFC consumption data and cross-check with data from the Customs Department. The NOU will also undertake regular inspections to monitor the use of required labelling in HCFC containers and regular reviews to HCFC customers to enforce the control on sale of HCFCs.

3. The NOU will monitor the implementation of the capacity-building activities with the relevant agencies e.g. refrigeration and air-conditioning technician training (training centres); enforcement officers training (the Customs Department and the Ministry of Commerce).

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;

(c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A;

(d) Ensuring that disbursements made to the Country are based on the use of the indicators;

(e) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Implementation Plan and accurate data reporting; and

(f) Providing assistance with policy, management and technical support when required.

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 $78 per ODP kg of consumption beyond the level defined in rows 1.2, 1.3 and 1.4 of Appendix 2-A for each year in which the target specified in rows 1.2, 1.3 or 1.4 of Appendix 2-A has not been met.

APPENDIX 8-A: SECTOR SPECIFIC ARRANGEMENTS

1. This section outlines specific conditions required to be met before the portion of the funding shown in rows 2.1 to 2.4 and 3.1 to 3.3 of Appendix 2-A related to activities in the servicing sector from 2017 and later years could be released:

(a) Banning of disposable refrigerant containers for HCFC refrigerants;

(b) Enacting a certification scheme for refrigeration technicians, requiring certain standards of training and equipment;

(c) Enacting a system regulating access to refrigerant only to entities where certified technicians are carrying out and supervising the work on servicing refrigeration and air conditioning systems,

(i) Taking into account the rate of increase of certified personnel, and ensuring that training efforts are carried out timely; and

(ii) With means to discourage that supervising of uncertified personnel by certified technicians is carried out only in a perfunctory manner; and

(d) Developing and submitting with the 2017 tranche request a strategy to strongly encourage end-users of refrigeration and air conditioning equipment to carry out leak detection and repair measures in case of refrigerant losses from refrigeration and air conditioning systems, and committing to implement the strategy during the remainder of the HPMP without additional cost.

2. The portion of the funding related to activities in the servicing sector and being subject to above condition is shown in Table 8-A-1.

Table 8-A-1: Portion of funding related to activities in the servicing sector

Row	Particulars	2017	2018	2019	2020
1.1	UNIDO servicing sector funding (US $)	387,375	0	0	130,625
1.2	UNEP servicing sector funding (US $)	63,125	0	0	16,875

– – – –