UNITED NATIONS

EP

United Nations Environment Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/67/29
21 June 2012

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-seventh Meeting
Bangkok, 16-20 July 2012

PROJECT PROPOSAL: SOUTH AFRICA

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

Phase-out

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

Pre-session documents of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol are without prejudice to any decision that the Executive Committee might take following issuance of the document.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
South Africa

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

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2010	400.1 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes) *									
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				

*Not Applicable for South Africa.

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline (estimate):	369.7	Starting point for sustained aggregate reductions:	369.7
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.0	Remaining:	192.92

(V) BUSINESS PLAN		2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
UNIDO	ODS phase-out (ODP tonnes)	37.0	1.0	0	1.0	0	0	0	0	0	39.0
	Funding (US $)	2,107,246	59,128	0	87,995	0	0	0	0	0	2,254,329

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	Total
Montreal Protocol consumption limits (estimate)			n/a	369.70	369.70	332.73	332.73	332.73	332.73	
Maximum allowable consumption (ODP tonnes)			n/a	369.70	369.70	332.73	332.73	332.73	270.20	
Project Costs requested in principle(US$)	UNIDO	Project costs	1,960,229	2,592,620	0	1,302,335	499,612	0	178,760	6,533,556
		Support costs	147,017	194,447	0	97,675	37,471	0	13,407	490,017
Total project costs requested in principle (US $)			1,960,229	2,592,620	0	1,302,335	499,612	0	178,760	6,533,556
Total support costs requested in principle (US $)			147,017	194,447	0	97,675	37,471	0	13,407	490,017
Total funds requested in principle (US $)			2,107,246	2,787,067	0	1,400,010	537,083	0	192,167	7,023,573

(VII) Request for funding for the first tranche (2012)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNIDO	1,960,229	147,017

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

PROJECT DESCRIPTION

1. On behalf of the Government of South Africa UNIDO, as the designated implementing agency, has submitted to the 67th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost of US $10,225,361, plus agency support costs of US $766,902, as originally submitted, to implement activities that will enable the country to comply with the Montreal Protocol control targets up to the 10 per cent reduction in HCFC consumption by 2015.

2. The first tranche for stage I being requested at this meeting amounts to US $1,757,751, plus agency support costs of US $131,831 for UNIDO, as originally submitted.

Background

3. South Africa, with a total population of 49 million inhabitants, has ratified all the amendments to the Montreal Protocol. In 1997, South Africa was reclassified as a Party operating under paragraph 1 of Article 5 of the Protocol. In 2007, the Parties decided that the country was eligible for assistance from the Multilateral Fund for fulfilling its commitments to phase out HCFCs[1]. South Africa phased out CFCs, halons, carbon tetrachloride, and methyl chloroform, and is phasing out methyl bromide without assistance from the Multilateral Fund.

ODS policy and regulatory framework

4. The Department of Environmental Affairs (DEA) has been designated as the Government authority to implement the Montreal Protocol. The National Ozone Unit (NOU) is located in DEA, within the Directorate of Hazardous Chemical Management.

5. South Africa has established a number of legal instruments to control the imports, exports, consumption and use of HCFCs. The Air Quality Act 39 of 2004 introduced the import and export licenses; the DEA Regulation 33925 of 2011 established a quota system to restrict HCFC imports to the Montreal Protocol limits starting 1 January 2013; and the National Standard 10147 of 1994 established a code of practice for the reduction of ozone depleting refrigerant emissions.

HCFC consumption and sector distribution

6. All the HCFCs used in South Africa are imported. Exports of HCFCs have represented not more than 4.1 per cent of the imports for the last three years. Over the last ten years, all HCFC consumption reported by South Africa indicates an overall growing trend as shown in Table 1. The HCFC baseline for compliance is 369.7 ODP tonnes.

[1] The Ninth Meeting of the Parties, noting that South Africa has undertaken not to request financial assistance from the Multilateral Fund for fulfilling commitments undertaken by developed countries prior to the Ninth Meeting of the Parties, decided to accept the classification of South Africa as a developing country for the purposes of the Montreal Protocol. *(UNEP/OzL.Pro.9/12, Decision IX/27).*The Nineteenth Meeting of the Parties decided that South Africa, as a developing country operating under paragraph 1 of Article 5 of the Montreal Protocol, is eligible for technical and financial assistance from the Multilateral Fund for fulfilling its commitments to phase out both production and consumption of HCFCs, consistent with decision XIX/6 of the Nineteenth meeting of the Parties *(UNEP/OzL.Pro.19/7, Decision XIX/7).*

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

Substance	2005	2006	2007	2008	2009	2010	Baseline
Metric tonnes (mt)							
HCFC-22	3,246.7	2,449.1	3,849.7	2,833.3	3,632.1	4,035.6	3,833.9
HCFC-123	32.8	49.0	20.0	33.1	25.6	-	12.8
HCFC-124	30.1	57.0	12.1	15.9	0.4	-62.0	-30.8
HCFC-141b	273.3	759.0	1,295.0	465.8	1,253.9	1,656.1	1,455.0
HCFC-142b		34.0	2.2	16.7	14.8	-40.6	-12.9
Total mt	**3,582.9**	**3,348.1**	**5,179.0**	**3,364.8**	**4,926.8**	**5,589.1**	**5,258.0**
ODP tonnes							
HCFC-22	178.6	134.7	211.7	155.8	199.8	222.0	210.9
HCFC-123	0.7	1.0	0.4	0.7	0.5	-	0.3
HCFC-124	0.7	1.3	0.3	0.3	0.0	-1.4	-0.7
HCFC-141b	30.1	83.5	142.5	51.2	137.9	182.2	160.1
HCFC-142b	-	2.2	0.1	1.1	1.0	-2.6	-0.8
Total ODP tonnes	**209.9**	**222.6**	**355.0**	**209.2**	**339.2**	**400.1**	**369.7**

7. Through the HPMP preparation, the Government of South Africa noted that the current customs tariff does not have appropriate codes for recording the import and export of some blends containing HCFCs, including a HCFC-22/HCFC-142b blend imported for use in the extruded polystyrene (XPS) manufacturing sector as shown in Table 2. In consequence the data reported under Article 7 does not reflect the actual consumption of HCFCs in the XPS sector.

Table 2. HCFC consumption in the XPS sector

Substance	2007 (mt)	2008 (mt)	2009 (mt)	2010 (mt)	2011 (mt)	Average 2009-2010 (mt)	Average 2009-2010 (ODP tonnes)
HCFC-22 component	87.2	100.0	78.0	96.0	120.0	87.0	4.8
HCFC-142b component	130.8	150.0	117.0	144.0	180.0	130.5	8.5
Total HCFC-22/HCFC-142b blend	218.0	250.0	195.0	240.0	300.0	217.5	13.3

8. Imports of HCFC-141b contained in pre-blended polyols in South Africa are insignificant. However, South Africa exported in 2010 an estimate of 292.6 metric tonnes (mt) (32.2 ODP tonnes) of HCFC-141b contained in pre-blended polyols to neighbouring countries.

9. HCFC-22 and HCFC-141b represent more than 99 per cent of total HCFC consumption in South Africa, both measured in mt and ODP tonnes. In 2010, 45 per cent of the total HCFC consumption (in ODP tonnes) was used in the polyurethane (PU) foam manufacturing sector and 42 per cent in the refrigeration and air-conditioning (AC) servicing sector. The remaining HCFCs were used in the assembly and installation of refrigeration and air-conditioning equipment (9 per cent) and production of XPS foams (4 per cent). Approximately 1 mt of HCFC-141b is also used for degreasing and cleaning purposes by a large number of users difficult to identify. The sectoral distribution of HCFCs used in 2010 is presented in Table 3.

Table 3: Sectoral distribution by type of HCFC used in 2010

Substance	Refrigeration and air-conditioning		XPS foams	PU foam self-blended	PU foam locally pre-blended	Exports polyols	Others (*)	Total	Percentage of total (%)
	Assembly installation	Servicing							
Metric tonnes (mt)									
HCFC-22	668.8	3,035.6	96.0					3,800.4	68
HCFC-141b				397.0	933.4	292.6	33.1	1,656.1	30
HCFC-142b			144.0					144.0	3
Total mt	668.8	3,035.6	240.0	397.0	933.4	292.6	33.1	5,600.5	100
Share %	12	54	4	7	17	5	1	100	
ODP tonnes									
HCFC-22	36.8	167.0	5.3	-	-	-	-	209.0	53
HCFC-141b	-	-	-	43.7	102.7	32.2	3.6	182.2	45
HCFC-142b	-	-	9.4	-	-	-	-	9.4	2
Total ODP tonnes	36.8	167.0	14.7	43.7	102.7	32.2	3.6	400.6	100
Share %	9	42	4	11	26	8	1	100	

(*) Others include very small enterprises in the foams sector and approximately 1 mt of HCFC-141b used for degreasing and cleaning purposes.
Note: Differences in the 2010 reported consumption (Table 1) and use (Table 2) of HCFC-22 and HCFC-142b occur due to deficiencies in the custom tariff codes for recording the imports and exports of HCFCs in blends. The Government of South Africa is addressing this issue as a matter of urgency

HCFC consumption in the foam sector

10. The PU foam sector in South Africa is composed of approximately 70 manufacturing enterprises in more than 10 different applications, 55 of them are still using HCFC-141b. The three largest enterprises consumed half of the HCFC-141b imported in 2010 (841.5 mt or 92.6 ODP tonnes). The remaining are small and medium-sized enterprises (SMEs), including 44 using less than 20 mt (2.2 ODP tonnes) per year. The main use of HCFC-141b is in the production of domestic refrigerators followed by flexible mouldings. Table 4 shows the HCFC-141b consumption in South Africa's foam sector by application.

Table 4: HCFC-141b consumption in South Africa's foam sector by application

HCFC-141b : Sub-Sector	No. Enterprises	Non-eligible		Eligible	
		mt	ODP	mt	ODP
Domestic refrigeration	3	340.0	37.4	306.0	33.7
Flexible mouldings (*)	1	213.5	23.5		-
Block foam	1		-	65.0	7.2
Water heaters domestic and industrial	10	1.6	0.2	116.1	12.8
Panels	6		-	176.9	19.5
Commercial refrigeration	10		-	45.6	5.0
Furniture	10		-	44.0	4.8
Others (surf boards, packaging, buoy, etc)	11		-	34.1	3.8
Rigid spray systems	3		-	20.7	2.3
TOTAL	**55**	**555.1**	**61.1**	**808.4**	**89.0**
Exported HCFC-141b pre-blended polyols		292.6	32.2		-

(*) Bumbo (flexible moulded foam) was initially considered eligible, but during project review process it was determined it was not eligible.

11. While few foam manufacturing enterprises procure HCFC-141b in bulk for blending *in-situ,* the majority have traditionally obtained the HCFC-141b pre-blended in specific formulations developed for them by four local systems houses. Two of the systems houses are owned by non-Article 5 companies (BASF and Bayer) and the other two are locally owned (Industrial Urethanes and Resichem). The two

local systems houses are able to produce formulations with methyl formate and have commercialized them on a limited scale; however, they do not have operational conditions to deliver a sustainable supply of methyl formate formulations to a large number of downstream users.

12. The total production of XPS insulation boards in South Africa is done by the enterprise Isofoam, which used 96.0 mt (5.3 ODP tonnes) of HCFC-22 and 144.0 mt (9.4 ODP tonnes) of HCFC-142b in 2010.

HCFC consumption in the refrigeration and air-conditioning sector

Manufacturing, assembling and installation

13. The refrigeration and air-conditioning sector is made up by a few enterprises manufacturing commercial refrigeration equipment and many SMEs that assemble, install and service equipment. It is estimated that 668.8 mt (36.8 ODP tonnes) of HCFC-22 are used in new installations mainly in the commercial and industrial refrigeration and air-conditioning sectors. Table 5 shows the type of equipment manufactured, assembled and installed in South Africa.

Table 5: Use of HCFC-22 in assembling and installation of new equipment in South Africa in 2010

HCFC-22: Refrigeration and air-conditioning sub-sector	**Consumption**	
	Mt	**ODP tonnes**
Central air-conditioning: commercial and variable refrigerant volume (VRV) systems	151.5	8.3
Chillers: water chillers in air-conditioning and in process cooling, food processing, etc.	1.3	0.1
Commercial refrigeration small: systems with charges of average of 40 kg, butcher boxes, convenience stores, etc.	320.0	17.6
Large refrigeration systems: with charges above 100 kg, supermarkets with plant rooms, fruit cooling, process cooling, wineries.	171.0	9.4
Marine refrigeration: fishing boats, trawlers, deep sea fishing boats, foreign owned fishing vessels fishing in South African waters, etc.	10.0	0.6
Other: petro chemical.	15.0	0.8
Total	**668.8**	**36.8**

14. Although South African companies are in general capable of producing HCFC-free equipment, the majority of new refrigeration and air-conditioning installations operate with HCFC-22 due to their lower price, acceptable performance and possibility of servicing without special training or equipment. HCFC-free equipment is less popular due to the need for specialized skills and tools required for its maintenance (i.e. R-410A systems) and lack of awareness on the benefits of new high-efficiency systems.

Refrigeration and air-conditioning servicing sector

15. The servicing sector consumed 3,035.6 mt (167.0 ODP tonnes) of HCFC-22, representing 80 per cent of the total amount consumed in 2010. As shown in Table 6 below, consumption in the sector is devoted mostly (67 per cent) to servicing equipment used in commercial refrigeration (convenience stores, supermarkets and small cold rooms), followed by central air-conditioners and unitary air-conditioners. The high demand for HCFC-22 in servicing is due, among others, to the high refrigerant leakage from systems and the low level of refrigerant recovery and recycling during maintenance.

Table 6: HCFC-22 consumption in the refrigeration and air-conditioning (AC) servicing sector

Type of equipment	Average charge HCFC-22 (kg)	Current population (equipment units)	Capacity installed (mt)	Share on capacity installed (%)	Average leakage (%)	Service demand 2010 (mt)	Share on service demand (%)
Window units	0.6	18,000	11	0	15	1.5	0
Unitary AC units	1.4	1,100,000	1,540	11	24	300.6	10
Central AC	165	18,100	2,987	22	21	508.0	17
Chillers	160	190	30	0	18	4.9	0
Commercial refrigeration	22	380,000	8,360	61	30	2,032.0	67
Industrial refrigeration	194	3,050	592	4	30	144.2	5
Transport refrigeration	7	400	3	0	24	0.8	0
Marine	380	340	129	1	39	40.5	1
Other	400	60	24	0	19	3.2	0
Total			**13,676**			**3,035.6**	

16. The number of unitary air-conditioners sold by South African suppliers is estimated at 214,000 per annum, 99 per cent of which are imported, and around 90 per cent of these units are charged with HCFC-22. The number of HCFC-based systems installed or imported is expected to continue growing as well as the servicing needs associated to this equipment. It is estimated that in 2012, the demand for HCFC-22 in servicing will be 3,745 mt, and above 4,400 mt in 2014.

17. There are more than 5,000 skilled technicians who service, install or repair refrigeration and air-conditioning systems, but only 986 of them are registered as required by the law. There are also more than 1,500 service contractors who employ two or more skilled technicians, but only 56 of them are members of the refrigeration and air-conditioning contractors association.

18. The current retail prices of HCFC and non-HCFC alternatives per kilogram are as follows: US $4.71 for HCFC-22, US $7.86 for HFC-134a, US $10.16 for R-404a, US $10.31 for R-407c, US $32.77 for R-600a, US $10.26 for R-410a, US $10.55 for R-507, and US $15.27 for R-417a.

HCFC phase-out strategy and activities

19. The overarching strategy of the Government of South Africa is to adopt a staged approach to achieve the complete phase-out of HCFC consumption in line or possibly ahead of the Montreal Protocol. It includes a combination of policy instruments and non-investment activities, investment projects in the foam and refrigeration sectors, and assistance to the refrigeration servicing sector to ensure a balanced and timely phase-out with minimum socio-economic impact. According to the HCFC consumption forecast of approximately 420.0 ODP tonnes in 2012, based on an annual growth rate of 2.5%, stage I of the HPMP would need to reduce HCFC consumption by 87.0 ODP tonnes to meet the freeze at the baseline level in 2013 and the 10 per cent reduction in 2015. The activities included in stage I of the HPMP are described below.

Policy assistance and non-investment activities

20. This component comprises improvement and further development of existing regulations for better control of supply and demand for HCFCs, including enforcement of the quota system and import bans, and enhancement of tariff codes to accommodate HCFCs, HCFCs contained in blends and HCFC-based equipment. It also includes training for customs and other law enforcement officers in monitoring, control and identification of HCFCs and HCFC-based equipment, public awareness and monitoring activities. The total cost for these activities has been estimated at US $804,125.

Phase-out activities in the PU foam sector

21. Stage I of the HPMP proposes the conversions of two of the largest manufacturers of PU foam in the country, Bumbo and Aerothane, and an umbrella project including two systems houses and 34 downstream users. Details on the activities are as follows:

(a) *Conversion of Aerothane:* Aerothane, established in 1982, is a locally-owned enterprise with no exports to non-Article 5 countries. In 2010, it consumed 65.0 mt (7.2 ODP tonnes) in the manufacturing of rigid foam blocks for thermal insulation, systems for buoyancy, boat building, insulated panels, decorative moulding and spray foam. Polyols are blended *in-situ* and poured manually in a closed mould to produce the blocks, which can be cut into sheets and pipe insulation shells. The project aims to replace HCFC-141b with cyclopentane and involves preparation of a secure storage area for tanks, modifications to the metering/measurement and mixing equipment, modification to the foaming boxes, and other safety modifications. The cost of the project is US $319,850 and the cost-effectiveness is US $4.92 per kg. The project will be implemented during 2013.

(b) *Conversion of Bumbo*: Bumbo, established in 2001, is a locally-owned enterprise that manufactures a range of baby seats and related products from integral skin foam, and consumed 213.5 mt (23.5 ODP tonnes) of HCFC-141b in 2010. The enterprise blends the foam components within the plant and operates with five production lines. The baseline equipment includes eight low pressure dispensers, five water chillers, isocyanate and PU pump stations, nine carrousels carrying semi-automatic moulds, and additive pumps. The project aims to replace HCFC-141b with cyclopentane. The conversion will involve the installation of one cyclopentane storage tank, two pre-mixing stations, one polyols/pentane buffer tank, eight foam dispensers, safety related equipment and training at a cost of US $1,735,123, and cost effectiveness of US $8.13 per kg. The project will be implemented during 2013 and 2014.

(c) *Foam umbrella project including two systems houses and 34 downstream users:* Given the key role of systems houses in South Africa it was determined that HCFC-141b consumption will be phased out with their assistance. This approach makes it possible to achieve conversion of a large number of SMEs consuming 286.0 mt (31.5 ODP tonnes) within the cost-effectiveness threshold. This project is intended to adapt two eligible systems houses (Industrial Urethanes and Resichem) to provide a sustainable supply of methyl formate based polyols and to convert up to 34 downstream user enterprises with methyl formate technology. At the systems houses, the project involves procurement of two blenders, storage tanks for methyl formate, piping, civil and electrical work and instrumentation at a cost of US $1,530,009. At the downstream users, the project includes new pumps and polyols flow meters, carbide injector nozzles, increase of capacity in the heat exchangers, and product testing and certification, at an incremental capital cost of US $652,500 and incremental operational cost of US $635,556. The total cost of the project is of US $2,818,065, out of which US $2,645,800 are being requested from the Multilateral Fund at a cost-effectiveness of US $9.25 per kg.

22. In addition to the activities listed above, UNIDO included a project proposal for Defy, which is explained in paragraph 37.

Phase-out activities in the XPS foam sector

23. Isofoam South Africa, the only enterprise manufacturing XPS boards in the country, is owned by an Article 5 enterprise and does not export products to non-Article 5 countries. The blowing agent, a

mixture of 217.5 mt (13.3 ODP tonnes) of HCFC-22/HCFC-142b, is supplied pre-mixed. The plant operates with two production lines, each one equipped with an extruder (twin screw configuration). The technologies selected are HFC-134a/HFC-152a for the products that require the best thermal properties, and CO_2 for the remaining applications. The conversion will involve two new extruders, two CO_2 pumping systems, two secondary cooling extruders, two board cooling towers, one CO_2 storage tank including a chiller, transfer pumps, technical assistance, training and certification. The total cost of the project is US $2,432,825; resulting in a cost-effectiveness US $11.6 per kg. The project will be implemented during 2013 and 2014.

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

24. The HPMP included an incentive scheme to pay grants to end-users that elect to install non-HCFC based equipment. The grant would be designed to offset the incremental cost of installing non-HCFC systems over HCFC-22 equipment. The project aims to encourage the introduction of low-global-warming-potential (GWP) and high energy efficiency solutions by offering two levels of incentive, one for HFC replacement and a 25 per cent higher incentive for low-GWP alternatives including ammonia, CO_2 and hydrocarbons. The incentive grant calculation will incorporate the total equivalent warming impact (TEWI) of the new system compared to the HCFC-22 baseline. The amount will be deducted from the HCFC-22 servicing sector allocation proportionally to the service load removed in future years by the selection of non-HCFC-22 equipment. The estimated project cost is US $4,575,276, of which US $2,287,638 are being requested for stage I. The impact of the project is 668.8 mt (36.7 ODP tonnes) of HCFC-22, out of which 334.0 mt (18.4 ODP tonnes) are expected to be reduced in stage I. The cost-effectiveness is US $6.85 per kg. Details of the incentive scheme would be finalized once the HPMP is approved.

Overall cost of stage I of the HPMP

25. The total cost of stage I of the HPMP has been estimated at US $10,225,361 and is presented in Table 7, with an overall cost effectiveness of US $9.16 per kg.

Table 7: Cost of stage I of the HPMP

Sector	Activity	Substance	HCFC reductions		Funds requested (US S)	Cost-effectiveness	
			mt	ODP tonnes		US $/ mt kg	US $/ ODP kg
PU Foam sector	Conversion of enterprise Aerothane to cyclopentane	HCFC-141b	65.0	7.2	319,850	4.92	44.73
	Conversion of enterprise Bumbo to cyclopentane	HCFC-141b	213.5	23.5	1,735,123	8.13	73.88
	Conversion of two systems houses and 34 downstream user to methyl formate	HCFC-141b	286.0	31.5	2,645,800	9.25	83.99
XPS foam sector	Conversion of Isofoam to HFC(134a/152a) and CO_2	HCFC-142b /HCFC-22	217.5	13.3	2,432,825	11.16	182.92
Servicing sector	HCFC-22 replacement incentive scheme phase 1	HCFC-22	334.0	18.4	2,287,638	6.85	124.33
All	Policy support and non-investment activities	All	(*)	(*)	804,125		
Total stage I			**1,116.5**	**93.9**	**10,225,361**	**9.16**	**108.90**

(*) Although a specific HCFC tonnage reduction has not been associated to policy support and non-investment activities, it is expected that this component will be critical in achieving early reductions specially the ones required to comply with the freeze in 2013.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

26. The Secretariat reviewed the HPMP for South Africa 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

27. The Government of South Africa agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 369.7 ODP tonnes, calculated using actual consumption of 339.2 ODP tonnes and 400.1 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol.

28. In 2010, the amounts of HCFC-142b and HCFC-124 imported into the country were lower than those exported, resulting in a "negative" baseline for compliance for these two substances (as reported under Article 7 of the Montreal Protocol) and subsequently a negative starting point. As explained by UNIDO, the current customs tariff does not have appropriate codes for reporting import and export of HCFCs contained in blends.

29. Noting that, in particular the amounts of HCFC-22 and HCFC-142b imported in a blend for the production of XPS foam have not been reported under Article 7 at least for the last five years, the Secretariat suggested that UNIDO assist the Government of South Africa in submitting an official request to the Ozone Secretariat for the revision of the reported HCFC consumption. UNIDO informed that the Government of South Africa will submit a request for a correction of the consumption data as soon as possible. If the Parties to the Montreal Protocol approve the request by the Government of South Africa for a revision of its baseline, the Executive Committee might wish to consider revising the starting point accordingly.

Issues related with the phase-out strategy and activities

30. Stage I of the HPMP proposed to phase out 62.2 ODP tonnes of HCFC-141b in the PU foam sector; the conversion of the XPS foam enterprise with an associated phase-out of 13.3 ODP tonnes of HCFC-22/HCFC-142b; and the incentive scheme in the refrigeration and air-conditioning servicing sector with an associated phase-out of 18.4 ODP tonnes. As explained to UNIDO, the Secretariat was of the view that this strategy would not be the most cost-effective and sustainable combination of activities for the following reasons:

(a) Given the relatively large amount of HCFC-141b imported into the country, the Government of South Africa would be able to reduce its baseline for compliance beyond the 35 per cent requirement in 2020 by addressing only HCFC-141b. This would be in line with relevant decisions on prioritization adopted by the Parties to the Montreal Protocol and the Executive Committee. Furthermore, South Africa is one of the few Article 5 countries where a low-GWP and cost-effective alternative to HCFC-141b is commercially available;

(b) While stage I of the HPMP proposed to phase out only 62.2 ODP tonnes of HCFC-141b, representing 38.8 per cent of the HCFC-141b baseline, it did not provide an indication on how the remaining consumption in the foam sector would be addressed, as no further activities were proposed for future stages of the HPMP, and issuance of an import ban on HCFC-141b was not proposed. This situation would create an unfair competition between

enterprises using HCFC-141b with those converted to a non-HCFC technology for an undetermined period of time, putting in risk the sustainability of the phase-out;

(c) The consumption of 13.3 ODP tonnes of HCFC-22/HCFC-142b associated with the conversion of the XPS foam enterprise had not been reported under Article 7 of the Montreal Protocol. Furthermore, the cost-effectiveness of the conversion (i.e., US $11.20/kg) was very high, and a strong justification demonstrating that the conversion would be required to comply with the 2013 and 2015 control targets (in line with decision 62/12(c)) was not included in the HPMP; and

(d) The end-users incentive programme was premature given the market conditions prevailing in the country, i.e., the low price of HCFC-22 as compared to any other refrigerant, the lack of technical skills and higher costs for servicing non-HCFC-22 systems, and the lack of alternative refrigerants. Given that HFC-410A is the most likely commercially available refrigerant that could be introduced in the market, implementation of this programme at present would promote the introduction of high-GWP alternatives in South Africa.

31. Based on the above considerations, the Secretariat suggested an alternative approach for reducing HCFC consumption during stage I of the HPMP as described below:

(a) Complete phase-out of HCFC-141b used as a foam blowing agent. This proposal would entail converting all eligible foam enterprises (with a total consumption of 808.4 mt or 88.9 ODP tonnes) to low-GWP blowing agents (i.e., hydrocarbon for a few large consuming enterprises and methyl formate for all other enterprises); obtaining the commitment from non-eligible foam enterprises (with a total consumption of 555.1 mt or 61.1 ODP tonnes) and systems houses to convert to a non-HCFC technology by a specific date; stopping the export of 292.6 mt (32.2 ODP tonnes) of HCFC-141b contained in pre-blended polyols; and issuing a ban on the import of HCFC-141b both in bulk and contained in pre-blended polyols by a specific date. This proposal would result in a reduction of more than 40 per cent of the HCFC consumption baseline in a cost effective manner for the Government of South Africa, the foam enterprises and the Multilateral Fund;

(b) Technical assistance in the refrigeration servicing sector to establish the basic infrastructure for the implementation of activities in the sector (as it has been the case for all other Article 5 countries), and reduce the emission of HCFC-22 associated with the high leakage rate (over 30 per cent per annum in commercial refrigeration). This proposal could also result in a reduction of the future amounts of HCFC-22 consumption needed for servicing purposes;

(c) Training of customs officers and other enforcement agents to enhance their capacity to monitor, control and identify HCFCs and HCFC-containing equipment; to strengthen the capacity of customs trainings schools and the Custom Department to address HCFCs imports and exports through the provision of training material and identification tool kits; and to enhance coordination between the Customs Department and other authorities to ensure fully enforced regulations and reduced illegal trade in HCFCs; and

(d) Project monitoring and implementation to ensure proper implementation and follow up of the investment projects in the foam sector and the technical assistance activities in the servicing sector; to coordinate with the corresponding departments in the government the improvement of existing regulations; and to raise awareness of enforcement officers and

general public on the policies and legal instruments being promulgated to address the accelerated phase-out of HCFCs.

32. In considering the above approach, UNIDO advised that the preparation of the HPMP was based on an extensive consultative process with a large number of stakeholders. In justifying the inclusion of the servicing sector in stage I, UNIDO explained that this sector has the largest HCFC consumption and represents the greatest challenges for phase-out. While reduction targets could be met through phase-out of HCFC-141b in the foam sector, the Government strongly believes that not addressing the refrigeration sector in stage I would increase the demand for HCFC-22 above the set quota and result in a risk of illegal trade. Therefore immediate steps must be taken to reduce the future demand for HCFC-22. Given the lead time required to raise awareness, engage users and suppliers and put in place the appropriate mechanisms for managing and coordinating support activities, it is advisable to start addressing this sector as soon as possible. It was pointed out that the refrigeration sector was forced to phase out CFCs without any financial assistance from the Multilateral Fund or the Government. However, there is significant resistance to further change particularly as it will be seen as another cost burden placed on the sector.

33. Upon further discussions with the Government of South Africa and major stakeholders, UNIDO indicated that stage I of the HPMP would be based on the alternative approach suggested by the Secretariat. The conversion of the XPS foam enterprise and phase 1 of the HCFC-22 replacement incentive scheme will be postponed to a future stage of the HPMP.

Revised phase-out activities included in stage I of the HPMP

34. UNIDO revised the phase-out activities included in stage I. In doing so, it addressed technical and cost related issues raised by the Secretariat for activities that were proposed in the HPMP as submitted, and developed a few other activities that were not included in the HPMP. The revised phase-out activities, including issues raised and how they were addressed, are described below.

Revised activities in the foam sector

35. Of the 55 foam enterprises using HCFC-141b, three (Aerothane, Bumbo and Defy) will be converted to cyclopentane technology. In the case of Aerothane, clarification was sought on several cost elements, including the cyclopentane station, the foaming boxes and the ventilation system, which resulted in a small adjustment to the incremental capital cost. It was noted that the reduced cost related to use of cyclopentane resulted in no incremental operational costs. The level of funding was agreed at US $185,900 with a cost-effectiveness of US $2.86 per kg.

36. During the project review process, it was determined that the project to phase out HCFC-141b at the enterprise Bumbo was not eligible since more than 70 per cent of production is exported to non-Article 5 countries (in line with the decision on exports to non-Article 5 countries adopted at the 15th Executive Committee meeting). Accordingly, UNIDO withdrew the funding request for Bumbo and confirmed that the enterprise would convert with its own resources in line with the HCFC-141b complete phase-out strategy proposed for stage I.

37. During the project review process, UNIDO added a project proposal for Defy, which had not been included as it was formerly owned by a non-Article 5 enterprise until July 2011 when it was changed to Article 5 ownership. Established in 1920, Defy produces domestic refrigerators and is the second largest consumer of HCFC-141b in the country. Defy has two plants, one with four production lines, eight high pressure dispensers and 58 jigs, and the second with two production lines, three high-pressure dispensers and 26 jigs. The proposal includes the preparation of a storage area for tanks, retrofit/replacement of the foam dispensers, modification of the jigs and other safety modifications for operation with cyclopentane, training, trials and safety audit, and incremental operational costs. The cost of the project as submitted was US $4,558,550, out of which US $3,058,550 was requested from the

Multilateral Fund. The Secretariat reviewed the proposal and discussed with UNIDO several cost elements based on eligibility, size of the production, capacities of the equipment and experience with comparable plants in the domestic refrigeration sector. It was determined that two out of the 9 dispensers operating in the two plants were not eligible as they were installed in 2010 (i.e., after the 21 September 2007 cut-off date). For the remaining seven dispensers it was agreed to retrofit them rather than replacing them. The total cost of the project is US $2,312,948 to phase out 288.0 mt (31,7 ODP tonnes) of HCFC-141b, resulting in a cost-effectiveness of US $8.03 per kg.

38. The remaining 44 eligible foam enterprises will be converted to methyl formate technology with the assistance of the two locally-owned systems houses. In line with the revised phase-out strategy, ten additional enterprises consuming 111.8 mt (12.3 ODP tonnes) of HCFC-141b were added to the project initially submitted. The Secretariat sought clarification from UNIDO on the reasons for the large investments required by the two systems houses involved in the project as methyl formate was already used to some extent in the country. UNIDO explained that the scale and complexity of the blending operation will change substantially to supply much larger quantities and a higher number of formulations in varying batches sizes in compliance with health, safety and engineering standards. The costs of equipment items requested were further discussed in light of the existing equipment and agreed at US $906,400 for both companies. The incremental capital cost for the downstream foam enterprises would be limited to the retrofit of the existing foam dispensers (between US $5,000 and US $15,000), technical assistance, trials, product testing and certification when required, at a total of US $840,958 for all enterprises. The incremental operational cost was agreed at US $499,750. The total cost of the project is US $2,247,108, with a cost-effectiveness of US $5.62 per kg.

39. Furthermore, the Government of South Africa commits to:

(a) Deducting 82.9 ODP tonnes of HCFC-141b associated with eligible foam enterprises;

(b) Deducting 67.2 ODP tonnes of HCFC-141b associated with self-funded and non-eligible foam enterprises;

(c) Deducting 32.2 ODP tonnes of HCFC-141b contained in exported pre-blended polyols; and

(d) Issuing 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 PU foams or as solvents or any other application by 1 January 2016.

40. The total agreed cost for the conversion of the eligible foam enterprises amounts to US $4,745,956, with a cost effectiveness of US $6.30 per kg. Additional 67.2 ODP tonnes of HCFC-141b will be phased-out by self-funded and non-eligible enterprises with their own resources, and 32.2 ODP tonnes would be phased out by stopping the export of HCFC-141b in pre-blended polyols. The overall cost-effectiveness for the conversion of the entire foam sector in South Africa is US $2.86 per kg. A summary of the main activities and associated costs related to the complete phase-out of HCFC-141b in the PU foam sector in South Africa is presented in Table 8.

Table 8. Main activities and costs for phasing out HCFC-141b in South Africa

Enterprise or group of enterprises	HCFC-141b reductions		Funds requested (US $)
	mt	ODP tonnes	
Aerothane	65.0	7.2	185,900
Defy	288.0	31.7	2,312,948
44 SMEs converting to methyl formate	399.8	44.0	2,247,108
Non-eligible foam enterprises (Whirlpool, Bumbo, Clean Heat)	555.1	61.1	0
Eligible foam enterprises that will convert with their own resources (6)	55.6	6.1	0
Exports of HCFC-141b in polyols	292.6	32.2	0
Total	**1,656.1**	**182.2**	**4,745,956**

Revised activities in the refrigeration servicing sector

41. The Government of South Africa is of the strong views that action is required now to demonstrate commitment to supporting the servicing industry and maintaining the momentum established during the preparation of the HPMP. The revised proposal includes a combination of policy and control measures with technical and infrastructure support for the service sector, at a total cost of US $1,117,600 as described below:

(a) Emissions reduction programme to implement good practice and reduce leakage rates (US $525,000). It includes the development of a certification scheme, a technician training and certification programme, and awareness activities. The Government will issue an import ban on any equipment charged with HCFC-22 from 1 January 2014;

(b) Establishment of a refrigerant recovery and reclamation pilot (US $392,600). The Government is planning to make mandatory the recovery, recycling and reclamation of refrigerants. Accordingly, the proposal includes the establishment of one reclaiming centre in Johannesburg (three other centres will be required in Durban, Cape Town and Port Elizabeth). Recovery equipment will be provided to technicians that have been certified. The operation of the scheme will be linked closely to the other activities in the servicing sector; and

(c) Promotion of low-GWP refrigerants (US $200,000). This initiative will provide demonstrations of low-GWP refrigerant technology (mainly R-290, CO_2 and ammonia) and raise awareness of refrigeration technicians, contractors and end-users on the HCFC-22 control regulations to enter into force in January 2013 and the planned ban on installation of new HCFC-22 at a later date. By demonstrating the suitability of low-GWP solutions it is aimed to minimize the increase in HFC consumption that the ban could generate and gain commitments from larger users and chains, particularly in the commercial refrigeration sub-sector, to direct their conversions and new installations to these alternatives. Giving manufacturers, assemblers and installers' access to this technology has also the potential to reduce the use and emissions of HCFCs in South Africa.

42. Following discussions approved with UNIDO on this proposal and adjustments, the Secretariat considered that the activities proposed did not deviate from similar assistance to the servicing sector approved in stage I for other countries to curb HCFC-22 demand and maintain infrastructure established through the CFC phase-out plans. Furthermore, the activities have an associated reduction of 248.4 mt (13.7 ODP tonnes) of HCFC-22 and the Government is committing to establish by 1 January 2014 the ban on import of new or used refrigeration and air-conditioning system containing HCFC, which will

have an impact in the future demand for HCFC-22 for servicing. In the particular case of South Africa as no assistance has been received before, this support would help the Government to consolidate partnerships, obtain a higher level of engagement from stakeholders, provide a more systematic approach to start reducing HCFC-22 consumption, and obtain the necessary support for the planned regulations minimizing introduction of high-GWP alternatives and illegal trade.

Non-investment component

43. The original request for US $804,125 for policy support, customs training, awareness raising and monitoring without a specific HCFC reduction, was adjusted according to the agreed strategy to US $250,000 for customs training with an HCFC reduction of 3.1 ODP tonnes, and the monitoring activities for US $420,000.

Total agreed cost for stage I of the HPMP

44. The detailed activities and costs agreed for stage I of the HPMP are provided in Table 9. These activities will result in direct HCFC reductions for 99.5 ODP tonnes at a total cost of US $6,533,556 with an overall cost-effectiveness of US $6.18 per kg.

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

Sector	Project	Substance	HCFC reductions		Cost	Cost-effectiveness		Baseline (%)
			mt	ODP tonnes		US $ /kg	US $ /ODP kg	
PU foam	Conversion Aerothane	HCFC-141b	65.0	7.2	185,900	2.86	26.00	2
	Conversion Defy		288.0	31.7	2,312,948	8.03	73.01	9
	Umbrella project two systems houses, 44 downstream users		399.8	44.0	2,247,108	5.62	51.10	12
	Non-funded conversions		610.7	67.2	0	N/A	N/A	19
	HCFC-141b polyols exports		292.6	32.2	0	N/A	N/A	9
Servicing	Emissions reduction programme	HCFC-22	248.4	13.7	525,000	4.50	81.82	4
	Recovery and reclaiming pilot				392,600	4.50	81.82	
	Promotion of low-GWP refrigerants				200,000	4.50	81.82	
All	Custom training	All	55.6	3.1	250,000	4.50	81.82	1
Monitoring Unit					420,000			
Subtotal funded activities stage I			**1,056.7**	**99.5**	**6,533,556**	**6.18**	**65.65**	**26.9**
Subtotal non-funded activities stage I			**903.3**	**99.4**	**0**	**0**	**0**	**26.9**
Grand total stage I			**1,960.0**	**198.9**	**6,533,556**	**3.33**	**32.85**	**53.8**

45. The phase-out of 99.5 ODP tonnes associated with the foam enterprises eligible for funding and the activities in the servicing sector represents 26.9 per cent of the HCFC baseline (which is in line with decision 66/5(a)(iii)). The phase-out of 67.2 ODP tonnes of HCFC-141b used by non-eligible enterprises and the ban on exports of 32.2 ODP tonnes of HCFC-141b in pre-blended polyols, represent an additional 26.9 per cent of the baseline. Therefore, implementation of stage I of the HPMP will result in a reduction of 53.8 per cent of the HCFC baseline. By undertaking the agreed revised strategy, the Government of South Africa commits to reducing 26.9 per cent of the baseline by 2018, on the understanding that it could submit stage II of the HPMP not earlier than 2015.

2012-2014 business plan of the Multilateral Fund

46. UNIDO is requesting US $6,533,556 plus support costs for implementation of stage I of the HPMP. The total value requested for the period 2012-2014 of US $4,894,313 including support cost is substantially higher than the total amount in the business plan of US $2,166,374. UNIDO explained that the original allocation for South Africa was US $3 million, for a reduction of 10 per cent of the baseline However, the HPMP agreed by the Government of South Africa, the stakeholders and UNIDO is addressing almost a 30 per cent reduction of the baseline. UNIDO also indicated that the funding request for 2012 (first tranche) does not exceed the business plan allocation for the present year.

47. The Secretariat pointed out to UNIDO the large difference between the business plan allocation and the actual submission, and the impact that this fact could have in any decision to be made by the Executive Committee. The Secretariat acknowledges the challenge posed by this proposal but considers that it should be discussed in light of its cost-effectiveness, low-GWP alternatives selected, funded and unfunded impact, large HCFC reduction commitment, and the high level of engagement shown by South Africa in phasing-out other ODS without external financial assistance.

Impact on the climate

48. The implementation of the conversion of HCFC-141b to methyl formate and cyclopentane in the PU foam sector would avoid the emission into the atmosphere of some 969,535 tonnes of CO_2-equivalent as shown in Table 10.

Table 10. Climate impact of the projects in the foam sector in stage I of the HPMP

Conversion of enterprises funded by the Multilateral Fund			
Substance	**GWP**	**Tonnes/year**	**CO_2-eq (tonnes/year)**
Before conversion			
HCFC-141b	725	752.8	545,780
After conversion			
Cyclopentane	20	218.9	4,378
Methyl formate	20	339.8	6,796
Net impact			**534,606**
Conversion of enterprises not funded by the Multialteral Fund			
Before conversion	**GWP**	**Tonnes/year**	**CO_2-eq (tonnes/year)**
HCFC-141b	725	610.7	442,757
After conversion			
Cyclopentane	20	344.2	6,883
Methyl formate	20	47.3	945
Net impact			**434,929**
Grand Total			**969,535**

49. The proposed technical assistance activities in the servicing sector, which include the introduction of 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 South Africa, 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

50. 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 the investment by the systems houses over and above the recommended funding by the Multilateral Fund represents approximately US $1 million in co-financing. The contribution being made by the non-eligible enterprises and systems houses that will phase out HCFC-141b at their own cost is a second large source of co-financing. In addition, UNIDO indicated that the Department of Trade and Industry recently launched a Manufacturing Enhanced Competitiveness Programme, intended to improve the competitiveness of manufacturing enterprises by investment in greener technology, providing matching grant funding and support for feasibility studies. Enterprises wishing to replace HCFCs in their processes would be eligible for this incentive subject to compliance with the criteria of the programme. The Industrial Development Corporation (IDC) also provides concessionary financing for larger investments in greener technology and it is intended to explore how the IDC could supplement the funding available from the Multilateral Fund. Once the funds have been made available, appropriate institutional arrangements will be put in place to facilitate access to funding for the phase-out of HCFCs.

Draft Agreement

51. A draft Agreement between the Government of South Africa and the Executive Committee for HCFC phase-out is contained in Annex I of the present document.

RECOMMENDATION

52. In light of the information provided above and the Secretariat's comments in paragraphs 45, the Executive Committee may wish to consider:

(a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for South Africa for the period 2012 to 2018 to reduce HCFC consumption by 26.9 per cent of the baseline, at the amount of US $6,533,556 plus agency support costs of US $490,017 for UNIDO;

(b) Noting that the Government of South Africa had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 369.7 ODP tonnes, calculated using actual consumption of 339.2 ODP tonnes and 400.1 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol;

(c) Noting the commitment of the Government of South Africa to ban imports of HCFC-141b, both pure and contained in pre-blended polyols, no later than 1 January 2016 and to ban imports of new or used refrigeration and air-conditioning system containing HCFC by 1 January 2014;

(d) Deducting 176.77 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;

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

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

(g) Requesting the Fund Secretariat, in the event that the baseline consumption for compliance for South Africa was amended based on revised Article 7 data, to update Appendix 1-A and Appendix 2-A to the Agreement to include the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting change in the levels of maximum allowable consumption; and

(h) Approving the first tranche of stage I of the HPMP for South Africa, and the corresponding implementation plan, at the amount of US $1,960,229 plus agency support costs of US $147,017.

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA 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 Republic of South Africa (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 270.20 ODP tonnes by 1 January 2018 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, 4.3.3, 4.4.3 and 4.5.3 (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;

(d) That the Country has submitted an annual implementation plan in the form of Appendix 4-A covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen; and

(e) That, for all submissions from the 68th meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the Country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this Agreement.

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

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

(a) Reallocations categorized as major changes must be documented in advance either in an annual implementation plan submitted as foreseen in sub-paragraph 5(d) above, or as a revision to an existing annual implementation plan to be submitted eight weeks prior to any meeting of the Executive Committee, for its approval. Major changes would relate to:

(i) Issues potentially concerning the rules and policies of the Multilateral Fund;

(ii) Changes which would modify any clause of this Agreement;

(iii) Changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches; and

(iv) Provision of funding for programmes or activities not included in the current endorsed annual implementation plan, or removal of an activity in the annual implementation plan, with a cost greater than 30 per cent of the total cost of the last approved tranche;

(b) Reallocations not categorized as major changes may be incorporated in the approved annual implementation plan, under implementation at the time, and reported to the Executive Committee in the subsequent annual implementation report;

(c) Should the Country decide during implementation of the agreement to introduce an alternative technology other than that proposed in the approved HPMP, this would require approval by the Executive Committee as part of an Annual Implementation Plan or the revision of the approved plan. Any submission of such a request for change in technology would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable. The Country agrees that potential savings in incremental costs related to the change of technology would decrease the overall funding level under this Agreement accordingly;

(d) Any enterprise to be converted to non-HCFC technology included in the approved HPMP and that would be found to be ineligible under the guidelines of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), will not receive assistance. This information would be reported to the Executive Committee as part of the Annual Implementation Plan;

(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") 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). The Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in row 2.2 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, and the Lead IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to the information necessary to verify compliance with this Agreement.

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	210.9
HCFC-123	C	I	0.3
HCFC-124	C	I	-0.7
HCFC-141b	C	I	160.0
HCFC-142b	C	I	-0.8
Total			**369.7**

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2012	2013	2014	2015	2016	2017	2018	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	369.70	369.70	332.73	332.73	332.73	332.73	
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	369.70	369.70	332.73	332.73	332.73	270.20	
2.1	Lead IA UNIDO agreed funding (US $)	1,960,229	2,592,620	0	1,302,335	499,612	0	178,760	6,533,556
2.2	Support costs for Lead IA (US $)	147,017	194,447	0	97,675	37,471	0	13,407	490,017
3.1	Total agreed funding (US $)	1,960,229	2,592,620	0	1,302,335	499,612	0	178,760	6,533,556
3.2	Total support costs (US $)	147,017	194,447	0	97,675	37,471	0	13,407	490,017
3.3	Total agreed costs (US $)	2,107,246	2,787,067	0	1,400,010	537,083	0	192,167	7,023,573
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)								16.72
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)`								0
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)								194.18
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)								160.00
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)								0
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)								0
4.3.1	Total phase-out of HCFC-123 agreed to be achieved under this agreement (ODP tonnes)								0
4.3.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)								
4.3.3	Remaining eligible consumption for HCFC 123 (ODP tonnes)								0.26
4.4.1	Total phase-out of HCFC-124 agreed to be achieved under this agreement (ODP tonnes)								0
4.4.2	Phase-out of HCFC-124 to be achieved in previously approved projects (ODP tonnes)								0
4.4.3	Remaining eligible consumption for HCFC 124 (ODP tonnes)								-0.68
4.5.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)								0
4.5.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)								0
4.5.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)								-0.84

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

APPENDIX 4-A: FORMAT OF 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 monitoring process will be managed by the Department of Environmental Affairs (DEA) through the Ozone Protection Section with the assistance of the Lead IA.

2. The consumption will be monitored and determined based on official import and export data for the substances recorded by relevant Government departments.

3. The DEA shall compile and report the following data and information on an annual basis on or before the relevant due dates: (a) annual reports on consumption of the substances to be submitted to the Ozone Secretariat; and (b) annual reports on progress of implementation of HPMP to be submitted to the Executive Committee of the Multilateral Fund;

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

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

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

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

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

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities, including at least the following:

(a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's HPMP;

(b) Assisting the Country in preparation of the 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;

(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) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country, the allocation of the reductions to the different budget;

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

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

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

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

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US $131.3 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.
