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

PROJECT PROPOSAL: ZIMBABWE

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) Germany

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Zimbabwe

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

(II) LATEST ARTICLE 7 DATA	Year: 2010	18.5 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2010
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-141b					1.1				1.1
HCFC-22					17.4				17.4
HCFC-141b polyols		8.3							8.3

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline (estimate):	15.44	Starting point for sustained aggregate reductions:	21.55
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.00	Remaining:	10.04

(V) BUSINESS PLAN		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Germany	ODS phase-out (ODP tonnes)	1.9	4.0	2.2		2.1				0.3		10.5
	Funding (US $)	180,000	600,000	200,000	0	190,000	0	0	0	26,000	0	1,196,000

(VI) PROJECT DATA			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Montreal Protocol consumption limits			n/a	n/a	15.44	15.44	13.90	13.90	13.90	13.90	13.90	10.04	n/a
Maximum allowable consumption (ODP tonnes)			n/a	n/a	15.44	15.44	13.90	13.90	13.90	13.90	13.90	10.04	n/a
Project Costs requested in principle(US$)	Germany	Project costs	7,474	419,417	275,927	0	112,000	0	168,000	0	0	56,000	1,038,818
		Support costs	972	50,057	33,008	0	13,398	0	20,097	0	0	6,699	124,231
Total project costs requested in principle (US $)			7,474	419,417	275,927	0	112,000	0	168,000	0	0	56,000	1,038,818
Total support costs requested in principle (US $)			972	50,057	33.008	0	13,398	0	20,097	0	0	6,699	124,270
Total funds requested in principle (US $)			8,446	469,474	308,935	0	125,398	0	188,097	0	0	62,699	1,163,049

(VII) Request for funding for the first tranche (2011)*		
Agency	**Funds requested (US $)**	**Support costs (US $)**
Germany	426,891	51,029

* 7,474 plus agency support cost of 972 to be allocated at the 65th meeting, and the remaining funding at the 66th meeting.

Funding request:	Approval of funding for the first tranche (2011) as indicated above
Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Zimbabwe the Government of Germany, as the designated implementing agency, has submitted to the 65th meeting of the Executive Committee stage I of the HCFC phase-out management plan (HPMP) at a total cost of US $1,193,094 plus agency support costs of US $155,102, as originally submitted, to implement activities that will enable the country to comply with the Montreal Protocol's 35 per cent reduction in HCFC consumption by 2020. The first tranche for stage I being requested at this meeting amounts to US $634,816 plus agency support costs of US $82,526 for the Government of Germany.

Background

2. Zimbabwe, with a total population of approximately 14 million inhabitants, is in the process of ratifying the Montreal and Beijing amendments to the Montreal Protocol. Parliament has already approved the ratifications of the amendments and is currently awaiting endorsement by the President.

ODS policy and regulatory framework

3. The Government of Zimbabwe introduced control measures for imports, exports, use, distribution and destruction of ODS and ODS-based equipment in 2004. The regulations make it mandatory for all importers, exporters, users and distributors of ODS and ODS-based equipment, including HCFCs, to be licensed with the National Ozone Unit (NOU) and subject to quota and reporting requirements. The regulations were reviewed in 2010 to incorporate phased-out substances such as CFCs, halons and CTC, and to improve control measures for HCFCs.

HCFC consumption and sector distribution

4. The main HCFC imported into the country is HCFC-22. The particular economic and social challenges experienced in 2008 resulted in a sharp decrease in the consumption of HCFC-22. Since then, consumption has increased, reaching a level similar to that in 2007. Small amounts of HCFC-141b 9.47 metric tonnes (mt) (1.04 ODP tonnes) were also imported and used for flushing refrigeration systems in 2010. The total amount of HCFCs reported under Article 7 is shown in Table 1.

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

HCFC	2006	2007	2008	2009	2010*	Baseline
Metric tonnes						
HCFC-22	172.73	298.31	157.80	225.00	316.40	270.70
HCFC-141b	0.60		0.20		10.00	5.00
Total (mt)	173.33	298.31	158.00	225.00	326.40	275.70
ODP tonnes						
HCFC-22	9.50	16.41	8.68	12.38	17.40	14.89
HCFC-141b	0.07	-	0.02	-	1.10	0.55
Total (ODP tonnes)	9.57	16.41	8.70	12.38	18.50	15.44

* According to the latest revised Article 7 data submitted to the Ozone Secretariat.

5. Pre-blended polyols containing HCFC-141b are also imported into the country for the manufacturing of foam products as shown in Table 2.

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

HCFC-141b in imported polyol	2007	2008	2009	2010
Metric tonnes	53.78	46.44	66.28	75.50
ODP tonnes	5.92	5.11	7.29	8.31

6. Based on the consumption of HCFCs, including HCFC-141b contained in imported polyols, the HCFC baseline in the HPMP has been estimated in 25.00 ODP tonnes. The 2011-2020 forecast of HCFC consumption is shown in Table 3.

Table 3. 2011-2020 forecast of HCFC consumption in Zimbabwe

Years	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Metric tonnes										
Unconstrained	405.40	443.50	485.20	531.10	581.20	636.20	696.40	762.40	834.80	914.20
Constrained	405.40	443.50	313.19	313.19	281.87	281.87	281.87	281.87	281.87	203.57
ODP tonnes										
Unconstrained	26.71	29.10	31.70	34.60	37.80	41.50	44.90	49.00	53.50	58.40
Constrained	26.71	29.10	19.56	19.56	17.60	17.60	17.60	17.60	17.60	12.71

Foam manufacturing sector

7. There are five enterprises manufacturing rigid insulation foam for domestic and commercial refrigeration equipment and sandwich panels used in cold rooms. The foams are manufactured using imported pre-blended systems containing 75.50 mt (8.31 ODP tonnes) of HCFC-141b in 2010. Small amounts of HCFC-22 are used by some enterprises for servicing refrigeration equipment. The HCFC consumption used by these enterprises is shown in Table 4.

Table 4. HCFC consumption by manufacturing enterprises in Zimbabwe (2010)

Enterprise	HCFC-141b (mt)		HCFC-141b (ODP t)		HCFC-22		Equipment manufactured
	2007-2009	2010	2007-2009	2010	mt	ODP t	
Capri Refrigeration	24.11	32.80	2.65	3.61	-	-	Freezers, chillers, fridges, ice machines
Ref Air	22.27	30.30	2.45	3.33	0.10	0.01	Freezers, chillers, display units
Commercial Refrigeration	7.28	9.90	0.80	1.09	1.36	0.07	Chillers, cold rooms, freezers, domestic refrigerators
Delfy Enterprises	1.10	1.50	0.12	0.17	0.22	0.01	Freezers, chillers, display units
Freezing Modern Way	0.74	1.00	0.08	0.11	0.03	-	Freezers, chillers, display units
Total	55.50	75.50	6.11	8.31	1.71	0.09	

8. At its 20th meeting (October 1996), the Executive Committee approved US $678,679 for the World Bank to implement the conversion of five domestic and commercial refrigeration manufacturing enterprises from CFC-12 to HFC-134a refrigerant, and from CFC-11 to HCFC-141b as blowing agent for foam insulation as shown in Table 5.

Table 5. Manufacturing enterprises previously funded to phase out CFCs in Zimbabwe

Enterprise	CFC-11 (ODP t)	CFC-12 (ODP t)	Funding (US$)
Ref-air Refrigeration	3.80	1.50	43,382
Commercial Refrigeration	1.00	5.90	156,636
Capri Refrigeration	4.30	1.60	106,695
Imperial Derby Refrigeration Ltd.	10.50	3.50	310,000
Ajax Refrigeration	1.10	2.40	61,966
Total	20.70	14.90	678,679

Refrigeration servicing sector

9. HCFC-22 is mainly used for servicing air-conditioning units and to a lesser extent commercial refrigeration equipment that was not converted to HFC-134a refrigerant during the implementation of the terminal phase-out management plan (TPMP), as shown in Table 6. The air-conditioning sector represents over 80 per cent of total HCFC consumption in the country. Imports of HCFC-based air-conditioning units are increasing, particularly in areas with high ambient temperatures throughout the year. The country is experiencing frequent power outages as a result of inadequate power supplies in the Southern African region, resulting in breakdowns of refrigeration and air-conditioning equipment, so leading to high refrigerant leakages and an increase in the demand for HCFC-141b for flushing refrigeration circuits (i.e., 1.04 ODP tonnes used in 2010), which was previously carried out with CFC-11.

Table 6. HCFC-22 based refrigeration equipment in operation in Zimbabwe

Equipment	Total units	Installed capacity		Servicing consumption	
		mt	ODP tonnes	mt	ODP tonnes
Air-conditioning (window and split units)	157,000	323.60	17.80	234.50	12.90
Commercial (cold rooms, freezers, mortuaries)	7,500	37.70	2.07	25.70	1.41
Industrial	445	41.50	2.28	35.40	1.95
Total	164,945	402.80	22.15	295.60	16.26

10. Approximately 1,000 technicians were trained under the TPMP; however, given the continuous emigration of the population over the years due to the economic crisis, it is not possible to estimate the number of trained technicians who are still in the country. The estimated number of formal and unskilled technicians is between 1,200 and 1,300, working in some 500 service workshops. Apart from these workshop technicians, there are several semi-skilled technicians working in the informal sector undertaking repairs of all kinds of refrigeration and air-conditioning equipment. Servicing of the refrigeration equipment that is installed in large enterprises (i.e., food processing industry, hotels, mining companies, banks, communication companies and supermarkets) and hospitals is done by their own refrigeration technicians.

HCFC phase-out strategy

11. The overarching strategy proposed by the Government of Zimbabwe is aimed at achieving the protection of the ozone layer and climate benefits through an integrated phase-out of HCFCs in the foam sector coupled with activities in the refrigeration and air conditioning servicing sector by promoting and adopting energy efficient alternative technology. Stage I of the HPMP, covering the 2011-2020 period to meet the 35 per cent reduction on HCFC consumption, will focus on the conversion of foam manufacturers to non-HCFC alternative blowing agents and the establishment of safe hydrocarbon and natural refrigerant practices to enable their acceptance and widespread use. Stage II of the HPMP, covering the 2020-2030 period, will continue implementing the activities related to the refrigeration servicing sector and sustaining the HCFC phase-out achieved.

Conversion of the foam manufacturing enterprises

12. A brief description of the five enterprises manufacturing rigid foam for insulation of refrigeration equipment (all of them using imported HCFC-141b polyols) is presented below:

(a) Capri Refrigeration is a large manufacturer of small-sized commercial and domestic refrigerators (30,000 units/year). The enterprise is equipped with two low-pressure foam dispensers with several non-heated moveable moulds. It also has metal bending and

cutting equipment, three vacuum forming machines for producing in-liner, conveyors, and refrigerant charging equipment for HFC-134a refrigerant. The enterprise is planning to convert to isobutane;

(b) Ref Air, the only enterprise located in Bulawayo, outside Harare, manufactures commercial refrigeration equipment and insulation panels for cold rooms. The enterprise has a low-pressure spray foam dispenser which was modified to accommodate higher output by changing the piston cylinders and enlarging the mixing head. It also has two 6-meter presses with non-heated plates which are manually operated;

(c) Commercial Refrigeration manufactures commercial and domestic refrigerators (10,000 units/year although the annual production capacity is 100,000 units). This enterprise has incorporated two other refrigeration manufacturing enterprises, Imperial Derby Refrigeration Ltd., and Ajax Refrigeration. The enterprise is equipped with a low-pressure foam dispenser with eight heated fixtures and three presses for doors. It also has metal bending and cutting equipment, one vacuum forming machine for producing in-liner, conveyors, and refrigerant charging equipment for HFC-134a refrigerant.

(d) Delfy Enterprises and Freezing Modern Way are two enterprises manufacturing display cabinets (with very low levels of production), with no equipment in the baseline. Foam is produced by hand mixing all components and hand pouring the foam inside the interspaces of the commercial refrigerators.

13. Capri Refrigeration, Ref Air and Commercial Refrigeration will replace HCFC-141b with cyclopentane. Conversion includes the installation of high-pressure dispensers, with a premixing unit and buffer tanks at Capri Refrigeration and Ref Air and the retrofit of the existing foam machine at Commercial Refrigeration. Safety-related equipment, including ventilation and exhaust system, gas sensors and monitoring system, fire protection system, lighting protection and grounding and safety audit, as well as technology transfer, trials and training will be provided to the three enterprises. Technical assistance and training in good practices is proposed for eliminating the use of HCFC-141b at Freezing Modern Way and Delfy Enterprises.

14. The total cost of the conversion of the foam sector is US $633,095 with an overall cost-effectiveness of US $8.39/kg as shown in Table 7.

Table 7. Cost for the conversion of the manufacturing enterprises in Zimbabwe

Enterprise	HCFC-141b (2010)		Funding (US $)				CE
	mt	ODP t	Capital	Operating	Cofinancing	Total	(US$/kg)
Capri Refrigeration	32.80	3.61	329,450	(42,148)	(25,000)	262,302	8.00
Ref-air Refrigeration	30.30	3.33	263,450	(38,935)	(5,000)	219,515	7.24
Commercial Refrigeration	9.90	1.09	121,000	(12,722)	(25,000)	83,278	8.41
Delfy Enterprises	1.50	0.17	34,000			34,000	(*)
Freezing Modern Way	1.00	0.11	34,000			34,000	(*)
Total	75.50	8.31	781,900	(93,805)	(55,000)	633,095	8.39

(*) Technical assistance and training.

Activities and costs in the refrigeration servicing sector

15. During stage I, the following activities in the refrigeration servicing sector at a total cost of US $560,000 are proposed:

(a) Training of customs officers to control imports of HCFCs and HCFC-based equipment, workshop for stakeholders on HCFC control, enforcing import quotas using the ODS country handbook, and procurement of ODS identification toolkits (US $105,000);

(b) Training of refrigeration servicing technicians in good practices, including recovering and recycling of HCFC-22, safe use of hydrocarbon and natural refrigerants, and purchase of training equipment (US $135,000);

(c) Provision of service tools and basic equipment for technicians, and a few retrofits of HCFC-22-based equipment to alternative refrigerants (such as hydrocarbons and other natural refrigerants) for demonstration purposes. In selecting the alternative technology, the Government of Zimbabwe will consider impacts on the ozone layer and on the climate, as well as other impacts associated with the life cycle of the alternative refrigerants (US $220,000); and

(d) Establishment of the project monitoring and coordination unit (US $100,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

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

HCFC baseline and starting point for aggregate reduction in HCFC consumption

17. The HCFC consumption baseline in the HPMP had been estimated at 25.00 ODP tonnes, calculated as the 2009 and 2010 average amounts of HCFC-22 and HCFC-141b imported pure plus the amounts of HCFC-141b contained in imported polyols. However, based on the consumption data of 12.38 ODP tonnes and 18.50 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol the HCFC baseline for compliance has been established at 15.44 ODP tonnes.

18. Based on decisions 60/44(d) (starting point for aggregate reduction in HCFC consumption) and 61/47(c)(ii) (consumption arising from HCFC-141b in imported polyols), the starting point for Zimbabwe is 21.55 ODP tonnes, calculated as the HCFC baseline for compliance established under Article 7 of 15.44 ODP tonnes plus the 2007-2009 average amount of HCFC-141b contained in imported preblended polyols of 6.11 ODP tonnes.

Issues related to the foam sector

19. The five enterprises producing insulation foam are the only HCFC-based manufacturing enterprises in Zimbabwe. Three of them are second-stage conversions as shown in Table 5 above. The Secretariat notes that of the total funding of US $306,713 approved for these enterprises at the 20th meeting (October 1996), only US $34,064 was related to phasing out of CFC-11. Specifically,

(a) US $5,000 was used for adjustments to the foam dispenser at Capri Refrigeration;

(b) US $8,318 was used for modifications to the foam dispenser, and US $15,416 was approved as incremental operating costs for Commercial Refrigeration; and

(c) US $5,330 was approved as incremental operating costs for Ref Air.

20. Besides the relatively low level of HCFC-141b consumption used for flushing refrigeration circuits (10.00 mt in 2010) which will be phased out during stage I of the HPMP, the remaining consumption of 14.89 ODP tonnes is related to HCFC-22 used solely for servicing refrigeration equipment.

21. With regard to the technical feasibility and economic viability of introducing a flammable blowing agent into each enterprise, the Government of Germany indicated that the technology option for insulation foam for domestic refrigerators and sandwich panels clearly favours cyclopentane. The three enterprises to be converted can accommodate this technology inside their facilities. There are no local or regional regulations prohibiting the use of a flammable substance, and the surrounding countries (South Africa, Swaziland) already use this technology, making it readily available. On this basis, cyclopentane is a viable technology.

22. Several cost-related issues were also discussed and satisfactorily addressed with the Government of Germany. The funding for replacing the low-pressure foam dispensers and premixing units at Capri Refrigeration and Ref-air Refrigeration was adjusted taking into account technology upgrade and capacity increase (a reduction of US $40,000). Costs for some of the equipment items related to plant safety were adjusted to the costs of similar items in other approved projects (a reduction of US $37,500). Given that the three enterprises will be converted at the same time and to the same alternative technology, costs for safety audit, technology transfer, training, trials and commissioning were rationalized. In addition, the total funding for technical assistance and training for Delfy Enterprises and Freezing Modern Way, was agreed at US $15,000. Incremental operating costs were recalculated based on a consumption of 55.50 mt (6.11 ODP tonnes) representing the average amount of HCFC-141b contained in imported polyols during the 2007-2009 period.

23. The total agreed cost of the foam component is US $478,818 (Table 8). The cost-effectiveness of the project is US $8.63/kg based on the 2007-2009 average consumption of HCFC-141b (or US $6.34/kg based on the consumption of 75.50 mt of HCFC-141b in 2010).

Table 8. Agreed cost for the conversion of the manufacturing enterprises in Zimbabwe

Enterprises	HCFC-141b (mt)(*)	Funding (US $)		
		Capital	Operating	Total
Capri Refrigeration	23.80	227,700	(32,424)	195,276
Ref-air Refrigeration	22.00	200,200	(26,685)	173,515
Commercial Refrigeration	7.20	79,750	(9,723)	70,027
Delfy Enterprises (**)	1.50	7,500		7,500
Freezing Modern Way (**)	1.00	7,500		7,500
Technology transfer/training				40,000
Trials and commissioning				40,000
Counterpart funding				(55,000)
Total	55.50	522,650	(68,832)	478,818

(*) Average amount of HCFC-141b contained in imported polyols over the 2007-2009 period.
(**) Technical assistance and training.

Issues related to the refrigeration servicing sector

24. The Secretariat sought an explanation regarding the estimated level of HCFC consumption used in the servicing sector. The Government of Germany indicated that frequent power outages led to increased servicing of refrigeration equipment, resulting in an annual HCFC leakage rate of over 73 per cent. In many cases, the same equipment is repaired and charged with refrigerant two or even three times

over a one-year period. Additionally, the poor practices applied during repairs contribute to higher amounts of HCFC-22 used. This information was confirmed in the field.

25. Noting that 9.45 mt (1.04 ODP tonnes) of HCFC-141b is used for flushing refrigeration systems, and given the high emissivity rate of this application, it was suggested that this consumption be addressed prior to 2015. On this issue, the Government of Germany indicated that the phase-out of HCFC-141b as a flushing agent is a priority. This phase-out will be achieved through training of technicians (to replace it with nitrogen) and awareness-raising activities by the refrigeration associations. Although it was too soon to ascertain whether HCFC-141b would be completely phased out by 2015, efforts would be made to reduce the practice of flushing with HCFC-141b as early as possible.

26. The issues raised with regard to the activities proposed in the refrigeration servicing sector were satisfactorily addressed. In regard to the justification for the conversion of refrigeration equipment to alternative refrigerants given the excessive leakage rate of HCFC-22, the limited availability of alternative refrigerants and their much higher cost compared to HCFC-22, the Government of Germany indicated the urgent need to adequately train technicians in the use of alternative refrigerants. The second or third tranches of stage I of the HPMP propose activities to convince the owners of HCFC-based equipment to convert to alternative refrigerants. The aim is to make such conversions a demonstration for the industry, and to enhance the skills and confidence of the country's technicians. The slowly recovering economy provides a good opportunity for the NOU to work with the owners of major refrigeration equipment in hotels, supermarkets, and buildings to encourage their move toward using alternative refrigerants. The equipment owners will be required to cover part of the conversion costs, as was successfully done during the implementation of the TPMP.

Overall agreed cost of stage I of the HPMP

27. The overall cost of stage I of the HPMP for Zimbabwe as agreed between the Government of Germany and the Secretariat is US $1,038,818 with the breakdown as shown in Table 9.

Table 9. Agreed overall cost of stage I of the HPMP of Zimbabwe

Sector	HCFC-141b		HCFC-22		Total HCFC		Cost(US $)
	(mt)	(ODP t)	(mt)	(ODP t)	(mt)	(ODP t)	
Foam manufacturing	55.50	6.11			55.50	6.11	478,818
Refrigeration servicing*	4.73	0.52	88.54	4.87	93.27	5.40	560,000
Total	60.23	6.63	88.54	4.87	148.77	11.51	1,038,818

(*) Including the project monitoring and coordination unit.

28. The Government of Zimbabwe has agreed to ban imports of HCFC-141b both pure and/or contained in imported pre-blended polyols by no later than 1 January 2015 once the foam enterprises are converted to a non-HCFC alternative technology and the service practice of using HCFC-141b for flushing refrigeration circuits has ceased.

Impact on the climate

29. A calculation of the impact on the climate of HCFC consumption through the conversion of the foam enterprises in Zimbabwe based only on the GWP values of the blowing agents and their level of consumption before and after conversion is as follows: 55.50 mt of HCFC-141b (i.e., the average consumption of HCFC-141b in polyols imported between 2007 and 2009) will be phased out, 27.75 tonnes of cyclopentane will be phased in, and 39,683 tonnes of CO_2 that would have been emitted into the atmosphere will be avoided (Table 10).

Table 10. Calculation of the impact on the climate

Substance	GWP	Tonnes/year	CO_2-eq (tonnes/year)
Before conversion			
HCFC-141b	725	55.50	40,238
After conversion			
Cyclopentane	20	27.75	555
Net impact			(39,683)

30. The proposed technical assistance activities in the HPMP, which include the introduction of better servicing practices and enforcement of HCFC import controls, will reduce the amounts of HCFC-22 and HCFC-141b used for refrigeration servicing. Each kilogram (kg) of HCFC-22 not emitted due to better refrigeration practices results in approximately 1.8 CO_2-equivalent tonnes saved, while the phase-out of 4.73 mt of HCFC-141b from emissive uses in the refrigeration servicing sector results in over 3,429 CO_2-equivalent tonnes saved. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Zimbabwe in the foam and refrigeration servicing sectors indicate that the country will achieve a much higher reduction of CO_2-equivalent tonnes emitted into the atmosphere than the 21,209 CO_2-equivalent tonnes estimated in the 2011-2014 business plan. However, at this time, the Secretariat is not in a position to quantitatively estimate the impact on the climate. The impact might be established through an assessment of implementation reports by, *inter alia*, comparing the levels of refrigerants used annually from the beginning of HPMP implementation, the reported amounts of refrigerants being recovered and recycled, the number of technicians trained and the HCFC-22 based equipment being retrofitted.

Co-financing

31. 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 19th meeting of the Parties, Germany indicated that the Government of Zimbabwe will support some of the activities included in stage I of the HPMP, mostly through in-kind assistance. It is expected that if the economic situation improves, the Government will provide financial assistance for a number of awareness-raising and training activities. Furthermore, the private sector is expected to provide approximately US $55,000 in co-financing for the conversion of the foam enterprises to non-HCFC technologies.

2011-2014 business plan of the Multilateral Fund

32. The Government of Germany is requesting US $1,038,818 plus support costs for the implementation of stage I of the HPMP. The total value requested for the period 2011-2014 of US $786,894 including support costs is below the total amount in the business plan of US $980,000 requested by the Government of Germany. Furthermore, based on the HCFC baseline consumption in the servicing sector of 234 mt, Zimbabwe's' allocation up to the 2020 phase-out should be US $560,000 in line with decision 60/44.

Draft Agreement

33. A draft Agreement between the Government of Zimbabwe and the Executive Committee for HCFC phase-out is contained in Annex I of the present document. A clause related to the introduction of an alternative technology other than that proposed in the HPMP during implementation of the project for the conversion of the foam enterprises has been included under paragraph 7 of the draft Agreement.

RECOMMENDATION

34. The Executive Committee may wish to consider:

(a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Zimbabwe for the period 2011 to 2020 to meet the 35 per cent reduction in HCFC consumption, at the amount of US $1,038,818 plus agency support costs of US $124,270 for the Government of Germany, on the understanding that:

(i) US $560,000 were provided to address HCFC consumption in the refrigeration servicing sector to reach up to and include the 35 per cent reduction in 2020 in line with decision 60/44; and

(ii) US $478,818 were provided for the investment component for the phase-out of 6.11 ODP tonnes of HCFCs used in the foam manufacturing sector;

(b) Noting that the Government of Zimbabwe had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption an estimated baseline of 15.44 ODP tonnes, calculated using actual consumption of 12.38 ODP tonnes and 18.50 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol plus 6.11 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 21.55 ODP tonnes;

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

(d) Noting the deduction of 11.51 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;

(e) Requesting the Fund Secretariat, once the baseline data were known, to update Appendix 2-A to the Agreement to include the figures for maximum allowable consumption, and to notify the Executive Committee of the resulting change in the levels of maximum allowable consumption and of any potential related impact on the eligible funding level, with any adjustments needed being made when the next tranche was submitted; and

(f) Approving the first tranche of stage I of the HPMP for Zimbabwe, and the corresponding implementation plan, at the amount of US $426,891 plus agency support costs of US $51,029 for the Government of Germany, noting that US $7,474 plus agency support costs of US $972 will be allocated at the 65th meeting and that the Government of Germany will submit a request for the remaining balance of US $419,417 plus agency support costs of US $50,057 to the 66th meeting.

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Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF ZIMBABWE 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 Zimbabwe (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 10.04 ODP tonnes prior by 1 January 2020 in compliance with Montreal Protocol schedules, with the understanding that this figure is to be revised one single time, once the baseline consumption for compliance has been established based on Article 7 data, with the funding to be adjusted accordingly, as per decision 60/44.

2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A ("The Targets, and Funding") in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances that exceeds the level defined in row 1.2 of Appendix 2-A as the final reduction step under this Agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances that exceeds the level defined in rows 4.1.3, 4.2.3 and 4.3.3.

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 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. Germany 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 3.2 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, 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	14.89
HCFC-141b	C	I	0.55
HCFC-141b in imported polyol			6.11
Total			21.55

APPENDIX 2-A: THE TARGETS, AND FUNDING

		2011	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	n/a	15.44	15.44	13.90	13.90	13.90	13.90	13.90	10.04	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	n/a	15.44	15.44	13.90	13.90	13.90	13.90	13.90	10.04	n/a
2.1	Lead IA (Germany) agreed funding (US$)	7,474	419,417	275,927		112,000		168,000			56,000	1,038,818
2.2	Support costs for Lead IA (US$)	972	50,057	33,008		13,398		20,097			6,699	124,231
3.1	Total agreed funding (US$)	7,474	419,417	275,927		112,000		168,000			56,000	1,038,818
3.2	Total support cost	972	50,057	33,008		13,398		20,097			6,699	124,231
3.3	Total Agreed cost	8,446	469,474	308,935		125,398		188,097			62,699	1,163,049
4.1.1	Total phase out HCFC-22 agreed to be achieved under this agreement											4.85
4.1.2	Phase-out of HFCF-22 to be achieved in previously approved projects (ODP tonnes)											0.00
4.1.3	Remaining eligible consumption for HFCF-22 (ODP tonnes)											10.04
4.2.1	Total phase-out of HFCF-141b agreed to be achieved under this agreement (ODP tonnes)											0.55
4.2.2	Phase-out of HFCF-141b to be achieved in previously approved projects (ODP tonnes)											0.00
4.2.3	Remaining eligible consumption for HFCF-141b (ODP tonnes)											0.00
4.4.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)											6.11
4.4.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)											0.00
4.4.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)											0.00

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(e).

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. All the monitoring activities will be coordinated and managed by the Project Management Unit through the National Ozone Unit (NOU) which is included within this HPMP. The NOU will submit annual progress reports of status of implementation of the HPMP to the Lead IA.

2. Verification of the achievement of the performance targets, specified in the Plan, will be undertaken, upon specific request of the Executive Committee, by an independent local consultant contracted by the Lead IA.

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 items and to the funding of each implementing or bilateral agency involved;

   (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 $180 per ODP kg of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met.

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