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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Sixty-sixth Meeting  
Montreal, 16-20 April 2012

**PROJECT PROPOSAL: BOSNIA AND HERZEGOVINA**

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

**PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS**  
**Bosnia and Herzegovina**

<b>(I) PROJECT TITLE</b>	<b>AGENCY</b>
HCFC phase out plan (Stage I)	UNIDO (lead)

<b>(II) LATEST ARTICLE 7 DATA (Annex C Group I)</b>	Year: 2010	3.5 (ODP tonnes)
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<b>(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)</b>								<b>Year: 2010</b>	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-141b									
HCFC-141b in imported pre-blended polyol		3.0							3.0
HCFC-22				0.9	2.8				3.7

<b>(IV) CONSUMPTION DATA (ODP tonnes)</b>			
2009 - 2010 baseline:	4.64	Starting point for sustained aggregate reductions:	8.2
<b>CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)</b>			
Already approved:	0.0	Remaining:	1.51

<b>(V) BUSINESS PLAN</b>		<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total</b>
UNIDO	ODS phase-out (ODP tonnes)	6.5	0	1.1	7.6
	Funding (US \$)	579,862		316,869	896,731

<b>(VI) PROJECT DATA</b>			<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Montreal Protocol consumption limits (estimate)			n/a	4.7	4.7	4.2	4.2	4.2	4.2	4.2	3.1	n/a
Maximum allowable consumption (ODP tonnes)			n/a	4.7	4.7	4.2	4.2	4.2	4.2	4.2	3.1	n/a
Project costs requested in principle (US \$)	UNIDO	Project costs	690,859		143,310	0	117,692	0	31,000	0	30,000	1,012,861
		Support costs	51,814	0	10,748	0	8,827	0	2,325	0	2,250	75,964
Total project costs requested in principle (US \$)			690,859	0	143,310	0	117,692	0	31,000	0	30,000	1,012,861
Total support costs requested in principle (US \$)			51,814	0	10,748	0	8,827	0	2,325	0	2,250	75,964
Total funds requested in principle (US \$)			742,673	0	154,058	0	126,519	0	33,325	0	32,250	1,088,825

<b>(VII) Request for funding for the first tranche (2012)</b>		
<b>Agency</b>	<b>Funds requested (US \$)</b>	<b>Support costs (US \$)</b>
UNIDO	690,859	51,814

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

## PROJECT DESCRIPTION

1. On behalf of the Government of Bosnia and Herzegovina UNIDO, as the designated implementing agency, submitted to the 66<sup>th</sup> meeting of the Executive Committee a stage I of the HCFC phase-out management plan (HPMP) at a total cost, as originally submitted, of US \$1,030,310 plus agency support cost of US \$77,273, for the implementation of stage I of the HPMP. The HPMP covers strategy and activities to meet the freeze in consumption of HCFC in 2013, the 10 per cent reduction in consumption in 2015, and the 35 per cent reduction in 2020. The HPMP was originally submitted to the 65<sup>th</sup> meeting, but had been withdrawn due to issues related to the reporting of the use of HCFC-141b contained in imported pre-blended polyols.

2. The first tranche for stage I being requested at this meeting amounts to US \$506,000 plus agency support cost of US \$37,950 for UNIDO, as originally submitted.

### Background

3. Bosnia and Herzegovina declared independence in 1992, having previously been part of Yugoslavia. After the Dayton Peace Accord in 1995, ending a period of civil strife, the economy grew significantly from a low base. The HPMP indicated that Bosnia and Herzegovina has not directly suffered repercussions from the financial crisis and it is expected to grow at a relatively high rate in the next few years. The country has ratified all the amendments to the Montreal Protocol.

### ODS regulations

4. An ODS licensing system, in its present form established in 2007, is part of the decree on conditions and procedures for the implementation of the Montreal Protocol in Bosnia and Herzegovina. It includes HCFCs.

### ODS consumption

5. All HCFCs used in the country are imported, no production capacity exists. The survey undertaken during the HPMP preparation showed that from 2007 to 2010 there were imports of HCFC-22, and HCFC-141b in bulk (pure substance) as well as HCFC-141b contained in pre-blended polyols. An overview of the consumption from 2007 to 2010 is provided in Table 1.

Table 1 – Consumption of HCFCs including HCFC-141b contained in imported pre-blended polyol (2007 to 2010)

Year	2007		2008		2009		2010		Baseline	
	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t
HCFC-22	50.8	2.80	47.9	2.64	51.0	2.81	63.3	3.48	57.5	3.15
HCFC-141b (bulk)	25.0	2.75	44.9	4.94	27.0	2.97	0.0	0.00	13.5	1.49
Sub-total	75.8	5.55	92.8	7.58	78.0	5.78	63.3	3.48	71.0	4.64
HCFC-141b contained in imported pre-blended polyols*	32.0	3.52	34.1	3.75	41.1	4.52	54.6	6.01	35.7**	3.93**
Total	107.8	9.07	126.9	11.33	119.1	10.30	117.9	9.49	106.7	8.57

\* Includes imports for both eligible and ineligible enterprises

\*\* Based on the 2007-2009 average consumption in line with decision 61/47(c)(ii)

Sectoral distribution of HCFC

6. Bosnia and Herzegovina has one manufacturer of polyurethane (PU) foam sandwich panels, Alternativa, which is also acting as a small-scale systems house. There are also six small and medium-size enterprises (SMEs) in the commercial refrigeration sector: Ordagic D.O.O., Soko-Rkt D.O.O., Kuca Leda, Eko Frigo, Elektro Frigo and Frigoklima. All of these enterprises produce commercial refrigeration equipment, consuming both HCFC-22 and HCFC-141b. No HCFC consumption has been identified in the aerosol, fire fighting and solvent sectors. The breakdown of consumption by sector in the country is provided in Table 2.

Table 2 – HCFC consumption by sector and sub-sector

Substance		PU foam sector		RAC sector		Service sector		Total	
		2009	2010	2009	2010	2009	2010	2009	2010
<b>HCFC-22 (mt)</b>		0.0	0.0	15.3	13.9	35.7	49.4	51.0	63.3
<b>HCFC-141b (bulk; mt)</b>		27.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0
<b>Total consumption</b>	Total (mt)	27.0	0.0	15.3	13.9	35.7	49.4	78.0	63.3
	Total (ODP t)	2.97	0.00	0.84	0.76	1.96	2.72	5.77	3.48
	Share of total (ODP t)	51%	0%	15%	22%	34%	78%	100%	100%
<b>HCFC-141b (contained in imported pre-blended polyols; mt)</b>		28.1	42.4	13.0	12.2	0.0	0.0	41.1	54.6
<b>Total use</b>	Total (mt)	55.1	42.4	28.3	26.1	35.2	49.4	119.1	117.9
	Total (ODP t)	6.06	4.66	2.27	2.11	1.96	2.72	10.29	9.49
	Share of total (ODP t)	59%	49%	22%	22%	19%	29%	100%	100%

7. The HPMP for Bosnia and Herzegovina also included a forecast of the future development of HCFC consumption up to 2020. The comparison between the business-as-usual scenario (unconstrained growth) and the constrained scenario proposed by the Government of Bosnia and Herzegovina is provided in Table 3.

Table 3 – Comparison of business-as-usual and constrained scenarios for future HCFC consumption (including HCFC-141b in imported pre-blended polyols)

	Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Business-as-usual	ODP t	12.36	13.47	15.16	16.25	17.93	18.43	19.28	19.87	20.46
Constrained	ODP t	10.09	10.09	10.44	6.43	4.18	4.18	4.18	3.10	3.10

Implementation of the national ODS phase-out plan

8. The national ODS phase-out plan (NPP) for Bosnia and Herzegovina to phase-out CFCs and TCA was approved in December 2003, taking into account an action plan approved at the Fifteenth Meeting of the Parties to reduce the country's CFC consumption from 243.6 ODP tonnes in 2002, to 3 ODP tonnes in 2007, and to zero ODP tonnes in 2008. The second tranche was approved in 2004, and the third in 2007. In 2007 and 2008, the country was in non-compliance with the action plan. The country returned to compliance with zero consumption of CFCs for 2009 and 2010. As a consequence of the difficulties encountered, Bosnia and Herzegovina has established a robust licensing and monitoring system for ODS imports and exports.

9. The implementation of the NPP was severely hindered by the fact that Bosnia and Herzegovina changed their legislation for imports of goods in 2008, but had failed to allow for the import of equipment, provided by foreign aid without duties, including that required for NPP implementation. In

early 2009, upon the request of the National Ozone Unit (NOU), UNIDO halted the supply of equipment in order to avoid excessive demurrage charges. The legal issues regarding imports were resolved during the first half of 2011. While the training of customs officers had been carried out, the supply of refrigerant identifiers for customs, as well as training materials, tools, and recovery and recycling equipment had to be stopped from 2009 onwards. Without the related materials, training of refrigeration technicians could not take place. Since the first half of 2011, equipment for training refrigeration technicians has been purchased, and training institutions were selected and contracted. However, the technician training has not been undertaken as of yet.

10. In order to ensure optimum use of funds, UNIDO and the country have re-directed the activities currently implemented under the NPP towards the phase-out of HCFCs, while ensuring access to relevant information, training and tools for those which are still operating or servicing CFC-containing equipment. The technician training includes best practices with HCFCs, and the use of alternatives to HCFC-22. The recovery and recycling system originally planned under the NPP is being redirected to cover stationary refrigeration and air conditioning and, in particular, the recovery and recycling of HCFCs in addition to CFCs. UNIDO advised that the country now has a legal system in place which allows the duty free import of equipment purchased with the assistance of the Multilateral Fund. Consequently, further delays in the implementation of the remainder of the NPP and in the HPMP are not anticipated. The funds for all activities except for the recovery and recycling are already committed, while the terms of reference for recovery and recycling have been established and agreed. The Secretariat noted that the outstanding activities of the NPP have been adapted to assist in the phase-out of HCFCs. Accordingly these activities have been integrated under the HPMP, in line with decision 60/11.

#### HCFC phase-out strategy and cost

11. The Government of Bosnia and Herzegovina is proposing to follow the Montreal Protocol phase-out schedule for HCFCs for the duration of stage I of the HPMP, i.e., achieving all control measures up to the 35 per cent reduction in HCFC consumption on time. HPMP activities include the conversion of Alternativa and the six SMEs mentioned previously, which represent all the HCFC-based manufacturing sector. It also includes conducting legislative, training and awareness activities. The complete phase-out of consumption of HCFCs is presently intended for 2035, with interim steps of a 92 per cent reduction by 2025 and a 97.5 per cent reduction by 2030. This represents a considerable acceleration of the phase-out in comparison to the Montreal Protocol schedule.

12. Stage I of the HPMP includes the following investment activities:

- (a) Alternativa in Hrasnica is 100 per cent locally owned and was established in 1997. Since 2005 it has manufactured PU insulated sandwich panels and operated a small systems house. None of its products are exported. The project description includes details about the ownership, the production of PU products since 2005, the baseline equipment, and the use and consumption of HCFC-141b. The conversion to pentane, as the alternative technology selected, includes provision for pentane storage; pre-mixing; retrofit of the foam equipment; and presses, and safety related systems (ventilation, gas detection, fire protection equipment, anti-static floors, lighting protection, a nitrogen system, and a stand-by electric generator). Technology transfer to establish optimum operating parameters for blending and foaming, safety audit, trials and commissioning are also requested. The enterprise consumed bulk HCFC-141b in 2006, 2007 and 2008, as well as HCFC-141b contained in imported pre-blended polyols. However, in the years 2005, 2009 and 2010 the enterprise used only HCFC-141b contained in imported pre-blended polyols, and therefore ceased its systems house operations. An overview of the use of HCFC-141b between the years 2005 and 2010 at Alternativa is provided in Table 4.

Table 4 – Use of HCFC-141b at Alternativa (2005 to 2010)

Year	2005	2006	2007	2008	2009	2010	Average 2007-2009
<b>Consumption of bulk HCFC-141b</b>	0.00	15.00	25.00	21.00	0.00	0.00	15.33
<b>Use of HCFC-141b contained in imported pre-blended polyols</b>	19.96	12.96	19.20	24.11	41.07	40.26	28.13
<b>Total HCFC-141b use</b>	19.96	27.96	44.20	45.11	41.07	40.26	43.46

- (b) The six SMEs manufacturing commercial refrigeration equipment were established before 2005 and started production using HCFCs before 2007, and they are all fully nationally owned. The enterprises will be converted to methyl formate (MF) for foam blowing and to HFC-410A and HFC-404A as refrigerants. The proposed activities include the retrofit of three high pressure and one spray foam machines, redesign of molding tools for three manufacturers, charging equipment, recovery machines, vacuum pumps, and ancillary equipment. An overview of the use of HCFC-22 and HCFC-141b at the enterprise level is provided in Table 5.

Table 5 - Consumption of HCFC-22 and use of HCFC-141b in six SMEs

Year	Enterprises						Total
	Ordagic	Soko-RKT	Kuca Leda	Eko Frigo	Elektro Frigo	Frigo Klima	
Consumption of HCFC-22 (mt)							
2009	5.9	4.1	1.4	1.3	1.2	1.3	15.2
2010	5.2	3.8	1.4	1.3	1.2	1.1	14.0
Average 2009-2010	5.6	4.0	1.4	1.3	1.2	1.2	14.7
Use of HCFC-141b in pre-blended polyols (imported and nationally blended; mt)							
2007	4.2	3.9	1.2	1.3	1.2	1.1	12.9
2008	5.4	4.2	1.3	1.3	1.2	1.1	14.5
2009	4.7	3.9	1.3	1.2	1.0	0.9	13.0
Average 2007-2009	4.8	4.0	1.3	1.3	1.1	1.0	13.5

13. Until 2009, the six SMEs sourced pre-blended polyol containing HCFC-141b from a local systems house, Polioldchem, which also imported pre-blended polyols and used them in their own production process or distributed to the national market. However, as Polioldchem ceased to provide systems house services in 2009 and all seven enterprises included in stage I were required to use exclusively HCFC-141b contained in imported pre-blended polyols. It is to be noted that in earlier years the enterprises might have partially used locally blended or exclusively imported pre-blended polyols. However a disintegration of the systems used is not possible.

#### Non-investment component

14. The non-investment component of the HPMP has been planned taking into account the remaining activities under the NPP for Bosnia and Herzegovina, which has been redirected to support the HCFC phase-out. The Government will undertake a number of activities related to legislation and regulation. In 2013 import taxes will be increased for both HCFCs and HCFC-containing equipment. The country has committed to a ban on the import and use of HCFC-141b in pre-blended polyol systems as of 1 January 2016, after the conversion of all enterprises from HCFC-141b to non-HCFC technology. The reporting

system will also be upgraded during the same period to ensure accurate reporting. The country also plans to issue a ban on the import of equipment containing HCFCs from January 2017 onwards.

15. Training workshops for customs officers and clearance agents as well as importers are included in stage I. These training workshops will use the refrigerant identifiers purchased under the NPP, which are also suitable for HCFC identification. The workshops scheduled for 2016 will be to retrain customs officers and to provide information on bans on import of pre-blended polyols containing HCFC-141b and equipment containing HCFCs. In 2020 a final set of training sessions will cover the latest developments with a view to achieving the significant reductions in 2020 and the following years, as well as to ensure that customs officers on rotation have received the most up-to-date information.

16. The HPMP also includes three sets of training courses to improve best practices in HCFC use and to introduce appropriate practices using HCFC alternatives. The first training module will be carried out in the first half of 2012, using already approved funds from the NPP. It relates to the service needs of the remaining CFC equipment, but will also target HCFC-22 and its alternatives. In 2013 and 2014, a code of good practices will be developed, to be used as the basis for training in 2015, and a final course will be provided which will include any new technologies that might be commercially available in the country in 2018. The HPMP also includes the establishment and support of a refrigeration and air conditioning association to assist in co-ordination and information exchange in Bosnia and Herzegovina, starting at the onset of the HPMP implementation. A certification system for refrigeration workshops will be introduced from 2016 onwards.

17. A number of activities are directly related to the work of the NOU, such as the establishment of a website for HCFC phase-out in 2012, and awareness activities such as seminars and advertisements throughout stage I of the HPMP.

18. The total cost of stage I of the HPMP has been estimated at US \$1,030,310, as shown in Table 6.

Table 6 – List of activities and associated costs of stage I of the HPMP

Activity	Cost (US \$)	Phase-out (mt)	Phase-out (ODP t)
Manufacturing sector			
Conversion "Alternativa"	398,090	43.5	6.27
Conversion of 6 SMEs / foam part	187,041	13.5	
Conversion of 6 SMEs / refrigeration part	165,179	14.7	1.63
Servicing sector			
Non-investment component	280,000	14.9	
Total (US \$)	1,030,310	86.6	7.90

Activities foreseen for stage II of the HPMP

19. The submission provided an outlook regarding the activities which could be undertaken during stage II of the HPMP, which is planned to commence in 2021 and last for 10 years. To continue the awareness campaign, the cost of US \$60,000 is estimated, with activities targeted both to the general public and to end users. A number of Government initiatives would need support in the formulation of additional legal measures (i.e. regulations for refrigerant cylinders) at an estimated cost of US \$40,000. The development of recovery and recycling scheme estimated at US \$160,000 is the last main activity that is forecast for the next stage. The total estimated funding for stage II, leading to a reduction of 97.5 per cent of the HCFC baseline consumption amounts to US \$260,000.

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

20. The Secretariat reviewed the HPMP for Bosnia and Herzegovina 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 60<sup>th</sup> meeting (decision 60/44), subsequent decisions on HPMPs and the 2012-2014 draft business plan of the Multilateral Fund.

#### Technology selection

21. The HPMP foresees support for the conversion of one enterprise in the foam sector, Alternativa, and six SMEs which also have foaming operations. Alternativa will convert its manufacturing operations to the use of pentane as foam-blowing agent. The SMEs currently using HCFC-141b contained in pre-blended polyols, which produce insulated foam for commercial refrigeration appliances decided to convert their operation to the use of MF.

22. Alternativa uses more than 40 metric tonnes (mt) of HCFC-141b. The use of pentane as a foam-blowing agent for an enterprise with this capacity is the most appropriate choice and provides a foam with stability, good insulation quality and low operating cost while using a blowing agent with a low GWP. The use of MF for the insulation of commercial refrigeration equipment is also a technology with a low-GWP, which is reasonably suited for this application.

23. The SMEs will convert from HCFC-22 as refrigerant to HFC-410A (compact cooling equipment, chillers) and HFC-404A (low temperature food conservation). While in principle the use of hydrocarbons would be possible in the equipment manufactured by these enterprises, with an average HCFC-22 consumption of less than 2.5 mt per enterprise they are challenging to convert to hydrocarbon technology, since for the commercial refrigeration sector the easy availability of components and know-how for very small manufacturers is still unavailable. In addition, the necessary safety upgrades in all six enterprises would require substantial investments which, due to the cost-effectiveness threshold, could only be partially covered by the Multilateral Fund. The use of HFC blends for the conversions of these manufacturers appears therefore acceptable.

24. It should be noted that the implementation of non-investment activities under the HPMP foresees a staged approach for training and the information of stakeholders regarding the availability and handling of alternatives currently not available in Bosnia and Herzegovina. Thus it will be possible to introduce hydrocarbon or other low-GWP technologies into the refrigeration sector once these technologies are sufficiently established to allow the supply of adapted components.

#### Starting point for aggregate reduction in HCFC consumption

25. The 2009-2010 average use of HCFC-141b as a blowing agent by the seven enterprises totals to 60.3 mt. This amount includes HCFC-141b-based polyols pre-blended locally and imported. As the two small systems houses ceased operations in 2009, all HCFC-141b had to be imported in pre-blended polyols in 2010. However, in line with decision 61/47(c)(ii), for the calculation of the starting point for aggregate reduction in HCFC consumption, the 2007-2009 average consumption of HCFC-141b in imported pre-blended polyols of 45 mt should be used. This amount is 15.3 mt lower than the actual amount currently used by the enterprises.



26. Despite the above, the Government of Bosnia and Herzegovina agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 4.7 ODP tonnes, calculated using actual consumption of 5.8 ODP tonnes and 3.5 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 3.5 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems (i.e. 2007-2009 average consumption), resulting in 8.2 ODP tonnes.

Issues related to previously supported enterprises

27. Stage I of the HPMP included four enterprises which had previously received support from the Multilateral Fund to convert from CFC to HCFC technologies. Specifically:

- (a) Soko-Rkt and Kuca Leda received support through the project “Replacement of CFC-12 with HFC 134a, CFC-11 with HCFC-141b, and TCA with non-cleaning process in the manufacture of commercial refrigeration equipment, panels, and heat exchangers at three enterprises”, which was approved at the 39<sup>th</sup> meeting in 2003 at a total cost of US \$175,283 for the phase-out of 13.7 ODP tonnes. Funding was provided for Soko-Rkt to retrofit its two foaming machines from CFC-11 to HCFC-141b, which are still in operation. Although the product also included the conversion from CFC-12 to HFC-134a and HFC-404A, due to shortage of funds the enterprise converted to HFC-134a technology on its own. Funding was also provided to Kuca Leda for a new spray foam for HCFC-141b and one charging machine for HFC-134a;
- (b) As part of the first tranche of the NPP, Ordagic received funding for a high-pressure foaming machine to allow conversion to HCFC-141b and charging equipment for HFC-134a; and Eko Frigo received support for refrigerant charging equipment to HFC-134a.

28. All enterprises are currently using both HFC-134a (for small refrigeration equipment) and HCFC-22 (for larger refrigeration equipment and low temperature equipment) as refrigerants in the manufacture of commercial refrigeration equipment. The four enterprises above mentioned are using HCFC-22 since their inception, essentially for mid-size to large commercial cooling equipment, and later as a replacement for CFC-502. They have not received assistance from the Fund to convert their refrigerant component from CFC-12 to HCFC-22. Therefore, the funding being requested under stage I of the HPMP for conversion of HCFC-22 to HFC-410A and HFC-404A could not be considered as second-stage conversions.

29. However, as the enterprises received assistance for the conversion from CFC-11 to HCFC-141b, the conversion from HCFC-141b to MF (i.e. foam operation) will be considered second-stage conversions. The conversion of these enterprises includes the retrofit of the exiting foam dispensers in the baseline, redesign of molding tools, transportation costs, assembling, commissioning, technology transfer, training and IOC.

30. Decision 60/44, in its paragraph (b) related to second conversion, stipulates that full funding of eligible incremental costs of second-stage conversion projects will be considered where such projects are necessary to comply with the reduction step by in 2020 and/or are the most cost-effective projects measured in ODP tonnes to comply with these targets; otherwise, funding will be limited to funding for installation, trials, and training associated with those projects.

Costs of the investment projects

31. The Secretariat discussed with UNIDO technical and cost related issues, which were satisfactorily resolved as shown below.

- (a) The conversion project of Alternativa has a high priority, since the enterprise has the capability and the equipment to import and use bulk HCFC-141b. Since the enterprise had not used bulk HCFC-141b in 2009 and 2010, the consumption was calculated on the average amount of HCFC 141b used in 2007-2009 (in imported pre-blended polyol and in bulk). For the conversion to pentane technology, the cost threshold was applied, (US \$7.83 per kg increased by 25 per cent according to decision 60/44 (f)(iv)) resulting in US \$425,361;
- (b) The costs for the refrigeration part of the conversion of the six SMEs was agreed at US \$157,500, including IOC of US \$55,860. This will result in the phase out 14.7 mt (0.81 ODP tonnes) of HCFC-22, with a cost effectiveness of US \$10.71 below the cost-effectiveness threshold for commercial refrigeration of US \$15.21 per kg;
- (c) For the foam part of the conversion of the six SMEs, the cost calculation proved to be more challenging due to the open question of the second conversion as well as the fact that the remaining eligible consumption for HCFC-141b is only 1.5 mt of HCFC-141b, while the use in the enterprises is 13.5 mt. It is proposed to provide only technical assistance to all six enterprises, limiting the funding to the costs for installation, trials, and training associated with those projects, as defined in decision 60/44. In similar cases, the Multilateral Fund covered US \$30,000 for more complex conversions and US \$20,000 for simpler ones. For the case of Bosnia and Herzegovina, it is proposed to fund the three enterprises with foaming machines (Soko-Rkt, Kuca Leda and Ordagic) on the level of complex cases, the three without on the level of simpler ones. The resulting funding of US \$150,000 would be associated with the remaining eligible use of HCFC-141b of 1.6 mt (0.18 ODP tonnes).

Cost of stage I of the HPMP

32. The Secretariat discussed with UNIDO technical and cost related issues, which were satisfactorily resolved. Table 7 provides the agreed costs for the different activities foreseen under stage I of the HPMP, with particular focus on the non-investment activities.

Table 7 – Agreed costs for stage I of the HPMP

Activity		Cost	Phase-out		
			mt	ODP t	Substance
Conversion "Alternativa"	ICC	363,149	43.5	4.78	HCFC-141b
	IOC	62,212			
	Total cost	425,361			
Conversion of 6 SME	Technical assistance for conversion of insulation foaming	150,000	1.5	0.17	HCFC-141b
	ICC refrigeration	101,640	14.7	0.81	HCFC-22
	IOC refrigeration	55,860			
	Sub-total refrigeration	157,500			
	Total cost	307,500			
Non-investment	Legislation	20,000	14.9	0.82	HCFC-22
	Customs training	60,000			
	Technician training	90,000			
	Support for vocational training centres	30,000			
	Certification scheme for technicians	20,000			
	Establishment technician association	5,000			
	Establishment code of good practice	10,000			
	Technical workshops	10,000			
	Promotion activities	30,000			
	Establishment web site	5,000			
Total cost	280,000				
Total		1,012,861	74.6	6.58	

#### Impact on the climate estimated by the country in its HPMP

33. The conversion of the same six manufacturers of refrigeration equipment from HCFC-22 to HFC-134a technology will contribute to the reduction of the climate impact of the units. Table 8 provides the results of the calculation of the climate impact using the climate impact indicator.

Table 8 - Results of the calculation of the climate impact for the conversion of the refrigeration part of six SMEs

Input	Generic					
	Country	[-]	Bosnia and Herzegovina			
Company data (name, location)	[-]	6 SMEs				
Select system type	[list]	Commercial cooling, factory assembly	Commercial frozen, factory assembly	AC, factory assembly	Total	
<b>General refrigeration information</b>						
HCFC to be replaced	[-]	HCFC-22				
Amount of refrigerant per unit	[kg]	1.3	1.9	4	1.4	
No. of units	[-]	7,663	2,400	20	10,083	
Refrigeration capacity	[kW]	2.4	1.1	30	2.15	
<b>Selection of alternative with minimum environmental impact</b>						
Share of exports (all countries)	[%]	0	0	0	0	

<b>Calculation of the climate impact</b>						
Alternative refrigerant (more than one possible)	[list]	HFC-410A, HC-290	HFC-404A, HC-290	HFC-410A, HC-290	HFC-404A, HFC-410A, HC-290	HFC-404A, HFC-410A, HC-290

**NOTE**

All data displayed is specific to the case investigated and is not generic information about the performance of one alternative; performance can differ significantly depending on the case.

<b>Output</b>	<i>Note: The output is calculated as the climate impact of the refrigerant systems in their life time as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible</i>				
Country	Bosnia and Herzegovina				
<b>Identification of the alternative technology with minimum climate impact</b>					
List of alternatives for identification of the one with minimum climate impact	[Sorted list, best = top (% deviation from HCFC)]	HC-600a (-11%)	HC-600a (-12%)	HC-600a (-13%)	
		HC-290 (-8%)	HC-290 (-9%)	HC-290 (-10%)	
		HFC-134a (-3%)	HFC-134a (-2%)	HFC-134a (-3%)	
		<b>HCFC-22</b>	<b>HCFC-22</b>	<b>HCFC-22</b>	
		HFC-407C (2%)	HFC-407C (3%)	HFC-407C (-1%)	
		HFC-410A (5%)	HFC-410A (5%)	HFC-410A (5%)	
		HFC-404A (12%)	HFC-404A (18%)	HFC-404A (15%)	
<b>Calculation of the climate impact of the conversion</b>					
<b>Alternative refrigerant 1</b>		<b>HFC-410A</b>	<b>HFC-404A</b>	<b>HFC-410A</b>	<b>HFC blends</b>
<i>Total direct impact (post conversion – baseline)*</i>	<i>[t CO<sub>2</sub> equiv]</i>	497	,583	4	8,084
<i>Indirect impact (country)**</i>	<i>[t CO<sub>2</sub> equiv]</i>	10,515	7,452	74	18,041
<i>Indirect impact (outside country)**</i>	<i>[t CO<sub>2</sub> equiv]</i>	0	0	0	0
<i>Total indirect impact</i>	<i>[t CO<sub>2</sub> equiv]</i>	10,515	7,452	74	18,041
<b>Total impact</b>	<b>[t CO<sub>2</sub> equiv]</b>	<b>11,012</b>	<b>15,035</b>	<b>78</b>	<b>26,125</b>
<b>Alternative refrigerant 2</b>		<b>HC-290</b>	<b>HC-290</b>	<b>HC-290</b>	<b>HC-290</b>
<i>Total direct impact (post conversion – baseline)*</i>	<i>[t CO<sub>2</sub> equiv]</i>	-18308	-8380	-147	-26,835
<i>Total indirect impact (country)**</i>	<i>[t CO<sub>2</sub> equiv]</i>	273	957	8	1,238
<i>Total indirect impact (outside country)**</i>	<i>[t CO<sub>2</sub> equiv]</i>	0	0	0	0
<i>Total indirect impact**</i>	<i>[t CO<sub>2</sub> equiv]</i>	273	957	8	1,238
<b>Total impact</b>	<b>[t CO<sub>2</sub> equiv]</b>	<b>-18,035</b>	<b>-7,423</b>	<b>-139</b>	<b>-25,597</b>

\*Direct impact: Different impact between alternative technology and HCFC technology for the substance-related emissions.

\*\*Indirect impact: Difference in impact between alternative technology and HCFC technology for the energy-consumption-related emissions of CO<sub>2</sub> when generating electricity.

34. In the calculation the direct impact relates to the effect of refrigerant emissions during the lifetime of equipment, the indirect impact to the effect of energy consumption. Negative figures for the climate impact signify a reduction in impact, thus an improvement in environmental terms. The MCII was used to calculate three different scenarios, which were the replacement of HCFC-22 in commercial cooling and freezing equipment as well as chillers, which represent the products manufactured by the six SMEs in Bosnia and Herzegovina. The three scenarios allow aggregation to a total scenario, provided in the right-most column of the table. The use of HFC blends leads to an increase in direct refrigerant emissions of more than 8,000 mt of CO<sub>2</sub> equivalent. The increase of indirect emissions is even larger, i.e. emission increases related to a lower-energy efficiency than achieved with HCFC-22 pre-conversion. The comparison to HC-290, propane, reveals that also propane systems would have a lower-energy efficiency than HCFC-22 systems, although better than those with HFC-blends; however, the lower-energy

efficiency of propane systems for these applications is more than compensated by the substantial lowering of the direct impact through the conversion to HC-290, i.e. the impact caused by the emission of the refrigerant.

35. The proposed technical assistance activities in the HPMP, which include the introduction of better servicing practices and enforcement of HCFC import controls, will reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogramme (kg) of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO<sub>2</sub>-equivalent tonnes saved. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Bosnia and Herzegovina indicate that it is likely that the country will surpass the reduction of 3,290 CO<sub>2</sub>-equivalent tonnes in emissions into the atmosphere as estimated in the 2012-2014 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 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.

36. The Secretariat calculated the climate impact for the different activities of the HPMP in Bosnia and Herzegovina. Table 9 shows that a significant reduction in climate impact will likely result from the implementation of the first stage.

Table 9 - Overview of the climate impact of stage I activities

Activity	Substance	Amount (mt)	Alternative	Climate impact (tonnes CO <sub>2</sub> equiv.)	Remarks
Conversion "Alternativa"	HCFC-141b	43.46	pentane	-30,639	
Conversion 6 SMEs	HCFC-22	14.58	HFC-410A, HFC-404A	26,125	from MCII
	HCFC-141b	13.2	MF	-9,306	
Service sector	HCFC-22	15.7	use reduction	-3,290	from business plan
Total				-17,110	

#### Co-financing

37. 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 explained that the country was not in a position to outline co-financing options at this point in time, since no sufficiently definite possibilities for co-funding could be developed.

#### 2012-2014 draft business plan of the Multilateral Fund

38. UNIDO is requesting US \$1,012,861 plus support costs for implementation of stage I of the HPMP. The total value requested for the period 2012-2014 of US \$896,731 including support cost, is at a level higher than in the draft business plan. The difference in the figures is because of the higher phase-out in the foam sector than foreseen in the business plan, and a different tranche distribution.

39. Based on the estimated HCFC baseline consumption in the servicing sector of 42.6 mt, Bosnia and Herzegovina's allocation up to the 2020 phase-out should be US \$280,000 in line with decision 60/44, plus funding for the investment activities for which it is eligible for.

Draft Agreement

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

**RECOMMENDATION**

41. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Bosnia and Herzegovina for the period 2012 to 2020 to reduce HCFC consumption by 35 per cent of the baseline, at the amount of US \$1,012,861, plus agency support costs of US \$75,964 for UNIDO, on the understanding that:
  - (i) US \$280,000 were provided to address HCFC consumption in the refrigeration servicing sector to reach up to and including the 35 per cent reduction in 2020 in line with decision 60/44; and
  - (ii) US \$732,861 were provided for the investment component and the associated technical assistance component for the phase-out of 5.76 ODP tonnes of HCFCs used in the polyurethane foam and commercial refrigeration manufacturing sectors;
- (b) Noting that the Government of Bosnia and Herzegovina had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 4.7 ODP tonnes, calculated using actual consumption of 5.8 ODP tonnes and 3.51 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol; plus 3.5 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 8.2 ODP tonnes;
- (c) Noting the commitment of the Government of Bosnia and Herzegovina to ban imports of HCFC-141b, both pure and contained in pre-blended polyols, no later than 1 January 2016;
- (d) Deducting 6.58 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;
- (e) Approving the draft Agreement between the Government of Bosnia and Herzegovina and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex I to the present document; and
- (f) Approving the first tranche of stage I of the HPMP for Bosnia and Herzegovina, and the corresponding implementation plan, at the amount of US \$690,859, plus agency support costs of US \$51,814 for UNIDO.

## Annex I

### **DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF BOSNIA AND HERZEGOVINA 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 Bosnia and Herzegovina (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 3.1 ODP tonnes by 1 January 2020 in compliance with Montreal Protocol schedules.

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

3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees, in principle, to provide the funding set out in row 3.1 of Appendix 2-A to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).

4. The Country agrees to implement this Agreement in accordance with the HCFC phase-out sector plans submitted. In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.

5. The Executive Committee will not provide the Funding in accordance with the Funding Approval Schedule unless the Country satisfies the following conditions at least eight weeks in advance of the applicable Executive Committee meeting set out in the Funding Approval Schedule:

- (a) That the Country had met the Targets set out in row 1.2 of Appendix 2-A for all relevant years. Relevant years are all years since the year in which this Agreement was approved. Years for which no obligation for reporting of country programme data exists at the date of the Executive Committee meeting at which the funding request is being presented are exempted;
- (b) That the meeting of these Targets has been independently verified, unless the Executive Committee decided that such verification would not be required;
- (c) That the Country had submitted annual implementation reports in the form of Appendix 4-A (“Format of Implementation Reports and Plans”) covering each previous calendar year; that it had achieved a significant level of implementation of activities initiated with previously approved tranches; and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent;

- (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 68<sup>th</sup> 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; and



- (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. 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, 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	3.14
HCFC-141b	C	I	1.49
Sub-total			4.63
HCFC-141b contained in imported pre-blended polyols	C	I	3.47
Total			8.10*

\* Due to rounding to one decimal point for the baseline used to establish the starting point for the country, and to two decimal points in the substance-specific starting points, a discrepancy of 0.1 ODP tonnes between the two figures exists

**APPENDIX 2-A: THE TARGETS, AND FUNDING**

Row	Particulars	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	4.7	4.7	4.2	4.2	4.2	4.2	4.2	3.1	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	4.7	4.7	4.2	4.2	4.2	4.2	4.2	3.1	n/a
2.1	Lead IA (UNIDO) agreed funding (US\$)	690,859		143,310	0	117,692	0	31,000	0	30,000	1,012,861
2.2	Support costs for Lead IA (US\$)	51,814	0	10,748	0	8,827	0	2,325	0	2,250	75,964
3.1	Total agreed funding (US\$)	690,859	0	143,310	0	117,692	0	31,000	0	30,000	1,012,861
3.2	Total support costs (US\$)	51,814	0	10,748	0	8,827	0	2,325	0	2,250	75,964
3.3	Total agreed costs (US\$)	742,673	0	154,058	0	126,519	0	33,325	0	32,250	1,088,825
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)										1.63
4.1.2	Phase-out of HCFC-22 to be achieved through previously approved projects (ODP tonnes)										0.00
4.1.3	Remaining eligible consumption of HCFC-22 (ODP tonnes)										1.51
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)										1.49
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)										0.00
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)										0.00
4.3.1	Total phase-out of HCFC-141b contained in imported pre-blended polyol agreed to be achieved under this Agreement (ODP tonnes)										3.47
4.3.2	Phase-out of HCFC-141b contained in imported pre-blended polyol to be achieved in previously approved projects (ODP tonnes)										0.00
4.3.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyol (ODP tonnes)										0.00

**APPENDIX 3-A: FUNDING APPROVAL SCHEDULE**

1. Funding for the future tranches will be considered for approval not earlier than 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 implementation and monitoring of this HPMP will be co-ordinated by the National Ozone Unit in cooperation with respective governmental bodies and also national experts recruited for particular tasks which would arise in the course of the project implementation. An independent chartered national auditing organization will be recruited to verify consumption.

## **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 \$307 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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