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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-fourth Meeting
Montreal, 18-22 May 2015

**FOLLOW-UP TO DECISION XXVI/9 (PARAGRAPH 4) OF THE TWENTY-SIXTH MEETING
OF THE PARTIES ON ADDITIONAL FUNDING TO CONDUCT INVENTORIES OR
SURVEYS ON ODS ALTERNATIVES**

1. In the context of the discussion of the 2012 Technology and Economic Assessment Panel (TEAP) progress report on information on alternatives to ozone-depleting substances, in response to decisions XXIII/9, XXIV/7 and XXV/5, the Parties to the Montreal Protocol decided *inter alia* “to request the Executive Committee of the Multilateral Fund to consider providing additional funding to conduct inventories or surveys on alternatives to ozone-depleting substances in interested parties operating under paragraph 1 of Article 5 upon their request” (paragraph 4 of decision XXVI/9¹).
2. The Secretariat has presented the above-mentioned decision seeking guidance from the Executive Committee on how to address this request from the Meeting of the Parties. In addressing this agenda item, the Executive Committee might wish to consider the Note from the Secretariat attached to the present document.

¹ UNEP/OzL.Conv.10/7-UNEP/OzL.Pro.26/10.

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

Note from the Secretariat

1. The present note has been prepared to provide information on the matter of providing additional funding to conduct inventories or surveys on ODS alternatives in interested Article 5 countries, where guidance from the Executive Committee is sought on a way forward.
2. This note consists of the following parts and annexes:

Background

Presents a summary of Article 5 countries that requested national surveys on alternatives to ODS.

Funding request for HCFC surveys prior to decision XIX/6

Contains a brief discussion on funding requests for HCFC surveys submitted by several Article 5 countries prior to adoption of decision XIX/6.

Level of consumption of ODS alternatives in Article 5 countries: an overview

Provides an overview on the level of consumption of ODS alternatives in Article 5 countries (extracted from the Decision XXV/5 Task Force Report of the Technology and Economic Assessment Panel (TEAP) (October 2014), as no information is available under the Multilateral Fund).

Surveys on ODS alternatives submitted by the implementing agencies

Describes the objectives, scope and costs of the surveys on ODS alternatives as submitted by the implementing agencies on behalf of 85 Article 5 countries, summarizes the activities proposed to be undertaken by the implementing agencies as part of the surveys based on the proposals submitted, and presents the costs of the surveys on HCFCs approved by the Executive Committee for preparation of stages I and II of HCFC phase-out management plans.

Annex I: Surveys on ODS alternatives conducted outside the Multilateral Fund

Briefly presents surveys on inventories of ODS alternatives that have been or are currently being undertaken in selected Article 5 countries, mainly by UNEP Climate and Clean Air Coalition to Reduce Short Lived Climate Pollutants (CCAC)².

Annex II: Current and future demand of ODS alternatives

Summarizes the estimated current and future demand of ODS alternatives, particularly in the foam and refrigeration manufacturing sectors, as contained in the TEAP Decision XXV/5 Task Force Report.

Background

3. In response to paragraph 4 of decision XXVI/9, 85 Article 5 countries approached the implementing agencies requesting to include in their work programmes for submission to the 74th meeting, funding requests to conduct national surveys on alternatives to ODS. These requests are contained in the work programmes of the respective implementing agencies, and summarized in Table 1.

Table 1 Surveys on alternatives to ODS submitted to the 74th meeting

Agency	Article 5 countries	Document
UNDP	Costa Rica, El Salvador, India, the Islamic Republic of Iran, Lebanon, Panama	74/15
UNEP	Afghanistan, Algeria, Angola, Antigua and Barbuda, Armenia, Barbados, Benin, Bhutan, Botswana, Brunei Darussalam, Burkina Faso, Cambodia, Cabo Verde, Chad, the Comoros, Cote d'Ivoire, the Democratic People's Republic of Korea, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, the Gambia, Ghana, Guinea,	74/16

² <http://www.unep.org/ccac/Initiatives/HFCs/tabid/794344/Default.aspx>.

Agency	Article 5 countries	Document
	Guyana, Jamaica, Kenya, Kyrgyzstan, the Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Maldives, Micronesia (Federated States of), Mongolia, Mozambique, Myanmar, Namibia, Nepal, Nigeria, Pakistan, the Republic of Moldova, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Sri Lanka, the Sudan, Swaziland, Tanzania, Timor-Leste, Togo, Trinidad and Tobago, Turkmenistan, Zambia, Zimbabwe	
UNIDO	Albania, Argentina, the Plurinational State of Bolivia, Bosnia and Herzegovina, Chile, Ecuador, Georgia, Guatemala, Honduras, the former Yugoslav Republic of Macedonia, Mexico, Montenegro, Nicaragua, Niger, Oman, Serbia, Tunisia, Turkey, Uganda, Uruguay, Venezuela (Bolivarian Republic of)	74/17
World Bank	Thailand	74/18

4. The total cost of the surveys on ODS alternatives submitted by the implementing agencies for 85 Article 5 countries (out of 145) amounts to approximately US \$7,600,000 including agency support costs.

Funding requests for HCFC surveys prior to decision XIX/6

5. The Secretariat notes that the requests for national surveys on alternatives to ODS submitted by implementing agencies on behalf of Article 5 countries were not included in the 2015-2017 business plans of the respective agencies, and are not required to meet or accelerate the HCFC compliance needs of Article 5 countries.

6. A similar situation occurred at the 42nd meeting, when the Government of Germany submitted, on behalf of the Government of China, a request for funding of a study on HCFC use in China with a view to developing a strategy for the long-term management of HCFCs in China³. The Executive Committee discussed the matter⁴ and *inter alia* requested the Government of Germany to reformulate the project proposal for submission to the 43rd meeting (decision 42/7).

7. In response to decision 42/7, the Government of Germany resubmitted the request for the development of a suitable strategy for the long-term management of HCFCs, in particular HCFC-22⁵ together with a policy paper on the responsibility of the Multilateral Fund and potential eligibility requirements for studies on the management of HCFCs⁶. Following a discussion⁷, the Executive Committee noted *inter alia* that the intent of the proposed project was to allow utilization of its results for all Article 5 countries; approved the project on an exceptional basis on the condition that, as one of the outcomes, a study would look into the effects of the management of HCFCs in China and in other Article 5 countries (decision 43/19).

³ In reviewing the proposal, the Secretariat noted *inter alia* that it was not included in the 3-year phase-out plan of the Multilateral Fund, did not qualify under any of the criteria for accelerated phase-out and/or maintaining momentum, and was not included within the funding requirement for the 2003-2005 replenishment of the Multilateral Fund (UNEP/OzL.Pro/ExCom/42/17).

⁴ Some members expressed concern that the proposal did not currently qualify for funding under the rules of the Fund and that its approval might be seen as a precedent for the approval of similar projects. Others felt that the study could provide useful information to help both China and other Article 5 countries manage the use of HCFCs. It was noted that, as the use of HCFCs would have to be phased out, it was important to study the options for domestic policies that would assist countries to do so (paragraph 76 of document UNEP/OzL.Pro/ExCom/42/54).

⁵ UNEP/OzL.Pro/ExCom/43/21.

⁶ UNEP/OzL.Pro/ExCom/43/51.

⁷ The growth of HCFC consumption in China was seen as a reason to approve the project on an exceptional basis. It was suggested that the study include an examination of any proposed policies for HCFC management in light of their applicability to other Article 5 countries. Some representatives considered that the establishment of a steering committee would be advisable (paragraph 84 of document UNEP/OzL.Pro/ExCom/43/61).

8. At the 45th meeting, UNDP's 2005-2007 business plan⁸ and the 2005 work programme⁹, included HCFC surveys for 12 Article 5 countries¹⁰ to assist those countries in: identifying HCFC applications, available alternatives and prices; facilitate national stakeholder consultations, allow a better understanding of the HCFC supply and demand situation; and identify potential barriers to the adoption of alternative technologies. Further to a discussion¹¹, the Executive Committee decided *inter alia* to maintain HCFC surveys in the 2005-2007 business plan of UNDP, on the understanding that their goal was to enable the Executive Committee to establish an eligible national aggregate level of HCFC consumption in the future against which proposals would be funded (decision 45/6(a)(i)). The Executive Committee also approved funding for the HCFC surveys for the 12 Article 5 countries¹² included in UNDP's business plan (decision 45/28).

9. At the 46th meeting, UNIDO's amendments to work programmes for 2005¹³ included requests for funding to conduct HCFC surveys in eight countries¹⁴, which followed the approval of funding for UNDP at the 45th meeting. The Secretariat noted that the HCFC surveys had not been included in UNIDO's endorsed 2005 business plan and that there were no compliance issues associated with HCFC surveys that might otherwise provide a basis for exceptional treatment. Further to a discussion¹⁵, the Executive Committee deferred the eight proposed HCFC surveys for re-submission as part of UNIDO's draft 2006 business plan (decision 46/27). However, these requests were not resubmitted by UNIDO.

10. At the 55th meeting, in approving project preparation funding for stage I of the HPMPs for Article 5 countries in line with the accelerated phase-out of HCFCs as agreed in decision XIX/6, the Executive Committee reduced the project preparation funds for those countries that received approvals to undertake HCFC surveys approved at the 43rd and 45th meetings, on a prorated basis.

Level of consumption of ODS alternatives in Article 5 countries: an overview

11. The first investment projects for the phase-out of ODS in Article 5 countries were approved at the 5th meeting (November 1991). Since then and prior to decision XIX/6, ODS were replaced by non-ODS

⁸ UNEP/OzL.Pro/ExCom/45/7.

⁹ UNEP/OzL.Pro/ExCom/45/18.

¹⁰ Argentina, Brazil, Colombia, India, Indonesia, the Islamic Republic of Iran, Lebanon, Malaysia, Mexico, Sri Lanka, the Syrian Arab Republic and Venezuela (Bolivarian Republic of).

¹¹ One member said that, while the proposed HCFC investment projects might not qualify for funding, HCFCs were very important to the issue of global warming. He stressed in particular that the Kyoto Protocol had no mandate to deal with substances falling under the Montreal Protocol and was concerned that the issue of HCFCs might not otherwise be addressed. Other members expressed concern at the inclusion of HCFC investment projects and there was therefore no agreement to include them in the business plan. One member felt that it might be prudent to await the results of the China survey before undertaking any further surveys. However, it was generally considered that HCFC surveys would be useful, and one member said that they should be undertaken in order to enable the Committee to identify eligible aggregate consumption in accordance with existing guidelines (paragraph 44 of document UNEP/OzL.Pro/ExCom/45/55).

¹² The costs of the surveys on HCFCs ranged between US \$45,872 and US \$183,486, plus agency support costs.

¹³ UNEP/OzL.Pro/ExCom/46/24 and Corr.1.

¹⁴ Algeria, Croatia, Egypt, Libya, Niger, Nigeria, Romania and the Sudan.

¹⁵ Some members believed that it was important to gather more information about HCFCs to assist countries in planning their future phase-out of the substances. Others, however, stressed that the phase-out baseline date was not until 2015 and the first reduction target not until 2016, and it was not certain that the results of the surveys would still be relevant in 10 years' time. They believed that the Committee should await the results of similar surveys before deciding whether further HCFC surveys would be useful or needed. If, however, Article 5 countries were proposing to accelerate their HCFC phase out, then the Committee could consider assisting them in doing so (paragraph 112 of document UNEP/OzL.Pro/ExCom/46/47).

alternatives except for several projects mainly in the foam sector and, to a lesser extent, in the refrigeration sector, which selected HCFC-based technologies¹⁶.

12. Except for HCFCs, there is no information available in the Multilateral Fund on the current levels of consumption or production of the other ODS alternatives that have been phased in, as those substances are not controlled by the Montreal Protocol. There are, however, surveys on ODS alternatives conducted outside the Multilateral Fund, as shown in Annex I. Information on the estimated current and future demand of ODS alternatives, particularly in the foam and refrigeration manufacturing sectors¹⁷, is also available on the TEAP Decision XXV/5 Task Force Report on additional information on alternatives to ODS, and summarized in Annex II to the present report.

Surveys on ODS alternatives submitted by the implementing agencies

13. Extensive experience is available under the Multilateral Fund on surveys on consumption and production of ODS in Article 5 countries, which started with the mandatory requirement of the preparation of country programmes¹⁸, followed by the preparation of project proposals (where the ODS sector related with the proposal had to be described), sector phase-out plans and national phase-out plans, including refrigerant management plans, terminal phase-out management plans and, most recently, HPMPs. Additionally, all Article 5 countries are required to submit a progress report on the implementation of their country programmes annually; these progress reports contain *inter alia* a sector distribution of ODS consumption and production (where applicable) and prices of ODS and alternatives to ODS phased in. Several Article 5 countries also report consumption of ODS alternatives phased in.

14. In their submissions as part of their work programmes, implementing agencies described several approaches to be used in undertaking the surveys on ODS alternatives in each country. The Secretariat noted the common elements across these submissions and summarized them below.

Objective

15. The objective of the surveys on ODS alternatives would be to assist an Article 5 country to better understand its historical and predicted consumption trends for non-ODS alternatives, including both low- and high-GWP alternatives, and their distribution by sector and subsector. When coupled with the implementation of their HPMPs, the inventories on ODS alternatives may provide the countries with a comprehensive overview of their national markets where ODS alternatives have been (and will be) phased in, while taking into consideration existing technologies.

Scope

16. The surveys will cover and estimate the amounts of each ODS alternative currently used in the country, both low- and high-GWP alternatives, over the 2010-2015 period; identify those alternatives that could be potentially used in the future to replace HCFCs and HFCs; and forecast the amounts of each of the ODS alternatives currently used and potentially to be used in the country for the 2015-2030 period.

¹⁶ Approximately 36,000 metric tonnes of HCFCs (mainly HCFC-141b) were phased-in. Since adoption of decision XIX/6, all ODS have been replaced by non-ODS technologies.

¹⁷ Over 80 per cent of the current consumption of HCFCs in Article 5 countries is in the foam and refrigeration servicing sectors.

¹⁸ The Executive Committee shall invite each Article 5 Party wishing to receive support from the Multilateral Fund to develop a country programme and projects in accordance with paragraph 10(g) of the Terms of Reference of the Executive Committee (UNEP/OzL.Pro/ExCom/3/18/Rev.1 Annex III (section II.1.1)).

Table 2 lists the most commonly used ODS alternatives at present (the list should be adapted to the circumstances prevailing in each Article 5 country)¹⁹.

Table 2. Most commonly used ODS alternatives at present

Chemical*	Sectors**					
	GWP	RAC	Foam	Aerosols	Solvent	Fire suppression
R-407C	1,700	X				
R-410A	2,100	X				
R-404A	3,700	X				
R-507A	3,300					
R-717	-	X				
R-744	1	X				
HC-refrigerant	5	X				
HC-blowing agent			X			
HFC-23	12,400	X				X
HFC-32	677	X				
HFC-125	3,170	X				X
HFC-134a	1,300	X	X	X		X
HFC-143a	4,800	X				
HFC-152a	138	X	X	X		
HFC-227ea	3,350	X	X	X		X
HFC-245fa	716		X	X		
HFC-365mfc	804		X	X	X	
Other alternatives						

(*) Note on chemicals listed in the table:

R-407C: 25% HFC-125; 52% HFC-134a; 23% HFC-32

R-410A: 50% HFC-125; 50% HFC-32

R-404A: 44% HFC-125; 52% HFC-143a; 4% HFC-134a

R-507A: 50% HFC-125; 50% HFC-134a

HC refrigerant: HC-290 (propane); HC-600a (isobutane); HC-1270 (propylene)

HC-blowing agent: pentane, cyclopentane, butane

17. The surveys will determine the distribution of ODS alternatives by sector and subsector, with emphasis on the foam and refrigeration/air-conditioning sectors, which currently consume the largest amounts of HCFCs and HFCs. Table 3 lists the sectors and subsectors where ODS alternatives are currently used (the list should be adapted to the circumstances prevailing in each Article 5 country)²⁰.

Table 3. Sectors and subsectors where ODS alternatives are currently used

Sector	Sub-sector
Aerosol	Propellant
Foam: polyurethane	Insulation domestic refrigeration
	Insulation other appliance
	Reefers
	Board stock
	Continuous panel
	Discontinuous panel
	Spray foam
	Pipe-in-pipe
	Block

¹⁹ This table was not included in the project proposals submitted by the implementing agencies. However, the Secretariat considered relevant to be included as a reference.

²⁰ This table was not included in the project proposals submitted by the implementing agencies. However, the Secretariat considered relevant to be included as a reference.

Sector	Sub-sector
	PF block
Foam: extruded polystyrene	
Fire suppression	
Production	
Refrigeration: domestic	Appliances
Refrigeration: commercial	Stand-alone equipment
	Condensing units
	Centralised systems
	Transport
Refrigeration: mobile air-conditioning	Automobiles, public transport
Refrigeration: chillers	Positive displacement
	Centrifugal
Air-conditioning	Small self-contained
	Mini-split (non-ducted)
	Multi-split
	Split (ducted)
	Ducted split commercial and non-split
Heat pumps	Hot water
	Space heating
Solvent	
Other sectors	

Activities

18. The following activities are planned to be implemented:

- (a) Establishment of current consumption of all ODS alternatives by substance:
 - (i) Interact with upstream chemical and equipment suppliers/importers and/or their local representatives, relevant industry associations and Government departments as needed;
 - (ii) Collect import data (and export data as applicable) for the substances for the 2010-2015 period, and any data from licensing and quota systems if ODS alternatives are already included;
 - (iii) Correlate the substances with possible end-use in various sectors; and
 - (iv) Establish estimated alternatives use by sector.
- (b) Establishment of estimated growth patterns in consumption of ODS alternatives by substance:
 - (i) Review the historical (2010-2015) use data for the substances;
 - (ii) Review and forecast growth for various applications for the 2015-2030 period;
 - (iii) Establish growth patterns in use by substance/sector;
- (c) Identify challenges and opportunities for transition to low-GWP alternatives for various applications:

- (i) Identify potential linkages to the country's HPMP;
- (ii) Compile data on available low-GWP alternatives for various applications;
- (iii) Identify opportunities and challenges for applying low-GWP alternatives for various applications;
- (iv) Estimate the potential impact of transition to low-GWP alternatives, where feasible, in terms of contributing to the country's voluntary CO₂ emission reduction targets by 2020; and
- (v) Review national regulations and standards related to the import and use of the various alternatives to HCFCs and identify barriers to their application.

Implementation modalities

19. The project activities as defined above will be carried out through the engagement of suitable national and international industry experts, who will be identified in close coordination with the National Ozone Unit (NOU). The survey is planned to be coordinated through the established HPMP stakeholder infrastructure which includes regular meetings and workshops and, providing an ideal vehicle for general stakeholder engagement. Other activities will include desk-based data collection and analysis from institutional sources including the NOU, importers and/or distributors of ODS alternatives, industries, and industrial/trade associations; site visits; consultative workshops and meetings; and assessment of the institutional, regulatory and policy framework controlling ODS, greenhouse gases and other air pollutants.

Time frame

20. The time frame for the completion of the surveys also varied according to each implementing agency; however, the average appeared to be the expectation of a completed survey in 12 months from the time of approval by the Executive Committee.

An overview of the submissions requesting to undertake surveys on ODS alternatives for 85 countries

21. The total cost of the 85 surveys on ODS alternatives submitted by the implementing agencies amounts to US \$6,805,000 plus agency support costs of US \$803,250, as shown in Table 4.

Table 4. Costs of the surveys on ODS alternatives submitted to the 74th meeting

Country	Agency	Survey ODS alternatives (US\$)		HCFC baseline (ODP t)	Stage I HPMP (US\$)	
		Project	Support		Total PRP	Total survey*
Afghanistan	UNEP	150,000	19,500	23.8	85,000	29,750
Albania	UNIDO	35,000	3,150	5.62	85,000	29,750
Algeria	UNEP	150,000	19,500	24.5	150,000	52,500
Angola	UNEP	60,000	7,800	16	85,000	29,750
Antigua and Barbuda	UNEP	60,000	7,800	0.3	85,000	29,750
Argentina	UNIDO	120,000	10,800	267.3	173,750	60,813
Armenia	UNEP	60,000	7,800	7	85,000	29,750
Barbados	UNEP	60,000	7,800	3.6	85,000	29,750
Benin	UNEP	150,000	19,500	23.8	85,000	29,750
Bhutan	UNEP	60,000	7,800	0.3	85,000	29,750
The Plurinational State of Bolivia	UNIDO	55,000	4,950	4.89	150,000	52,500
Bosnia and Herzegovina	UNIDO	35,000	3,150	3.2	150,000	52,500

Country	Agency	Survey ODS alternatives (US\$)		HCFC baseline (ODP t)	Stage I HPMP (US\$)	
		Project	Support		Total PRP	Total survey*
Botswana	UNEP	60,000	7,800	11		
Brunei Darussalam	UNEP	60,000	7,800	6.1	85,000	29,750
Burkina Faso	UNEP	150,000	19,500	28.9	85,000	29,750
Cambodia	UNEP	60,000	7,800	15	150,000	52,500
Cabo Verde	UNEP	60,000	7,800	1.1	85,000	29,750
Chad	UNEP	60,000	7,800	16.1	85,000	29,750
Chile	UNIDO	80,000	7,200	47.3	150,000	52,500
The Comoros	UNEP	60,000	7,800	0.1	85,000	29,750
Costa Rica	UNDP	70,000	6,300	10	150,000	52,500
Cote D'Ivoire	UNEP	150,000	19,500	63.8	85,000	29,750
The Democratic People's Republic of Korea	UNEP	150,000	19,500	62	50,000	17,500
Djibouti	UNEP	60,000	7,800	0.7	85,000	29,750
Ecuador	UNIDO	55,000	4,950	21.02	150,000	52,500
El Salvador	UNDP	70,000	6,300	8.2	150,000	52,500
Equatorial Guinea	UNEP	60,000	7,800	6.29	85,000	29,750
Eritrea	UNEP	60,000	7,800	0.1	85,000	29,750
Ethiopia	UNEP	60,000	7,800	5.5	85,000	29,750
The Gambia	UNEP	60,000	7,800	1.5	85,000	29,750
Georgia	UNIDO	35,000	3,150	4.6	85,000	29,750
Ghana	UNEP	150,000	19,500	42.6	85,000	29,750
Guatemala	UNIDO	55,000	4,950	6.9	150,000	52,500
Guinea	UNEP	150,000	19,500	22.6	85,000	29,750
Guyana	UNEP	60,000	7,800	1.8	85,000	29,750
Honduras	UNIDO	35,000	3,150	18	150,000	52,500
India	UNDP	180,000	16,200	865.5	243,750	85,313
The Islamic Republic of Iran	UNDP	120,000	10,800	216.9	243,750	85,313
Jamaica	UNEP	60,000	7,800	12.7	85,000	29,750
Kenya	UNEP	150,000	19,500	52.2	85,000	29,750
Kyrgyzstan	UNEP	60,000	7,800	3.2	85,000	29,750
The Lao People's Democratic Republic	UNEP	60,000	7,800	2.3	150,000	52,500
Lebanon	UNDP	90,000	8,100	37.53	137,250	48,038
Lesotho	UNEP	60,000	7,800	3.5	85,000	29,750
Liberia	UNEP	60,000	7,800	5.3	85,000	29,750
Madagascar	UNEP	150,000	19,500	24.9	85,000	29,750
Malawi	UNEP	60,000	7,800	10.8	85,000	29,750
Maldives	UNEP	60,000	7,800	3.9	85,000	29,750
Mexico	UNIDO	120,000	10,800	673.7	173,750	60,813
The Federated States of Micronesia	UNEP	60,000	7,800	0.2		
Mongolia	UNEP	60,000	7,800	1.4	85,000	29,750
Montenegro	UNIDO	35,000	3,150	0.8	85,000	29,750
Mozambique	UNEP	60,000	7,800	6.5	85,000	29,750
Myanmar	UNEP	60,000	7,800	4.3	85,000	29,750
Namibia	UNEP	60,000	7,800	8.1	85,000	29,750
Nepal	UNEP	60,000	7,800	1.1	85,000	29,750
Nicaragua	UNIDO	35,000	3,150	6.1	85,000	29,750
Niger	UNIDO	55,000	4,950	16	85,000	29,750
Nigeria	UNEP	150,000	19,500	248.6	150,000	52,500
Oman	UNIDO	80,000	7,200	29.6	150,000	52,500
Pakistan	UNEP	150,000	19,500	138.5	195,000	68,250

Country	Agency	Survey ODS alternatives (US\$)		HCFC baseline (ODP t)	Stage I HPMP (US\$)	
		Project	Support		Total PRP	Total survey*
Panama	UNDP	70,000	6,300	0.2	150,000	52,500
The Republic of Moldova	UNEP	60,000	7,800	1	85,000	29,750
Rwanda	UNEP	60,000	7,800	3.75	85,000	29,750
Sao Tome and Principe	UNEP	60,000	7,800	2.2	85,000	29,750
Serbia	UNIDO	80,000	7,200	7.8	150,000	52,500
Seychelles	UNEP	60,000	7,800	1.4	85,000	29,750
Sierra Leone	UNEP	60,000	7,800	1.7	85,000	29,750
Sri Lanka	UNEP	60,000	7,800	12	197,250	69,038
The Sudan	UNEP	150,000	19,500	40.7	150,000	52,500
Swaziland	UNEP	60,000	7,800	5.55	85,000	29,750
Tanzania	UNEP	60,000	7,800	1.7	85,000	29,750
Thailand	IBRD	120,000	10,800	716.6	195,000	68,250
The former Yugoslav Republic of Macedonia	UNIDO	35,000	3,150	1.8	85,000	29,750
Timor-Leste	UNEP	60,000	7,800	0.5	50,000	17,500
Togo	UNEP	150,000	19,500	20	85,000	29,750
Trinidad and Tobago	UNEP	150,000	19,500	43.1	150,000	52,500
Tunisia	UNIDO	80,000	7,200	39.01	150,000	52,500
Turkey	UNIDO	120,000	10,800	205.32	195,000	68,250
Turkmenistan	UNEP	60,000	7,800	6.8	85,000	29,750
Uganda	UNIDO	55,000	4,950	0.2	30,000	10,500
Uruguay	UNIDO	35,000	3,150	0.3	150,000	52,500
The Bolivarian Republic of Venezuela	UNIDO	80,000	7,200	161.6	173,750	60,813
Zambia	UNEP	60,000	7,800	5	85,000	29,750
Zimbabwe	UNEP	60,000	7,800	16.9	85,000	29,750
Total		6,805,000	803,250		9,243,250	3,235,141

(*) The cost for the survey represents 35 per cent of the total cost of the preparation of the HPMP.

22. The Secretariat has the following general observations on the information contained in Table 4:
- The level of funding requested ranges from US \$35,000 (for 13 Article 5 countries) to US \$180,000 (for one country). For comparison purposes, Table 4 also includes the levels of funding approved by the Executive Committee for conducting HCFC surveys for the preparation of stage I of HCFC phase-out management plans²¹;
 - UNEP is requesting funding for the preparation of surveys in Cambodia, Ghana, Kyrgyzstan, Maldives, Mongolia and Nigeria, while UNIDO is requesting to undertake surveys in Chile and Mexico, noting that these countries had funding previously approved for HFC inventories outside the Multilateral Fund, which have been completed or are currently under implementation; and
 - Sixty Article 5 countries (including seven countries where surveys on ODS alternatives have been undertaken with financial assistance outside the Multilateral Fund) did not request any of the implementing agencies to submit a request for undertaking surveys on

²¹ The Secretariat notes that the surveys conducted for the preparation of HPMP relates to HCFCs that have always been controlled by the Montreal Protocol, and thus reported under Article 7. There are only three main HCFCs (namely, HCFC-22 used by all Article 5 countries, and HCFC-141b and to a lesser extent HCFC-142b which are not used in all countries), with very limited use of HCFC-blends. These HCFCs are used in mainly three sectors (namely, foam and RAC manufacturing in several Article 5 countries, and the servicing sector in all countries). On the contrary, there are several ODS alternatives, used in various manufacturing sectors and subsectors, and in the servicing sectors, and which are not reported by Article 5 countries.

ODS alternatives (the total cost approved for preparation of stage I of the HPMPs of these countries amounted to US \$6.4 million, excluding agency support costs)

Task Force on the 2015-2107 replenishment of the Multilateral Fund

23. The Executive Committee may wish to note that the report of the Task Force on the 2015-2017 replenishment of the Multilateral Fund²² included an estimate of the funding needed to conduct surveys of high GWP alternatives to ODS in Article 5 countries.

24. The Task Force calculated the total amount of funding required for the project preparation funding for stage II of HPMPs at US \$8.35 million. Assuming that similar efforts per country would be required in the case of a survey of potential alternatives to high-GWP ODS, the amount of funding would be of the same magnitude. Additional effort may be required to find all the sources of use of high-GWP ODS alternatives (although it would involve the same type of industries and enterprises as for stage II of the HPMPs). Furthermore, it could also be useful to study the consumption of low-GWP alternatives in this same survey. On this basis, the Task Force assumed a 25 per cent increase compared to the funding for preparation of stage II of HPMPs, resulting US \$10.45 million.

²² “Assessment of the funding requirement for the replenishment of the Multilateral Fund for the period 2015-2017”. Supplement to the May 2014 TEAP XXV/8 Task Force (replenishment) report. October 2014

Annex I

SURVEYS ON ODS ALTERNATIVES CONDUCTED OUTSIDE THE MULTILATERAL FUND

1. The CCAC is financing an initiative to promote HFC alternative technology and standards, to allow countries to better understand where HFCs are being used and forecast growth that may occur absent of changes from the current “business as usual scenario” through analysis of surveyed information in 14 Article 5 countries¹. It will provide insight on sector-by-sector use patterns among countries where surveys have been conducted, and will identify opportunities to avoid the phase-in of high-GWP HFCs. It will also build capacity among industry stakeholders and policy makers on HFC alternative technologies, policies and standards for specific sectors where HFCs are used.
2. A summary report will be prepared and will provide insight that can serve these countries, but also can be used by other countries more broadly to make informed assumptions about patterns of production and consumption previous to completing their own inventory. The summary and analysis materials are not themselves expected to result in a sustained elimination of HFC use and emissions, but they are an essential part of a wider strategy to phase down HFCs.
3. The implementers of the summary and analysis products are UNDP, UNEP, UNIDO and the World Bank. The surveys and presentation of the final document are expected to be completed in 24 months at a cost of US \$60,000 per survey.
4. The activities proposed under this initiative are part of a wider approach by the CCAC HFC Initiative to promote and facilitate consideration of a global phase-down of HFCs under the Montreal Protocol while supporting enabling activities, such as those proposed under this funding request.
5. In addition, some bilateral agencies (i.e., the Governments of Australia and Germany²) have provided funding to some developing countries to undertake Nationally Appropriate Mitigation Actions (NAMAs), where a survey or inventory of HFC consumption is included.

¹ Bahamas, Bangladesh, Cambodia, Chile, Colombia, Ghana, Indonesia, Jordan, Kyrgyzstan, Maldives, Mongolia, Nigeria, South Africa, and Vietnam.

² The inventories are prepared as a basis for the project “NAMAs in the refrigeration, air-conditioning and insulation foam sector” under their International Climate Initiative (<http://www.mitigationpartnership.net/baseline-study-refrigeration-air-conditioning-and-insulation-foam-production-thailand-successfully-c>)

Annex II

CURRENT AND FUTURE DEMAND OF ODS ALTERNATIVES

1. This annex summarizes the estimated current and future demand of ODS alternatives, particularly in the foam and refrigeration manufacturing sectors¹, as contained on the TEAP Decision XXV/5 Task Force Report.

Foam sector

2. With regard to the foam sector, the Task Force report indicates that under a “business as usual scenario” HCFC-141b used as a blowing agent for polyurethane foam will be completely phased out by 2020, while HCFC-22/HCFC-142b used in the manufacture of extruded polystyrene foam will be phased out by 2020. These HCFCs will be replaced by hydrocarbon-based blowing agents (mainly cyclopentane), HFCs and mixtures of HFCs and HFO (hydrofluoroolefins)² as shown in Table 1

Table 1. Demand by foam blowing agent for ODS and their alternatives in Article 5 countries*

Substance	Consumption (tonnes)				
	2010	2015	2020	2025	2030
HCFC-141b	39,895	29,032	8,295	0	0
HCFC-142b	16,508	22,562	17,895	6,678	0
HCFC-22	17,436	23,345	18,118	6,678	0
HCFC-245a	354	2,171	3,841	4,986	5,504
HFC-365mfc/HFC-227ea	0	1,758	3,428	4,547	5,020
HFC-134a/HFC-152a	955	6,729	11,338	22,560	30,450
HFO/HCFO	0	0	10,996	23,296	31,081
Hydrocarbon	31,665	43,764	54,459	63,939	71,189
Other	0	0	0	0	0
Totals	106,813	129,361	128,370	132,684	143,244

* TEAP Decision XXV/5 Task Force Report.

3. The main uses of foam blowing agents are for insulation of domestic refrigerators and other appliances followed by extruded polystyrene, which presents the highest growth rate among all the foam subsectors, as shown in Table 2.

Table 2. Distribution of ODS and their alternatives in the foam sector in Article 5 countries*

Subsector	Consumption (tonnes)				
	2010	2015	2020	2025	2030
Insulation domestic refrigeration	42,004	46,192	45,202	47,548	52,497
Insulation other appliance	2,757	3,055	3,055	3,242	3,579
Reefers	3,100	3,294	3,294	3,496	3,860
Board stock	175	192	192	203	225
Continuous panel	2,689	2,788	2,788	2,959	3,267
Discontinuous panel	7,908	7,583	7,583	8,047	8,885
Spray foam	7,653	7,306	7,306	7,753	8,560
Pipe-in-pipe	4,764	5,039	5,039	5,347	5,904
Block	2,591	2,777	2,777	2,946	3,253
PF block	101	117	117	124	137

¹ Over 80 per cent of more of the current consumption of HCFCs in Article 5 countries is in the foam and refrigeration servicing sectors.

² Hydrofluoroolefins are chemical compounds composed of hydrogen, fluorine and carbon. They are distinguished from hydrofluorocarbons (HFCs) by being derivatives of alkenes (olefins) rather than alkanes. HFOs are being developed as "fourth generation" refrigerants with lower global-warming potential (GWP) than HFCs.

Subsector	Consumption (tonnes)				
	2010	2015	2020	2025	2030
Extruded polystyrene foam	33,071	51,017	51,017	51,017	53,078
Totals	106,813	129,360	128,370	132,682	143,245

* TEAP Decision XXV/5 Task Force Report.

Refrigeration and air-conditioning sector

4. With regard to the refrigeration and air-conditioning sector, the Task Force report indicates that under a “business as usual scenario” the demand for HFC-134a will quadruple between 2015 and 2030; the demand for R-404A and R-407C will grow by a factor of 4 to 5; and the demand for low-global warming potential (GWP) refrigerants will grow by a factor of 3, mainly due to the fact that these refrigerants are only assumed to occur in certain sub-sectors (e.g., the mobile air-conditioning (MAC) and the stationary air-conditioning subsectors). Between 2015 and 2030, the total demand for refrigerants will increase by almost 400 per cent (Table 3).

Table 3. Demand for refrigerants and ODS alternatives in Article 5 countries*

Substance**	Consumption (tonnes)				
	2010	2015	2020	2025	2030
HFC-134a	54,400	110,400	183,500	287,200	209,900
R-404A/R-507	13,100	35,200	55,500	112,600	179,800
R-407C	16,500	58,600	105,600	167,500	246,500
R-410A	41,000	95,800	162,500	247,500	360,300
Low-GWP	22,400	33,700	48,800	68,900	98,500
Total	149,410	335,715	557,920	885,725	1,097,030

* TEAP Decision XXV/5 Task Force Report.

** Note on chemicals listed in the table:

R-404A: 44% HFC-125; 52% HFC-143a; 4% HFC-134a

R-507A: 50% HFC-125; 50% HFC-134a

R-407C: 25% HFC-125; 52% HFC-134a; 23% HFC-32

R-410A: 50% HFC-125; 50% HFC-32

5. The main uses of refrigerants are in stationary air-conditioning, followed by the commercial and MAC subsectors, as shown in Table 4.

Table 4. Distribution of ODS and their alternatives in the refrigeration and air-conditioning sector in Article 5 countries*

Subsector	Consumption (tonnes)				
	2010	2015	2020	2025	2030
MAC	36,600	62,300	92,700	131,400	184,200
Domestic	16,000	23,300	31,000	44,100	62,300
Commercial	14,100	57,000	107,300	211,600	326,400
Industrial	20,700	31,300	47,900	68,000	95,500
Transport	1,700	3,200	5,100	7,900	11,500
Stationary air-conditioning	58,600	156,500	271,800	420,500	615,000
Total	147,400	333,600	555,900	883,700	1,295,000

* TEAP Decision XXV/5 Task Force Report.
