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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

2012 WORK PROGRAMME OF UNEP

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNEP is requesting approval from the Executive Committee of US $1,062,633 for its 2012 Work Programme, plus agency support costs of US $32,500. The Work Programme is attached to this document.

2. The activities proposed in UNEP's Work Programme are presented in Table 1 below:

Table 1: UNEP's Work Programme

Country	Activity/Project	Amount Requested (US $)	Amount Recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1. Renewal of institutional strengthening projects:			
Albania	Renewal of institutional strengthening project (Phase V)	109,200	109,200
Belize	Renewal of institutional strengthening project (Phase VI)	76,700	76,700
Malawi	Renewal of institutional strengthening project (Phase VIII)	66,733	66,733
Namibia	Renewal of institutional strengthening project (Phase VII)	60,000	60,000
Nicaragua	Renewal of institutional strengthening project (Phase VI)	60,000	60,000
Paraguay	Renewal of institutional strengthening project (Phase VI)	60,000	60,000
Saint Vincent and the Grenadines	Renewal of institutional strengthening project (Phase V)	60,000	60,000
United Republic of Tanzania	Renewal of institutional strengthening project (Phase V)	60,000	60,000
	Subtotal for A1:	552,633	552,633
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B1. Renewal of institutional strengthening project:			
Democratic People's Republic of Korea	Renewal of institutional strengthening project (Phase VI and VII)	260,000	*
	Subtotal for B1:	260,000	
B2. Technical assistance			
Global	Development of a 'Guide for Sustainable Refrigerated Facilities and Systems', in cooperation with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)	250,000	*
	Subtotal of B2:	250,000	
	Subtotal for B:	510,600	
	Subtotal A and B	1,062,633	552,633
Agency support costs (nil for institutional strengthening and 13 per cent for other activities):		32,500	0
Total:		1,095,133	552,633

*Project for individual consideration

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1. Renewal of institutional strengthening projects

(a) Albania (phase V): US $109,200
(b) Belize (phase VI): US $76,700
(c) Malawi (the) (phase VIII): US $66,733
(d) Namibia (phase VII): US $60,000
(e) Nicaragua (phase VI): US $60,000
(f) Paraguay (phase VI): US $60,000

(g) Saint Vincent and the Grenadines (phase V): US $60,000
(h) United Republic of Tanzania (phase V): US $60,000

Project description

3. UNEP submitted the requests for the renewal of the institutional strengthening (IS) projects for the countries listed above. The descriptions of the requests for these countries are presented in Annex I to this document.

Secretariat's comments

4. The Fund Secretariat reviewed the IS terminal reports and action plans submitted by UNEP on behalf of Albania, Belize, Malawi, Namibia, Nicaragua, Paraguay, Saint Vincent and the Grenadines and the United Republic of Tanzania, which were provided using the revised format for IS renewals approved by decision 61/43 and noted that the countries are in compliance with the CFC, CTC and halon phase-out targets of the Montreal Protocol. In considering these requests, the Secretariat took into account decisions 59/17, 59/47(a) and particularly decision 61/43 where the Executive Committee decided "to maintain funding for IS support at current levels, and to renew IS projects for the full two-year period from the 61st Meeting".

Secretariat's recommendations

5. The Fund Secretariat recommends blanket approval of the IS renewal requests for Albania, Belize, Malawi, Namibia, Nicaragua, Paraguay, Saint Vincent the Grenadines and the United Republic of Tanzania at the level of funding indicated in Table 1 of this document. The Executive Committee may wish to express to the Governments concerned the comments which appear in Annex II to this document.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1. Renewal of institutional strengthening projects:

(a) Democratic People's Republic of Korea (Phases VI and VII): US $260,000

Project description

6. UNEP submitted the request for the renewal of the IS project for the Democratic People's Republic of Korea. The request covers two phases, Phases VI (January 2010-December 2011) and VII (January 2012-December 2013) over a four-year period. The description of this request is presented in Annex I to this document.

Secretariat's comments

7. The Fund Secretariat reviewed the IS terminal reports and action plans submitted by UNEP on behalf of the Democratic People's Republic of Korea to support the renewal request and took into account decisions 59/17, 59/47(a) and particularly decision 61/43 where the Executive Committee decided "to maintain funding for IS support at current levels, and to renew IS projects for the full two-year period from the 61st Meeting".

8. In reviewing this request, the Secretariat also took into account decisions 61/27 and 64/20 in which consideration of the IS renewal request was further deferred by the Executive Committee, and the Secretariat and UNEP, as implementing agency, were requested to propose alternative methods of disbursement, organizational structures and monitoring procedures to the Executive Committee by its

66th meeting. The report of this consultation was prepared by UNEP and will be discussed under agenda item 7(c), Report on implementation of projects with specific reporting requirements.

Secretariat's recommendation

9. Following the results of the discussion under agenda item 7(c), the Executive Committee wish to consider, the request of the Democratic People's Republic of Korea to provide, on an exceptional basis, institutional strengthening funding to be calculated from January 2010 to December 2013, at the level of funding of US $260,000.

B2. Technical assistance

Project description

Global: Development of a 'Guide for Sustainable Refrigerated Facilities and Systems, in cooperation with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE): US $250,000

Project description

10. UNEP is submitting a request for the development of a Guide for Sustainable Refrigerated Facilities and Systems. This publication will be developed in collaboration with and co-financing from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). The total cost of the publication is US $475,000 of which UNEP is requesting US $250,000 for the Executive Committee's approval as its share of the budget. The remaining US $225,000 will be provided by ASHRAE, among other services which it will contribute to the project.

11. The UNEP/ASHRAE Guide will address the entire range of commercially-available alternative refrigerant options and assess advantages and disadvantages of each, and small and medium enterprises' (SME) applicability. That assessment will encourage low and zero global warming potential (GWP) refrigerant selection, energy-efficient technologies, and ways to maximize HCFC phase-out climate benefits in line with decision XIX/6 of the Meeting of the Parties. The Guide will include methodologies for calculating lifetime facility/system global warming contributions (both direct and indirect emissions). It will describe good product and stewardship practices, including servicing and emission reduction practices. The proposed Guide is expected to assist the transition away from HCFCs and, notably, provide proper product and environmental stewardship practices, covering all refrigerant alternatives. It will also address multiple issues existing in refrigerated facilities and related to refrigeration end users, and will target facility owners, operators and designers.

12. This project is designed to support low-volume-consuming (LVC) countries meeting their upcoming HCFC phase-out compliance targets by providing focused, authoritative and neutral information for designers, contractors, owners and operators of refrigerated facilities and industrial and commercial refrigeration systems in those countries to support their decision making about new equipment and technology. It takes into account that most refrigeration management and air-conditioning (RAC) equipment in developing countries has a lifetime of 10-15 years or more and would be replaced post-2015. The timing of this Guide, which will be available to National Ozone Unit (NOU) in 2014 will be useful to assist LVC countries in the technology decision making process when the equipment reaches its end-of-life and needs to be replaced.

13. The proposal submitted by UNEP is attached as part of their Work Programme, and the table below provides a breakdown of the US $250,000 requested by the UNEP, as it relates to the overall cost of the project.

Table 1: Proposed budget

Activity	UNEP component (requested from MLF) (US $)	ASHRAE component (US $)	Total Cost (US $)
Task 1 -- Project Planning and Coordination • Initial meetings and planning • Outline guide and content summaries • Work plan development and adjustments • Coordination calls and meetings with PMS • Project management and reports	30,900	27,810	58,710
Task 2 -- Research • Initial background data collection • Evaluation of available literature, studies • Evaluation of available hourly analysis tools • Obtain unpublished field study information (utilities, etc.)	31,811	28,629	60,440
Task 3 -- Technical Study & Application • Load calculation methods, deficiencies, etc. • Refrigerants options, comparison methods • System design methods (mass flow basis), etc. • Analysis/simulation tools, evaluation, examples • Model prototypes for comparisons and examples • Cold climate considerations • Hot climate considerations • Right sizing methods	63,158	56,842	120,000
Task 4 -- Document Composition • Detail chapter outlines and content design • Write technical content and organize • Graphics, tables, charts, figures, worksheets • Editing and revisions	111,037	99,933	210,970
Task 5 -- Publication Support • Layout • Printing • e-publication • shipping to UNEP distribution	13,095	11,785	24,880
TOTAL	250,000 (excluding PSC)	225,000	**475,000**

Secretariat's comments

14. UNEP's current submission is a result of an information paper on the subject presented and discussed at the 65th Meeting, where interest was shown in a full proposal being submitted for the Executive Committee's consideration. This project had been included in UNEP's business plan submitted for this meeting.

15. The Secretariat raised issues related to the use of the guide for LVC countries, taking into account that some of the refrigeration installations that may be referred to in the document may not be very common in many LVC countries. In addition, it also expressed concern at the level of technology that may be included, and its relevance to LVC countries which are considered as the main target. UNEP responded that it will ensure that the proposed guide will include information suitable for RAC audiences in LVC countries, e.g. lower cost/less sophisticated options, as well as higher cost/more sophisticated options, since developing countries have a range of conditions and capabilities.

16. While the Secretariat sees the collaboration with ASHRAE as a good example of co-financing, it was concerned that the overall cost of the project was too high, drawing upon past experience of developing similar technical guides. UNEP indicated that the high cost of the publication was because of the importance that ASHRAE gives to producing a quality product, and this had a corresponding monetary value. UNEP also mentioned that if the contribution of ASHRAE was taken into account, this would be the largest amount of co-financing for a publication which it believes is a good investment of Multilateral Funds for a peer-reviewed publication which would have a long shelf-life. In responding to the Secretariat's query on whether UNEP could undertake its share of the publication with a lower budget, UNEP responded that this would not be possible without making some significant changes to the design and approach of the overall document.

17. The Secretariat also raised the completion date of end-2014 with UNEP and asked whether this could be done earlier to be more useful to stage I HPMP implementation. UNEP explained that the timing was such that this guide was foreseen to be used for stage II of the HPMP, after the 2015 control measures are met. The Secretariat encouraged UNEP to do its utmost to complete the document by the end of 2013 so that it can be used by countries to prepare their stage II HPMP.

Secretariat's recommendation

18. In light of the Secretariat's comments above, in particular, paragraph 17, the Executive Committee may wish to consider whether or not to approve the request for the development of a Guide for Sustainable Refrigerated Facilities and Systems in collaboration with American Society of Heating, Refrigeration and Air Conditioning Engineers at the level of US $250,000 plus agency support costs of US $32,500 for UNEP.

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

ALBANIA: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNEP
Amounts previously approved for institutional strengthening (US $):		
	Phase I: Dec-01, Nov 02 & Jul 05	151,200
	Phase II: Jul-06	109,200
	Phase III: Apr-08	109,200
	Phase IV: Jul-10	109,200
	Total:	478,800
Amount requested for renewal (phase V) (US $):		109,200
Amount recommended for approval for phase V (US $):		109,200
Agency support costs (US $):		0
Total cost of institutional strengthening phase V to the Multilateral Fund (US $):		109,200
Date of approval of country programme:		2003
Date of approval of HCFC phase-out management plan:		2011
Baseline consumption of controlled substances (ODP tonnes):		
(a) Annex A, Group I (CFCs) (average 1995-1997)		40.8
(b) Annex A, Group II (halons) (average 1995-1997)		0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)		3.1
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)		0.0
(e) Annex E (methyl bromide) (average 1995-1998)		00
Latest reported ODS consumption (2011) (ODP tonnes) as per Article 7:		
(a) Annex A, Group I (CFCs)		0.0
(b) Annex A, Group II (halons)		0.0
(c) Annex B, Group II (carbon tetrachloride)		0.0
(d) Annex B, Group III (methyl chloroform)		0.0
(e) Annex E (methyl bromide)		0.0
(f) Annex C, Group I (HCFCs)		6.5
	Total:	6.5
Year of reported country programme implementation data:		2011
Amount approved for projects (as at December 2011) (US $):		1,386,925
Amount disbursed (as at December 2010) (US $):		1,037,662
ODS to be phased out (as at December 2011) (ODP tonnes):		70.3
ODS phased out (as at December 2010) (ODP tonnes):		70.3

1. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	443,932
(b) Institutional strengthening:	478,800
(c) Project preparation, technical assistance, training and other non-investment projects:	464,193
Total:	1,386,925

Progress report

2. The National Ozone Project Implementation Unit (NOPIU) updated the regulatory system to control HCFCs. Supporting legislation for the implementation of quota/licensing system (HCFCs) were developed. Extension of the licensing system to include HCFCs containing mixtures was done and mandatory reports on HCFCs by importers were introduced. The HCFC phase-out management plan (HPMP) was prepared and approved. The implementation of HPMP has begun during the second half of the year 2011. A workshop regarding the protection of the ozone layer and synergies between Montreal Protocol and Climate Change Convention was organised.

Plan of action

3. The NOPIU will continue its work to ensure the compliance with the Montreal Protocol by strictly enforcing the HCFC quota system. It will further develop supporting legislative measures to strictly control HCFC consumption and decrease emissions. The NOPIU will also introduce a ban of importing and placing on the market of non–refillable containers, and require the mandatory recovery of HCFCs from containers (at the end of their life), from equipment (before disassembling and during servicing or maintenance, if appropriate) and from products (if technically possible). Harmonization of the legislation with European Union directives will be carried out. The NOPIU will ensure the implementation of the approved HPMP activities. Public awareness activities related on the protection of the ozone layer and climate change will be continued.

BELIZE: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Nov-99	88,500
	Phase II:	Jul-03	76,700
	Phase III:	Jul-05	76,700
	Phase IV:	Nov-07	76,700
	Phase V:	Nov-09	76,700
		Total:	395,300
Amount requested for renewal (phase VI) (US $):			76,700
Amount recommended for approval for phase VI (US $):			76,700
Agency support costs (US $):			0
Total cost of institutional strengthening phase VI to the Multilateral Fund (US $):			76,700
Date of approval of country programme:			1999
Date of approval of HCFC phase-out management plan:			2010
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			24.4
(b) Annex A, Group II (halons) (average 1995-1997)			0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex E (methyl bromide) (average 1995-1998)			0.0
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:			
(a) Annex A, Group I (CFCs)			0.0
(b) Annex A, Group II (halons)			0.0
(c) Annex B, Group II (carbon tetrachloride)			0.0
(d) Annex B, Group III (methyl chloroform)			0.0
(e) Annex E (methyl bromide)			0.0
(f) Annex C, Group I (HCFCs)			3.1
		Total:	3.1
Year of reported country programme implementation data:			2010

Summary of the project and country profile	
Amount approved for projects (as at December 2011) (US $):	1,310,237
Amount disbursed (as at December 2010) (US $):	1,112,193
ODS to be phased out (as at December 2011) (ODP tonnes):	24.4
ODS phased out (as at December 2010) (ODP tonnes):	24.5

4. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	254,000
(b) Institutional strengthening:	395,300
(c) Project preparation, technical assistance, training and other non-investment projects:	660,937
Total:	1,310,237

Progress report

5. Phase V of the institutional strengthening (IS) project assisted Belize in the effort to phase-out importation of ODS. The terminal phase-out management plan (TPMP) has been successfully implemented under Phase V and the monitoring, evaluation, and reporting mechanism of the TPMP are on-going activities implemented by the national ozone unit (NOU). Belize has launched its HPMP under Phase V. The implementation of the HPMP will commence under Phase VI.

Plan of action

6. Phase VI of the IS funding will be used to assist the effective implementation of project activities under the HPMP up to the second quarter of 2013. The NOU is discussing with UNEP on 2012 customs train-the-trainers programme and has made contact with the Government of Switzerland for the co-funding financial component for the implementation of the HPMP.

Democratic People's Republic of Korea (the): Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Feb-97	142,560
	Phase II:	Dec-00	95,040
	Phase III:	Dec-03	123,552
	Phase IV:	Nov-05	123,552
	Phase V:	Nov-07	130,000
		Total:	614,704
Amount requested for renewal (phases VI & VII) (US $):			260,000
Amount recommended for approval for phase VI & VII (US $):			0
Agency support costs (US $):			0
Total cost of institutional strengthening phases VI and VII to the Multilateral Fund (US $):			0
Date of approval of country programme:			1997
Date of approval of HCFC phase-out management plan:			Not submitted yet
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			441.7
(b) Annex A, Group II (halons) (average 1995-1997)			0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			1,285.2

Summary of the project and country profile	
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)	7.7
(e) Annex E (methyl bromide) (average 1995-1998)	30.0
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:	
(a) Annex A, Group I (CFCs)	0.0
(b) Annex A, Group II (halons)	0.0
(c) Annex B, Group II (carbon tetrachloride)	0.0
(d) Annex B, Group III (methyl chloroform)	0.0
(e) Annex E (methyl bromide)	0.0
(f) Annex C, Group I (HCFCs)	94.1
Total:	94.1
Year of reported country programme implementation data:	2010
Amount approved for projects (as at December 2011) (US $):	20,685,744
Amount disbursed (as at December 2010) (US $):	20,080,595
ODS to be phased out (as at December 2011) (ODP tonnes):	3,277.6
ODS phased out (as at December 2010) (ODP tonnes):	3,089.3

7. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	18,114,540
(b) Institutional strengthening:	614,704
(c) Project preparation, technical assistance, training and other non-investment projects:	1,956,500
Total:	20,685,744

Progress report

8. The activities carried out in the context of the IS project were satisfactory. The main objectives were to implement effective ODS monitoring and control system; to complete the NPP implementation; to improve public awareness and knowledge on ODS phase-out; to ensure support from the ministries on ODS phase-out activities; to promote international and regional cooperation on the implementation of the Montreal Protocol; and to compile with the reporting requirements of the Ozone Secretariat, the Executive Committee and UNEP.

Plan of action

9. For the next two phases, the following activities are foreseen for ODS phase-out: to implement an effective ODS monitoring and control system for controlling trade of ODS and ODS-using products including regional cooperation initiatives; to implement awareness programme targeted at sectors (refrigeration, foam, etc) for smooth transition to an ODS-free era which includes HCFC-related activities depending upon the phase-out proposals for HCFCs, which are currently under consultations; to initiate the HPMP in close coordination with UNEP and UNIDO; to ensure support from the ministries on ODS phase-out activities; to promote international and regional cooperation on the implementation of the Protocol; and to comply with the reporting requirements of the Ozone Secretariat, the Executive Committee and UNEP.

MALAWI: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar-94	77,000
	Phase II:	Jul-98	51,350
	Phase III:	Jul-00	51,300
	Phase IV:	Dec-03	66,733
	Phase V:	Nov-05	66,733
	Phase VI	Nov-07	66,733
	Phase VII	Nov-09	66,733
		Total:	446,582
Amount requested for renewal (phase VIII) (US $):			66,733
Amount recommended for approval for phase VIII (US $):			66,733
Agency support costs (US $):			0
Total cost of institutional strengthening phase VIII to the Multilateral Fund (US $):			66,733
Date of approval of country programme:			1994
Date of approval of HCFC phase-out management plan:			2010
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			57.7
(b) Annex A, Group II (halons) (average 1995-1997)			0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex E (methyl bromide) (average 1995-1998)			112.8
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:			0.0
(a) Annex A, Group I (CFCs)			0.0
(b) Annex A, Group II (halons)			0.0
(c) Annex B, Group II (carbon tetrachloride)			0.0
(d) Annex B, Group III (methyl chloroform)			0.0
(e) Annex E (methyl bromide)			0.0
(f) Annex C, Group I (HCFCs)			13.0
		Total:	13.0
Year of reported country programme implementation data:			2010
Amount approved for projects (as at December 2011) (US $):			4,588,726
Amount disbursed (as at December 2010) (US $):			4,393,210
ODS to be phased out (as at December 2011) (ODP tonnes):			226.9
ODS phased out (as at December 2010) (ODP tonnes):			177.9

10. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	2,989,324
(b) Institutional strengthening:	446,582
(c) Project preparation, technical assistance, training and other non-investment projects:	1,152,820
Total:	4,588,726

Progress report

11. The implementation of the Montreal Protocol activities in Malawi is going on successfully. During the period reported, the NOU has implemented the required activities under the IS, TPMP and HPMP preparation. The NOU implemented ODS regulations through the enforcement of licensing and

quota system. The NOU embarked on an awareness programme, trained customs officers, boarder control police, refrigeration technicians and conducted national survey for HCFC use in preparation for HPMP.

Plan of action

12. The NOU is the responsible authority for coordination of the implementation of the IS programme and HPMP implementation under the Ministry of Natural Resources, Energy and Environment. The country will endeavour to implement its action plan to ensure sustained compliance with Montreal Protocol. The NOU will continue with the training programme for the technicians in the refrigeration sector. Training of newly recruited and remaining customs officers to support the implementation and enforcement of ODS regulations including control measures of HCFCs will proceed. The NOU will continue with awareness raising programme through mass media, non-governmental organisations (NGO), workshops, and distribution of awareness materials such as newspapers, brochures, pamphlets and others to the industry and other stakeholders.

NAMIBIA: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Nov-95	61,765
	Phase II:	Jul-00	41,177
	Phase III:	Dec-03	53,530
	Phase IV:	Nov-05	60,000
	Phase V:	Nov-07	60,000
	Phase VI	Nov-09	60,000
		Total:	336,472
Amount requested for renewal (phase VII) (US $):			60,000
Amount recommended for approval for phaseVII (US $):			60,000
Agency support costs (US $):			0
Total cost of institutional strengthening phase VII to the Multilateral Fund (US $):			60,000
Date of approval of country programme:			1995
Date of approval of HCFC phase-out management plan:			2011
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			21.9
(b) Annex A, Group II (halons) (average 1995-1997)			8.3
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex E (methyl bromide) (average 1995-1998)			0.8
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:			
(a) Annex A, Group I (CFCs)			0.0
(b) Annex A, Group II (halons)			0.0
(c) Annex B, Group II (carbon tetrachloride)			0.0
(d) Annex B, Group III (methyl chloroform)			0.0
(e) Annex E (methyl bromide)			0.0
(f) Annex C, Group I (HCFCs)			10.7
		Total:	10.7
Year of reported country programme implementation data:			2010
Amount approved for projects (as at December 2011) (US $):			1,252,062
Amount disbursed (as at December 2010) (US $):			905,007
ODS to be phased out (as at December 2011) (ODP tonnes):			18.3
ODS phased out (as at December 2010) (ODP tonnes):			18.9

13. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	552,500
(b) Institutional strengthening:	336,472
(c) Project preparation, technical assistance, training and other non-investment projects:	363,090
Total:	1,252,062

Progress report

14. The implementation of the Montreal Protocol activities in Namibia is going on successfully. During the period reported, the NOU of Namibia has implemented the required activities under the IS and CFC TPMP. The NOU implemented ODS regulations through the enforcement of licensing and quota system. The NOU embarked on an awareness programme, training for customs officers, refrigeration technicians and other stakeholders.

15. Namibia submitted 2010 data to Ozone Secretariat and achieved zero CFC consumption and it is expected that by continuing with the ongoing activities the country will sustain the 100 per cent CFC reduction and also start HCFC phase-out activities.

Plan of action

16. The NOU is the responsible authority for coordination of the implementation of the IS programme and for monitoring of the implementation of the HPMP. The NOU of Namibia will continue with the training programme for the technicians in the refrigeration sector and customs officers for the enforcement of the ODS regulations. The NOU will continue awareness raising programme through mass media, NGOs, workshops, and distribution of awareness materials such as newspapers, brochures, pamphlets and others to the industry and other stakeholders.

NICARAGUA: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	May-97	66,000
	Phase II:	Jul-00	44,000
	Phase III:	Apr-03	57,200
	Phase IV:	Jul-06	60,000
	Phase V:	Nov-09	60,000
		Total:	287,200
Amount requested for renewal (phase VI) (US $):			60,000
Amount recommended for approval for phaseVI (US $):			60,000
Agency support costs (US $):			0
Total cost of institutional strengthening phase VI to the Multilateral Fund (US $):			60,000
Date of approval of country programme:			1997
Date of approval of HCFC phase-out management plan:			Submitted to the 66th meeting
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			82.8
(b) Annex A, Group II (halons) (average 1995-1997)			0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0

Summary of the project and country profile	
(e) Annex E (methyl bromide) (average 1995-1998)	0.4
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:	
(a) Annex A, Group I (CFCs)	0.0
(b) Annex A, Group II (halons)	0.0
(c) Annex B, Group II (carbon tetrachloride)	0.0
(d) Annex B, Group III (methyl chloroform)	0.0
(e) Annex E (methyl bromide)	0.0
(f) Annex C, Group I (HCFCs)	7.5
Total:	7.5
Year of reported country programme implementation data:	2010
Amount approved for projects (as at December 2011) (US $):	1,687,657
Amount disbursed (as at December 2010) (US $):	1,311,175
ODS to be phased out (as at December 2011) (ODP tonnes):	98.4
ODS phased out (as at December 2010) (ODP tonnes):	77.5

17. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	450,027
(b) Institutional strengthening:	287,200
(c) Project preparation, technical assistance, training and other non-investment projects:	950,430
Total:	1,687,657

Progress report

18. The Ministry of Environment and Natural Resources (MARENA), with the support of the NOU has been successfully implementing the Montreal Protocol and its national commitments. In that context, Nicaragua has managed to finish the CFC TPMP. Moreover, it has maintained zero level of consumption in CFCs, halons and methyl bromide. The Montreal and Beijing Amendments are in the final stage of ratification by the National Assembly and are expected to be adopted by the new legislature in the first half of 2012. The new rule for the control of the ODS has been referred to the Executive Branch and it is being considered for approval. This Decree will strengthen the HCFC phase-out through establishment import quotas for HCFCs and the registry of importers of refrigeration and air conditioning equipment. All dissemination of information and public awareness activities have been executed according to the action plan. Awareness of the population about the protection of the ozone layer was effectively increased as a result of a joint effort by the main stakeholders, governmental institutions, the academia, NGO's and the private sector, including the end-users. Country programme progress reports and the national consumption of ODS for 2009 and 2010 (Article 7 data) have been submitted respectively to the Secretariat of the Multilateral Fund and the Ozone Secretariat.

Plan of action

19. Nicaragua's IS project is focused on the compliance with the country's obligations under the Montreal Protocol. It entails actions for the completion of the ratification process of the Beijing and Montreal Amendments by the National Assembly, as well as promoting the adoption of the new rules for ODS control and the launch of the implementation of the first stage of the national strategy to phase-out HCFCs. It will also ensure that the ODS consumption and country programme progress reports be timely submitted to the Ozone and Multilateral Fund Secretariats. It is expected to continue the development and coordination of the training activities and actions of public awareness on the protection of the ozone layer through workshops, campaigns, events, and messages in print media, radio and visits to media to inform the population, the national authorities and main actors in the refrigeration and air-conditioning sector.

Likewise, refrigeration technicians' certification process will be strengthened through training centers to develop technical capabilities and information on alternative technologies and substitutes of refrigerants with ODP.

PARAGUAY: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Feb-97	66,300
	Phase II:	Dec-00	44,200
	Phase III:	Apr-03	57,460
	Phase IV:	Nov-07	60,000
	Phase V:	Jul-10	60,000
		Total:	287,960
Amount requested for renewal (phaseVI) (US $):			60,000
Amount recommended for approval for phase VI (US $):			60,000
Agency support costs (US $):			0
Total cost of institutional strengthening phase VI to the Multilateral Fund (US $):			60,000
Date of approval of country programme:			1997
Date of approval of HCFC phase-out management plan:			2011
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			210.6
(b) Annex A, Group II (halons) (average 1995-1997)			0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			0.6
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex E (methyl bromide) (average 1995-1998)			0.9
Latest reported ODS consumption (2010) (ODP tonnes) as per Article 7:			
(a) Annex A, Group I (CFCs)			0.0
(b) Annex A, Group II (halons)			0.0
(c) Annex B, Group II (carbon tetrachloride)			0.0
(d) Annex B, Group III (methyl chloroform)			0.0
(e) Annex E (methyl bromide)			0.0
(f) Annex C, Group I (HCFCs)			20.9
		Total:	20.9
Year of reported country programme implementation data:			2010
Amount approved for projects (as at December 2011) (US $):			2,915,037
Amount disbursed (as at December 2010) (US $):			2,081,141
ODS to be phased out (as at December 2011) (ODP tonnes):			339.2
ODS phased out (as at December 2010) (ODP tonnes):			337.4

20. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	1,355,479
(b) Institutional strengthening:	287,960
(c) Project preparation, technical assistance, training and other non-investment projects:	1,271,598
Total:	2,915,037

Progress report

21. During the previous phase, the following results were achieved:

(a) Approval of 6 norms in domestic refrigeration and air conditioners (AC);

(b) First certification in RAC took place in the country. It was done through Cámara Paraguay de Aire Acondionado, Refrigeracíon ventilation Mecánica (CAPAREV), which has been strengthened to act as a certification body. As of today, 33 technicians have been certified;

(c) All ODS and ODS containing equipment importers have been introduced in the Single Window System (SWS) for importers. The SWS allows electronic issuance of permits for importations of ODS and ODS-containing equipment;

(d) Two training courses were delivered: on use of hydrocarbons (HC), and Energy Efficiency. Both were first in the entire region; and

(e) The imports quota system for HCFCs has been implemented.

Plan of action

22. The following activities are foreseen for the upcoming phase:

(a) Start implementation of the approved HPMP;

(b) Promote use of alternatives to HCFCs, with emphasis on HCs;

(c) Coordination and follow up with the customs to prevent illegal trade;

(d) To prepare a second state certification body: Instituto Nacional de Tecnología, Normalización y Metrología (INTN);

(e) It is intended to certify 800 technicians in refrigeration in 2012 and another 800 in 2013;

(f) Meeting freeze in 2013, and subsequent phase-out of the HCFCs;

(g) Develop and implement an integrated management system for use of refrigerants;

(h) Implement technical assistance for end-users; and

(i) Capacity building for institutions involved in the control of importations and prevention of illegal trade in HCFCs and equipment containing these substances, y premixed polyols containing HCFCs.

SAINT VINCENT AND THE GRENADINES: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing agency:	UNEP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Jul-98	30,300
Phase II: Apr-04 & Apr-05	43,130
Phase III: Nov 06	60,000
Phase IV: Jul-09 & Dec-10	60,000
Total:	193,430
Amount requested for renewal (phase V) (US $):	60,000
Amount recommended for approval for phase V (US $):	60,000
Agency support costs (US $):	0
Total cost of institutional strengthening phase V to the Multilateral Fund (US $):	60,000
Date of approval of country programme:	1998
Date of approval of HCFC phase-out management plan:	2011
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A, Group I (CFCs) (average 1995-1997)	1.8
(b) Annex A, Group II (halons) (average 1995-1997)	0.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)	0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)	0.0
(e) Annex E (methyl bromide) (average 1995-1998)	0.0
Latest reported ODS consumption (2011) (ODP tonnes) as per Article 7:	
(a) Annex A, Group I (CFCs)	0.0
(b) Annex A, Group II (halons)	0.0
(c) Annex B, Group II (carbon tetrachloride)	0.0
(d) Annex B, Group III (methyl chloroform)	0.0
(e) Annex E (methyl bromide)	0.0
(f) Annex C, Group I (HCFCs)	0.3
Total:	0.3
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2011) (US $):	820,354
Amount disbursed (as at December 2010) (US $):	488,570
ODS to be phased out (as at Dcember 2011) (ODP tonnes):	2.3
ODS phased out (as at December 2010) (ODP tonnes):	2.1

23. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	252,115
(b) Institutional strengthening:	193,430
(c) Project preparation, technical assistance, training and other non-investment projects:	374,809
Total:	820,354

Progress report

24. The two main achievements under the last IS phase are the completion of the TPMP activities, and the development and subsequent approval by the Executive Committee of its national strategy to phase-out HCFCs (HPMP). It is so far the only one in the entire Latin America and the Caribbean with accelerated HCFC phase-out. The CP progress reports and the Article 7 data have been submitted well in advance of the official submission dates. Saint Vincent and the Grenadines managed to keep zero consumption of CFCs. The working relations between the NOU and the major stakeholders in the RAC

sector who are involved in the ODS phase-out activities are excellent. The NOU is working with the Saint Vincent and the Grenadines' Community College on establishing a training center.

Plan of action

25. During the new phase, the NOU will focus on the implementation of the HPMP, namely on the establishment of the training center within the Saint Vincent and the Grenadines' Community College. The NOU will focus on the equipment purchase and implementation of the investment components by UNIDO as well as in introducing imports restrictions for HCFCs and HCFC-based equipment to meet the accelerated phase-out schedule by Saint Vincent and the Grenadines. Currently all contracts with UNEP are being finalized.

UNITED REPUBLIC OF TANZANIA (the): Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNEP
Amounts previously approved for institutional strengthening (US $):		
	Phase I: Oct-96	66,000
	Phase II: Dec-04	57,200
	Phase III: No-06	60,000
	Phase IV: Apr-09	60,000
	Total:	243,200
Amount requested for renewal (phase V) (US $):		60,000
Amount recommended for approval for phase V (US $):		60,000
Agency support costs (US $):		0
Total cost of institutional strengthening phase V to the Multilateral Fund (US $):		60,000
Date of approval of country programme:		1996
Date of approval of HCFC phase-out management plan:		Not submitted yet
Baseline consumption of controlled substances (ODP tonnes):		
(a) Annex A, Group I (CFCs) (average 1995-1997)		253.9
(b) Annex A, Group II (halons) (average 1995-1997)		0.3
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)		0.1
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)		0.0
(e) Annex E (methyl bromide) (average 1995-1998)		0.0
Latest reported ODS consumption (2011) (ODP tonnes) as per Article 7:		
(a) Annex A, Group I (CFCs)		0.0
(b) Annex A, Group II (halons)		0.0
(c) Annex B, Group II (carbon tetrachloride)		0.0
(d) Annex B, Group III (methyl chloroform)		0.0
(e) Annex E (methyl bromide)		0.0
(f) Annex C, Group I (HCFCs)		2.0
	Total:	2.0
Year of reported country programme implementation data:		2010
Amount approved for projects (as at December 2011) (US $):		3,044,186
Amount disbursed (as at December 2010) (US $):		2,340,482
ODS to be phased out (as at December 2011) (ODP tonnes):		360.5
ODS phased out (as at December 2010) (ODP tonnes):		257.1

26. Summary of activities and funds approved by the Executive Committee:

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	1,788,587
(b) Institutional strengthening:	243,200
(c) Project preparation, technical assistance, training and other non-investment projects:	1,013,029
Total:	3,044,186

Progress report

27. The implementation of the Montreal Protocol activities in the United Republic of Tanzania is going on successfully. During the reporting period, the NOU has implemented the required activities under the IS, TPMP and HPMP. The NOU implemented ODS regulations through the enforcement of licensing and quota system. The country established a unit for implementing licensing and quota system for importation of ODS. The NOU embarked on an awareness programme, trained Customs officers, and refrigeration technicians and implemented TPMP for CFCs as well as the HPMP preparation.

Plan of action

28. The NOU is the responsible authority for coordination of the implementation of the IS programme and for monitoring of the implementation of TPMP and HPMP in the Vice-President's Office. The country will endeavour to implement its action plan to ensure sustained compliance with Montreal Protocol. The NOU will continue with the training programme for the technicians in the refrigeration sector. Training of newly recruited and remaining customs officers to support the implementation and enforcement of ODS regulations including control measures of HCFCs. The NOU will continue awareness raising programme through mass media, NGOs, workshops, and distribution of awareness materials such as news papers, brochures, pamphlets and others to the industry and other stakeholders

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Annex II
VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWALS OF INSTITUTIONAL STRENGTHENING PROJECTS SUBMITTED TO THE 66th MEETING

Albania

1. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Albania and noted with appreciation that the country reported 2010 Article 7 data to the Ozone Secretariat and 2010 country programme implementation data to the Multilateral Fund Secretariat. The Executive Committee acknowledged with appreciation that Albania has attained zero CFC consumption target in 2010 under the Montreal Protocol. The Executive Committee also noted that the HCFC phase-out management plan (HPMP) has already been approved and implementation has already started. The Executive Committee is therefore confident that Albania will sustain the phase-out of CFCs and initiate activities both at the project and policy levels to enable the country to meet Montreal Protocol targets to freeze the consumption of HCFCs by 2013.

Belize

2. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Belize and noted with appreciation that the country reported 2010 Article 7 data to the Ozone Secretariat and 2010 country programme implementation data to the Multilateral Fund Secretariat. The Executive Committee acknowledged with appreciation that Belize has attained zero CFC consumption target in 2010 under the Montreal Protocol. The Executive Committee also noted that the HPMP has been already approved and implementation has already started. The Executive Committee is therefore confident that Belize will sustain the phase-out of CFCs and initiate activities both at the project and policy levels to enable the country to meet Montreal Protocol targets to freeze the consumption of HCFCs by 2013.

The Democratic People's Republic of Korea

3. The Executive Committee has reviewed the report of the institutional strengthening project extension for the Democratic People’s Republic of Korea and noted with appreciation that the country has reported data to the Ozone Secretariat indicating that the country is on track to maintain its compliance phase-out on its remaining consumption of CFCs, and initiated activities for the control of the HCFC production and consumption. The Executive Committee is therefore hopeful that the Democratic People’s Republic of Korea will complete the preparation of the HPMP, and start the implementation with success.

Malawi

4. The Executive Committee has reviewed the information presented with the institutional strengthening renewal request for Malawi and noted with appreciation the fact that Malawi reported 2010 data to the Ozone Secretariat and is compliant with the CFC reduction. The Executive Committee further noted that Malawi has taken some significant steps to phase out its consumption of ODS in the period covered for its IS project. Specifically in its submission, Malawi reported that it has taken important initiatives, namely the implementation of ODS imports controls through a licensing and quota system, training of customs officers and refrigeration technicians. The Executive Committee greatly appreciated the efforts of Malawi to reduce the consumption of ODS. The Executive Committee expressed the expectation that, in the next two years, Malawi will continue the implementation of the licensing and quota system, phase-out of HCFCs, and sustain and build upon its current levels of reductions in ODS and subsequently achieve HCFC phase-out and sustain zero CFC consumption.

Namibia

5. The Executive Committee has reviewed the information presented with the institutional strengthening renewal request for Namibia and noted with appreciation the fact that Namibia reported 2010 data to the Ozone Secretariat and is compliant with the CFC reduction. The Executive Committee further noted that Namibia has taken some significant steps to phase out its consumption of ODS in the period covered for its IS project. Specifically in its submission, Namibia reported that it has taken important initiatives, namely the implementation of ODS imports controls through a licensing and quota system, training of customs officers and refrigeration technicians. The Executive Committee greatly appreciated the efforts of Namibia to reduce the consumption of ODS. The Executive Committee expressed the expectation that, in the next two years, Namibia will continue the implementation of the licensing and quota system, phase-out of HCFCs, and sustain and build upon its current levels of reductions in ODS and subsequently achieve HCFC phase-out and sustain zero CFC consumption.

Nicaragua

6. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Nicaragua and noted with appreciation that the country reported 2010 Article 7 data to the Ozone Secretariat and 2010 country programme implementation data to the Multilateral Fund Secretariat. The Executive Committee acknowledged with appreciation that Nicaragua has attained zero CFC consumption target in 2010 under the Montreal Protocol. The Executive Committee also noted that Nicaragua HPMP has been already submitted to the 66th Executive Committee and the terminal phase-out management plan (TPMP) implementation is to be completed by April 2012. The Executive Committee is therefore confident that Nicaragua will sustain the phase-out of CFCs and initiate activities both at the project and policy levels to enable the country to meet Montreal Protocol targets to freeze the consumption of HCFCs by 2013.

Paraguay

7. The Executive Committee reviewed the report submitted with the institutional strengthening project for Paraguay and noted with appreciation that the country reported 2010 Article 7 data to the Ozone Secretariat and 2010 country programme implementation data to the Multilateral Fund Secretariat. The Executive Committee acknowledged with appreciation that Paraguay has attained zero CFC consumption target in 2010 under the Montreal Protocol. The Executive Committee also noted that the HPMP has been already approved and implementation has already started. The Executive Committee is therefore confident that Paraguay will sustain the phase-out of CFCs and initiate activities both at the project and policy levels to enable the country to meet Montreal Protocol targets to freeze the consumption of HCFCs by 2013.

Saint Vincent and the Grenadines

8. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Saint Vincent and the Grenadines and noted with appreciation that the country has already reported 2011 Article 7 data to the Ozone Secretariat. The Executive Committee acknowledged with appreciation that Saint Vincent and the Grenadines has attained zero CFC consumption target well in advance of the Montreal Protocol target of 1 January 2010. The Executive Committee also noted that HPMP has already been approved and implementation has already started. The Executive Committee is therefore confident that Saint Vincent and the Grenadines will further sustain zero consumption of CFCs and initiate activities both at the project and policy levels to enable the country to meet accelerated targets (total phase-out) set by the HPMP, namely attain the freeze of the consumption of HCFCs by 2012, and reach 10 per cent reduction by 2013.

The United Republic of Tanzania

9. The Executive Committee has reviewed the information presented with the institutional strengthening renewal request for the United Republic of Tanzania and noted with appreciation the fact that Tanzania reported 2010 data to the Ozone Secretariat and is compliant with the CFC reduction, and other ODS. The Executive Committee further noted that the United Republic of Tanzania has taken some significant steps to phase out its consumption of ODS in the period covered for its IS project. Specifically in its submission, the United Republic of Tanzania reported that it has taken important initiatives, namely the implementation of ODS import controls through a licensing and quota system, training of customs officers and refrigeration technicians. The Executive Committee greatly appreciated the efforts of the United Republic of Tanzania to reduce the consumption of ODS. The Executive Committee expressed the expectation that, in the next two years, the United Republic of Tanzania will continue the implementation of the licensing and quota system, submit its HPMP, and sustain zero CFC consumption and achieve subsequent HCFC phase-out targets.

AMENDMENT TO
UNEP'S WORK PROGRAMME
2012

Presented to the
66th Meeting of the Executive Committee
of the Multilateral Fund for the Implementation
of the Montreal Protocol

February 2012

UNITED NATIONS ENVIRONMENT PROGRAMME

A. INTRODUCTION

1. UNEP's Work Programme 2012 was approved at the 65th Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol.

2. This document, as submitted for consideration to the 66th Meeting of the Executive Committee, represents an Amendment to that Work Programme.

B. SUMMARY OF THE WORK PROGRAMME AMENDMENT FOR 2012

3. Consistent with the Business Plan 2012-2014, this Amendment comprises funding requests for

- Support for the implementation of Institutional Strengthening projects in 8 countries;

- one individual project.[1]

HCFC Phase-out Management Plans are also submitted for 11 countries to the 66th Executive Committee Meeting (not included in this Work Programme Amendment).

4. Details of the Work Programme Amendment and the total requested funding by project groups are presented in Table 1.

5. Summary of the Work Programme Amendment is presented in Table 2.

Table 1. Funding requests for annual tranches for ISP renewals and individual projects to be considered at the 66th Meeting of the Executive Committee

Country	Project title	Amount, US$	PSC, US$	Total requested amount, US$
INDIVIDUAL PROJECT				
Global	Development of a 'Guide for Sustainable Refrigerated Facilities and Systems', in cooperation with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)	250,000	32,500	282,500
	Sub-total for individual projects	*250,000*	*32,500*	*282,500*
INSTITUTIONAL STRENGTHENING PROJECT RENEWALS (ISRs)				
Albania	Renewal of institutional strengthening project (Phase V)	109,200	0	109,200
Belize	Renewal of institutional strengthening project (Phase VI)	76,700	0	76,700
Democratic Republic of Korea	Renewal of institutional strengthening project (Phase VI)	260,000	0	260,000
Malawi	Renewal of institutional strengthening project (Phase VIII)	66,733	0	66,733
Namibia	Renewal of institutional strengthening project (Phase VII)	60,000	0	60,000
Nicaragua	Renewal of institutional strengthening project (Phase VI)	60,000	0	60,000
Paraguay	Renewal of institutional strengthening project (Phase VI)	60,000	0	60,000
Saint Vincent and the Grenadines	Renewal of institutional strengthening project (Phase V)	60,000	0	60,000
Tanzania	Renewal of institutional strengthening project (Phase V)	60,000	0	60,000
	Sub-total for Institutional Strengthening Project Renewals	*552,633*	*0*	*552,633*

[1] UNEP also submitted on behalf of Japan a PRP for Destruction: "ODS destruction project for LVCs"

Table 2. Summary of items submitted for consideration by the 65th Executive Committee meeting by group

Type of projects	*Value in US*	*Project support costs in US$*	*Total in US$*
Sub-total for HPMP Project Preparation	0	0	0
Sub-total for Individual Projects	250,000	32,500	282,500
Sub-total for Institutional Strengthening Projects	552,633	0	552,633
Grand Total	**1,062,633**	**32,500**	**1,095,133**

C. PROJECT CONCEPTS for items to be submitted by UNEP

***1. Title*:**	***Requests for institutional strengthening renewals for (8 countries)* Albania, Belize, Democratic People's Republic of Korea, Malawi, Namibia, Nicaragua, Paraguay, Saint Vincent and the Grenadines, and Tanzania**
Background:	Renewals of institutional strengthening projects (ISP) for the above-listed eight countries are being requested in line with relevant decisions and guidelines of the Executive Committee. These projects have been included in the UNEP 2012-2014 Business Plan.
Objectives:	To assist the Governments of these Article 5 countries in building and strengthening their capacity for the implementation of the Montreal Protocol and its Amendments.
Activities and description:	Individual documents for these projects – the terminal reports and the action plans - have been submitted to the Multilateral Fund Secretariat separately.
Time Frame:	24 months

Per country cost:

Country	**US$**
Albania	109,200
Belize	76,700
Democratic People's Republic of Korea	260,000
Malawi	66,733
Namibia	60,000
Nicaragua	60,000
Paraguay	60,000
Saint Vincent and the Grenadines	60,000
Tanzania	60,000
Total	**812,633**

*Note: No project support costs are requested for institutional strengthening projects.

***Title*:**	***Development of a 'Guide for Sustainable Refrigerated Facilities and Systems', in cooperation with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).***
Background:	UNEP and the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) propose to collaborate to develop a "Guide for Sustainable Refrigerated Facilities and Systems" (The Guide). Refrigerated systems in the "cold chain" for food and medicine, including refrigerated warehousing and supermarkets, are growing rapidly in A5 countries as their infrastructure responds to growing urban populations. Currently, where these systems exist, HCFC-22 is the preferred refrigerant particularly for small-medium sized enterprises (SMEs). Refrigeration is commonly the largest energy end user for refrigerated warehouses, food processing facilities and supermarkets. The growth of integrated refrigerated storage-cold chain facilities in A5 countries and potential HCFC-22 refrigeration focus in second stage HPMPs makes this project timely. Similar Guides in this sector do not exist today. Current TEAP and RTOC activities do not address the detailed guidance required for practitioner project implementation and tend to focus more on policy audiences. ASHRAE is a world-wide leader in energy efficient buildings and HVAC & Refrigeration systems, system start-up advice, energy standards and the adoption of low/no ODP/GWP refrigerants and refrigeration technologies. ASHREA and UNEP prepared and submitted an informal document for the 65th ExCom meeting and hosted an informal presentation with questions and answers. The previously submitted informal document was amended and updated to address the major questions and issues raised.
Objectives:	The proposed Guide is expected to assist the HCFC transition but, also significantly, provide proper product and environmental stewardship practices, covering all refrigerant alternatives. The Guide will address multiple issues present within refrigerated facilities and other refrigeration end users, and will target facility owners, operators and designers. The UNEP/ASHRAE Guide will address the entire range of commercially-available alternative refrigerant options and assess advantages and disadvantages of each, and SME applicability. That assessment will encourage low and zero GWP refrigerant selection and energy-efficient technologies and ways to maximize HCFC phase out climate benefits (Decision XIX/6). The Guide will include methodologies for calculating lifetime facility/system global warming contributions (both direct and indirect emissions). It will describe good product and stewardship practices, including servicing and emissions reduction practices. The Guide will specifically address large built-up central plants, engineered multiplex "rack" compressor systems, or multiple "split-system" refrigeration units, processes and technologies. Nearly all such refrigeration systems are custom engineered and constructed of components, rather than being sold as "packages." The methods and concepts addressed will be practical and actionable, consistent with the questions and options that must be addressed by designers, contractors and operators. The Guide will have a global perspective. Facility and system design, refrigerant choice and potential policy options offer a timely opportunity to provide valuable guidance. The Guide will target refrigerated facility and system owners and operators, refrigeration and air conditioning technicians and National Ozone Units in A5 countries. Feedback from ASHRAE developing country members suggests the guide will have significant value in supporting developing countries' activities in phasing-out HCFC under their MLF funded HPMPS since once completed the Guide will be applicable to numerous A5 projects and country HPMPs. This will facilitate the work of the Implementing Agencies, which otherwise will have to develop guidance on each relevant individual project. For LVCs where integrated systems are not as common, the specific refrigeration component guidance still has significant value, since minimizing waste and contamination of refrigerants is an issue of great relevance to LVCs and proper refrigeration practices are, arguably, at least as important in LVCs as other countries
Activities:	This project will be implemented under the framework of the existing ASHRAE-UNEP Memorandum of Understanding. The cooperative MOU provides for

	professional technical services to refrigeration and air conditioning stakeholders (governments, private and public sector) and ensures up-to-date technical information and standards are properly introduced. UNEP will provide overall guidance, quality review and dissemination. Distribution of the guide will occur through ASHRAE's 175 global chapters, ASHRAE's Associate Society Alliance members and through UNEP's Information Clearinghouse and Regional Networks. ASHRAE's Distinguished Lecturer program will also support the distribution. The guide will be written in English initially. Since translation will be crucial for global outreach, the guide will be concise and the text limited in quantity. ASHRAE will provide its well respected, peer–reviewed, American National Standards Institute (ANSI) certified process. ANSI provides the US linkage to the International Organization of Standardization (ISO) and the International Electrotechnical Commission (IEC). To ensure widest support for the proposed guide, additional external experts will be invited to participate in a Review Panel, to provide comments at the design and implementation stage, and to perform the final quality review. The membership in the review panel will be jointly agreed by ASHRAE and UNEP.
Time Frame:	Two years
Cost:	**Requested amount (Excluding project support costs)** **US$ 250,000**

United Nations Environment Programme
برنامج الأمم المتحدة للبيئة · 联合国环境规划署
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT · PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ
UNEP

Project Proposal

Development of a 'Guide for Sustainable Refrigerated Facilities and Systems', in cooperation with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).

This project proposal concept was informally provided by UNEP for the information of the Sixty Fifth Meeting of the Executive Committee[1] and is now being submitted as part of the UNEP's 2012 Work Programme Amendment.

13 March 2012

[1] As indicated in Para 94. of the Report of the Sixty-Fourth Meeting of the Executive Committee (UNEP/OzL.Pro/ExCom/64/53), an Executive Committee member drew the Committee's attention to collaboration between UNEP and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) on producing a guide that he believed would usefully assist servicing technicians around the world in implementing HPMPs. After discussion, it was stated that the document could be submitted to a future meeting as an information document.

1. EXECUTIVE SUMMARY

UNEP and the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) will collaborate to develop a "Guide for Sustainable Refrigerated Facilities and Systems" (The Guide). ASHRAE is a world-wide leader in energy efficient buildings and HVAC & Refrigeration systems, system start-up advice, energy standards and the adoption of low/no ODP/GWP refrigerants and refrigeration technologies. ASHRAE and UNEP prepared and submitted an informal document for the 65th Executive Committee meeting and hosted an informal presentation with questions and answers. The previously submitted informal document was modified to include the major questions and issues raised, and those are addressed in the present document.

Refrigerated systems in the "cold chain" for food and medicine, including refrigerated warehousing and supermarkets, are growing rapidly in A5 countries as their infrastructure responds to growing urban populations. Currently, where these systems exist, HCFC-22 is the preferred refrigerant particularly for small-medium sized enterprises (SMEs). Refrigeration is commonly the largest energy end user for refrigerated warehouses, food processing facilities and supermarkets.

The UNEP/ASHRAE Guide will address the entire range of commercially-available alternative refrigerant options and assess advantages and disadvantages of each, and SME applicability. That assessment will encourage low and zero GWP refrigerant selection and energy-efficient technologies and ways to maximize HCFC phase out climate benefits (Decision XIX/6). The Guide will include methodologies for calculating lifetime facility/system global warming contributions (both direct and indirect emissions). It will describe good product and stewardship practices, including servicing and emissions reduction practices.

The growth of integrated refrigerated storage-cold chain facilities in A5 countries and potential HCFC-22 refrigeration focus in second stage HPMPs makes this project timely. Similar Guides in this sector do not exist today. Current TEAP and RTOC activities do not address the detailed guidance required for practitioner project implementation and tend to focus more on policy audiences.

The Guide will specifically address large built-up central plants, engineered multiplex "rack" compressor systems, or multiple "split-system" refrigeration units, processes and technologies. Nearly all such refrigeration systems are custom engineered and constructed of components, rather than being sold as "packages." The methods and concepts addressed will be practical and actionable, consistent with the questions and options that must be addressed by designers,

contractors and operators. The sector's diverse nature makes HCFC phase out particularly difficult.

The Guide will have a global perspective. Facility and system design, refrigerant choice and potential policy options offer a timely opportunity to provide valuable guidance. The Guide will target refrigerated facility and system owners and operators, refrigeration and air conditioning technicians and National Ozone Units in A5 countries. In fact, feedback from ASHRAE developing country members suggests the guide will have significant value in supporting developing countries' activities in phasing-out HCFC under their MLF funded HPMPS since once completed the Guide will be applicable to numerous A5 projects and country HPMPs This will facilitate the work of the Implementing Agencies, which otherwise will have to develop guidance on each relevant individual project. For LVCs where integrated systems are not as common, the specific refrigeration component guidance still has significant value. In fact, minimizing waste and contamination of refrigerants is an issue of great relevance to LVCs and proper refrigeration practices are, arguably, at least as important in LVCs as other countries.

The Guide will be published electronically (i.e. Excel, CD) and as either a softbound book or in a 3-ring binder, along with analysis methods, tools and sample calculations. Users should be able to practically use the Guide, although an interactive training and certification module could be considered for future development. Tables and spreadsheets will also be provided electronically for increased utility and flexibility.

ASHRAE will provide $150,000 contribution and approximately $75,000 in member equity. The Project will require $250,000 from the Multilateral Fund (*excluding PSC*). Although the costs could be spread over a longer time frame, this would have the result in project completion being delayed. These new systems will operate for many years so the most pressing guidance need is now. Secondly, recognizing the immediacy, ASHRAE has reserved its co-funding and will be able to start to implement the project as soon as a decision is taken by the Executive Committee to support this activity.

2. BACKGROUND

UNEP and ASHRAE propose to collaborate on developing a Guide for Sustainable Refrigerated Facilities and Systems.

ASHRAE, founded in 1894, is the largest global non-profit member organization related to HVAC&R systems and their use in commercial, industrial and residential buildings, as well as one of the oldest. It fulfills its mission of advancing heating, ventilation, air conditioning and refrigeration to promote a sustainable world through research, development of technical standards, publication and development of educational resources. ASHRAE uses its peer-

reviewed, ANSI certified process for over 120 standards and guidelines that are used globally. Each member serves in his/her own capacity and there are no corporate members.

With over 52,000 members, ASHRAE has 175 Chapters in 30 countries and members present in 130 countries, including more than half of the Article 5 countries. Over 10% of ASHRAE's members and 20 Chapters are in Article 5 countries. ASHRAE has long established relationships with more than 50 technical societies around the globe, including those from the largest Article 5 countries, through its Associate Society Alliance. Annex I provides more information on the ASHRAE Associate Society Alliance Members ASHRAE's impact reaches far beyond these numbers though; when one of the 100 ASHRAE technical committees develops a new standard many governments evaluate whether it should be adopted into their national regulations or laws.

ASHRAE's Distinguished Lecturer (DL) program supports local chapters. The DL's speak on many topics including refrigeration and air conditioning technology. The DL program could support UNEP's regional Article 5 efforts with this Guide, promoting appropriate methods and practices for use of all refrigerants.

Complementary features of the two organizations:

UNEP	ASHRAE
United Nations/Intergovernmental organisation	Non-profit member organization
Montreal Protocol technical and policy expertise	Heating, ventilation, air conditioning and refrigeration (HVAC&R) expertise
Environmental reputation/credibility	HVAC&R technical reputation/credibility
Global programme with CAP teams based in UNEP Regional Offices	Global association with Chapters in both Article 5 and developed countries
Understanding of needs and capabilities of developing country Montreal Protocol stakeholders	Understanding of needs and capabilities of developing and developed country HVAC&R professionals
Distribution channels to government and other Montreal Protocol stakeholders	Distribution channels to HVAC&R engineers and other professionals
Formal Regional Networks of Ozone Officers	Informal regional networks of HVAC&R engineering professionals
Commitment to ozone layer protection and compliance with Montreal Protocol	Commitment to responsible refrigerant management/informed choices by HVAC&R sector

3. PROJECT OBJECTIVE

The proposed Guide is expected to assist the HCFC transition but, as significantly, provide proper product and environmental stewardship practices, covering all refrigerant alternatives. The Multilateral Fund has provided significant support to Parties making transitions away from ozone depleting refrigerants, primarily CFCs to date. Historically, that support has been primarily provided through NOUs and refrigeration servicing technicians, including through

UNEP training seminars. The Guide will address multiple issues present within refrigerated facilities and other refrigeration end users, and will target facility owners, operators and designers.

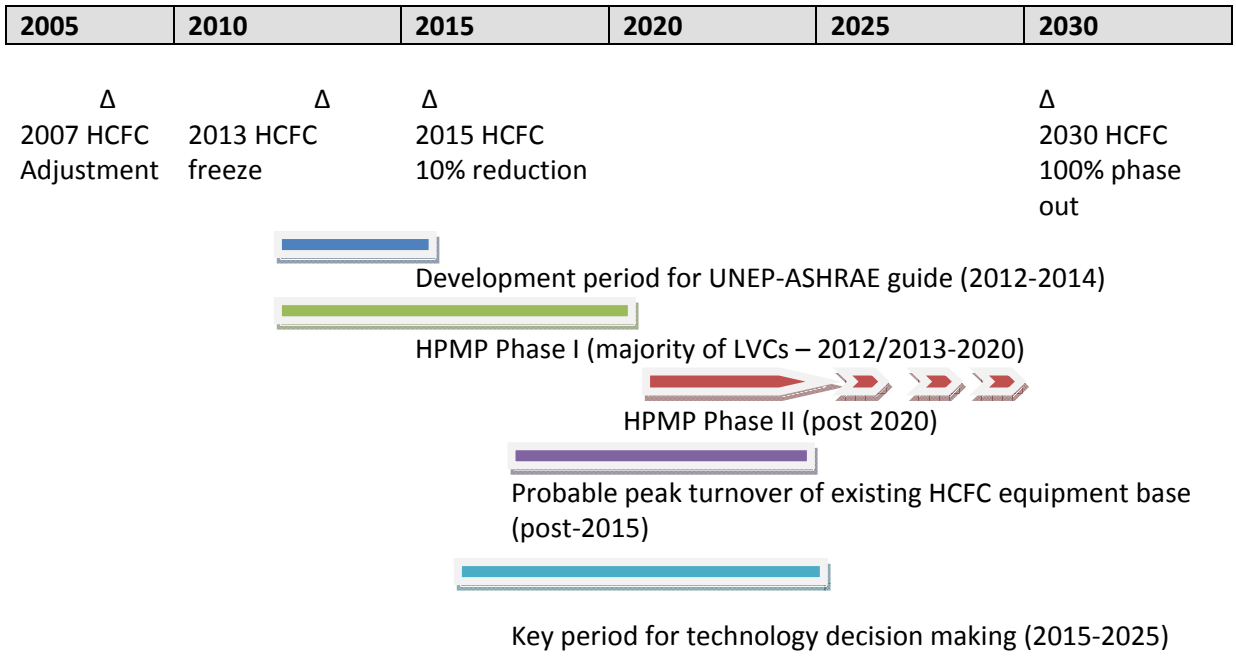
This tool does not currently exist, nor do similar documents that target the user, practitioner level, and it will be implemented only if the Multilateral Fund provides the requested support. The collaboration between UNEP and ASHRAE could lead to sector specific supplements or supplements for new refrigerants as needed. Commercialized technology evolves at a rate that such updates would be required infrequently. Any update or supplement would be based on an analysis of developing country needs, at the facility level, including target audience needs.

This collaboration between UNEP, ASHRAE and the Montreal Protocol could create a dynamic relationship directly linking with designers, manufacturers, industry and technicians in this sector in many countries. This new effort would strengthen the efforts of all countries to address the Montreal Protocol HCFC reductions.

ASHRAE's contribution will include detailed technical input, the authority of the worldwide recognized standard setting society, oversight as the Guide is developed and its technical review process. ASHRAE will also provide $75,000 member in-kind contribution in addition to $150,000 cash.

4. PROJECT FOCUS

This project is designed to support low-volume consuming countries (LVCs) meet their upcoming HCFC phase out compliance targets by providing focused, authoritative and neutral information to designers, contractors, owners and operators of refrigerated facilities and industrial and commercial refrigeration systems in those countries to support their decision making about new equipment and technology. Most RAC equipment has a lifetime of 10-15 years or more in developing countries. Taking an optimistic view, a significant portion of the HCFC equipment installed in Article 5 countries up to the year of the HCFC amendment (2007) would be replaced in the post-2015 time frame. The timing of this guide (which will be available to NOUs in 2014) will be well positioned to inform that technology decision making process in LVCs when the equipment reaches the late stage of lifetime. At present, and for the next 8 years, most LVCs are focusing their efforts on implementing Phase I of their HPMPs. Under existing Executive Committee guidelines, Phase I does not include direct support for end-user sector in LVCs with servicing sector only, and there are no guidelines for Phase II of HPMPs. This guide is intended to support private sector investment decisions about the next generation of equipment and prepare the ground for eventual end-user actions in LVCs, which will take place during the 2020-2030 time period (Phase II). The timing of this guide is therefore designed and timed to reinforce the HPMP processes underway in Article 5 countries (see timeline below)



5. PROJECT APPROACH AND ACTIVITIES

This project will be implemented under the framework of the existing ASHRAE-UNEP Memorandum of Understanding. The cooperative MOU provides for professional technical services to refrigeration and air conditioning stakeholders (governments, private and public sector) and ensures up-to-date technical information and standards are properly introduced.

Roles

UNEP will:

- Provide overall guidance with respect to Multilateral Fund requirements.
- Ensure that the guide meets Article 5 country needs.
- Contribute to the content and quality review of the guide by CAP staff.
- Secure external quality reviewers representing Montreal Protocol perspective (e.g. TEAP/RTOC experts)
- Promote and disseminate the guide to NOUs and other Montreal Protocol stakeholders.
- Report to the Multilateral Fund.

ASHRAE will:

- Provide significant co-financing.
- Secure the consultant team to research and draft the guide.
- Provide significant expert technical input.

- Contribute to the quality review of the guide.
- Promote and disseminate the guide to HVAC&R engineers and other professionals (e.g. through its Chapters, its workshops, the Distinguished Lecturer programme).

Outreach and distribution
Drawing on their complementary capabilities, both UNEP and ASHRAE will promote and distribute the guide:

- UNEP will promote and distribute the guide to NOUs and through its Information Clearinghouse and the Regional Networks of Ozone Officers, using existing resources provided under CAP for the Clearinghouse.
- ASHRAE will distribute the guide to HVAC&R professionals through its 175 global chapters, ASHRAE's Associate Society Alliance members. ASHRAE's Distinguished Lecturer program will also support the distribution.

Language and style
The guide will be written in English initially. Since translation will be crucial for global outreach, the guide will be concise and the text limited in quantity. UNEP will ensure that the guide is written in such as way as to be appropriate style and presentation for an LVC RAC industry audience.

Peer review process
ASHRAE will provide its well respected, peer–reviewed, American National Standards Institute (ANSI) certified process. ANSI provides the US linkage to the International Organization of Standardization (ISO) and the International Electrotechnical Commission (IEC). To ensure widest support for the proposed guide, additional external experts will be invited to participate in a Review Panel, to provide comments at the design and implementation stage, and to perform the final quality review. The membership in the review panel will be jointly agreed by ASHRAE and UNEP. UNEP will ensure that external quality reviewers representing Montreal Protocol perspective (e.g. TEAP/RTOC experts) will be included.

6. OVERVIEW OF GUIDE

The Guide will compile, explain and provide examples of the existing knowledge and methodologies concerning refrigeration system and facility design concepts, cooling loads, equipment design choices and performance modeling, within the framework of sustainability and facility life-cycle.

The Guide will have a global perspective, recognizing the rapid growth of the "food chain" in developing and recently developed countries. In addition to local industry growth, these

countries are often a focus for expansion by major multi-national food firms and retailers. In many cases, these new facilities and systems are a new concept creating significant opportunity to provide valuable guidance.

Large energy savings and corresponding Climate Change impact reductions are possible through improved system design throughout the equipment life cycle. Advanced control strategies incorporating performance monitoring to achieve continuous energy improvement throughout the equipment's life cycle also provide energy savings and climate benefits. There are potential cost/energy savings of up to 20-40% in refrigerated warehouses and retail food store refrigeration systems, compared to current practices. The Guide will combine all these subjects in a document focused on improving refrigeration systems.

7. SCOPE AND OBJECTIVES

Refrigeration systems generally operate year-round and must maintain design storage or product temperatures at all times and in all conditions. The resulting large safety factors often result in inefficiencies during "average" operation. Increasingly urban populations in developing countries create additional refrigeration demand. This demand is often met through expanded, modern "cold chains." The Guide will describe state-of-the-art design techniques, examine the performance modeling tool use, address benchmarking and performance measurement methods to maximize energy efficiency and focus on maintenance practices to maintain performance.

Refrigeration system and refrigerated facility design is commonly performed by design-build contractors or owner staff and a small number of specialized engineers. Existing codes in countries and regions primarily address safety and not system energy efficiency. This is fundamentally different from commercial buildings and HVAC design, with its large professional community and extensive code-prescribed design framework. The Guide will analyze methods and metrics for net-zero-energy design. Case studies will be included to provide context.

The Guide will provide design and analysis. It will include reduced charge system examples, indirect fluid use such as glycol or phase-change CO_2, and natural or low GWP non-traditional systems. Evaluation of alternative refrigerant direct (leakage) and indirect (energy use) global warming impacts will be included.

The Guide will be suitable for engineering programs and training courses, particularly those supporting owners. The content will be valuable to students studying refrigerated facility and system design, interactions and performance. Design and improved safety of global food sources are two highly interesting topics, attracting many engineering students. Moreover, new engineers view computerized simulation and analysis methods as a natural (and necessary) part of the design process.

Refrigeration facility and system design needs to consider:

- facility orientation, building site use and work-flow options,
- building design including insulation, door design and locations,
- infiltration management and reduced internal cooling load methods,
- cooling system design options including refrigerant choice, system configuration (two-stage, single-stage, split-systems, "rack" systems, indirect options, etc.),
- condenser and evaporator selections, including part-load optimization and system balance topics,
- control systems for energy efficiency and load management,
- on-site energy and resource options such as photovoltaic (PV) generation,
- water re-use and heat recovery,
- other operational topics.
- Emissions control. reductions and monitoring equipment
- safety

The means to analyze and compare above options will be addressed, with life-cycle cost and GHG impact evaluation.

It is proposed that The Guide will consist of five primary sections:

1. Refrigerated Facility Design and Cooling Loads
2. Refrigeration System Components and System Design
3. Controls and Control Strategies
4. Energy Modeling and Performance Analysis
5. Commissioning, Operations and Benchmarking

The Guide can be used to design new facilities, for expansions and for remodels, and to provide guidance on improvements and operating methods that may also be applicable to existing facilities.

The HCFC phase-out and potential HFC phase-down will result in increasing alternative refrigerant use including CO_2, hydrocarbons, ammonia, water and air, along with low-GWP HFOs. The most appropriate refrigerant choice may be guided by overall global warming contribution including both direct and indirect GHG emissions during the facility/system lifetime. The Guide will include examples of energy-efficient system alternatives, minimizing energy consumption. The technology options evaluated would also include not-in-kind

technologies such as absorption technology using waste heat, geothermal or renewable energies or free cooling systems. Specifically, renewable energy options will be discussed.

The Guide will provide a conceptual framework, specific analytical methods and examples to encourage technical advancement in several areas:

- Use of mass flow based refrigeration system design and system balance calculations, both for complex industrial and for commercial systems (e.g. supermarkets and food outlets).

- Accurate methods for, for example, productive and non-productive superheat impacts

- Understanding system balance at off-design and part load conditions.

- Identifying research opportunities for eventual future funding

- Emphasizing system operation throughout the year and incorporating annual energy modeling in design decision-making. This enhances consistency in fundamental design and component options as part of life-cycle analysis

- Examining heat recovery from refrigeration systems and use of engineered heat pumping systems, by providing analytical methods to evaluate high-lift refrigeration and heat pumping cycles as an alternative to conventional heating plants, evaluating both site and source energy.

The Guide will provide system modeling methods including an energy code performance option. Building codes are beginning to incorporate refrigerated facility and system requirements. Codes typically begin with mandatory requirements and eventually evolve toward performance criteria (i.e. where the building meets or is better than a minimum simulated “energy budget”) as technical information and methods allow. Owners, contractors and engineers generally prefer a performance path, allowing trade-offs between various design choices, particularly for large, complex systems.

Analysis methodologies, analysis tools and sample calculations will be provided electronically (i.e. Excel) or on a CD provided with the Guide. Users will be able to gain immediate and practical use without additional training. As an example: An engineer or supermarket chain could specify that their refrigeration systems be designed by their system vendors (or consulting engineers) following the “ASHRAE mass-flow based design methodology,” based upon an example and explanation in the Guide.

7. TARGET AUDIENCE

The Guide will serve designers, contractors, owners and operators of refrigerated facilities and industrial and commercial refrigeration systems. This Guide is also expected to have broad interest to educators, utilities and policy makers. Refrigeration systems will be evaluated to seek high efficiency performance and certification, rather than simply the sum of the individual parts. Efficiency regulations, adoption of "green" codes by Parties, states or local jurisdictions, and corporate adoption of sustainability policies requires design techniques from expert "rule of thumb" to life-cycle optimization based on modeling or actual performance.

The Guide will include a significant amount of guidance, examples, case studies and simplified "how to" tools. Individuals involved in refrigeration, particularly in developing and recently developed countries, will find the Guide extremely useful.

8. TIMEFRAME:

The timeframe for the project will be 24 months. Since new refrigeration developments do not progress rapidly, updates will not be required for 7-10 years after the Guide's completion.

9. BUDGET:

The project is expected to cost a total of US $475,000, which includes in-kind contributions by ASHRAE of US $75,000 (approximately) and direct ASHRAE co-financing of US $150,000. ASHRAE's Research Committee has approved this project and reserved the funding.

The total request from the Multilateral Fund is therefore US $250,000 (excluding project support cost).

ASHRAE will also provide its well respected, peer–reviewed, ANSI certified process.

Annex I

ASHRAE Associate Society Alliance Members

LOGO	ACRONYM	ORGANIZATION NAME	SOCIETY WEB ADDRESS	COUNTRY
	ASURVAC	Asociacion Uruguaya de Refrigeracion, Ventilacion, Aire Acondicionado y Calefaccion		URUGUAY
	AAF	Association of Air Conditioning and Refrigeration of Argentina Learn More	www.aafrio.org.ar	ARGENTINA
	OEKKV	Austrian Air-conditioning and Refrigeration Society Learn More	www.oekkv.at	AUSTRIA
	TECFRIO	Assoc Nacional Capitulo Tech ASOFRIO		VENEZUELA
	AIRAH	Australian Institute of Refrigeration, Air Conditioning and Heating	www.airah.org.au	AUSTRALIA
	ABRAVA	Brazilian Association of Refrigeration, Air Conditioning, Ventilation and Heating Learn More	www.abrava.com.br	BRAZIL
	ACTECIR	Catalan Association of Technology, Energy, Air Conditioning and Refrigeration Learn More	www.actecir.cat	SPAIN
		China Committee of HVAC Chinese Association of Refrigeration		CHINA
	CAR	Learn More	www.car.org.cn	CHINA
	ACAIRE	Columbian Association of Air Conditioning and Refrigeration Learn More	www.acaire.org	COLOMBIA
	DITAR	Cooling and Air Conditioning Technical Division of Chile		CHILE
	DANVAK	Danish Society of HVAC Engineers Learn More	www.danvak.dk	DENMARK

	DKV	German Society of Refrigeration and Air-Conditioning Engineers Learn More	www.dkv.org	GERMANY
	TVVL	Dutch Society for Building Services Learn More	www.tvvl.nl	NETHERLANDS
	ESME	Egyptian Society of Mechanical Engineers		EGYPT
	ETE	Epitestudomanyi Egyesulet		HUNGARY
	FINVAC	Finnish Association of Heating, Piping and Air-Conditioning Societies Learn More	www.finvac.org	FINLAND
	AICVF	French Association of Heating and Ventilation Engineers		FRANCE
	ISHRAE	Indian Society of Heating, Refrigeration and Air-Conditioning Engineers Learn More	www.ishrae.org	INDIA
	IRHACE	Institute of Refrigeration, Heating and Air-Conditioning Engineers of New Zealand Learn More	http://www.irhace.org.nz/MainMenu	NEW ZEALAND
		Israel Society Heating, Refrigeration and Air-Conditioning Engineers		ISRAEL
	AICARR	Italian Association of Air Conditioning, Heating and Refrigeration	www.aicarr.it	ITALY
	AHGWTEL	Latvian Association of Heat, Gas and Water Technology Engineers Learn More	www.lsgutis.lv	LATVIA
	JSRAE	Japan Society of Refrigerating and Air-Conditioning Engineers Learn More	www.jsrae.or.jp	JAPAN
	LITES	Lithuanian Thermotechnical Engineers Society Learn More	www.ktu.lt/LISTIA	LITHUANIA
	AMERIC	Mexican Association of Companies in the Industry of Building Installations	www.americmx.com	MEXICO

		Learn More		
	NORVAC	Norwegian Society of HVAC Engineers		NORWAY
		Order of Engineers & Architects Beirut		
	OEA	Learn More	www.oea.org.lb	LEBANON
	OEA	Order of Engineers & Architects Lebanon	www.mouhandess.org	TRIPOLI
		Pakistan HVAC&R Society		
		Learn More	www.hvacr.org	PAKISTAN
	PSVARE	Philippine Society of Ventilating, Air-Conditioning and Refrigerating Engineers		PHILIPPINES
	PZITS	Polish Association Sanitary Engineers and Technicians	www.pzits.org.pl	POLAND
		Portuguese Association of Industrial Refrigeration and Air-Conditioning Engineers		
	EFRIARC	Learn More	www.efriarc.pt	PORTUGAL
	AGFR-AIIR	Romanian General Association for Heating, Refrigeration, Air Conditioning, Sanitary and Electrical Engineering	www.agfro.ro	ROMANIA
	KNVVK	Learn More		NETHERLANDS
	ATIC	Royal Dutch Association of Refrigeration	www.atic.be	BELGIUM
	ABOK	Royal Technical Society of Heating, Ventilation and Related Technology Industry	www.abok.ru	RUSSIA
	KGH	Russian Association of Engineers for HVAC, Heat Supply and Building Thermal Physics	www.kgh-kongres.org	SERBIA
		Learn More		
		Serbian Society of HVAC&R		
		Learn More		

	SSTP	Slovak Society of Environmental Technology		SLOVAKIA
	SITHOK	Slovenian Society of Heating, Refrigerating and Air-conditioning Engineers – SITHOK Learn More	http://lab.fs.uni-lj.si/sithok/	SLOVENIA
	SAREK	Society of Air-Conditioning and Refrigeration Engineers of Korea Learn More	http://www.sarek.or.kr	SOUTH KOREA
	LIVI	Society of Building Services and Energy Engineers		FINLAND
	STP	Society of Environmental Engineering	www.stpcr.cz	CZECH REPUBLIC
	SHASE	Society of Heating, Air-Conditioning and Sanitary Engineers of Japan	www.shase.org	JAPAN
	SAIRAC	South African Institute of Refrigeration and Air Conditioning Learn More	www.sairac.co.za	SOUTH AFRICA
	ASBRAV	South Brazilian of Refrigeration, Air Conditioning, Heating and Ventilation Association Learn More	www.asbrav.org.br	BRAZIL
	ATECYR	Spanish Technical Association of Air Conditioning and Refrigeration Learn More	www.atecyr.org	SPAIN
	SWEDVAC	Swedish Society of Heating and Air-Conditioning Engineers Learn More	www.emtf.se	SWEDEN
	;WKI	Swiss Society of Heating and Air-Conditioning Engineers Learn More	www.skwi.ch	SWITZERLAND
	˙EE	Technical Chamber of Greece - TEE	http://www.tee.gr/	GREECE

		Learn More		
	ICVAC	The Icelandic Heating, Ventilating and Sanitary Association		ICELAND
	IOR	The Institute of Refrigeration Learn More	www.ior.org.uk	UNITED KINGDOM
	TTMD	Turkish Society of HVAC and Sanitary Engineers	www.ttmd.org.tr	TURKEY
	ATEAAR	Asociacion Tecnica Ecatoriana de Aire Acondicionado Y Refrigeracion	www.ateaar.org	ECUADOR