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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-ninth Meeting
Montreal, 15-19 April 2013

2013 WORK PROGRAMME OF UNEP

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. UNEP is requesting approval from the Executive Committee of US $1,313,889 for its 2013 Work Programme, plus agency support costs of US $22,750. 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:			
Angola	Renewal of institutional strengthening (phase IV)	134,400	134,400
Croatia	Renewal of institutional strengthening (phase VIII)	87,707	87,707
Iraq	Renewal of institutional strengthening (phase II)	240,000	240,000
Kenya	Renewal of institutional strengthening (phase IX)	151,667	151,667
Liberia	Renewal of institutional strengthening (phase V)	85,213	85,213
Sierra Leone	Renewal of institutional strengthening (phase V)	85,800	85,800
Sudan	Renewal of institutional strengthening (phase VII)	145,860	145,860
Timor Leste	Renewal of institutional strengthening (phase III)	60,000	60,000
Zimbabwe	Renewal of institutional strengthening (phase VII)	148,242	148,242
	Subtotal for A	1,138,889	1,138,889
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B1. Technical assistance projects			
Region ASP	Promoting low GWP Refrigerants for air-conditioning sectors in high-ambient temperature countries in West Asia	175,000	*
	Subtotal for B:	175,000	
	Subtotal A and B	1,313,889	1,138,889
Agency support costs (nil for institutional strengthening and 13 per cent for other activities):		22,750	0
Total:		1,336,639	1,138,889

*Project for individual consideration

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1. Renewal of institutional strengthening projects

(a) Angola (phase IV): US $134,400
(b) Croatia (phase VIII): US $87,707
(c) Iraq (phase II): US $240,000
(d) Kenya (phase IX): US $151,667
(e) Liberia (phase V): US $85,213
(f) Sierra Leone (phase V): US $85,800
(g) Sudan (phase VII): US $145,860
(h) Timor Leste (phase III): US $60,000
(i) Zimbabwe (phase VII): US $148,242

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 the Governments of Angola, Croatia, Iraq, Kenya, Liberia, Sierra Leone, Sudan, Timor Leste and Zimbabwe, which were provided using the revised format for IS renewals approved by decision 61/43 and noted that these countries are in compliance with the ozone depleting substances (ODS) phase-out targets and reporting requirements under the Montreal Protocol and have also submitted their country programme implementation reports for 2011, due on 1 May 2012. The Secretariat took into account decisions 59/17, 59/47(a) and 61/43 in considering these IS requests, particularly decision 61/43 where the Executive Committee decided "to maintain funding for institutional strengthening (IS) support at current levels, and to renew IS projects for the full two-year period from the 61st meeting".

Secretariat's recommendation

5. The Fund Secretariat recommends blanket approval of the IS renewal requests for Angola, Croatia, Iraq, Kenya, Liberia, Sierra Leone, Sudan, Timor Leste and Zimbabwe at the level of funding indicated in Table 1 of this document. The Executive Committee may wish to express to the Governments of these countries the comments which appear in Annex II to this document.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1. Technical assistance project:

ASP Region: Promoting low-global warming potential (GWP) Refrigerants for air-conditioning sectors in high-ambient temperature countries in West Asia: US $175,000

Project Description

6. UNEP, as the lead implementing, has agency submitted, jointly with UNIDO, a proposal for Promoting low-GWP refrigerants for the air-conditioning sectors for high ambient temperature countries for the consideration of the 69th Meeting of the Executive Committee, at a total cost of US $575,000 plus agency support costs. UNEP's share of this project, which is requested in this work programme, is US $175,000 plus agency support costs of US $22,750. A detailed proposal is attached as Annex III to this document.

7. The objective of the project is to facilitate the technology transfer and exchange of experiences regarding low-GWP alternatives for the air-conditioning sectors in high-ambient temperature countries. This knowledge will in turn promote better decision making by these countries to move towards such alternatives. It is envisaged that the project would encourage the development of not only local/regional standards that will assist in an easier introduction/transition to such alternatives in these countries, but energy-efficiency (EE) standards as well.

8. The project is a response to the growing challenges being faced by the countries with high-ambient temperature characteristics in West Asia, which continue to face difficulties in identifying alternatives that would provide the same efficiency as HCFCs for the air-conditioning sectors. The proposal provided details on the approach taken by UNEP, UNIDO and the countries in this region to develop this project, i.e. through an extensive consultation process and coordination among original equipment manufacturers (OEM) and technology providers. In addition, it will benefit from the assistance already provided by the Compliance Assistance Programme (CAP) staff in the regional office in Bahrain West Asia (ROWA). It will gather important inputs from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) to identify and evaluate promising alternative refrigerants for major

product categories through the Low GWP Alternative Refrigerants Evaluation Programme (low GWP AREP).

9. The project is envisaged to be completed in June 2014, and will focus on four main areas, namely:

(a) **Assess available technologies:** This will focus on studying availability of current and long-term commercially available refrigerants and air-conditioning equipment in terms of suitability to operate in high-ambient conditions including conventional and non-conventional options. It will draw a timeline for the technology and alternatives suitable for high-ambient conditions at short/medium/long term perspective.

(b) **Assess relevant EE standards and codes**: The impact of EE standards (including buildings' codes and equipment EE rating programs) on selecting low-GWP options in high-ambient operating conditions. This is vital for setting the boundaries and constraints for the selection of long-term options in order to comply with national energy policies.

(c) **Economic comparison of alternative technologies**: This will involve a market study-based element aiming at comparing initial and operating costs of low-GWP air-conditioning technologies with current ODS and high-GWP-based options taking into consideration perspectives of manufacturing sectors, consulting sectors and operating/clients sectors. This element will conclude with identifying technological, regulatory and institutional gaps needed to ease the promotion of low-GWP alternatives in air-conditioning sectors including the requirements for individual certification schemes and relevant codes of practice.

(d) **Promoting technology transfer**: This will identify commercial opportunities and associated fiscal implications for facilitating the transfer of low-GWP technologies including the study of commercial and trade barriers, patents and relevant intellectual property rights. This element will be crucial for facilitating the conversion of air-conditioning production facilities in high-ambient temperature countries, and in particular in those where most of the final products are destined for high-ambient countries.

10. The above targets will be achieved through undertaking the following activities:

(a) Building and testing prototypes for a range of at least four products in close coordination and cooperation with identified technology providers;

(b) Implementation of a pilot study in Qatar in line with its HCFC phase-out management plan (HPMP) to assess long term feasible technologies for the air-conditioning sector; and

(c) Coordinating the phase-out requirements with the EE labelling programme targets for participating countries in the region.

11. The total cost of the project as requested is US $575,000 plus agency support costs, as shown in Table 2 below:

Table 2: Total funding requested

#	ITEM	TIMEFRAME	AGENCY(S)	BUDGET REQUESTED FROM MLF (US$)
1	Preparation of detailed work-plan including: a. Finalize selection of product category and alternative(s) per each. b. Finalize and approve testing methodology at 3rd party lab c. Agree unified design conditions per each product range d. Match partners between technology providers and regional industries e. Prepare legal documentation to facilitate technology transfer between technology providers and regional industries	April/June13	UNEP/ UNIDO	-
2	Building prototypes for each product range	June/Oct13	UNEP/ UNIDO	N/A[1]
3	Testing prototypes at 3rd party testing laboratory (testing of 66 prototypes at 35^0C, 46^0C, 48^0C) including: a. Development and agreement on TORs and invited labs b. Competitive bidding and selection of 3rd party lab c. Conducting the test on prototypes	Sept13/Feb14	UNIDO	320,000
4	Consultancy services for managing the testing programme and prepare the comparison and final report	Aug13/June14	UNIDO	50,000
5	Consultancy services for managing the overall project management and coordinating technical legal issues between technology providers and regional industries as well as supporting the development of the final report	May13/June14	UNEP	75,000
6	Consultation meetings and consultants/participants/experts travel	May13/June14	UNEP	60,000
7	Regional technical workshops/functions	May13/June14	UNEP	30,000[2]
8	Assessment study on long-term feasible technologies for air-conditioning sector (Pilot study in Qatar).	May13/June14	UNEP/ UNIDO	N/A[3]
9	Coordinating phase-out requirements with EE labelling programmes targets (National and regional work)	May13/June14	UNEP/ UNIDO	N/A[4]
10	Field visits	June/Sept13	UNIDO	30,000
11	Reporting and documentation	May13/June14	UNEP	10,000
			Total for UNEP	175,000
			Total for UNIDO	400,000
			Grand Total (not including PSC)	575,000

1. Will be covered by both regional manufacturers and technology providers including raw materials, technical support and building prototypes at end of each regional manufacturer facility
2. Supported by resources from CAP/ROWA
3. Part of HPMP of Qatar and will be used as model for rest of Gulf Cooperation Council countries
4. Part of countries' HPMPs and regional work of CAP/ROWA

Secretariat's comments

12. The Secretariat noted that this project request was included in UNEP's 2012 business plan and was noted and maintained by the Executive Committee at its 66th meeting. At the 66th meeting, the Executive Committee, in decision 66/5(b), decided to keep the project in the business plan with an adjusted funding for US $250,000 for the entire project.

13. In its review, the Secretariat recognised that the project approach was different and not just a normal study, and proposed practical technical solutions taking into account the specific situations faced by Article 5 countries with high-ambient temperatures. It also took note of the extensive consultation process undertaken by the agencies, as well as the industry's commitment to support this project.

14. The Secretariat requested UNEP to further clarify the objectives and clearly link them to the identified priorities of the project. It also requested UNEP to provide additional information on the

project scope and coverage, identify the specific countries that would participate and in what capacity, and define roles of the other stakeholders. In addition, UNEP was asked to further articulate the expected outputs of the project in a manner that would give information on how these outputs would be utilized by the various stakeholders.

15. There were also some technical issues raised by the Secretariat, which included the following:

(a) Explanation on the criteria for determination of products and alternative technologies to be tested;

(b) Determination of the need (or not) for optimization of certain parameters during the testing process which could lead to differences in the ranking of refrigerants; and

(c) Baseline information to be used for comparing results of testing that would be done and reasons for the number of tests proposed (i.e. 66 tests) in the project.

16. The Secretariat also asked a number of questions related to the funding for the project noting in particular the possible overlap of cost items between UNEP and UNIDO for certain activities. It requested additional details for those items marked consultancy services, as well as brief terms of reference for these consultants.

17. UNEP indicated that the project will be implemented at a regional level, with the participation of Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and the United Arab Emirates, and will ensure that the project outputs will be integrated into the Stage II HPMPs of these countries, as well as their post-2015 policies and action plans to support HCFC phase-out.

18. With regard to the technical issues, UNEP explained that these were discussed during the consultation process with the local manufacturers, and that the adjustments would be made when testing and building the prototypes, provided that these are for equipment in which compressors already exist in order to have a comparison value. An explanation of the testing methodology as well as baseline information was also provided in the revised document. UNEP also confirmed that the refrigerants to be tested are in line with the latest assessment report of the UNEP Refrigeration' Air Conditioning and Heat Pumps Technical Options Committee (RTOC).

19. UNEP has provided a revised funding table taking into account the comments and observations of the Secretariat. The final requested funding remains at the same level; however, further details and information are provided to clarify the aspects noted by the Secretariat. In addition, it gives cost estimates for the components to be covered by other partners or already approved funding. Out of the total requested funds of US $625,750, US $175,000 plus agency support costs of US $22,750 are for UNEP, while US $400,000 plus agency support costs of US $28,000 are for UNIDO. In taking note of the limit imposed by the Executive Committee in line with decision 66/5(b), UNEP had indicated that it would be difficult to implement the project with the proposed funding, and further emphasised that the current proposal even includes co-funding from partners (US $725,000). The Secretariat had agreed to forward the request for the Executive Committee's consideration at the submitted level of funding, considering that all technical and other issues had been addressed by UNEP in a satisfactory manner.

20. The revised table is shown below:

Table 3: Revised funding table

#	Item	Timeframe	Agency(s)	Co-Finance (US$)	Requested fund from MLF (US$)	Total (US$)
1	Preparation of detailed work-plan including: a. Finalize selection of product category and alternative(s) per each. b. Finalize and approve testing methodology at 3rd party lab c. Agree unified design conditions per each product range d. Match partners between technology providers and regional industries e. Prepare legal documentation to facilitate technology transfer between technology providers and regional industries	April/ June13	UNEP/ UNIDO	30,000[1]	-	30,000
2	Building Prototypes for each product range	June/Oct13	UNEP/ UNIDO	330,000[2]	-	330,000
3	Testing prototypes at 3rd party testing laboratory (testing of 66 prototypes at 35^{0}C, 46^{0}C, 48^{0}C) including: a. Development and agreement on TORs and invited labs b. Competitive bidding and selection of 3rd party lab c. Conducting the test on prototypes	Sept13/ Feb14	UNIDO	150,000[3]	320,000	470,000
4	Managing the testing program including: consultancy services for 80 day over a period of 12 months @ US$ 450-500/day to prepare testing criteria, validate the testing at the 3rd party lab, discuss and conclude test results and prepare initial and final test report + associated logistical cost for travel, DSA, communication, etc.	Aug13/ June14	UNIDO	-	50,000	50,000
5	Managing the overall project including: consultancy services for 150 day over a period of 15 months @ US$ 450-500/day which includes coordinating technical and legal issues between technology providers & regional industries and development of the final report	May13/ June14	UNEP	-	75,000	75,000
6	Technical review of the project including: a. Formation of regional technical team and organization of 3 consultation meetings for 6 regional experts of the technical review team @ about US$ 15,000 per meeting (US$ 2,500 / expert) = total of US$ 45,000	May13/ June14	UNEP	-	60,000	60,000

#	Item	Timeframe	Agency(s)	Co-Finance (US$)	Requested fund from MLF (US$)	Total (US$)
	b. Travel cost for the project consultant(s) (line-5) for 5 missions, including the technical review meetings @ about US$ 3,000 per mission = US$ 15,000					
7	Dissemination of project outputs through regional technical workshops and policy-makers meeting	May13/ June14	UNEP	70,000[4]	30,000	100,000
8	Assessment study on long-term feasible technologies for air-conditioning sector (Pilot study in Qatar)	May13/ June14	UNEP/ UNIDO	75,000[5]	N/A	75,000
9	Coordinating phase-out requirements with EE Labelling programs targets (National and regional work)	May13/ June14	UNEP/ UNIDO	40,000[6]	N/A	40,000
10	Field Visits (Technical visits of local manufacturers to global manufacturing sites using low-GWP in production of A/C units)	June-Sept13	UNIDO	30,000[7]	30,000	60,000
11	Reporting and documentation	May13/ June14	UNEP	-	10,000	10,000
			Total for UNEP		175,000	
			Total for UNIDO		400,000	
			Grand Total (not including PSC)	725,000	575,000	1,300,000
				PSC for UNEP (13%)	22,750	
				PSC for UNIDO (7%)	28,000	
				Total request from MLF	625,750	

1. Cost of participation of local manufacturers/global technology providers + organizational cost of the meeting
2. Estimated of: cost of raw materials, from technology providers i.e. sample compressors and refrigerants, + cost of prototypes made at local manufacturers + cost of technical support from technology providers including visits + cost of internal testing and labor time at local manufacturers
3. Cost of local manufacturers and technology providers to support the testing at 3rd party lab including
4. Partially covered from CAP/ROWA to the organization of large regional event (4th Symposium on alternatives in high ambient) with co-funding from regional partners
5. Part of HPMP of Qatar and will be used as model for rest of GCC countries (partially covered from Qatar HPMP funds)
6. Coordination meetings for environment and standardization authorities covered by governments of respective countries
7. Cost of the field visits will be 50% covered by the local manufacturers

Secretariat's recommendation

21. Taking into account decision 66/5(b), where the limit of US $250,000 had been set for this entire project in UNEP's 2012 business plan, the Executive Committee may wish to consider whether or not to approve the UNEP component of the request for the project Promoting low-global warming potential refrigerants for air-conditioning sectors in high-ambient temperature countries in West Asia at the total funding level of funding of US $175,000, plus agency support costs of US $22,750 for UNEP.

Annex I

INSTITUTIONAL STRENGTHENING PROJECT PROPOSALS

Angola: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNEP
Amounts previously approved for institutional strengthening (US $):		
	Phase I: Nov. 2002	213,300
	Phase II: Nov. 2006	134,400
	Phase III: Apr. 2011	134,400
	Total:	482,100
Amount requested for renewal (phase IV) (US $):		134,400
Amount recommended for approval for phase IV (US $):		134,400
Agency support costs (US $):		0
Total cost of institutional strengthening phase IV to the Multilateral Fund (US $):		134,400
Date of approval of country programme:		2002
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)		114.8
(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 C, Group I (HCFCs) (average 2009-2010)		16.0
(f) 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 C, Group I (HCFCs)		11.55
(f) Annex E (methyl bromide)		0.0
	Total:	11.55
Year of reported country programme implementation data:		2011
Amount approved for projects (as at December 2012) (US $):		1,503,322
Amount disbursed (as at December 2011) (US $):		1,236,803
ODS to be phased out (as at December 2012) (ODP tonnes):		97.6
ODS phased out (as at December 2011) (ODP tonnes):		97.8

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	86,222
(b) Institutional strengthening:	482,100
(c) Project preparation, technical assistance, training and other non-investment projects:	935,000
Total:	1,503,322

Progress report

2. Angola is in compliance with all the Montreal Protocol control measures. During the third phase of its institutional strengthening (IS) project, the Government of Angola issued regulations on the import and export of ozone-depleting substances (ODS) including the HCFC licensing and quota system organized numerous awareness raising activities and implemented various phase-out plans. In line with this strategy, the national ozone unit (NOU) organized five training sessions in four provinces in Angola addressing a total of 195 participants including 85 refrigeration technicians, 90 customs and other law enforcement officers, and 20 farmers.

Plan of action

3. During the fourth phase the NOU aims to maintain its compliance with the Montreal Protocol control measures by implementing programmes and strategies to gradually phase out HCFCs. The NOU will strengthen partnerships with relevant institutions, undertake additional awareness-raising activities, promote ODS alternatives through training, ensure the integration of Montreal Protocol objectives into the national environmental policy, and carry out training of relevant personnel concerned with the phase-out process. The NOU will also continue monitoring, collecting and reporting ODS consumption data and will provide additional support to security officers for regulations enforcement.

Croatia: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Oct. 1996	101,200
	Phase II:	Nov. 1999	67,000
	Phase III:	Mar. 2002	87,900
	Phase IV:	Dec. 2003	87,707
	Phase V:	Nov. 2005	87,707
	Phase VI	Nov. 2008	87,707
	Phase VII	Apr. 2011	87,707
		Total:	606,928
Amount requested for renewal (phase VIII) (US $):			87,707
Amount recommended for approval for phase VIII (US $):			87,707
Agency support costs (US $):			0
Total cost of institutional strengthening phase VIII to the Multilateral Fund (US $):			87,707
Date of approval of country programme:			1996
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)			219.3
(b) Annex A, Group II (halons) (average 1995-1997)			30.1
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			3.9
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)			4.0
(f) Annex E (methyl bromide) (average 1995-1998)			15.7
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)			0.6

Summary of the project and country profile	
(d) Annex B, Group III (methyl chloroform)	0.0
(e) Annex C, Group I (HCFCs)	4.16
(f) Annex E (methyl bromide)	0.0
Total:	4.76
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	3,879,530
Amount disbursed (as at December 2011) (US $):	2,845,393
ODS to be phased out (as at December 2012) (ODP tonnes):	205.2
ODS phased out (as at December 2011) (ODP tonnes):	230.2

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	1,882,542
(b) Institutional strengthening:	606,928
(c) Project preparation, technical assistance, training and other non-investment projects:	1,390,060
Total:	3,879,530

Progress report

5. Croatia is in compliance with all the Montreal Protocol control measures. In accordance with established regulations, all CFCs and halons from cooling and air-conditioning units, fire fighting systems and fire extinguishers have been withdrawn and disposed. Croatia collected data on all installed quantities of ODS, established a system to extract the blowing agent (gas) from the insulation foam of all collected refrigerators and introduced the HCFC quota system in accordance with the the new ODS and F-gas regulation (OG, 92/12) schedule. The import of products and equipment containing and relying on HCFC substances in the Republic of Croatia has been banned since October 2005. The NOU also disseminated among end users of CTC in laboratory applications information about new technologies and the CTC control measures.

Plan of action

6. NOU activities during the next phase will focus on ensuring compliance with the HCFC quota system through developing further supportive legislative measures to control HCFC consumption and decrease emissions. The NOU will ensure implementation of approved HPMP activities including the phase-out of HCFC-141b from foam manufacturing at POLI-MIX and the training and certification of service technicians, customs officers and other key stakeholders on ozone and climate-friendly technologies. The NOU also plans to assist CTC users in identifying alternatives for current laboratory applications and to continue implementing public awareness programmes on protection of the ozone layer and climate change.

Iraq: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing agency:	UNEP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Apr. 2008 & Apr 2009	300,000
Total:	300,000
Amount requested for renewal (phase II) (US $):	240,000
Amount recommended for approval for phase II (US $):	240,000
Agency support costs (US $):	0
Total cost of institutional strengthening phase II to the Multilateral Fund (US $):	240,000
Date of approval of country programme:	2009
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)	1,517.0
(b) Annex A, Group II (halons) (average 1995-1997)	70.4
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)	21.4
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)	0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)	108.4
(f) Annex E (methyl bromide) (average 1995-1998)	4.6
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 C, Group I (HCFCs)	110.44
(f) Annex E (methyl bromide)	0.0
Total:	110.44
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	9,627,538
Amount disbursed (as at December 2011) (US $):	3,420,287
ODS to be phased out (as at December 2012) (ODP tonnes):	1,475.0
ODS phased out (as at December 2011) (ODP tonnes):	0

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	7,236,538
(b) Institutional strengthening:	300,000
(c) Project preparation, technical assistance, training and other non-investment projects:	2,091,000
Total:	9,627,538

Progress report

8. Despite Iraq's recent ratification of the Vienna Convention, the Montreal Protocol and its amendments in 2008, the NOU was established within a short period of time as part of the Ministry of Environment and has already started implementing a large number of activities under the country programme and national phase out plan (CP/NPP) to phase out CFCs, halons and CTC. The ODS

regulation, including the temporary import licensing system, has been strictly enforced thus enabling Iraq to fulfil its commitments in completely phasing out the consumption of CFCs in 2012. The NOU also developed and ensured approval and set up of the licensing and quota system for HCFC imports. The establishment of a certification scheme for technicians was also initiated and expected to result in better performance within the sector. Awareness raising activities targeting the public, end-users and servicing technicians were conducted. Iraq is an active member of the Regional Ozone Network for West Asia. The NOU also ensured the timely submission of Article 7 data report and CP progress report for the years 2009, 2010 and 2011.

Plan of action

9. The IS project is helping the NOU to rapidly build up national capacities, to achieve compliance with Montreal Protocol targets and to complete the NPP and other tasks such as the investment project in domestic refrigeration and the methyl bromide phase-out plan. The NOU will continue during this phase to develop/update the legislative and regulatory measures to be adopted by the responsible government authorities with a view to meeting the HCFC phase-out targets including the consumption freeze in 2013 and the 10 per cent reduction target in 2015. The NOU will give priority and follow up the initiation of the HCFC import quota system, will intensify awareness raising activities and will further strengthen its cooperation with the customs department through the continued capacity building of customs officers, and reinforce controls on illegal trade in cooperation with i-Pacific Island countries and regional authorities. In addition, the NOU will continue its efforts towards the implementation of the HPMP.

Kenya: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar. 1993	175,000
	Phase II:	Jul. 1998	116,667
	Phase III:	Dec. 2000	116,667
	Phase IV:	Nov. 2002	151,667
	Phase V:	Dec. 2004	151,667
	Phase VI:	Jul. 2007 & Jul. 2008	151,666
	Phase VII:	Jul. 2009	107,431
	Phase VIII	Dec. 2010	151,667
		Total:	1,122,432
Amount requested for renewal (phase IX) (US $):			151,667
Amount recommended for approval for phase IX (US $):			151,667
Agency support costs (US $):			0
Total cost of institutional strengthening phase IX to the Multilateral Fund (US $):			151,667
Date of approval of country programme:			1994
Date of approval of HCFC phase-out management plan:			2012
Baseline consumption of controlled substances (ODP tonnes):			
(a) Annex A, Group I (CFCs) (average 1995-1997)			239.5
(b) Annex A, Group II (halons) (average 1995-1997)			5.3
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			65.9
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			1.1
(e) Annex C, Group I (HCFCs) (average 2009-2010)			52.2
(f) Annex E (methyl bromide) (average 1995-1998)			217.5
Latest reported ODS consumption (2011) (ODP tonnes) as per Article 7:			

Summary of the project and country profile	
(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 C, Group I (HCFCs)	48.62
(f) Annex E (methyl bromide)	8.50
Total:	57.12
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	6,680,968
Amount disbursed (as at December 2011) (US $):	5,307,565
ODS to be phased out (as at December 2012) (ODP tonnes):	664.4
ODS phased out (as at December 2011) (ODP tonnes):	359.2

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	4,118,119
(b) Institutional strengthening:	1,122,432
(c) Project preparation, technical assistance, training and other non-investment projects:	1,440,417
Total:	6,680,968

Progress report

11. During the reporting period, the NOU of Kenya continued to successfully implement the Montreal Protocol. The NOU revised the ODS import licensing and quota system to include HCFCs and established a unit for its enforcement. The NOU also embarked on an awareness programme, trained customs officers, refrigeration and air conditioning technicians, implemented the methyl bromide phase-out project, continued implementation of the terminal phase-out management plan (TPMP), and formulated and started implementation of the HPMP.

Plan of action

12. During the next IS Phase the country will endeavour to implement its plan of action to ensure sustained compliance with the Montreal Protocol. The NOU will continue with the training programme for refrigeration technicians as well as for newly recruited and remaining customs officers to support the implementation and enforcement of ODS regulations including HCFCs. The NOU will continue its awareness raising programme through mass media coverage, NGOs, workshops, and the distribution of relevant informative materials to the industry and other stakeholders. The Government of Kenya also expects to finalize the ratification process of the Beijing amendment during 2013.

Liberia: Renewal of institutional strengthening

Summary of the project and country profile		
Implementing agency:		UNEP
Amounts previously approved for institutional strengthening (US $):		
	Phase I: Dec. 2003	127,820
	Phase II: Mar. 2007	85,213
	Phase III: Apr. 2009	85,213
	Phase IV: Apr. 2011	85,213
	Total:	383,459
Amount requested for renewal (phase V) (US $):		85,213
Amount recommended for approval for phase V (US $):		85,213
Agency support costs (US $):		0
Total cost of institutional strengthening phase V to the Multilateral Fund (US $):		85,213
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)		56.1
(b) Annex A, Group II (halons) (average 1995-1997)		19.5
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)		0.2
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)		0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)		5.3
(f) 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 C, Group I (HCFCs)		5.41
(f) Annex E (methyl bromide)		0.0
	Total:	5.41
Year of reported country programme implementation data:		2011
Amount approved for projects (as at December 2012) (US $):		1,487,522
Amount disbursed (as at December 2011) (US $):		1,268,078
ODS to be phased out (as at December 2012) (ODP tonnes):		56.7
ODS phased out (as at December 2011) (ODP tonnes):		40.4

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	289,500
(b) Institutional strengthening:	383,459
(c) Project preparation, technical assistance, training and other non-investment projects:	814,563
Total:	1,487,522

Progress report

14. Liberia is in compliance with all the Montreal Protocol control measures. During the fourth phase of its IS project, the NOU organized several activities to raise awareness on the HCFC phase-out, promoted acceptable refrigerant alternatives, and implemented the TPMP and HPMP. The HCFC import

licensing and quota system is in place and operational. Training and capacity building included 100 refrigeration technicians, 30 customs and other law enforcement officers. These activities enabled the NOU to create a good working relationship with governmental bodies, industry associations and other relevant stakeholders closely involved in supporting ODS phase-out activities in the country.

Plan of action

15. For the next phase, the NOU aims to maintain compliance with the Montreal Protocol control measures and to implement programmes and strategies to gradually phase out HCFCs. The NOU will strengthen partnerships with relevant institutions, carry out public awareness activities, coordinate and monitor activities under the HPMP, ensure the integration of the Montreal Protocol objectives into environmental policies and regulations, and carry out training of relevant personnel concerned with the phase out process.

Sierra Leone: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar. 2002 & Dec. 2003	111,800
	Phase II:	Nov. 2005 & Mar. 2007	96,890
	Phase III:	Apr. 2008	85,800
	Phase IV:	Jul. 2010	85,800
		Total:	380,290
Amount requested for renewal (phase V) (US $):			85,800
Amount recommended for approval for phase V (US $):			85,800
Agency support costs (US $):			0
Total cost of institutional strengthening phase V to the Multilateral Fund (US $):			85,800
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)			78.6
(b) Annex A, Group II (halons) (average 1995-1997)			16.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			2.6
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)			1.7
(f) Annex E (methyl bromide) (average 1995-1998)			2.6
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 C, Group I (HCFCs)			1.87
(f) Annex E (methyl bromide)			0.0
		Total:	1.87
Year of reported country programme implementation data:			2011
Amount approved for projects (as at December 2012) (US $):			1,340,523
Amount disbursed (as at December 2011) (US $):			1,020,433

Summary of the project and country profile	
ODS to be phased out (as at December 2012) (ODP tonnes):	79.5
ODS phased out (as at December 2011) (ODP tonnes):	70.7

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

Summary of activities	Funds approved (US $)
(a) Investment projects:	110,000
(b) Institutional strengthening:	380,290
(c) Project preparation, technical assistance, training and other non-investment projects:	850,233
Total:	1,340,523

Progress report

17. Sierra Leone is in compliance with all the Montreal Protocol control measures. During the present IS phase, the NOU successfully completed its TPMP, began implementation of the HPMP, organized several activities to raise awareness on the HCFC phase-out and promoted acceptable refrigerant alternatives. The HCFC import licensing and quota system is in place and operational. Five centres of excellence were created to train refrigeration technicians and training was also imparted to 300 customs and law enforcement officers. These activities enabled the NOU to create a good working relationship with government bodies, industry associations and other relevant stakeholders closely involved in supporting ODS phase-out activities in the country.

Plan of action

18. For the fifth IS phase, the NOU aims to maintain compliance with the Montreal Protocol control measures and to implement programmes and strategies to gradually phase out HCFCs. The NOU will strengthen partnerships with relevant institutions, carry out public awareness activities, coordinate and monitor activities under the HPMP, ensure the integration of the Montreal Protocol objectives into environmental policies and regulations, and carry out training of relevant personnel concerned with the ODS phase-out process.

Sudan: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Mar. 1994	168,300
	Phase II:	Jul. 1999	112,200
	Phase III:	Jul. 2001	112,200
	Phase IV:	Apr. 2004	145,860
	Phase V:	Jul. 2009	109,395
	Phase VI:	Dec. 2010	145,860
	Total:		793,815
Amount requested for renewal (phase VII) (US $):			145,860
Amount recommended for approval for phase VII (US $):			145,860
Agency support costs (US $):			0
Total cost of institutional strengthening phase VII to the Multilateral Fund (US $):			145,860

Summary of the project and country profile	
Date of approval of country programme:	1994
Date of approval of HCFC phase-out management plan:	2012
Baseline consumption of controlled substances (ODP tonnes):	
(a) Annex A, Group I (CFCs) (average 1995-1997)	456.8
(b) Annex A, Group II (halons) (average 1995-1997)	2.0
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)	2.2
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)	0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)	52.7
(f) Annex E (methyl bromide) (average 1995-1998)	3.0
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 C, Group I (HCFCs)	55.0
(f) Annex E (methyl bromide)	1.2
Total:	56.2
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	4,934,444
Amount disbursed (as at December 2011) (US $):	3,211,594
ODS to be phased out (as at December 2012) (ODP tonnes):	641.2
ODS phased out (as at December 2011) (ODP tonnes):	579.4

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	3,247,379
(b) Institutional strengthening:	793,815
(c) Project preparation, technical assistance, training and other non-investment projects:	893,250
Total:	4,934,444

Progress report

20. Sudan is in compliance with all the Montreal Protocol control measures. The NOU, operating since June 1995, has developed effective partnerships with different governmental bodies, industry associations, NGOs, and citizen groups involved in supporting ODS phase-out activities in the country. During the current IS phase, the NOU implemented activities to sustain the CFC phase-out and to control HCFCs and methyl bromide, including training and capacity building programmes for refrigeration technicians, training of customs officers in the detection of ODS and operation of refrigerant identifiers, as well as training and awareness on methyl bromide. The HCFC licensing and quota system is in place and operational. Extensive efforts were made to work jointly with stakeholders through public and private sector consultations. Sudan is an active member of the regional ozone network for English-speaking Africa and participated in the Meeting of the Parties and Open-Ended Working Group meetings.

Plan of action

21. For the next IS phase, the NOU aims to maintain compliance with the Montreal Protocol control measures and to implement programmes and strategies to gradually phase out HCFCs. The NOU will

enforce the HCFC import regulations and quota system, closely monitor amounts of HCFCs imported and their distribution, consider potential regulatory interventions such as restrictions on the installation of new capacities or expansion of existing capacities for manufacturing of HCFC-based products, expand training and equipment for customs officers to cover HCFCs, encourage recovery, recycling and reclamation of HCFCs through the introduction of appropriate training and equipment, and strengthen the understanding and capability of personnel in stakeholder institutions to implement HCFC phase-out activities.

Timor Leste: Renewal of institutional strengthening

Summary of the project and country profile	
Implementing agency:	UNEP
Amounts previously approved for institutional strengthening (US $):	
Phase I: Nov. 2008	40,000
Phase II: Jul. 2010 & Jul. 2011	60,000
Total:	100,000
Amount requested for renewal (phase III) (US $):	60,000
Amount recommended for approval for phase III (US $):	60,000
Agency support costs (US $):	0
Total cost of institutional strengthening phase III to the Multilateral Fund (US $):	60,000
Date of approval of country programme:	2011
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)	36.0
(b) Annex A, Group II (halons) (average 1995-1997)	1.5
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)	0.0
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)	0.1
(e) Annex C, Group I (HCFCs) (average 2009-2010)	0.5
(f) Annex E (methyl bromide) (average 1995-1998)	0.2
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 C, Group I (HCFCs)	0.15
(f) Annex E (methyl bromide)	0.0
Total:	0.15
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	394,620
Amount disbursed (as at December 2011) (US $):	178,226
ODS to be phased out (as at December 2012) (ODP tonnes):	0
ODS phased out (as at December 2011) (ODP tonnes):	0

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	96,120
(b) Institutional strengthening:	100,000
(c) Project preparation, technical assistance, training and other non-investment projects:	198,500
Total:	394,620

Progress report

23. During the second phase of its IS project, the Secretariat of State for Environment, with the support from the NOU obtained approval of the Decree Law that includes the ODS import/export licensing and quota system and the ban of CFC-based equipment. The NOU also obtained in 2011 approval of the HPMP and began implementation of its first tranche, including a train-the-trainer workshop for customs officers in July 2012. Other activities carried out by the NOU include data reporting, stakeholder coordination and development of information material and other awareness raising activities.

Plan of action

24. During the next phase Timor Leste will focus on achieving and maintaining compliance with the country's obligations under the Montreal Protocol. The NOU will continue implementing the approved activities under the HPMP, and further strengthen the enforcement of the Decree Law to ensure successful implementation of the ODS import/export licensing/quota system.

Zimbabwe: Renewal of institutional strengthening

Summary of the project and country profile			
Implementing agency:			UNEP
Amounts previously approved for institutional strengthening (US $):			
	Phase I:	Jul. 1994	171,050
	Phase II:	Jul. 1999	114,033
	Phase III:	Jul. 2001	114,033
	Phase IV:	Jul. 2004	148,242
	Phase V:	Nov. 2006	148,242
	Phase VI:	Nov. 2009	148,241
		Total:	843,841
Amount requested for renewal (phase VII) (US $):			148,242
Amount recommended for approval for phase VII (US $):			148,242
Agency support costs (US $):			0
Total cost of institutional strengthening phase VII to the Multilateral Fund (US $):			148,242
Date of approval of country programme:			1994
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)			451.4
(b) Annex A, Group II (halons) (average 1995-1997)			1.5
(c) Annex B, Group II (carbon tetrachloride) (average 1998-2000)			11.6
(d) Annex B, Group III (methyl chloroform) (average 1998-2000)			0.0
(e) Annex C, Group I (HCFCs) (average 2009-2010)			17.8
(f) Annex E (methyl bromide) (average 1995-1998)			557.0
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 C, Group I (HCFCs)			19.82
(f) Annex E (methyl bromide)			2.40

Summary of the project and country profile	
Total:	22.22
Year of reported country programme implementation data:	2011
Amount approved for projects (as at December 2012) (US $):	8,781,849
Amount disbursed (as at December 2011) (US $):	8,483,635
ODS to be phased out (as at December 2012) (ODP tonnes):	482.0
ODS phased out (as at December 2011) (ODP tonnes):	454.8

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

Summary of activities	**Funds approved (US $)**
(a) Investment projects:	6,352,398
(b) Institutional strengthening:	843,841
(c) Project preparation, technical assistance, training and other non-investment projects:	1,585,610
Total:	8,781,849

Progress report

26. During the sixth phase, the NOU of Zimbabwe continued to successfully implement the approved activities under the IS and HPMP preparation. The NOU reviewed ODS regulations to include HCFCs in the licensing and quota system, conducted a national survey on HCFC use in preparation for the HPMP, embarked on an awareness programme, and trained customs officers, boarder control police, and refrigeration technicians.

Plan of action

27. During the next phase, the Government of Zimbabwe will endeavour to implement its plan of action to ensure sustained compliance with the Montreal Protocol. The NOU will continue the implementation of the HPMP including the training programme for 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 also proceed. The NOU will continue with the awareness raising programme through mass media coverage, NGOs, workshops, and distribution of information material to the industry and other stakeholders.

Annex II

VIEWS EXPRESSED BY THE EXECUTIVE COMMITTEE ON RENEWAL OF INSTITUTIONAL STRENGTHENING PROJECTS SUBMITTED TO THE 69th MEETING

Angola

1. The Executive Committee reviewed the report presented with the institutional strengthening project renewal request for Angola and noted with appreciation that the country reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating sustained phase-out of CFC consumption. The Executive Committee expressed the expectation that, within the next two years, Angola will continue the implementation of ODS phase-out activities with outstanding success to achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Croatia

2. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Croatia and noted with appreciation that the country reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating compliance with the Montreal Protocol control measures. The Executive Committee acknowledged with appreciation that Croatia has a well-structured licensing and quota system and that the HCFC phase-out management plan (HPMP) has been implemented in an efficient and timely manner. The Executive Committee is therefore confident that Croatia will successfully continue activities at both the project and policy levels to enable the country to meet its Montreal Protocol targets.

Iraq

3. The Executive Committee reviewed the report presented with the institutional strengthening project renewal request and noted with appreciation that Iraq reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating sustained compliance with the total phase-out of CFCs, halons and CTC. The Executive Committee also noted with appreciation that Iraq enacted a comprehensive set of regulations for all ODS including HCFCs. The Executive Committee expressed the expectation that within the next two years, Iraq will continue implementation of its country programme and HCFC phase-out management plan activities with outstanding success with the aim to sustain ODS phase-out and achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Kenya

4. The Executive Committee reviewed the information presented with the institutional strengthening project renewal request and noted with appreciation that Kenya reported 2011 Article 7 data to the Ozone Secretariat indicating that the country was in compliance with the Montreal Protocol control measures. The Executive Committee also noted with appreciation that during the current phase Kenya has taken significant steps to phase out its consumption of ODS, including the implementation of a licensing and quota system on ODS imports and the training of customs officers as well as refrigeration and air conditioning technicians. The Executive Committee encouraged Kenya to finalize the process of ratification of the Beijing Amendment as soon as possible and expressed the expectation that, within the next two years, Kenya will continue with outstanding success the implementation of the licensing and quota system, the HCFC phase-out management plan, and the methyl bromide phase-out activities in

order to maintain compliance with current Montreal Protocol commitments and achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Liberia

5. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request and noted with appreciation that Liberia reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating that the country sustained the total phase-out of CFCs. The Executive Committee expressed the expectation that, within the next two years, Liberia will continue with the implementation of its ODS phase-out activities with outstanding success in order to achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Sierra Leone

6. The Executive Committee reviewed the report presented with the institutional strengthening project renewal request for Sierra Leone and noted with appreciation that the country reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating compliance with the Montreal Protocol targets. The Executive Committee also noted with appreciation the completion of the terminal phase-out management plan and the enacting and enforcement of a licensing and quota system on HCFC imports. The Executive Committee is therefore hopeful that, within the next two years, Sierra Leone will continue with the implementation of its HCFC phase-out management plan activities with outstanding success in order to achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Sudan

7. The Executive Committee reviewed the report presented with the institutional strengthening project renewal request for Sudan and noted with appreciation that the country reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat showing compliance with the Montreal Protocol targets. The Executive Committee also noted with appreciation the activities reported during the current phase including the implementation of the HCFC licensing and quota system. The Executive Committee is therefore hopeful that Sudan will continue with the implementation of its HCFC phase-out management plan activities with outstanding success in order to achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Timor Leste

8. The Executive Committee reviewed the report submitted with the institutional strengthening project renewal request for Timor Leste and noted with appreciation that Timor Leste has reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating compliance with the Montreal Protocol measures. The Executive Committee is therefore optimistic that, within the next two years, Timor Leste will continue the implementation of its HCFC phase-out management plan with outstanding success in order to achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Zimbabwe

9. The Executive Committee reviewed the information presented with the institutional strengthening project renewal request for Zimbabwe and noted with appreciation that Zimbabwe reported 2011 country programme implementation data to the Multilateral Fund Secretariat and Article 7 data to the Ozone Secretariat indicating sustained compliance with the Montreal Protocol targets for all ODS. The Executive

Committee also noted with appreciation that during the current phase Zimbabwe has taken some significant steps to phase out its consumption of ODS, including the implementation of a licensing system on ODS imports and the training of customs officers and refrigeration technicians. The Executive Committee expressed the expectation that, within the next two years, Zimbabwe will continue with outstanding success the implementation of the HCFC import licensing and quota system, the HCFC phase–out management plan activities and the methyl bromide phase-out activities in order to maintain compliance with current Montreal Protocol commitments and achieve the HCFC consumption freeze in 2013 and 10 per cent reduction in 2015.

Annex III

Project Proposal
Promoting low GWP Refrigerants for Air-Conditioning Sectors in High-Ambient Temperature Countries

By: UNEP & UNIDO

1. BACKGROUND

Global environmental concerns are becoming increasingly challenging, affecting the process of development and accumulating additional burdens on economies particularly in the developing world. Ozone Depletion and Climate Change are examples of such global threats that endanger life on earth and have gained over the last two decades increasing recognition and response by the international community, resulting in the creation of several international conventions and protocols to combat such risks.

Upon the discovery of CFCs and other man-made substances that deplete the ozone layer, the international community negotiated the Vienna Convention (VC) for the Protection of the Ozone Layer in 1985. Following this, the Montreal Protocol (MP) on Substances that Deplete the Ozone Layer was adopted in 1987 with the objective of reducing and finally phasing out the use of ozone-depleting substances (ODS).

Hydrochlorofluorocarbons (HCFCs) are ozone-depleting substances and, under the terms of the Montreal Protocol, the production and consumption of HCFCs will be phased out in worldwide over the next 20 years. In September of 2007, the Parties to the Montreal Protocol agreed to accelerate the phase-out schedule for HCFCs in developing countries. The Parties agreed to reduce HCFC consumption in developing countries to include freeze consumption levels, based on average of 2009-2010, in the year 2013 followed by cuts in that level by 10%, 35%, 67.5% & 97.5% for the years 2015, 2020, 2025 & 2030 respectively allowing 2.5% to continue during the period 2030-2040 as service tail which will be further assessed and modified in 2025 by Parties to the Montreal Protocol.

At the 19th meeting of parties to the Montreal Protocol, Parties took Decision XIX/8 related to HCFC alternatives and specific climatic conditions in consequent to the Montreal Adjustment accelerating the phase-out of HCFC and in response to concerns raised by several parties about the availability of viable HCFC alternative to all air-conditioning consuming sectors particularly in high-ambient temperature regions.

The Technology and Economics Assessment Panel (TEAP) which operates under the Montreal Protocol responded to the said decision and provided conclusions in its TEAP report. Subsequent feedback presented by many concerned parties, over the last couple of years, suggested that feasible alternatives are currently of high GWP nature and that potential low-GWP alternatives are currently in the early stages of development.

Parties to the Montreal Protocol, in their 21st meeting, adopted another decision concerning Hydrochlorofluorocarbons and environmentally sound alternatives. The decision calls for further assessment and support work to enable parties to find beast ways forward particularly those with forthcoming compliance targets related to consumption of HCFC in the air-conditioning sector.

During the preparation of HCFC Phase-out Management Plans (HPMPs) in West Asia, industry representatives introduced their concerns and worries of meeting the freeze and reduction targets where alternatives to HCFC-22 in small/medium size air-conditioning applications not yet introduced and verified by local markets. Additionally, governments started to apply new energy saving requirements for placing air-conditioning units into markets, and increasing design temperature to 48 C and reducing KWh per TR which will disqualify most of the commercially available alternatives.

On the other hand, the continuation of HFCs, which are currently promoted as alternatives to CFC & HCFC over the last two decades, is currently doubtful due to its contribution to the global warming. HCFCs are used extensively in the refrigeration and air conditioning industry and in particular in the air-conditioning industry and may not be the best efficient alternatives for many air-conditioning applications particularly in high-ambient operating conditions.

This situation is leading the future of air-conditioning industry, in particular in GCC countries, to uncertainty and vagueness which is putting a high burden on one of the most important sectors in the region. The

challenge for the HVAC&R industry and equipment owners is to prepare for the orderly move from HCFC refrigerants to the many alternatives offered in the refrigeration marketplace. The future refrigerants should not have only substantial benefits for the environment but also they should provide efficient cooling. The challenges are more pronounced for high ambient temperature countries such as gulf countries.

2. CHALLENGES & PROJECT JUSTIFICATION

As of today, all HPMP projects of countries with high-ambient temperature characteristics in West Asia are approved by the Multilateral Fund of Montreal Protocol. All projects, except for Bahrain, are with focus on phase-out activities in the foam sectors due to maturity and feasibility of alternatives. Other than Awal Co., which is Bahrain's A/C manufacturer, there are several regional manufacturers that produce range of A/C equipment from unitary to chillers. It is for sure that air-conditioning sector will be responsible for partially or totally of post 2015 phase-out needs. There are several challenges to the promotion of low-GWP alternatives in the region which can be summarized as follows:

- Unclear global trend about definite refrigerant for each category of application particularly those suitable to operate in high-ambient conditions.
- Unavailability of components, mainly compressors, that work on low-GWP alternatives and designed for high-ambient conditions.
- The behavior of HVAC systems and their efficiencies are still not clearly determined when operating in high ambient temperature.
- Absence of national/regional codes/standards that can facilitate the introduction of low-GWP alternatives and deal with its flammability characteristics.
- Limitation to introduce applications with flammable characteristics in high-rising buildings which is become notable segment of development in many countries.
- New energy efficiency rating schemes and regulations particularly for A/C systems.
- Expectations for cost implication to adopt low-GWP alternatives to final products particularly price sensitive products.

As of now, there is a situation of uncertainty about which alternative(s) industry will adopt and governments will support due to lack of verified and validated process that lead to fair evaluation and selection of long-term alternatives and ensure leapfrogging higher-GWP options.

UNEP and UNIDO are implementing together all HPMPs in West Asia countries with high-ambient temperature characteristics. Both agencies wish to ensure the correct selection and adoption of long-terms options that ease the implementation of 1st stages and facilitate the preparation of subsequent stages and tranches with clear picture about the way forward. Resources available under approved 1st stages of HPMPs. cannot cater for the comprehensive assessment as proposed by this project. However, both agencies will ensure best utilization of relevant approved and funded activities, within HPMPs or other projects, to secure input and/or contribution to the project proposal as explained in the project budget proposal below.

3. OBJECTIVES

This main objective of the project is to shed light into what can be considered as sustainable technologies for high ambient temperature countries. The proposed work will facilitate the technology transfer and experience exchange of low-GWP alternatives for air-conditioning applications operate in high-ambient temperature countries. Such objective will include other indirect objectives that will be facilitated through the implementation of the project which are:

- Support technical and policy decisions about long-term alternatives to HCFC in air-conditioning industry as part of the HPMP overarching strategies being implemented by most concerned countries.
- Encourage the development of local/regional standards that ease the introduction of alternatives that need special safety or handling considerations
- Sharing of information about demonstration projects, implemented by other bilateral and implementing agencies, amongst the concerned parties.

- Ensure that national and regional energy efficiency programs are linked to the adaption of long term alterative particularly the selection of low-GWP options as feasible.

4. TARGET GROUPS AND STAKEHOLDERS

The proposed project will involve interaction with different groups and individuals at different levels but all related to the air-conditioning business including, but not limited to, the following:

- Regional air-Conditioning systems' manufacturers
- Global air-conditioning technology providers (refrigerants and compressors)
- Electro-Mechanical Consulting Companies and Consultants
- Research Institutes and Centers
- Standardization Authorities
- Environmental Authorities
- Energy Authorities
- Technical Education and Vocational Training Authorities

5. GEOGRAPHICAL SCOPE OF COVERAGE

This proposal covers the concern several countries around the globe with high ambient climatic conditions including countries in Asia, Africa and partially parts of North/Central America and Southern of Australia. However, Middle East countries and in particular Gulf countries are the most concerned regions about this case not only due to the very harsh climatic conditions but also because of the high demand on air-conditioning business in most life aspects and its relation to national development plans not mentioning its high contribution to the consumption of energy where air-conditioning sectors represent around 50-65 % of total electrical demand in gulf countries. Therefore, this proposal will address the implication of complying with Montreal Protocol and promote low-GWP options in air-conditioning sectors at the gulf countries as a first priority.

The project will be implemented at the regional level in consultation with NOUs of Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and UAE to ensure incorporating the project outputs within HPMPs particularly for the preparation of post 2015 policies and action-plans.

6. PROJECT PREPARATION

The project preparation involved exhaustive consultation process and coordination among several stakeholders: refrigerant manufactures who are researching new technologies, component manufacturers who provide the compressors compatible with the alternative refrigerants, and original equipment manufacturers (OEM) who will be building the prototypes. Forming partnerships among members of these three categories of stakeholders requires a rigorous consultation process to ensure the success of the endeavour. The consultation process took place in stages:

a. First Stage

The first stage of consultation took place in October 2012 on the borders of a symposium, which took place in Dubai, entitled, "*Alternative Refrigerants for Air-Conditioning Industry in High-Ambient Temperature Countries; the Way Forward*" organized by UNEP in collaboration with ASHRAE and the Air Conditioning, Heating and Refrigeration Institute (AHRI). UNEP and UNIDO invited the stakeholders who were present at the meeting to explain the project concept and listen to their feedback. Present at the meeting were: nine OEMs representing a full spectrum of manufacturers who are producing units for high ambient applications in the Gulf countries; three technology providers; two component manufacturers; as well as three Ozone officers from the Arab Gulf countries and two UNEP/UNIDO international consultants, plus staff from UNEP and UNIDO in the region and beyond.

The feedback from those present was positive and supportive of the project. Comments and suggestions revolved around issues of concern like confidentiality or suggestions about other projects, like the Alternative Refrigerant Evaluation Project (AREP) which is conducted by AHRI and in which some of the international manufacturers, who are also manufacturing in the region, have participated through their mother companies. The suggestion was to contact AHRI to learn more about the project and see how the outcome from AREP could contribute some best practices to the project.

Another outcome of the meeting was a recommendation by the OEMs to include other component and refrigerant manufacturers, specifically the ones with whom those OEM deal. After the meeting, UNEP & UNIDO project managers and their consultants provided other input and the list of component manufacturers grew to eight and refrigerant manufacturers to four.

b. Second Stage

In order to gauge the stakeholders' interest and their capabilities in contributing to the project, two survey questionnaires were prepared: one destined to equipment manufacturers (OEM) and the other towards component and refrigerant suppliers grouped as "Technology Providers".

OEMs were asked to provide information about their preferences for technology, component supplier, type of equipment, capacity of equipment, and their capability in building and testing prototypes. Technology providers were asked about their preference to work with certain OEMs, type and capacity of equipment and their willingness to provide material and share technology. The two questionnaire samples can be found in the Annexes I & II.

c. Third Stage

Having received feedback from five OEMs and five technology providers, UNEP called for a third consultative meeting on Feb 10, 2013 in Riyadh, KSA on the borders of a preparatory meeting aimed at organizing the HVAC industry in the region. The meeting included OEM manufacturers, but not technology providers. The purpose of the meeting was to inform the OEMs about the survey feedback received to date and offer clarifications to those who have not responded which could help them make an informed decision about the project. The participants at the Feb 10 meeting were given a resume of the responses received as shown in the tables below:

Item	Technology Provider Responses
Willingness to participate	5 yes
Preference for partner	3 yes, 2 no
Equipment	2 open, 3 specific
Decorative split	3
Ducted split	1
Rooftop package	1
Preference for Cooling capacity	3 yes, 2 no
Offer Refrigerant/compressors	4 yes
Help in design of prototypes	4 yes
Allow consultants in the loop	4 yes
Item	**OEM Responses**
Willingness to participate	5
Preference for alternative Refrigerant	1 yes, 4 no
HFO DuPont	

HFO Honeywell	1
R32	
Hydrocarbon	
Preference for Compressor Manufacturers	2 yes, 3 no
Name of Comp manufacturer	Bristol USA, Tecumseh, Copland –India, GMCC, Emerson, Danfoss, Bitzer
Preference for equipment	4 yes, 1 no
Decorative split	2
Ducted split	1
Rooftop package	3
Self-contained	3
Other	1
Preference for Cooling capacity	3 yes, 2 no
1-5 tons	2
6-10 tons	1
Can build prototypes	5 yes
How many	One per category
Testing: independent 3rd party	3
Allow consultants for design	5 yes
Allow consultants for testing	5 yes

Participants were given explanations about the proposed testing process and the sharing of results in a way that preserves the confidentiality of the process. Discussions also touched on the type and capacity of equipment that constitute the bulk of the market and which need to be included in the project, the number of prototypes needed per equipment type, and the testing conditions.

d. Beyond third stage

Contacts are continuing with those OEMs and technology providers who have not yet responded. A new deadline has been set for receiving responses beyond which no other participants will be accepted. The goal is to have maximum feedback in time for the project approval stage.

7. PROJECT COMPONENTS

The project is designed to achieve above mentioned objectives allowing countries, with high ambient conditions, to comply with the Montreal Protocol targets and smooth the transfer to long-term Low-GWP options at industry level through careful and comprehensive approach to ensure the sustainability of adopted solutions and technologies. Therefore, the comprehensive approach will take into consideration 4 key elements important to the success of the project which are:

a. Asses available technologies:

This element will focus on studying availability of current and long-term commercially available refrigerants and air-conditioning equipment in terms of suitability to operate in high-ambient conditions. including conventional and non-conventional options. Information and prospects will be gathered from different reliable sources including research institutes/centers, international panels and committees, industry (manufacturers of refrigerants, air-conditioning equipment & components) and experts representing countries with high-ambient climatic conditions. This will draw a timeline for the technology and alternatives suitable for high-ambient conditions at short/medium/long term perspective.

b. Asses relevant Energy Efficiency (EE) standards and codes:

This element will address impact of EE standards (including buildings' codes and equipment EE rating programs) on selecting low-GWP options in high ambient operating conditions. It will also address the prospect of development and upgrade of existing national/regional EE standards and the potential impact of selecting short and medium term options. This is vital for setting the boundaries and constrains for the selection of long-term options in order to comply with national energy policies.

c. Economic comparison of alternative technologies:

This will be a market study based element aiming at comparing initial and operating costs of low-GWP air-conditioning technologies with current ODS and high GWP based options taking into consideration perspectives of manufacturing sectors, consulting sectors and operating/Clients sectors. This will conclude with assist in identifying technological, regulatory and institutional gaps needed to ease the promotion of low-GWP alternatives in air-conditioning sector including the requirements for individual certifications schemes and relevant codes of practice.

d. Promoting Technology transfer:

This is an assessment element to identify commercial opportunities and associated fiscal implications for facilitating the transfer of low-GWP technology including the study of commercial and trade barriers, paten s and relevant intellectual property rights. This will be crucial for facilitating the conversion of air-conditioning production facilities at high-ambient temperature countries and in particular those where most of their final products being marketed for high-ambient countries.

In order to achieve so, the following components are the main components of the project:

I. Building and testing prototypes

This component will include building prototypes for 4 range of products, as per Annex-IV, and test them in accordance to the initially agreed testing criteria as per section 9 below. The consultation process with technology providers concluded on the following cost-sharing arrangement:

- The technology providers will cover the cost of sample row materials i.e. refrigerants and compressors along with the necessary technical support to assist local manufacturers in the redesign/optimization of products
- The local manufacturers will cover the cost of developing adequate number of prototype per range per refrigerant including the all internal local manufacturing associated costs

The first stage of this component will include preparing the work plan detailing the selection of the final products to be tested. This stage will include also communicating with both manufacturing companies and compressor/refrigerant manufacturers to make sure that the product is designed according to certain specifications leading to the best possible design. Legal documentations will be arranged to facilitate the technology transfer and patent related issues.

Each of the four models will be built by minimum of two different manufacturers to make sure that the result will be compared with good accuracy and to make sure that difference in the results is due to the change in the technology and not due only to the design. Each prototype will be tested for the four or five promising technologies and compared to that of R-22. Each combination will be tested for three different ambient conditions to better understand the behavior of each model at high ambient temperature.

The detailed costing of this component is included in Annex-V of the this project proposal.

II. Assessment Study on Long-Term Feasible Technologies for Air-Conditioning Sector (Pilot study in Qatar)

This component is facilitate the comprehensive assessment of market readiness to accommodate alternate technologies and alternative refrigerants in the air-conditioning sector in the gulf region. As part of the HPMP of Qatar, UNEP and the government of Qatar agreed to conduct this study within 2013-2014 given its importance to shape country policies towards the very ambitious development plan of Qatar. Given the socio-economic similarities of gulf countries, the suggested study should be of high relevance to other gulf countries with minor adjustments. The assessment study aims at assessing current, pilots and potential air-condoning technologies deployed or planned to be deployed in Qatar including conventional and non-conventional solutions. The project will not include any cost for this component as it will be covered as part of the HPMP of Qatar.

III. Coordinating phase-out requirements with EE Labeling programs targets (National and regional work)

This component is ongoing activity since sometime under both the regional work led by CAP/ROWA to address the concern of high-ambient amongst decision makers and relevant authorities and the within the framework of implementing HPMP strategies in gulf countries. The project will offer a platform to integrate those efforts within a regional approach i.e. this project which should ease the introduction and presentation of the final results to different decision makers. The project will not include any direct cost for this component except the indirect cost resulted of the utilization of the project coordination meetings/functions to facilitate the coordination between environment standardization authorities.

IV. Consultancy Services

In order to ensure the effective implementation of all components of the project and achieved the set objectives, UNEP and UNIDO will use consultancy services to undertake the following assignments:

a. **Managing the testing**: Which will include developing terms of reference to tender the independent testing component, discuss and conclude the final testing criteria with technology providers and local manufacturers, coordinate and oversee the testing at the selected independent lab, discuss/ review/finalize testing results between proto-type developers and the testing lab and prepare the final comparison report.

b. **Project Management**: Which will include the overall project management and coordinating of all technical/legal issues between technology providers and regional industries as well as responsibility of organizing and facilitating all relevant meetings and functions including the regional coordination work between environment standardization authorities. It will also include the overall responsibility of preparing the final project report in consultation with all authorities, agencies and companies.

8. PROPOSED IMPELMENTATION TIMEFRAME AND BUDGET OF THE PROJECT

The proposed project components and implementation timeframe are as follows:

#	ITEM	TIMEFRAME	AGENCY(S)	BUDGET (US$)
1	**Preparation of detailed work-plan including:** a. Finalize selection of product category and alternative(s) per each. See Annex-IV b. Finalize and approve testing methodology at 3rd party lab c. Agreed unified design conditions per each product range d. Matching partners between technology providers and regional industries	April/June 13	UNEP/ UNIDO	-

#	ITEM	TIMEFRAME	AGENCY(S)	BUDGET (US$)
	e. Legal documentation to facilitate technology transfer between technology providers and regional industries			
2	**Building Prototypes for each product range**	June/Oct 13	UNEP/ UNIDO	N/A[1]
3	**Testing prototypes at 3rd party testing laboratory (testing of 66 prototypes at 35^0C, 46^0C, 48^0C) including:** a. Development and agree on TORs and invited labs b. Competitive bidding and selection of 3rd party lab c. Conducting the test on prototypes	Sept13/ Feb14	UNIDO	320,000
4	**Consultancy Services for managing the testing program and prepare the comparison and final report**	Aug13/ June14	UNIDO	50,000
5	**Consultancy Services for managing the overall project management and coordinating technical legal issues between technology providers and regional industries as well as support the development of the final report**	May13/ June14	UNEP	75,000
6	**Consultation Meetings and consultants/participants/experts travel**	May13/ June14	UNEP	60,000
7	**Regional technical workshops/functions**	May13/ June14	UNEP	30,000[2]
8	**Assessment Study on Long-Term Feasible Technologies for Air-Conditioning Sector (Pilot study in Qatar).**	May13/ June14	UNEP/ UNIDO	N/A[3]
9	**Coordinating phase-out requirements with EE Labelling programs targets (National and regional work)**	May13/ June14	UNEP/ UNIDO	N/A[4]
10	**Field Visits**	June-Sept 13	UNIDO	30,000
11	**Reporting and documentation**	May13/ June14	UNEP	10,000
			Total for UNEP	175,000
			Total for UNIDO	400,000
			Grand Total (not including PSC)	575,000

1. Will be covered by both regional manufacturers and technology providers including row materials, technical support and building proto-types at end of each regional manufacturer facility
2. Supported by resources from CAP/ROWA
3. Part of HPMP of Qatar and will be used as model for rest of GCC countries
4. Part of countries HPMPs and regional work of CAP/ROWA

9. TESTING AND EVALUATION

In assessing available technologies, a testing program and evaluation procedure will be developed to evaluate the performance of different types of air-conditioning systems; window, decorative split, ducted split and package at different low GWP refrigerants. These AC systems are the most common types used in most West Asian Countries. The tests will be carried out in independent psychrometric laboratories. The psychrometric testing facility will be used to evaluate the thermal performance of unitary air conditioning units at different cooling capacities. In brief, the testing facility consists of two rooms to simulate indoor and outdoor conditions. Dry bulb temperature and wet bulb/or relative humidity are independently controlled in each room. Airflow measurements are made using ASHRAE specified Air Enthalpy Tunnels (airflow measurement tunnel). One Air Enthalpy Tunnel is located in the indoor room for indoor tunnel airflow measurement, and one Air Enthalpy Tunnel is located in outdoor room for outdoor airflow measurement. The Air Enthalpy Tunnel will enable precise measurement of capacity and efficiency of air conditioners in accordance with the air enthalpy method described by ASHRAE 37-88. Both the Indoor and Outdoor Room, have air-conditioning compartments (plenums). Each compartment is provided with complete air conditioning capability to compensate for the thermal loads presented by the system under test. The EER value or kW/ton of the machine along with their flow rate will be calculated for each set of outside and inside room conditions.

The tests will be performed at three outside ambient conditions; 35 C, 46 C and 48 C. The indoor conditions will be kept the same for all tests; dry bulb temperature of 26.6 C and a relative humidity of 50 % as per ARI test procedure. An endurance test will be performed in addition at 52 C to check that the compressor will not trip when run continuously for 2 hours. Outside ambient conditions of 46 C and 48 C

are often encountered as design conditions for cooling load in many high ambient temperature countries. As mentioned earlier, the technologies under consideration are: R-32, R-290, and the two newly developed HFO. Theses refrigerants will be tested to understand their efficiency performance compared to those that are presently available such as R-22 and R-410/R-407. Each combination of prototype will be performed by two different manufacturers to make sure that the data collected is credible. This way the design used in manufacturing the prototype will not the sole factor affecting the results and the data can be compared with good accuracy. A total of 66 tests will be performed at different combinations and different technology will be compared with each other with good accuracy.

10. PROJECT OUTPUT

The project deals with new leading-edge technologies both on the refrigerant as well as component development side; moreover, the design of prototypes which incorporate these technologies is itself proprietary to the OEM manufacturer and hence should be treated with confidentiality. It is needless to say that the project will take these issues into consideration and will have the proper legal framework to cover the project, the implementing agencies, and their consultants.
The above legal issues lead to a discussion on how to present the output of the project in a way that preserves the confidentiality of the technology and design aspects, yet allows for the sharing of results among countries and stakeholders.

It is worth noting that the project does not aim to promote one technology as the ultimate solution; this would be counter-productive and might lead to issues with anti-competition. Rather, the presentation of the results aims to project scientific and verified data, for each system application, which is currently available for standard ambient temperature conditions, i.e. 35ºC, to other high ambient temperatures that are prevailing in parts of the Middle East and the world, i.e. 46ºC and 48ºC.

The project previews three levels of output:

a. Complete test results: per prototype, giving complete performance and efficiency outputs at different ambient temperatures;
b. Refrigerant parameters output: For each type of refrigerant used, an indication of refrigerant performance vs. HCFC-22 for the different types of equipment and at different conditions;
c. Comparison of results: a table showing the percentage increase or decrease in performance vs. a base of HCFC-22 of different parameters. This is similar in design to how RTOC committees present their data.

The decision process for sharing which result with which stakeholder is as follows:

- Review the survey results and note restrictions imposed by the different project participants;
- Review with the Legal Counsel for the project the proposed matrix of information sharing to get a legal clearance;
- Discuss the outcome individually with project participants to get their individual comments and approval;
- Share the outcome with all participants in an open all-party meeting and get final approval.

The proposed matrix of information sharing is shown in the following table:

Output	Tech Provider	OEM manufacturer	NOU - Country	Other stakeholders
Complete test result/prototype	No	Yes	No	No
Refrigerant parameters	Yes	Yes	Yes	No
Comparison of results	Yes	Yes	Yes	Yes

The logic behind the above information sharing matrix is as follows:

i. OEM Manufacturers are entitled to receive the test results of their own prototype. These results will enable them improve on the design of the product should they decide to put it on the market;
ii. Technology providers and OEMs would benefit from data on the refrigerant parameters, provided there is no restriction from the technology provider about sharing this data, as it also leads to improvement in design criteria for future products. The case for sharing with Country NOUs is that they need to have a deeper insight on refrigerants prior to making a decision to use them for investment conversion projects;
iii. The sharing of a comparative result is beneficial for all stakeholders. The output from this project will not come in time for the RTOC 2014 Assessment Report; however, sharing the information will enable the RTOC committee to endorse the result and include it in intermediate deliberations and communications.

11. ADDITIONAL INPUT TO THE PROJECT:

Over the last couple of years, the Compliance Assistance Programme (CAP) in West Asia prioritized the issue of long-term alternatives within its work-plan. Two regional symposiums were organized addressing specifically the issue of long-term alternatives for air-conditioning sectors in high-ambient countries. The two events provided appropriate platform for exchanging information and experience amongst industry representatives regionally and globally and offered venue for the start-up of first coordinated work between NOUs and standardization authorities in the region aiming at agreeing on unified definition for the term high-ambient and coordinate national energy labelling for A/C equipment. UNEP will continue, through CAP and the project resources, to offer such regional technical venue to maintain sound coordination and experience exchange platform.

Another important input is the global program of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) to identify and evaluate promising alternative refrigerants for major product categories. These include air conditioners, heat pumps, dehumidifiers, chillers, water heaters, ice makers, and refrigeration equipment. The program, referred to as the Low GWP Alternative Refrigerants Evaluation Program, or low GWP AREP, is strongly desired by the industry to assess the research needs, accelerate industry's response to environmental challenges raised by the use of high GWP refrigerants, and avoid duplicative work.

The AREP program consists of compressor calorimeter testing, system drop-in testing, soft-optimized system testing, and heat transfer testing. All tests other than heat transfer coefficient measurements are expected to be performed at participating companies' laboratories, using their own resources, at their own expense. It is important to note that the AREP program:

- Doesn't address testing conditions of high-ambient requirements;
- Is based on soft-optimization methodology which can't be followed for this project;
- Includes a range of products that is different than the range addressed under the current project;
- Is based on soft optimization (drop-in) only, while the proposed project will include a re-design of products in order to be set a final roadmap for regional industries about agreeable long-term alternatives in each product category.

The results of the AREP program will be considered as initial input and reference useful information for the project. UNEP and UNIDO are also considering benefiting from the AHRI experience in setting testing methodology in non-competitive approach.

Annex-I
Questionnaire A: For Technology Providers
"Promoting Low-GWP Alternatives for High-Ambient Countries"

Project Goal:

The project objective is to test prototype air-conditioning units using low-GWP alternative technologies at high-ambient conditions and share recommendations with regional manufacturers and decision makers. Please see note in annex regarding the background.

Questionnaire:

This questionnaire is aimed at exploring willingness of technology providers to participate in the UNEP/UNIDO project for promoting low-GWP alternatives in high ambient countries. All information complied of this questionnaire will be treated as confidential.

A. General Conditions	**Participant response**
My company is willing to participate in the project. If you answer YES, please proceed to rest to questionnaire.	YES NO
B. Partner Selection	**Participant response**
1. Do you have a preference for specific partner in GCC region?	YES NO
2. If yes, kindly mention the name/names of preferred partner(s)	
C. Application Selection	**Participant response**
3. Do you have a preference for the type and capacity of equipment for which you wish to investigate?	YES NO
4. My selection of equipment: (*you can provide more than one selection)*	➢ Decorative split ➢ Ducted split ➢ Rooftop package ➢ Self-contained
5. My selection of cooling capacity	➢ 1 – 5 tons ➢ 6 – 10 tons ➢ No preference
D. Building Prototypes	**Participant response**
6. My Company is willing to offer refrigerants/compressors along with detailed technical information for building proto-types	YES NO
7. My company can help in design and/or build prototypes	YES NO
8. Any limitations you want to impose, please specify...	
E. Logistics	**Participant response**
9. My company will allow UNEP/UNIDO independent consultants to be in the loop of exchanging technical information with the selected partner(s).	YES NO
10. If NO, pls describe what limitations you want to impose.	
F. Information about the Company	**Participant response**
11. Company Name	
12. Name and title and Contact details of designated contact person for this project	

Annex-II
Questionnaire B: For Local Manufacturers
"Promoting Low-GWP Alternatives for High-Ambient Countries"

Project Goal:

The project objective is to test prototype air-conditioning units using low-GWP alternative technologies at high-ambient conditions and share recommendations with regional manufacturers and decision makers. Please see note in annex regarding the background.

Questionnaire:

This questionnaire is aimed at selected GC- based air-conditioning manufacturers. The purpose of the questionnaire is to ask the preferences of the selected manufacturers in as far as technology selection and partnership with other stakeholders as well as getting a confirmation on their willingness to participate. All information complied of this questionnaire will be treated as confidential.

G. General Conditions	Participant response
My company is willing to participate in the project. If you answer YES, please proceed to rest to questionnaire.	YES NO

H. Technology Selection	Participant response
13. Do you have a preference for the alternative refrigerant?	YES NO
14. Alternative refrigerant choice (*you can provide more than one selection by deleting what is not applicable)*	➢ HFO Honeywell ➢ HFO DuPont ➢ R-32 ➢ Hydrocarbon
15. Do you have a preference for the compressor manufacturer?	YES NO
16. Provide name of compressor manufacturer(s)	

I. Application Selection	Participant response
17. Do you have a preference for the type and capacity of equipment for which you will build the prototype?	YES NO
18. My selection of equipment: (*you can provide more than one selection)*	➢ Decorative split ➢ Ducted split ➢ Rooftop package ➢ Self-contained
19. My selection of cooling capacity	➢ 1 – 5 tons ➢ 6 – 10 tons ➢ No preference

J. Building Prototypes	Participant response
20. My company can design and/or build prototypes	YES NO
21. How many prototypes are you willing to build?	➢ One ➢ More (*pls specify number)*

K. Testing Prototypes	Participant response
22. Which type of testing do you prefer?	➢ Independent 3rd party Testing ➢ Witness Testing at own premises
23. If you answered **3rd Party Testing**, are you willing to pay the cost for the test?	YES NO
24. If you answered **Witness Testing**, is your lab certified and by whom?	YES NO Certified by:

L. Logistics	Participant response
25. My company will allow independent consultants appointed by UNEP/UNIDO to oversee the development of the prototypes.	YES NO
26. If NO, pls describe what limitations you want to impose.	
27. My company will allow independent consultants appointed by UNEP/UNIDO to oversee the testing of the prototypes.	YES NO
28. If NO, pls describe what limitations you want to impose.	

M. Information about the Company	Participant response
29. Company Name	
30. Brand names used in market	
31. Company headquarters location	
32. Manufacturing location where prototype will be built	
33. Ownership percentage pertaining to the nationality where prototype is manufactured (*This information is needed to determine whether the limitations for project participation set by the Ozone Secretariat of the Montreal Protocol are applicable)*	
34. Name and title and Contact details of designated contact person for this project	

Annex- IV
Sample Matrix of Equipment Builders to be coupled with Technology Providers with Component Suppliers

Annex- IV Sample Matrix of Equipment Builders to be coupled with Technology Providers with Component Suppliers		Component Suppliers / Product Range			
		Window A/C (18 MBH)	Decorative Split (24 MBH)	Ducted Split (36 MBH)	Packaged Unit (90 MBH)
Technology Providers	R32	Manufacturer 1	Manufacturer 8	Manufacturer 2	Manufacturer 7
	HFO 1	Manufacturer 2	Manufacturer 6	Manufacturer 8	Manufacturer 4
	HFO 2	Manufacturer 9	Manufacturer 3	Manufacturer 5	Manufacturer 6
	HC	N/A	Manufacturer 9	Manufacturer 7	Manufacturer 5

Annex- V
Detailed Cost of the testing component

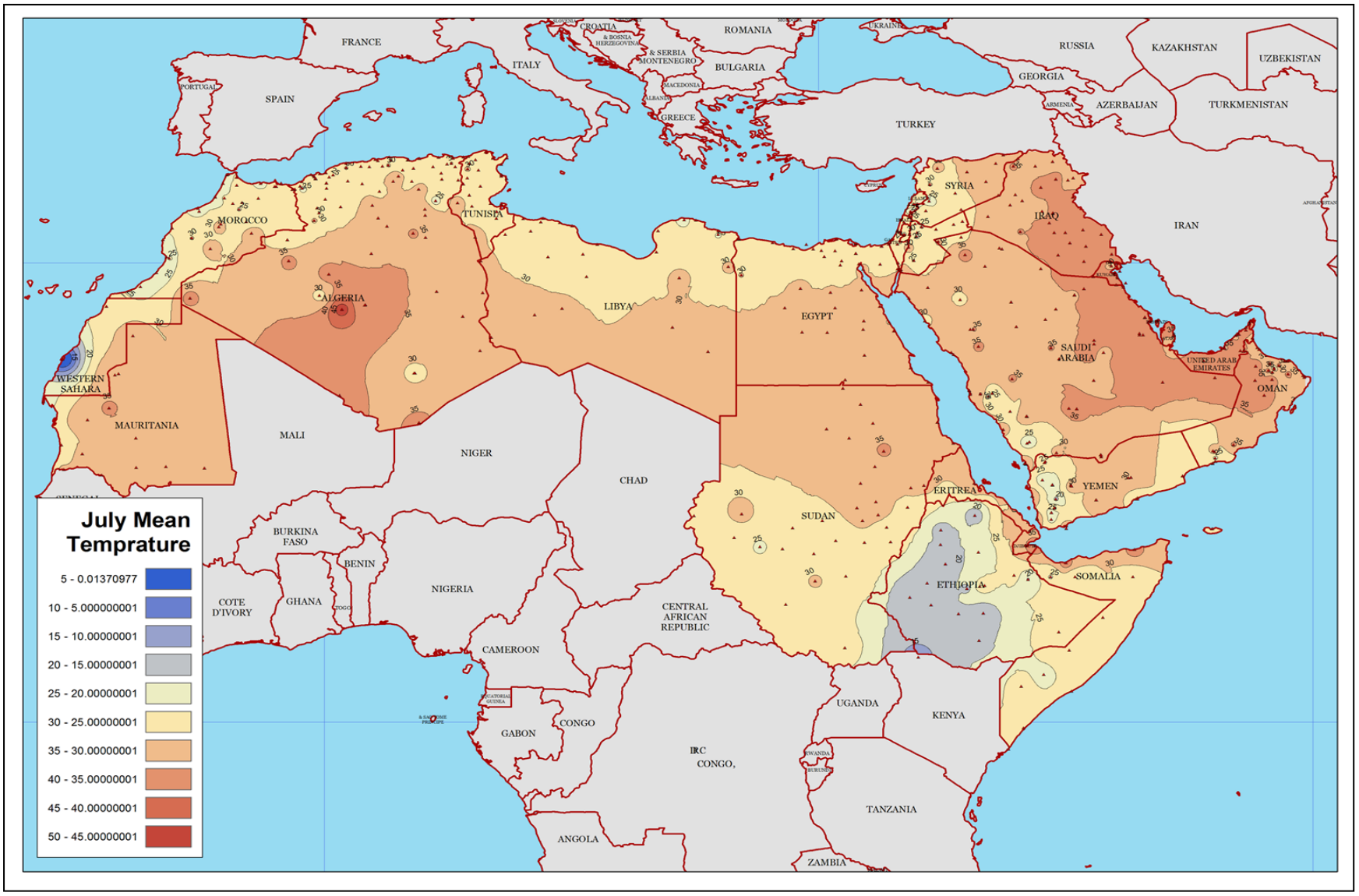
First: Number or prototypes to tested

Number of Participating Companies	8
Number of A/C Models (Window, Decorative Split, Ducted Split, Package)	4
Number of Refrigerants to be tested for Window(R-22, R-410, R-32, R-290, HFO-1, HFO-2)	5
Number of Refrigerants to be tested for Dec. Split (R-22, R-410, R-32, R-290, HFO-1, HFO-2)	6
Number of Refrigerants to be tested for Ducted Split (R-22, R-410, R-32, R-290, HFO-1, HFO-2)	5
Number of Refrigerants to be tested for Package (R-22, R-410, R-32, R-290, HFO-1, HFO-2)	6
Number of repeated tests per model	2
Number of repeated tests per model	2
Number of repeated tests per model	2
Number of repeated tests per model	2
Number of ambient zones to be considered	3

Second: Estimated Cost

Item	Cost in US$
Average Cost Per Test for Window	2,000
Average Cost Per Test for Decorative Split	2,000
Average Cost Per Test for Ducted Split	2,000
Average Cost Per Test for Package	3,000
Total cost per test Type1-W	60,000
Total cost per test Type 2-DeS	72,000
Total cost per test Type3-DuS	60,000
Total cost per test Type4-Pac	108,000
Cost of testing	300,000
Logistical costs	20,000
Total of Testing	***320,000***

Summer Mean Temperature in the Arab Region (Source: Climate Atlas for the Arab Region, Egyptian Buildings and Construction Research Center)



AMENDMENT TO
UNEP'S WORK PROGRAMME
2013

Presented to the
69th Meeting of the Executive Committee
of the Multilateral Fund for the Implementation
of the Montreal Protocol

March 2013

UNITED NATIONS ENVIRONMENT PROGRAMME

A. INTRODUCTION

1. UNEP's Work Programme 2013 was approved at the 68th 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 69th 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 2013-2015, this Amendment comprises funding requests for

- Support for the implementation of Institutional Strengthening projects in 9 countries.
- Technical assistance project for promoting low GWP Refrigerants for Air-Conditioning Sectors in High-Ambient Temperature Countries.

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 ISP renewals and individual projects to be considered at the 69th Meeting of the Executive Committee

Country	Project title	Amount, US$	PSC, US$	Total requested amount, US$
INSTITUTIONAL STRENGTHENING PROJECT RENEWALS (ISRs)				
Angola	Renewal of institutional strengthening project (Phase IV)	134,400	0	134,400
Croatia	Renewal of institutional strengthening project (Phase VIII)	87,707	0	87,707
Iraq	Renewal of institutional strengthening project (Phase II)	240,000	0	240,000
Kenya	Renewal of institutional strengthening project (Phase X)	151,667	0	151,667
Liberia	Renewal of institutional strengthening project (Phase V)	85,213	0	85,213
Sierra Leone	Renewal of institutional strengthening project (Phase VI)	85,800	0	85,800
Sudan	Renewal of institutional strengthening project (Phase VII)	145,860	0	145,860
Timor-Leste	Renewal of institutional strengthening project (Phase III)	60,000	0	60,000
Zimbabwe	Renewal of institutional strengthening project (Phase VII)	148,242	0	148,242
Sub-total for Institutional Strengthening Project Renewals		*1,138, 889*	*0*	*1,138,889*
REGIONAL TECHNICAL ASSISTANCE PROJECTS				
Regional	Promoting low GWP Refrigerants for Air-Conditioning Sectors in High-Ambient Temperature Countries	175,000	22,750	197,750
Sub-total for regional technical assistance projects		*175,000*	*22,750*	*197,750*

Table 2. Summary of items submitted for consideration by the 69th Executive Committee meeting by group

Type of projects	*Value in US*	*Project support costs in US$*	*Total in US$*
Sub-total for regional technical assistance projects	175,000	22,750	197,750
Sub-total for Institutional Strengthening Projects	1,138,889	0	1,138,889
Grand Total	**1,313,889**	**22,750**	**1,336,639**

C. PROJECT CONCEPTS for items to be submitted by UNEP

***1. Title*:**	***Requests for institutional strengthening renewals for (9 countries): Angola, Croatia, Iraq, Kenya, Liberia, Sierra Leone, Sudan, Timor-Leste and Zimbabwe.***
Background:	Renewals of institutional strengthening projects (ISP) for the above-listed twenty three countries are being requested in line with relevant decisions and guidelines of the Executive Committee. These projects have been included in the UNEP 2013-2015 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$**
Angola	134,400
Croatia	87,707
Iraq	240,000
Kenya	151,667
Liberia	85,213
Sierra Leone	85,800
Sudan	145,860
Timor-Leste	60,000
Zimbabwe	148,242
Total:	**1,138,889**

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