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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-fourth Meeting
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STATUS REPORTS AND REPORTS ON PROJECTS WITH SPECIFIC REPORTING REQUIREMENTS

1. This document serves as a follow-up to the issues raised in the last annual progress and financial reports submitted to the 73rd meeting[1], and with respect to projects and activities for which specific reports were requested in previous meetings[2]. These reports are arranged in the following parts:

Part I:	Projects with implementation delays and for which special status reports were requested
Part II:	Egypt: Low-cost options for the use of hydrocarbons (HCs) in the manufacture of polyurethane foams. An assessment for the application in Multilateral Fund projects
Part III:	Bolivia (Plurinational State of): HCFC phase-out management plan (stage I, second tranche) (transfer of project)
Part IV:	Methyl bromide (MB) phase-out project in Guatemala
Part V:	Halon phase-out project in Iran (Islamic Republic of)
Part VI:	Resource mobilization

2. Each part contains a brief description on progress, and the Secretariat's comments and recommendations.

[1] UNEP/OzL.Pro/ExCom/73/10 & Corr.1, 11, 12, 13, 14 & 15.
[2] Decision 73/53(b) requested UNEP to report to the 74th meeting actions taken to implement the recommendations 1, 3, 4 and 7 taken from the May 2014 report of the United Nations Office of Internal Oversight Services (OIOS) on the audit of the UNEP OzonAction Branch. UNEP reported that it had provided a detailed report to the OIOS on the actions taken by UNEP to implement all the recommendations on the audit. As of this writing, UNEP has not received any response from the OIOS.

PART I: PROJECTS WITH IMPLEMENTATION DELAYS AND FOR WHICH SPECIAL STATUS REPORTS WERE REQUESTED

Implementation delays

3. There are 14 ongoing projects that have been classified as projects with implementation delays[3] and are subject to the Committee's procedures for project cancellation, as shown in Table 1.

Table 1. Summary of progress for projects with implementation delays

	Spain	UNDP	UNEP	UNIDO	World Bank	Total
Number of projects reported	1	2	4	6	1	14
Number of projects completed	1		1			2
Number of projects with some progress		2	3	4	1	10
Number of projects with no progress				2		2

Progress in resolving causes of delays

4. In their reports, the bilateral and implementing agencies advised that there have been varying degrees of progress in overcoming delays. Two of the projects listed with delays at the 73rd meeting have now been completed and no further action is required[4].

Projects with some progress

5. Ten projects have been classified as showing "some progress", and the bilateral and implementing agencies indicated that these would continue to be monitored (Annex I). In line with decision 32/4, these projects cannot be removed from the list for monitoring prior to final completion.

Projects with no progress - letter of possible cancellation

6. The following two projects have experienced no progress. Under existing procedures, the Secretariat will send notices of possible cancellation in respect of these projects on the basis that they have achieved no progress:

(a) "Technical assistance for alternatives to methyl bromide" (IRQ/FUM/62/INV/13) (UNIDO); and

(b) "Technical assistance for the elimination of controlled uses of methyl bromide in soil fumigation" (MOZ/FUM/60/TAS/20) (UNIDO).

Projects for which additional status reports were requested[5]

7. At its 73rd meeting, the Executive Committee requested additional status reports for 94 projects, 62 of which had reported some progress. Of the remaining 32 projects listed in Annex II to the present

[3] Projects with implementation delays are those: (i) that are expected to be completed more than 12 months late, and/or, (ii) where disbursement of less than one per cent has been made within 18 months of the project's approval.
[4] These are: "Technical assistance to introduce chemical alternatives in countries which have rescheduled methyl bromide phase out plan (Argentina and Uruguay)" (LAC/FUM/54/TAS/40) (Spain); and "National strategy for transition to non-CFC MDIs" (IND/ARS/56/TAS/425) (UNEP).
[5] Institutional strengthening (IS), halon banking, customs training, recovery and recycling (R&R), and demonstration projects are not subject to procedures for project cancellation. Nevertheless, the Executive Committee has decided to continue to monitor them as appropriate (decision 36/14(b)).

document, the specific project implementation impediments identified in the annual progress and financial reports remain unresolved, as shown in Table 2.

Table 2. Summary of specific reasons for which additional status report were requested

Reasons	UNDP	UNEP	UNIDO	Total
Licensing system for ODS imports and exports			1	1
Monitor the signing of the project document/letter of agreement and low disbursement rates of approved funds	2	4		6
Monitor the low disbursement rates of approved funds		15	8	23
Monitor the submission of the HCFC phase-out management plan		1		1
Monitor: (a) the submission of the HCFC phase-out management plan; (b) the actions taken towards the establishment of the licensing system for ODS imports and exports		1		1
Total	**2**	**21**	**9**	**32**

8. Therefore, additional status reports are requested to be included in the submission of 2014 annual and progress and financial report of the implementing agencies to the 75th meeting. In submitting those reports, bilateral and implementing agencies should include with sufficient detail information as shown in Table 3 so that the Executive Committee could take actions to address the underlying issues (e.g., sending a letter to the Government concerned, and/or to the relevant bilateral and implementing agencies; or requesting the cancellation of a project).

Table 3: Information to be submitted for status reports

Issue	Information to be submitted
Low disbursement rate of approved funds	Reasons for low disbursement; actual disbursement rate; and issues to be addressed, if any
Signing of the project document/agreement	Reasons for the delay in signing the agreement; actual date of signing the agreement or expected date of signing and issues to be addressed, if any
Establishment of the licensing system for ODS imports and exports	Confirmation of establishment of licensing system and actions taken towards the establishment of the licensing system
Update of the licensing system to include the accelerated phase-out of HCFC	Confirmation that the licensing system includes the accelerated phase-out of HCFC agreed by the Parties in 2007, and actions taken towards that goal
Project implementation progress	Full progress using the format agreed at the 73rd meeting with bilateral and implementing agencies

Secretariat's recommendations

9. The Executive Committee may wish:

(a) To note:

(i) The document on status reports and reports on projects with specific reporting requirements as contained in UNEP/OzL.Pro/ExCom/74/12;

(ii) That the Secretariat and the implementing agencies would take established actions according to the Secretariat's assessments and report on implementation delays, and would notify governments and implementing agencies as required;

(b) To request:

(i) The submission of implementation delay reports and additional status reports to the 75th meeting on the projects listed in Annexes I and II to document UNEP/OzL.Pro/ExCom/74/12 as part of the 2014 annual and financial progress report of the bilateral and implementing agencies taking into account the information requested in Table 3 of document UNEP/OzL.Pro/ExCom/74/12 for status reports;

(ii) The Secretariat to send letters of possible cancellation for the following projects:

a. "Technical assistance for alternatives to methyl bromide" in Iraq (IRQ/FUM/62/INV/13), being implemented by UNIDO; and

b. "Technical assistance for the elimination of controlled uses of methyl bromide in soil fumigation" in Mozambique (MOZ/FUM/60/TAS/20), being implemented by UNIDO.

PART II: EGYPT: LOW-COST OPTIONS FOR THE USE OF HYDROCARBONS (HCs) IN THE MANUFACTURE OF POLYURETHANE FOAMS. AN ASSESSMENT FOR THE APPLICATION IN MULTILATERAL FUND PROJECTS

Background

10. At its 58th meeting, the Executive Committee approved a project to demonstrate low-cost options for the use of HCs as a foaming agent in the manufacture of polyurethane foams in Egypt, to be implemented by UNDP (decision 58/31).

11. UNDP submitted to the 66th meeting a report[6] documenting the implementation of the demonstration project, which included equipment development, system development and trials by a systems house, and reporting through an inter-regional workshop to disseminate the results, followed by a final report to the Executive Committee. The demonstration verified the acceptable physical properties of rigid foam products for commercial refrigeration, discontinuous panels and water heater applications using pre-blended HC-based systems and direct injection of HC[7]. It also showed that for pre-blended HC-based systems, as no pre-blender system is needed, cost savings of around US $100,000 can be expected in Egypt. For direct injection although there are no savings in the cost of equipment, the compact design could result in savings in layout and storage.

12. Based on the need to provide additional information on several areas including safety and cost, the Executive Committee decided *inter-alia* to request UNDP to finalize the additional investigations on safety-related issues, densities and optimization of equipment; to develop further a costing concept based on pre-blended HC based systems; and to submit a supplementary report to the 67th meeting (decision 66/15(s)).

13. UNDP submitted to the 73rd meeting an interim progress report on the implementation of the additional activities being undertaken. At that time, UNDP was working with SAIP, the equipment manufacturer, in optimizing the mixing head of the dispenser; and with one systems house in assessing to what extent direct injection could reduce the cost by reducing foam density. Results of the trials were expected to be analysed in November 2014, and the Executive Committee requested the final report be submitted to the 74th meeting (decision 73/19).

[6] UNEP/OzL.Pro/ExCom/66/17.

[7] The foam dispenser allows for direct injection of HC with the polyol and isocyanate into the mixing head without jeopardizing safety and removing the need of a pre-blender.

Progress report

14. UNDP indicated that the optimization of the direct injection dispenser was completed but trials being done with Dow Chemical (Egypt) had to stop as the enterprise currently underwent business restructure in the country. The situation will be discussed with the enterprise during a mission to be held in the second quarter of 2015. UNDP also clarified that the outstanding report is a supplementary report, providing additional information on costs of the options demonstrated, to the report submitted to the 66th meeting[8]. If additional trials are implemented, UNDP will submit a supplementary report to the 75th meeting.

Secretariat's recommendations

15. The Executive Committee may wish:

(a) To note the progress report on the implementation of the demonstration project on low-cost options for the use of hydrocarbons in the manufacture of polyurethane foams in Egypt, submitted by UNDP; and

(b) To request UNDP to submit to the 75th meeting an update on the status of finalization of trials under the demonstration project mentioned in sub-paragraph (a) above, and the associated supplementary report, if the trials are completed.

PART III: BOLIVIA (PLURINATIONAL STATE OF): HPMP (STAGE I, SECOND TRANCHE) (TRANSFER OF PROJECT) (UNIDO)

16. Stage I of the HCFC phase-out management plan (HPMP) for the Plurinational State of Bolivia was approved at the 64th meeting to achieve 35 per cent reduction in HCFC consumption by 2020 at a total funding level of US $315,000 (plus agency support cost), to be implemented by the Government of Germany as the lead implementing agency. UNDP might implement a project for the phase-out of HCFC-141b contained in imported pre-blended polyols if submitted by the Government of the Plurinational State of Bolivia during the implementation of stage I of the HPMP. The funding for the first (US $94,500) and second (US $94,500) tranches were approved at the 64th and 72nd meetings, respectively. Funding for the preparation of a verification report (US $30,000) was also approved at the 73rd meeting.

17. The Government of the Plurinational State of Bolivia had requested that UNIDO become the lead implementing agency of the HPMP, as the Government believes that it would be better assisted by an implementing agency that is already operating in the country and is assisting neighbouring countries in implementing their HPMPs. The Government of Germany had agreed to the request by the Government of the Plurinational State of Bolivia.

18. Implementation of the first tranche of the HPMP has been completed by the Government of Germany and all approved funding (US $94,500) had been disbursed. Accordingly, the Government of the Plurinational State of Bolivia had requested the transfer of the second tranche already approved for Germany (US $94,500) and the remainder of the funding approved in principle (US $126,000) to UNIDO. The Government of Germany has returned US $94,500, plus agency support costs of US $12,285 to the 74th meeting, as noted in document on report on balances and availability of resources[9].

19. Consequently, UNIDO as the (new) lead implementing agency of the HPMP, had submitted a request for the transfer of the US $94,500, plus agency support costs of US $8,505 for the implementation

[8] UNEP/OzL.Pro/ExCom/66/17.
[9] UNEP/OzL.Pro/ExCom/74/4.

of the second tranche of the HPMP at the 74th meeting; and to approve the transfer of the remaining funding of US $126,000, plus agency support costs of US $11,340 approved in principle, associated with the third to the fifth tranches.

Progress report of the first tranche

20. The following activities have been implemented: policy and regulatory adjustment to include control of imports/exports of HCFCs; training of 40 customs officers on ODS detection and trade control, and translation of Customs guide into Spanish; development of training curricula and materials, and training of 27 trainers for refrigeration and air-conditioning (RAC) servicing sector, including the implementation of a certification programme for RAC technicians; awareness raising activities to introduce HPMP, and technical assistance to the project management unit on project coordination and monitoring.

Adjustment of the work programme for the second tranche

21. UNIDO indicated that the work programme for the second tranche will focus on investment components including provision of equipment and establishing refrigerant recovery and reclamation system (US $40,000); training of 150 technicians in good servicing practices, refrigerant recovery and reuse and safety handling of hydrocarbon refrigerants (US $42,500); and project coordination, monitoring and verification of achievement (US $12,000).

Secretariat's comments

22. The Secretariat noted that the implementation of the HPMP is progressing. The HCFC consumption in 2013 is below the allowable level for that year.

23. The transfer from the Government of Germany to UNIDO will not change the project cost of the HPMP; however, the agency support cost would be reduced by US $3,780.

Secretariat's recommendations

24. The Executive Committee may wish:

(a) To approve the transfer of US $94,500, plus agency support costs of US $8,505 to UNIDO for the implementation of the second tranche of stage I of the HCFC phase-out management plan (HPMP), noting the revised work programme associated with the tranche;

(b) To approve the transfer of US $30,000, plus agency support costs of US $2,700 to UNIDO for the preparation of a verification report to be submitted with the third tranche of stage I of HPMP;

(c) To approve the transfer of funding approved in principle from the Government of Germany to UNIDO of US $126,000, plus agency support costs of US $11,340 associated with the third to the fifth funding tranches of the HPMP; and

(d) To request the Secretariat to revise the Agreement between the Plurinational State of Bolivia and the Executive Committee based on sub-paragraphs (b) and (c) above, when the funding request for the third tranche of the HPMP is submitted.

PART IV: MB PHASE-OUT PROJECT IN GUATEMALA

Background

25. At its 73rd meeting, the Executive Committee requested UNIDO and UNEP to submit to the 74th meeting a progress report on the implementation of the MB phase-out project in Guatemala, including any potential risk of non-compliance of Guatemala with the 2015 control measure for MB (decision 73/23(b)). On this basis, UNIDO and UNEP submitted a report to the present meeting.

Progress report

26. UNIDO reported that the MB project is progressing. In collaboration with the Ministry of Environment UNIDO has promoted the acquisition and adoption of sustainable alternatives to the use of MB. The training programme on grafting at the agricultural universities and research institutes, and the technical assistance will continue in 2015 to secure and sustain the alternatives. The procurement process of some greenhouse in connection to grafting technology has been launched.

27. Guatemala exceeded the maximum allowable consumption of MB under its Agreement with the Executive Committee from 2012 to 2014, as shown in Table 4. However, the country has an enforceable regulation and no import licenses for MB are issued for 2015. Furthermore, the agreements signed between the Ministry of Environment and Ministry of Agriculture and the melon companies do not allow imports of MB from 2015.

Table 4: MB consumption from 2010 to 2015

Year	Metric tonnes	ODP tonnes	Maximum permitted consumption (ODP tones)
2010	415.0	249.0	265.7
2011	351.8	211.1	217.7
2012	233.0	139.8	117.7
2013	400.0	240.0	0.0
2014*	350.0	210.0	
2015	0.0	0.0	
Baseline	667.8	400.7	

*Not yet reported under Article 7.

Secretariat’s comments

28. The Government of Guatemala, through the regulations including the ban on the import of controlled uses of MB as of 1 January 2015, controls the import of MB within the country. The signing of the agreements between the melon companies and the representatives of the Ministry of Environment and Ministry of Agriculture which do not allow the import of MB from 2015 will facilitate the complete phase-out of MB from 2015.

Secretariat’s recommendations

29. The Executive Committee may wish:

(a) To note the progress report on the implementation of the methyl bromide (MB) phase-out project in Guatemala submitted by UNIDO on behalf of the Government of Guatemala contained in document UNEP/OzL.Pro/ExCom/74/12; and

(b) To note that the project completion report will be submitted to 75th meeting in line with decision 71/7(b)(ii).

PART V: HALON PHASE-OUT PROJECT IN IRAN (ISLAMIC REPUBLIC OF)

Background

30. At its 63rd meeting, the Executive Committee approved the transfer of the halon project in the Islamic Republic of Iran (IRA/HAL/63/TAS/198) from the Government of France to UNIDO, at the amount of US $397,500, plus agency support costs of US $29,813 for UNIDO (decision 63/2). UNIDO had reported to the 73rd meeting by mistake that the project was operationally completed in April 2014. It was subsequently reported that the project was ongoing and that the installation of the equipment and users training were pending. The following report replaces the 2013 progress report on the halon project in the Islamic Republic of Iran.

Progress report

31. UNIDO reported that the equipment was procured (at a total cost of US $259,255) and delivered in July 2013; however, the identification of the suitable partner establish and operate the halon bank was lengthy. In May 2014, the Mashhad Waste Management Organization was selected to implement the programme. The regulations to arrange halon collection and processing have been agreed. The next step is to install the equipment (at a total cost of US $100,000) and start operation soon after.

32. Since this project is subject to decision 71/11(b) requesting implementing agencies to return any unused balances as soon as possible but no later than the end of 2014, UNIDO submitted a request for an extension of the project until 31 December 2015. If the extension is approved, all available halon will be recovered and reclaimed; halon not suitable for reuse will be properly stored.

Secretariat's comments

33. The Secretariat reviewed UNIDO's request in line with decisions 71/11(b) and 73/8(b)[10]. In doing so, the Secretariat noted that US $259,255 was disbursed during the implementation period of the project. On this basis, and noting that an established organization has been selected to operate the halon bank, and that regulations for the collection and processing of halons have been agreed, the Executive Committee might wish to agree to extend the planned completion date to the end of 2015, and to continue monitoring the project until June 2016 to ensure that the halon bank is functioning.

Secretariat's recommendations

34. The Executive Committee may wish:

(a) To note the progress report on the implementation of the halon phase-out project in the Islamic Republic of Iran submitted by UNIDO contained in document UNEP/OzL.Pro/ExCom/74/12;

(b) To consider extending the planned completion date of the halon project in the Islamic Republic of Iran until 31 December 2015;

[10] Decision 71/11(b) requesting implementing agencies "not incur any new commitments after the final date of completion and to return any unused balances from those projects as soon as possible but no later than the end of 2014"; and decision 73/8(b) indicating that the "implementing agencies should not be allowed to revise planned completion dates of CFC, carbon tetrachloride and halon projects beyond those dates decided by the Executive Committee, except when the Executive Committee had so decided, or where the Executive Committee had agreed that funds could be transferred to a HCFC phase-out management plan.

(c) To request UNIDO:

(i) To provide a progress report to each meeting until the completion of the project; and

(ii) To submit the project completion report no later than the 77th meeting.

PART VI: RESOURCE MOBILIZATION

Global: Resource mobilization for climate co-benefits

Background

35. The final report of the resource mobilization project for UNEP (contained in UNEP/OzL.Pro/ExCom/73/17/Add.1) was submitted to the 73rd meeting. At that meeting, the Executive Committee decided to defer consideration of the report until the 74th meeting (decision 73/26).

36. The Secretariat's consideration of the report and its recommendations, as submitted to the 73rd meeting are presented below.

Final report

37. At its 63rd meeting, the Executive Committee approved US $100,000 for UNEP to undertake a study on financing options, regional workshops on co-financing, and/or one or more pilot applications of co-financing for one or more low-volume-consuming (LVC) countries with an approved HCFC phase-out management plan, to be funded as resource mobilization activities.

38. UNEP provided the final report of the resource mobilization project through the submission of a document entitled Financing Options to address Climate Co-benefits for HCFC phase-out in LVCs with Servicing Sector only. The document provides guidance for Ozone Officers in LVC countries on how to seek financing outside of the Multilateral Fund to achieve climate co-benefits linked to their HPMPs. The report contains information on the situation of LVCs, a section on low-GWP alternatives to HCFCs particularly for the servicing sector, a brief description of key sources of financial support for climate co-benefits that may be available, and concludes with a step-by-step guide for an Ozone Officer seeking to take advantage of climate co-benefits during the HCFC phase-out.

Secretariat's comments

39. In reviewing the report, the Secretariat asked UNEP to clarify the process/methodology by which the report was prepared and how the results of the regional workshops conducted were taken into account in the final document. The Secretariat also provided comments on the report format, and proposed some changes that would provide more clarity in presentation.

40. The Secretariat also noted that elements that were required as part of the project (i.e. additionality, transparency, avoiding perverse incentives, profit sharing, ensuring sustainability, avoidance of duplication, and information on transaction costs) were not included in the report. The Secretariat also reminded UNEP of other relevant decisions for resource mobilization including the analysis of the evaluation of the chiller project and how specific aspects may be considered in the in the final reports where relevant.

41. After discussions with UNEP, a revised final draft was submitted, taking into account the observations and comments by the Secretariat as well as the outstanding elements required in paragraph 83 above. This final report is attached as Annex III.

Secretariat's recommendations

42. The Executive Committee may wish:

(a) To note the report on resource mobilization for climate co-benefits submitted by UNEP; contained in document UNEP/OzL.Pro/ExCom/74/12; and

(b) To encourage low-volume-consuming countries through the bilateral and implementing agencies to use the guide provided in the report when seeking additional resources for climate co-benefits during the implementation of stage I and future stages of the HCFC phase-out management plans.

Annex I

PROJECTS THAT ARE CLASSIFIED AS "SOME PROGRESS" AND ARE RECOMMENDED FOR CONTINUED MONITORING

Code	Project title	Agency
IND/ARS/56/INV/423	Plan for phase-out of CFCs in the manufacture of pharmaceutical MDIs	UNDP
PAK/ARS/56/INV/71	Plan for phase-out of CFCs in the manufacture of pharmaceutical MDIs	UNDP
KUW/PHA/57/TAS/15	TPMP verification	UNEP
NEP/DES/59/TAS/27	Destruction of confiscated ODS	UNEP
TRI/FUM/65/TAS/28	Technical assistance to phase out the use of methyl bromide	UNEP
EGY/ARS/50/INV/92	Phase-out of CFC consumption in the manufacture of aerosol metered dose inhalers (MDIs)	UNIDO
IRQ/REF/57/INV/07	Replacement of refrigerant CFC-12 with isobutane and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company	UNIDO
SYR/REF/62/INV/103	Phase-out of HCFC-22 and HCFC-141b from the manufacture of unitary air-conditioning equipment and rigid polyurethane insulation panels at Al Hafez Group	UNIDO
ZAM/FUM/56/INV/21	Technical assistance for the total phase out of methyl bromide in tobacco, cut flowers, horticulture and post-harvest uses	UNIDO
CPR/ARS/51/INV/447	Phase-out of CFC consumption in the pharmaceutical aerosol sector (2007-2008 biennial programme)	World Bank

Annex II

PROJECTS FOR WHICH ADDITIONAL STATUS REPORTS WERE REQUESTED

Code	Project title	Reasons	Agency
BAR/PHA/69/INV/21	HCFC phase-out management plan (stage I, first tranche)	To monitor the signing of the project document/letter of agreement and low disbursement rates of approved funds.	UNDP
PER/PHA/68/INV/46	HCFC phase-out management plan (stage I, first tranche) (refrigeration servicing)	To monitor the signing of the project document/letter of agreement and low disbursement rates of approved funds.	UNDP
BAH/PHA/68/TAS/28	HCFC phase-out management plan (stage I, first tranche) (policy, refrigeration servicing, monitoring and verification)	To monitor the low disbursement rates of approved funds	UNEP
BOT/SEV/68/INS/15	Extension of institutional strengthening project (phase IV: 1/2013-12/2014)	To monitor the low disbursement rates of approved funds	UNEP
CAF/SEV/68/INS/23	Extension of the institutional strengthening project (phase VI: 1/2013-12/2014)	To monitor the low disbursement rates of approved funds	UNEP
CHI/FUM/60/TAS/172	National phase-out of methyl bromide, terminal project (first tranche)	To monitor the low disbursement rates of approved funds	UNEP
DMI/PHA/62/TAS/19	HCFC phase-out management plan (stage I, first tranche)	To monitor the low disbursement rates of approved funds	UNEP
DRK/SEV/68/INS/57	Extension of institutional strengthening project (phases VI and VII: 1/2010-12/2013)	To monitor the low disbursement rates of approved funds	UNEP
ERI/PHA/67/TAS/11	HCFC phase-out management plan (stage I, first tranche)	To monitor the low disbursement rates of approved funds	UNEP
ERI/SEV/68/INS/12	Institutional strengthening (phase II: 1/2013-12/2014)	To monitor the low disbursement rates of approved funds	UNEP
KUW/PHA/66/TAS/19[11]	HCFC phase-out management plan (stage I, first tranche) (refrigeration servicing sector and monitoring and verification)	To monitor the low disbursement rates of approved funds	UNEP
MAU/PHA/55/PRP/20	Preparation of a HCFC phase-out management plan	To monitor the submission of the HCFC phase-out management plan.	UNEP
MAU/SEV/57/INS/23	Renewal of the institutional strengthening project (phase V)	To monitor the low disbursement rates of approved funds	UNEP
MOR/SEV/59/INS/63	Renewal of the institutional strengthening project (phase IV)	To monitor the low disbursement rates of approved funds	UNEP
MYA/PHA/68/TAS/14	HCFC phase-out management plan (stage I, first tranche)	To monitor the agreement signing and low disbursement rates of approved funds.	UNEP
PER/PHA/68/TAS/47	HCFC phase-out management plan (stage I, first tranche) (refrigeration servicing)	To monitor the agreement signing and low disbursement rates of approved funds.	UNEP
PER/SEV/68/INS/45	Renewal of institutional strengthening project (phase IV: 1/2013-12/2014)	To monitor the low disbursement rates of approved funds	UNEP

[11] The low disbursement rate issue in Kuwait's HCFC phase-out management plan is being addressed in document UNEP/OzL.Pro/ExCom/74/35.

Code	Project title	Reasons	Agency
SAU/SEV/67/INS/15	Extension of the institutional strengthening project (phase II: 7/2012-6/2014)	To monitor the low disbursement rates of approved funds	UNEP
SSD/PHA/70/PRP/02	Preparation of an HCFC phase-out management plan	To monitor: (a) the submission of the HCFC phase-out management plan; (b) the actions taken towards the establishment of the licensing system for ODS imports and exports.	UNEP
VEN/PHA/63/INV/119	HCFC phase-out management plan (stage I, first tranche)	To monitor the agreement signing and low disbursement rates of approved funds.	UNEP
VEN/PHA/67/TAS/121	HCFC phase-out management plan (stage I, second tranche)	To monitor the agreement signing and low disbursement rates of approved funds.	UNEP
VEN/PHA/70/TAS/123	HCFC phase-out management plan (stage I, third tranche)	To monitor the agreement signing and low disbursement rates of approved funds.	UNEP
YEM/PHA/68/INV/40	HCFC phase-out management plan (stage I, first tranche)	To monitor the low disbursement rates of approved funds	UNEP
ALG/FOA/62/INV/75	Conversion from HCFC-141b in the manufacture of polyurethane rigid insulation foam for domestic refrigerators at Cristor	To monitor the low disbursement rates of approved funds	UNIDO
ALG/PHA/66/INV/76	HCFC phase-out management plan (stage I, first tranche) (conversion from HCFC-22 in the manufacture of room air conditioners at Condor)	To monitor the low disbursement rates of approved funds	UNIDO
BAH/PHA/68/INV/27	HCFC phase-out management plan (stage I, first tranche) (phase-out of HCFC-22 from the manufacturing of central air conditioning and window air conditioning at Awal Gulf manufacturing company)	To monitor the low disbursement rates of approved funds	UNIDO
BAH/PHA/68/TAS/26	HCFC phase-out management plan (stage I, first tranche) (reclamation facility)	To monitor the low disbursement rates of approved funds	UNIDO
ETH/PHA/68/INV/22	HCFC phase-out management plan (stage I, first tranche)	To monitor the low disbursement rates of approved funds	UNIDO
IDS/PHA/64/INV/194	HCFC phase-out management plan (stage I, first tranche) (Umbrella project to phase-out HCFC-141b from the manufacturing of rigid polyurethane foam at Isotech Jaya Makmur, Airtekindo, Sinar Lentera Kencana and Mayer Jaya)	To monitor the low disbursement rates of approved funds	UNIDO
LIB/SEV/71/INS/34	Renewal of institutional strengthening project (phase III: 12/2013-11/2015)	Licensing system for ODS imports and exports	UNIDO
QAT/SEV/59/INS/15	Renewal of institutional strengthening project (phase III)	To monitor the low disbursement rates of approved funds	UNIDO
SOA/PHA/71/INV/06	HCFC phase-out management plan (stage I, second tranche) (refrigeration servicing, custom training and monitoring)	To monitor the low disbursement rates of approved funds	UNIDO

FINANCING OPTIONS TO ADDRESS CLIMATE CO-BENEFITS FOR HCFC PHASE-OUT IN LVCS WITH SERVICING SECTOR ONLY

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Contents

EXECUTIVE SUMMARY

This document provides guidance for Ozone Officers in low volume HCFC-consuming countries (LVCs) to help them understand how to seek financing outside of the Montreal Protocol's Multilateral Fund to achieve the climate co-benefits indicated in their national HCFC Phase-out Management Plans (HPMPs). LVCs have certain characteristics that are unique to their circumstances that can make accessing additional this financial support for HCFC phase-out projects particularly challenging, however the experience of some developing countries and the resource mobilisation projects of the Multilateral Fund's Implementing Agencies demonstrate that is possible. The vast majority of the HCFCs consumed in LVCs still remains to be phased out through Multilateral Fund projects, and since HCFCs both deplete the ozone layer and are greenhouse gases, LVCs have a clear opportunity to develop phase-out projects that meet both ozone and climate protection goals. Significant cost savings for equipment owners and governments can result when HCFC phase-out projects are designed to provide climate benefits. In order to develop such funding proposals, it is important for HCFC-related activities to be expressed in terms understandable by organisations that are used to climate change concepts and terminology, i.e. describing HCFCs as greenhouse gases using carbon dioxide equivalent (CO_2-eq) emissions. When developing a resource mobilization plan, Ozone Officers should identify the potential climate benefits in the servicing sector and understand who could benefit, i.e. the consumer, the equipment owner, the government and/or the environment. Climate co-benefits are frequently driven by increased energy efficiency in equipment using alternatives for HCFCs. There is a range of potential sources of financial support for climate co-benefits projects that an Ozone Officer should consider, including mainstreaming through Official Development Assistance, global level financial institutions with climate programmes, regional financial institutions that support climate benefits, government support for climate benefits as bilateral donors, and private sector support. A step-by-step guide for an Ozone Officer includes understand the refrigeration servicing sector, potential climate co-benefits and possible barriers; persuading management to seek climate co-financing for the HCFC phase-out; meeting with bilateral donors, international organizations and regional organisations that work in your country, making a compelling proposal, and preparing for discussions with potential donors.

LIST OF ACRONYMS

ACSP	African Carbon Support Programme
ADB	Asian Development Bank
AfDB	African Development Bank
CAS	Country Assistance Strategy
CDB	Caribbean Development Bank
CDM	Clean Development Mechanism
CER	Certified emission reduction
CFC	Chlorofluorocarbon
CFU	Carbon Finance Unit
CIF	Climate Investment Funds
CO_2-eq	Carbon dioxide equivalent emissions
EBRD	European Bank for Reconstruction and Development
ECA	Europe and Central Asia
EER	Energy efficiency rating
GEF	Global Environment Facility
GHG	Greenhouse gas
GWP	Global warming potential
HC	Hydrocarbon
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
HFO	Hydrofluoroolefin
HPMP	HCFC Phase-out Management Plan
HVAC&R	Heating, ventilation, air conditioning, and refrigeration
IADB	Inter-American Development Bank
IDA	International Development Association
IDBI	Industrial Development Bank of India
IEA	International Energy Agency
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
LVC	Low volume HCFC consuming country
MDG	UN Millennium Development Goal
MT	Metric tonnes
NOU	National Ozone Unit
ODA	Official Development Assistance
ODP	Ozone Depleting Potential
ODS	Ozone depleting substance
OECD	Organisation for Economic Co-operation and Development
PRSP	Poverty Reduction Strategy Paper
RAC	Refrigeration and air conditioning
SE4ALL	Sustainable Energy for All Initiative
SEFA	Sustainable Energy Fund for Africa
SIDS	Small Island Developing States
TEAP	Technology and Economic Assessment Panel
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	UN Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organisation
VLVC	Very low volume HCFC consuming country

FINANCING OPTIONS TO ADDRESS CLIMATE CO-BENEFITS
FOR HCFC PHASE-OUT IN LVCs WITH SERVICING SECTOR ONLY

SETTING THE SCENE

The UNEP report, *HFCs: A Critical Link in Protecting Climate and the Ozone Layer*,[1] set the scene with respect to the rapid growth of hydrofluorocarbons (HFCs) as the main replacements for hydrochlorofluorocarbons (HCFCs) under the Montreal Protocol on Substances that Deplete the Ozone Layer. It states that the ozone-depleting substances (ODS) being phased out under the Montreal Protocol, such as chlorofluorocarbons (CFCs) and HCFCs, are not only ozone-depleting but are also potent global warming gases. While the HFC replacement chemicals used in products such as refrigerators and air conditioners and do not deplete stratospheric ozone, many of them are also extremely powerful global warming gases that will have an adverse impact on the climate if their use as alternatives to HCFCs remains significant. Alternatives for HCFCs in refrigeration and air conditioning (RAC) applications that have less impact or no impact at all on the climate are being developed and used throughout the world as Parties to the Montreal Protocol implement their HCFC Phase-out Management Plans (HPMPs).

In developing countries with low and very low HCFC consumption, the challenges faced by Ozone Officers in meeting the HCFC phase-out targets may be more easily met if the opportunities available through financial support for projects that benefit the climate are understood and acted on. This document aims to explain what climate-related resource mobilization means and how it can help an Ozone Officer in a low-volume consuming country (LVC) or very low volume consuming country (VLVC)[2] meet the HCFC phase-out targets with financial assistance from both the Multilateral Fund for the Implementation of the Montreal Protocol and other financial institutions and mechanisms. Ozone protection projects can be linked with activities to enhance energy efficiency and reduction of greenhouse gas (GHG) emissions, thereby achieving a dual benefit of ozone protection and climate change mitigation. The document provides guidance on how a LVC can seek financial support to both phase out HCFCs in the refrigeration servicing sector — which includes both the refrigeration and air conditioning sub-sectors — through projects result in reduced energy consumption and meet a country's climate, environmental and health-related goals and objectives.

[1] UNEP, *HFCs: A Critical Link in Protecting Climate and the Ozone Layer A UNEP Synthesis Report* (November 2011), http://www.unep.org/dewa/portals/67/pdf/HFC_report.pdf

[2] Although there are sometimes considerable differences between low-volume and very-low volume consuming countries, for the purposes of this document the term LVC will be used henceforth as a generic term for both types of countries.

INTRODUCTION

During its 60th meeting, the Executive Committee of the Multilateral Fund agreed under Decision 60/44 that for HCFC phase-out projects to achieve the 2013 and 2015 HCFC phase-out compliance targets, it would provide additional funding of up to 25% above the cost effectiveness threshold for projects, when needed for the introduction of low global warming potential (GWP) alternatives. This provision thus encourages Article 5 countries to use replacements for HCFCs in their RAC investment projects that have less impact or no impact on climate – thereby achieving climate co-benefits.

Given that this additional funding of up to 25% related to climate benefits is not available to Parties with no HCFC manufacturing sector, the Parties that are LVCs need information and guidance on how to access additional funding and support for their HCFC phase-out. In recognition of this need, the Executive Committee, through Decision 63/22 (a), approved separate resource mobilization projects for each of the four implementing agencies: UNDP, UNEP, UNIDO and the World Bank. The project approved for UNEP, entitled "Resource mobilization to address climate co-benefits for HCFCs phase-out in LVCs with servicing sector only," includes two elements: a paper on financing options (i.e. this document) and four regional workshops on co-financing.[3]

In preparation for the UNEP resource mobilization project, the final reports of the resource mobilization projects of UNDP, UNIDO and the World Bank proved to be useful. In addition, UNEP sought and received advice from the other Implementing Agencies in relation to their experiences working with National Ozone Units (NOUs) in LVCs who were seeking opportunities for resource mobilization. The regional workshops on co-financing also provided an opportunity for participants in LVCs to voice their needs in relation to resource mobilization and to provide their inputs to this document.[4]

This document is designed as guidance for Ozone Officers in LVCs to help them understand how to approach financing options to achieve climate co-benefits of the HCFC phase out. Although this document is specifically targeted to assist LVCs that only consume HCFCs for servicing RAC equipment, the document should be useful to all LVCs. It is intended to provide practical steps to guide Ozone Officers on how to identify support for the climate co-benefits of their HPMPs. It takes a step back and describes LVCs and the challenges and opportunities Ozone Officers in LVCs may face in identifying and accessing support to address climate co-benefits. The paper then outlines what climate benefits are possible in refrigeration servicing. It introduces the concept of co-financing and the various institutions that can provide support to LVCs as they phase out the HCFCs. Finally, it demonstrates how to prepare for discussions on co-financing with potential donors to address climate co-benefits during the HCFC phase-out.

The paper is divided into the following six sections:

[3] For background about UNEP's resource mobilization project, see Annex 1.
[4] See Annex 2.

1. Phase-out schedule for HCFCs. The HCFC phase-out schedule for developing countries is outlined.

2. Description of LVCs with refrigeration servicing sector only. Countries with low or very low consumption of HCFCs are LVCs are the focus of the paper, in particular with and those with RAC servicing sector only. They are listed and described along with their unique challenges in relation to accessing financial support to implement their HPMPs.

3. Progress so far on HCFC Phase-out in LVCs with servicing only and what that means in terms of climate. This section reviews the data available on HCFC phase-out in LVCs with a RAC servicing sector only and sets out how much more must be achieved. It also discusses how to express HCFCs as greenhouse gases to set the stage for seeking climate benefits in HPMPs.

4. An overview of alternatives for HCFCs in refrigeration and air conditioning. The substitutes for HCFCs in the RAC sector are briefly introduced in this section along with a review of how to achieve climate benefits in the HCFC phase-out as it relates to the servicing sector. This section also makes the case for seeking financing to support climate benefits when implementing the HPMPs.

5. Financing options available to LVCs seeking support for climate benefits. This section introduces climate financing institutions that are options for LVCs, seeking support outside of the Multilateral Fund for climate co-benefits. It describes the kinds of support provided by the various financing institutions specific to an LVC.

6. Guide to Ozone Officers for accessing co-financing. This part of the financing options paper is intended to be used as a step-by-step guide for an Ozone Officer on how to move from understanding the opportunities that climate co-benefits can offer through to putting resource mobilization into practice.

1. PHASE-OUT SCHEDULE FOR HCFCs

In September 2007, the Parties to the Montreal Protocol agreed to accelerate the phase-out schedule for HCFCs through Decision XIX/6. The schedule for developing countries operating under Article 5 of the Protocol (Article 5 countries[5]) is presented in Table 1.

Table 1: HCFC Phase-out Schedule for Article 5 Parties

Schedule	Year
Baseline	Average of 2009 and 2010
Freeze	2013
90% (reduction of 10%)	2015
65% (reduction of 35%)	2020
32.5% (reduction of 67.5%)	2025
Annual average of 2.5%	2030 to 2040
0% (reduction of 100 %)	2040

Decision XIX/6 also:

- Directed the Executive Committee, in providing technical and financial assistance, to pay particular attention to Article 5 Parties with low volume and very low volume consumption of HCFCs;
- Encouraged Parties to promote the selection of alternatives to HCFCs that minimize environmental impacts, in particular impacts on climate, as well as meeting other health, safety and economic considerations[6]; and
- Agreed that the Executive Committee, when developing and applying funding criteria for projects and programmes, would give priority to cost-effective projects and programmes which focus on, *inter alia* substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account global warming potential (GWP), energy use and other relevant factors.

2. DESCRIPTION OF LVCs WITH REFRIGERATION SERVICING SECTOR ONLY

Countries with low or very low consumption of HCFCs are LVCs including those with refrigeration servicing only are the main focus of this financing options paper. The characteristic of LVCs are described in this section, along with their unique challenges with respect to accessing financial support to implement their HPMPs.

[5] Any Party to the Montreal Protocol which is a developing country and whose annual level of consumption of chlorofluorocarbons (CFCs) and halons is less than 0.3 kilograms per capita.

[6] See Section 4.

During the current HCFC phase-out stage, for the purpose of Multilateral Fund projects, developing countries are classified according to their annual levels of HCFC consumption. Executive Committee decision 60/44 (xiii) defines an Article 5 country as a LVC if it has a total HCFC consumption of up to 360 metric tonnes (MT) or 19.8 Ozone Depleting Potential (ODP) tonnes in the servicing sector. The HCFC baseline established under the HPMP is used to determine whether the country meets the 360 MT threshold. If a country has HCFC consumption in the servicing sector and in manufacturing, and the total consumption is still less than 360 MT, then it is still considered an LVC.

All countries consume HCFCs in the RAC sector for servicing existing equipment. The focus of this paper is the LVCs that consume HCFCs only for servicing in the RAC sector – and do not manufacture products containing HCFCs or have a foam manufacturing component. The term "refrigeration and air conditioning" includes domestic, commercial and industrial refrigeration and domestic, commercial and mobile air conditioning.

There are 59 LVCs with servicing only, as follows:

Albania
Angola
Bahamas
Barbados
Bhutan
Brunei Darussalam
Burundi
Cambodia
Cape Verde
Central African Republic
Chad
Comoros
Congo
Cook Islands
Djibouti
Dominica
Equatorial Guinea
Eritrea
Ethiopia
Fiji

Gambia
Georgia
Grenada
Guinea-Bissau
Guyana
Haiti
Kiribati
Lesotho
Liberia
Malawi
Mali
Marshall Islands
Micronesia, Federated States of
Moldova, Rep
Mongolia
Montenegro
Mozambique
Nauru
Nepal
Niue

Palau
Papua New Guinea
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Samoa
Sao Tome and Principe
Serbia
Sierra Leone
Solomon Islands
South Sudan
Suriname
Tanzania, Republic of
Timor Leste
Tonga
Turkmenistan
Tuvalu
Vanuatu
Zambia

In line with the Multilateral Fund document *Minimizing Adverse Climate Impact of HCFC Phase-out in the Refrigeration Servicing Sector*[7] the term "refrigeration servicing sector" principally describes only the service of existing refrigeration equipment. In reality, technicians' expertise is also

[7] Document UNEP/OzL.Pro/ExCom/72/42, http://www.multilateralfund.org/72/English/1/7242.pdf . This document provides useful information and considerations about the refrigeration servicing sector that is relevant for current and future HPMPs. UNEP recommends that all Ozone Officers read this document.

frequently used for the additional task of assembly, installation, initial charging and commissioning of new refrigeration equipment, and in particular when such equipment is custom-made for specific installations (e.g. supermarkets, refrigerated transportation, etc). The initial refrigerant charge in new systems has an estimated share between 20 to 60 per cent of HCFC servicing-sector consumption for most countries.

There is almost no data regarding the distribution of service-sector consumption between actual service and assembly/ installation/ initial charging/ commissioning. In fact, HCFC-22 uses related to the installation and initial charge of refrigeration equipment is absent from almost all HPMPs. The main difference between the two groups of tasks is that in many cases in which the service sector is performing assembly, installation, initial charging and commissioning, the choice of technology is not limited by an already existing system. In comparison, the actual servicing of refrigeration equipment provides only a limited possibility of changing the technology selected when the equipment was procured, as each refrigeration system has been specifically designed for one refrigerant. Despite this, for the purpose of this document on financing options, "servicing" includes retrofitting/conversions.[8]

All Article 5 countries face challenges in phasing out HCFCs – challenges that differ from those faced in the CFC phase-out. Actual consumption of HCFCs in MT has exceeded the peak of CFC consumption by 200%. In terms of impact, however, the ODP of HCFCs is only 10-20% that of the ODP of CFC-11/12. This implies that more phase-out interventions and investments will be required to accomplish the same level of ODP reductions achieved for CFCs. Further, because most HCFC consumption is in the RAC sector, the fleet of HCFC-dependent equipment world-wide will continue to be dependent on HCFCs for servicing, despite that the upcoming control measures under the Montreal Protocol will limit HCFC supply. An added challenge is that many HCFC-using enterprises and households own equipment that is far from the end of its product life as a result of recent conversion from CFC use.[9]

Other challenges to transforming HCFC consuming sectors are the low price of HCFCs as compared to alternatives and the degree of availability of affordable alternative technologies for developing countries. The price of HCFC-22 in particular has remained low and is expected to remain so in the foreseeable future.[10]

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[8] Executive Committee Decision 72/17 states that "anyone engaging in retrofitting HCFC-based refrigeration and air-conditioning equipment to flammable or toxic refrigerants and associated servicing, does so on the understanding that they assume all associated responsibilities and risks." New equipment that is specifically designed to use flammable refrigerants can be appropriate options to replace HCFCs in developing countries, and should be considered. However, due to safety concerns, UNEP's Compliance Assistance Programme cautions on the conversions (i.e. retrofits or drop-ins) of existing refrigeration and air conditioning equipment - or any existing equipment with large charge size - to use flammable refrigerants which include, but are not limited to, hydrocarbons.

[9] Leveraging Support for HCFC Phase-out: Opportunities and Modalities for Pursuing Linkages with the Climate Change Agenda. Montreal Protocol Operations, Environment Department, The World Bank. www.worldbank.org/montrealprotocol www.carbonfinance.org

[10] Leveraging Support for HCFC Phase-out: Opportunities and Modalities for Pursuing Linkages with the Climate Change Agenda. Montreal Protocol Operations, Environment Department, The World Bank. www.worldbank.org/montrealprotocol www.carbonfinance.org

Unlike other Article 5 countries, LVCs have certain characteristics that are unique to their circumstances that can make accessing additional financial support for HCFC phase-out projects particularly challenging. A few of these circumstances are described below:

- It is difficult to design "one size fits all" solutions. As a group, LVCs vary widely with respect to geography, capacity to diagnose problems and design appropriate solutions, and economic, social, and environmental conditions.

  Possible solution: From the initial project concept through the proposal drafting stages, the Ozone Office should tailor the proposal to specific, articulated national need and circumstances, involving a wide consultative process with national stakeholders to ensure a proper design.
- Many LVCs do not have national or regional facilities for disposal/destruction of waste ODS. Waste ODS must be transported resulting in high costs, an important factor in project implementation.

  Possible solution: If the resource mobilisation project includes ODS disposal, take such costs into consideration and determine if there are less expensive or alternative ways to address the waste issue. Alternatively, consider approaching the waste issue on a regional basis or finding private sector companies that are willing to take the waste at no cost (e.g. to reclaim and re-sell).
- LVCs by definition consume small amounts of ODS so there will be few, if any, "economies of scale" available to reduce the cost of implementation actions. The costs to reduce HCFCs in an LVC, on a per tonne basis, will be intrinsically more expensive than in a country that has higher consumption. From a climate change point of view, it also means that LVCs face a mitigation quandary due to low GHG emissions baselines that limit access to financing that is available from financial institutions devoted to supporting projects related to climate change.

  Possible solution: Consider joint actions with other countries in the region to achieve a sufficiently large level of consumption (e.g. a regional project). Alternatively, by joining other larger initiatives already underway (e.g. energy efficiency programmes), the HCFC component could "tag along" with a larger project and thus avoid the need for an economy of scale related only to the HCFC component.
- LVCs rely heavily on costly petroleum-based fuels for power generation. Since refrigeration and air-conditioning alone accounts for 40%-60% of total electricity consumption in developing countries, the power requirements and cost of power for refrigeration and air conditioning in a LVC can be prohibitive for the consumer and equipment owner. With projected increasing global demand for refrigerators and air conditioners, governments in LVCs face power generation capacity issues along with the costs that developing more capacity brings.

  Possible solution: Use this fact to your advantage when making the argument for a resource mobilisation proposal. By including energy efficiency components in the project proposal, the project outcome will reduce the need for power generation and fuel. Alternatively, consider adding components on renewable energy to the HCFC project (e.g. solar air conditioning).

- An LVC may have difficulty attracting financial support for its projects. It can be difficult for financial institutions to support projects in an LVC if the institution's administrative fees assessed as a percentage against a small project are insufficient to cover the actual costs of the administrative support.
  Possible solution: This is a reality and must be taken into account during the design stage. Discuss with your Director ways in which the project could be combined with other projects to have sufficient project size that is sufficient to justify the administrative costs. Donors may also have special administrative provisions for smaller countries.
- Ozone Officers in LVCs may not have experience in resource mobilisation since it is not their traditional role. Typically there are limited human and institutional resources available in LVCs for activities such as investigation into options, donor consultations, preparation of proposals and establishment of national mechanisms (if needed) to receive funds.
  Possible solution: Within your limits, test the waters by pursuing one of the climate co-benefits activities indicated in your country's HPMPs. This will build your capacity and provide you with a baseline about how much time and effort is really involved. Consider it a learning experience.

3. PROGRESS SO FAR ON HCFC PHASE-OUT IN LVCs WITH SERVICING ONLY AND WHAT THAT MEANS IN TERMS OF CLIMATE

This section reviews the available data on HCFC phase-out in LVCs with servicing only and sets out how much more must be achieved. It also discusses how to express HCFCs as greenhouse gases and makes the case for how seeking financing that has climate benefits when implementing the HPMP can open doors to financial support to supplement the Multilateral Fund.

According to Montreal Protocol Article 7 data, LVCs with servicing only consume four types of HCFCs for RAC servicing:

- HCFC-22 is used as a refrigerant in several applications such as unitary air conditioners, cold storage, retail food refrigeration equipment, chillers, and industrial process refrigeration.
- HCFC-123 is used in the RAC sector mainly in centrifugal chillers for industrial process refrigeration and commercial comfort air conditioning.
- HCFC-124 is minimally used as a refrigerant; its primary use as a refrigerant is in blends in industrial processes and transport refrigeration equipment. It is used as a component in mixtures in some CFC-12 drop-in replacements. It replaces CFC-114 in some heat pumps and special air conditioning equipment.
- HCFC-142b is used as a refrigerant only as a component of a few refrigerant blends. While HCFC-142b refrigerant blends are approved as acceptable substitutes for CFC refrigerants in some end-uses, their use is small and declining. R-409A (composed of HFC-125, HFC-134a and HFC-142a) is the most common refrigerant blend using HCFC-142b.

Table 2 indicates the current status of consumption in LVCs with servicing only for the major HCFCs, based on the most recent data reported by countries under Article 7 of the Montreal Protocol. The table also presents the quantity of HCFCs planned to be phased out by Multilateral Fund-supported projects that are currently being implemented, plus the remaining quantity of HCFCs still to be phased-out (i.e. the difference of the first two columns).

Table 2. HCFC consumption status in LVCs with servicing only

Substance	Consumption baseline (MT)	Quantity of HCFCs being phased out through approved projects (MT)	Quantity of HCFCs remaining to be phased out through approved projects (MT)
HCFC-22	209.36	82.23	127.13
HCFC-123	.02	0.00	.02
HCFC-124	.01	.01	.01
HCFC-142b	1.81	1.11	.70
Total	211.2	83.35	127.86

Source: Ozone Secretariat, Article 7 data

Based on these data, it is clear that 60% of the HCFC-22, which is the vast majority of the HCFCs in LVCs with servicing only, remains to be phased out through Multilateral Fund projects. Because

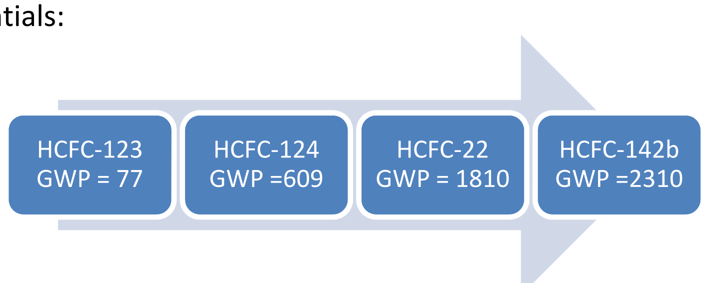
HCFCs both deplete the ozone layer and are greenhouse gases, LVCs with servicing only have a clear opportunity to develop phase-out projects for the remaining 60% of the HCFCs that meet both ozone and climate goals. As will be shown in Sections 4 and 5 of this paper, significant cost savings for equipment owners and governments result when HCFC phase-out projects are designed to provide climate benefits. The Montreal Protocol thus has a major opportunity to achieve even more significant climate co-benefits than it has already so far (see box 1).

Box 1: The climate benefits of the Montreal Protocol
The 1987 Montreal Protocol on Substances that Deplete the Ozone Layer called for the phase-out of the global production, consumption, and emissions of ODSs that are also potent greenhouse gases that contribute to climate change. The climate protection already achieved by the Montreal Protocol alone is far larger than the reduction target of the first commitment period of the Kyoto Protocol.

In order to develop projects with climate benefits, as a first step, it is important for HCFCs to be expressed in terms understandable by organisations that are used to climate change concepts and terminology, i.e. describing HCFCs as greenhouse gases using carbon dioxide equivalent (CO_2-eq) emissions. To translate HCFCs into a metric that will be understood in relation to climate change, the global warming potential or GWP (see box 2) of each specific HCFC is used to calculate the "Carbon Dioxide equivalent (CO_2-eq) emissions" of each HCFC.[11] Since some greenhouse gases are more potent and have a higher GWP than others, emissions of greenhouse gases are typically expressed as CO_2-eq emissions to allow a direct comparison of their impacts on climate.

Box 2: Global Warming Potential (GWP)
The GWP represents how long GHGs remain in the atmosphere and their relative effectiveness in absorbing outgoing thermal infrared radiation. It is a relative index that enables comparison of the climate effect of the emissions of various GHGs and other climate changing agents like ODS. Carbon dioxide is chosen as the reference gas and ODS that are greenhouse gases like HCFCs can be translated into carbon dioxide equivalent emissions (CO_2-eq). A GWP value calculated for a time horizon of 100 years is known as "100-year GWP."

Carbon dioxide has a GWP of 1, whereas the HCFCs consumed in LVCs have significantly higher global warming potentials:



[11] Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), Working Group 1, Chapter 2, *Changes in Atmospheric Constituents and in Radiative Forcing*, Table TS.2. Lifetimes, radiative efficiencies and direct (except for CH_4) global warming potentials (GWP) relative to CO_2. {Table 2.14} http://www.ipcc.ch/publications_and_data/ar4/wg1/en/tssts-2-5.html

For reference, the GWP of HFC-134a, which is one of the main alternatives for HCFC-22 identified in the HPMPs of LVCs, is 1430.

To calculate the CO_2-eq for HCFCs, the metric tonnes of the different HCFCs are multiplied by their specific GWP.

$$\text{HCFC MT} \times \text{GWP} = CO_2\text{-eq}$$

Table 3 presents the total CO_2-eq emissions for HCFCs in the LVCs with servicing only in terms of the baseline, the quantity of HCFCs already being phased out through approved projects and the remaining quantity of HCFCs that can be incorporated into phase-out projects that can achieve climate benefits.

Table 3. CO_2-eq emissions of HCFCs in LVCs with servicing only, based on their GWPs[12]

Substance	Consumption baseline (MT)	Consumption baseline expressed in CO_2-eq emissions	HCFCs being phased out through approved projects expressed in CO_2-eq emissions	HCFCs remaining to be phased out through approved projects expressed in CO_2-eq emissions
HCFC-22	209.36	378,941.60	148,836.30	230,105.30
HCFC-123	.02	1.50	00	1.50
HCFC-124	.01	6.10	6.10	6.10
HCFC-142b	1.81	4,181.10	2,564.00	1,617.00
Total	211.20	383,130.30	151,406.40	231,729.90

The 59 LVCs with servicing only have a significant quantity CO_2-eq emissions of HCFCs remaining to be phased-out and from which climate benefits would be worth pursuing. To support Ozone Officers in their efforts to design projects that bring climate benefits and attract financial assistance for their projects, the next two sections present information and guidance on the current status of HCFC alternatives, potential climate benefits from the HCFC phase-out and sources of financial support outside of the Multilateral Fund.

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[12] Most current Montreal Protocol Article 7 data and Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), Working Group 1, Chapter 2, *Changes in Atmospheric Constituents and in Radiative Forcing*, Table TS.2. Lifetimes, radiative efficiencies and direct (except for CH_4) global warming potentials (GWP) relative to CO_2. {Table 2.14} http://www.ipcc.ch/publications_and_data/ar4/wg1/en/tssts-2-5.html

4. OVERVIEW OF ALTERNATIVES FOR HCFC IN REFRIGERATION AND AIR CONDITIONING

The alternatives for HCFCs in the RAC sector are briefly introduced in this section along with a review of how to achieve climate benefits in the HCFC phase-out as it relates to the servicing sector, through the selection of appropriate alternatives. This section makes the case for seeking financing to support climate benefits when implementing the HPMP.

It is important that the HCFC phase-out under the Montreal Protocol does not add to the deterioration of the climate through the use of HFCs that are potent greenhouse gases. The May 2011 *Progress Report of the Technology and Economic Assessment Panel* stated that "the challenge is to phase out HCFCs while avoiding high-GWP HFCs and while achieving high energy efficiency using technology that is safe and environmentally acceptable."[13] The Executive Committee encourages Article 5 countries during the implementation of their HPMPs to consider measures to facilitate the introduction of energy efficient and climate friendly alternatives.[14]

According to *Minimizing Adverse Climate Impact of HCFC Phase-out in the Refrigeration Servicing Sector*, when it comes to HCFC phase-out in the refrigeration servicing sector, adverse impacts on the climate refers to an increase in emissions of GHGs (expressed in CO_2-eq. emissions) with respect to whatever is the current situation.

Emissions can change with respect to "direct" emissions from the refrigeration sector that occur when GHG refrigerants are released in substantial quantities during manufacturing, installation, servicing and decommissioning/replacement of refrigeration equipment. The emissions per system tend to increase with increasing refrigerant charge of the equipment and increasing repair of the refrigeration cycle. Many of the refrigerants that are GHGs have high global warming potential.

Emissions can also change with respect to "indirect" emissions from the refrigeration sector. Indirect emissions are those released by the power source when electricity is generated to run the RAC equipment. Indirect emissions can be very significant in terms of GHGs when the electric power used to power RAC equipment is generated by fossil fuel combustion (e.g. oil, diesel, coal), which is most often the case in LVCs (see box 3).

Box 3: Lesson learned

Savings related to electricity, whether at the individual consumer level or from avoided generation capacity, dominate. When comparing the direct climate benefit arising from reductions in emissions associated with the replacement of HCFCs (given the intrinsic global warming potential of the refrigerant) with the indirect benefit associated with energy savings from new equipment (from the lower electricity consumption), the value of the

[13] *Progress Report of the Technology and Economic Assessment Panel, May 2011, Volume 1*
http://ozone.unep.org/Assessment_Panels/TEAP/Reports/TEAP_Reports/TEAP_Progress_Report_May_2011.pdf

[14] Multilateral Fund Secretariat, *Minimizing Adverse Climate Impact of HCFC Phase-out in the Refrigeration Servicing Sector* (UNEP/OzL.Pro/ExCom/72/42), para 44(c)(ii).

indirect benefit is larger… from a country perspective, it is energy security benefits that drive policy making directed at the RAC sector, with climate mitigation and ODS phase-out as secondary objectives only.[15]

— *World Bank resource mobilization project*

In meeting the Montreal Protocol requirement to phase out HCFCs, HFCs, hydrofluoroolefins (HFOs) including HFO-1234yf, HFO-1234ze, -1233zd(E), blends containing HFOs and natural refrigerants are the major replacements in many RAC applications. As a general differentiation, "natural refrigerants" are substances that exist naturally in the environment, while "non-natural refrigerants" or "synthetic refrigerants" such as HFCs and HFOs are man-made chemicals, not naturally occurring in nature. The most commonly used natural refrigerants today are ammonia (NH3, R717), carbon dioxide (CO_2, R744), and hydrocarbons (HCs), such as propane (R290), isobutane (R600a), and propylene, also known as propene (R1270). Water and air are also used, to a lesser extent, for example in adsorption chillers and deep-freezing applications.

The alternatives for HCFC refrigerants in the RAC sector differ in terms of their GWP, energy efficiency, toxicity, flammability and cost both as refrigerants and in terms of system or design change costs required to accommodate them in existing equipment. Discussions about the alternatives and comparisons between them are being updated constantly as industry and governments look for ways to best meet the HCFC phase-out challenge.

A number of websites maintain and provide up-to-date information on the technology options for alternative refrigerants in the refrigeration sector including the following:

- UNEP Ozone Secretariat Technology and Economic Assessment Panel (*TEAP*) *http://ozone.unep.org/Assessment_Panels/TEAP/Reports/TEAP_Reports*
- Regional Networks of Ozone Officers http://www.unep.org/ozonaction/RegionalNetworks/tabid/6203/Default.aspx
- OzonAction Contacts Partnerships and Information Resources http://www.unep.org/ozonaction/InformationResources/Contacts/tabid/6549/Default.aspx
- Information Clearinghouse (including the OzoNews electronic news service) http://www.unep.org/ozonaction/Home/tabid/5467/Default.aspx
- United States Environmental Protection Agency Greenchill partnership with food retailers to reduce refrigerant emissions and decrease their impact on the ozone layer and climate change. http://www2.epa.gov/greenchill
- Wikipedia lists all the refrigerants with all the technical data http://en.wikipedia.org/wiki/List_of_refrigerants

To add to these useful information sources are studies such as the November 2013, UNIDO *Guide 2013: Natural Solutions for Developing Countries including UNIDO Atmosphere Summary Report*[16]

[15] *World Bank Final Report on Resource Mobilization for HCFC Phase-out and Climate Mitigation Co–Benefits*, p. iii (UNEP/OzL.Pro/ExCom/71/6/Add.1).

[16] United Nations Industrial Development Organization, SHECCO SPRL. *Guide 2013: Natural Solutions for Developing Countries including UNIDO Atmosphere Summary Report*. November 2013 http://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Multilateral_environmental_agreements/GUIDE-UNIDO-natural-substances-2013-small.pdf

prepared to facilitate the exchange of knowledge to help drive the uptake of low-GWP technologies among businesses and policy makers in developing countries and economies in transition. The *Guide* focuses on the benefits of natural low-GWP substances in the RAC sectors that can achieve both direct emissions savings and energy efficiency in support of "leapfrogging" directly from HCFCs to low-GWP options.

In relation to the refrigeration servicing sector specifically and how the HCFC phase-out can be implemented with as little impact on climate as possible, the document *Minimizing Adverse Climate Impact of HCFC Phase-out in the Refrigeration Servicing Sector* provides a comprehensive set of strategies that include:

(a) Influencing a shift in technology choice toward technologies with lower climate impact for new, factory-charged refrigeration systems;

(b) Influencing a shift in technology choice toward lower climate impact technologies for new refrigeration systems where the servicing sector performs, in particular, initial charging and commissioning, but frequently also assembly and/or installation. This strategy must include awareness raising as well as training in use and servicing of new technologies, undertaken as part of service-related activities;

(c) Reducing charge size, thus reducing the amounts of refrigerants emitted in particular for systems where the service sector performs assembly and/or installation;

(d) Reducing refrigerant emissions during servicing;

(e) Improving product quality, installation quality and service quality, thus reducing the frequency of occurrence of leaks, ruptures and repairs;

(f) Improving energy efficiency of equipment through better maintenance (e.g. adjustment of controls and cleaning of systems components); and

(g) Retrofitting refrigeration equipment to technologies with a lower GWP, when feasible, assuming the following preconditions are met: safe conversion is possible; the emissions of refrigerant during conversion, plus the future emissions of refrigerant with a lower GWP through the remaining lifetime, measured in CO_2 equivalent tonnes, are lower than those associated with continuing to operate the existing system without changes; indirect emission increases due to possible increases in energy consumption related to the retrofit are not overcompensating any direct emission savings; and there are sufficient incentives (regulatory and/or economic) to avoid reversing the retrofit back to HCFCs.

Table 4 translates these strategies into the potential climate benefits and who could benefit – the equipment owner, the government and/or the environment.

Table 4. Climate co-benefits from the servicing sector

Activity	Potential benefit	Beneficiary		
		Equipment owner	Government	Environment
Good refrigeration servicing practices	Reduced purchases of refrigerant and cost savings	✓	✓	✓
	Reduced or avoided direct GHG emissions		✓	✓

Activity	Potential benefit	Beneficiary		
		Equipment owner	Government	Environment
Replacement of high-GWP refrigerants with low- or zero-GWP refrigerants	Reduced GWP of refrigerants		✓	✓
Replacement of vapour-compression equipment with equipment based on different cycles (e.g. adsorption)	Reduced or avoided direct GHG emissions		✓	✓
	Reduction of energy consumption (cost savings)	✓	✓	✓
	Reduced need for additional electricity generation capacity (power plants) and/or fuel imports		✓	✓
Improved energy efficiency of replacement technology	Reduction of energy consumption (cost savings)	✓	✓	✓
	Reduced need for additional electricity generation capacity (power plants) and/or fuel imports		✓	✓
Building design that avoids/minimizes need for refrigeration	Reduction of energy consumption (cost savings)	✓	✓	✓
	Reduction or avoidance of direct GHG emissions			✓
Recovery and recycling of refrigerants	Reduced requirement for importing/purchasing new refrigerants	✓	✓	✓
Destruction or disposal of waste/contaminated ODS	Reduction or avoidance of direct GHG emissions			✓
Refrigerant conversion/retrofits	Reduction or avoidance of direct GHG emissions	✓	✓	✓
	Reduced need for additional electricity generation capacity (power plants) and/or fuel imports	✓	✓	✓

It is clear that the main benefits of the range of activities to phase out HCFCs within the refrigeration servicing sector are fewer GHG emissions and cost savings for the consumer or equipment owner and governments. These benefits are driven by increased energy efficiency in equipment using alternatives for HCFCs that are low in GWP or are neither GHGs nor ODS (see box 4).

Box 4: Lesson learned

A high and fluctuating cost of electricity is a considered to be a strong economic driver for the replacement of some types of RAC equipment, e.g. chillers. [17]

— *Multilateral Fund chiller project desk study*

A 2007 study by the International Energy Agency (IEA) examined the potential for reducing energy use in the air conditioning sector in an importing country that had to overcome barriers from a

[17] Multilateral Fund *Desk Study on the Evaluation of Chiller Projects* (UNEP/OzL.Pro/ExCom/68/10), para 11.

lack of standards enforcement or advanced technologies to market penetration of air conditioners with higher energy efficiency ratings (EER). Table 5 estimates the potential decrease in GHG emissions in two Article 5 countries that would result from improving the energy efficiency rating of air conditioners.[18]

Table 5. Potential GHG emission reductions from reducing energy use in air conditioners

Country	Baseline EER	Targeted EER	Units Sold/Year	CO_2 Emission Reduction (MT)
Ghana	2.55	2.8	100,000	3 million
China	3.4	5.00	4-18 million	28-61 million

Added to the decrease in CO_2 emissions due to the increased EER in the air conditioners, would be a reduction in costs for the equipment owner in relation to power consumption and reduced costs for the government in terms of power generation including imports of fuel. Some LVCs have begun exploring opportunities along these lines. For example, the Cook Islands has a programme designed to reduce energy consumption and costs to governments and consumers by replacing refrigerators and freezers with energy efficient appliances (see box 5).

Box 5: Fridge and Freezer Replacement Program in Cook Islands to Reduce Energy Consumption
A program announced in May 2012 for the Cook Islands is intended to reduce energy consumption in the residential, commercial and public sectors through the implementation of energy efficiency measures, and to establish policy frameworks to help Cook Islands move away from fossil fuel dependency. The program will reduce electricity consumption in the Cook Islands by promoting high energy efficient fridge/freezers. The Fridge and Freezer Replacement Program will encourage households to replace old inefficient fridges and freezers of 5 years or older with high energy efficient equipment. Participating retailers in the Cook Islands are being subsidized to offer rebates between 125USD and 410USD to customers purchasing selected high efficient fridge/freezer models, in exchange for their old, working fridges and freezers of similar capacity. Estimates are that approximately 40% of household electricity costs in Cook Islands are for refrigeration and that energy efficient fridges and freezers will save the average household an estimated 165USD to 245USD per year on electricity bills which would be a reduction of electricity consumption of approximately 20-30% for each participating household. The fridge/freezer replacement program seeks to initially target 325 households in Cook Islands over a one year period. Significant cost savings in household electricity bills and increased awareness of energy appliance labeling and the benefits of using energy efficient appliances are also expected benefits of the program. The program is co-financed by the Asian Development Bank (ADB), the Government of Australia, the Global Environment Facility (GEF) and the Asian Clean Energy Fund under the Clean Energy Financing Partnership and includes the participation of the Government of the Cook Islands, and the white goods retailers -Motor Centre and the Cook Islands Trading Corporation Limited.

5. FINANCING OPTIONS AVAILABLE TO LVCs SEEKING SUPPORT FOR CLIMATE BENEFITS

The preceding sections of this document highlighted that LVCs with servicing only have unique characteristics that can make accessing financing for HPMPs challenging. They also explained how

[18] *Leveraging Support for HCFC Phase-out: Opportunities and Modalities for Pursuing Linkages with the Climate Change Agenda*. Montreal Protocol Operations, Environment Department, The World Bank. www.worldbank.org/montrealprotocol www.carbonfinance.org

the potential climate benefits could be derived from phase-out projects for the refrigeration servicing sector. Finally, they made the case that there are real benefits in terms of both GHG emissions reductions and cost savings when projects for HCFC phase-out are designed to have both ozone and climate benefits.

During the four regional workshops on resource mobilization organized by UNEP in 2013-2014,[19] Ozone Officers expressed that their traditional roles focus on implementing the Montreal Protocol and that they do not have experience with mobilizing resources or approaching donors to initiate discussions about possible co-financing. Accordingly, this section provides an introduction to financing institutions that support climate-related projects. It then describes the eligible activities the various financing institutions fund that could be relevant to an LVC with servicing only seeking support outside of the Multilateral Fund to support achievement of climate co-benefits. To supplement the information is this section, useful background contact lists and web sites are provided in Annex 2.

FINANCIAL SUPPORT FOR CLIMATE-RELATED PROJECTS

Following is a brief description of key sources of financial support for climate co-benefits that are relevant to the Montreal Protocol and may be available to an LVC.

1. Mainstreaming through Official Development Assistance

Every LVC is already receiving some level of Official Development Assistance (ODA)" based on its priorities and plans for development and poverty reduction. "Official Development Assistance" is defined by the Organisation for Economic Co-operation and Development (OECD) as flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions.

As a first step in achieving financial support outside of the Multilateral Fund, it is important that an LVC work to integrate the HPMPs including both ozone and climate benefits as one of the priorities for assistance from ODA. By integrating or "mainstreaming" ozone and climate goals into the planning process that underpins ODA, it is possible to gain financial support from bilateral and multilateral donors for climate-related projects such as those in an HPMP (see box 6).

Box 6: Lesson learned

Good strategic planning and inter-sectoral coordination at the country level are crucial to ensure that policies are aligned and possibilities to leverage financing are optimized. Parties should be encouraged to ensure that their second phase HCFC Phase-out Management Plans include a broad and strategic overview of on-going and planned investments for climate mitigation and energy efficiency so that the Montreal Protocol interventions can be mainstreamed within these larger on-going programs. The overall domestic climate change and energy

[19] See Annex 2.

policy and regulatory environment, including Nationally Appropriate Mitigation Actions (NAMAs) where relevant, should be providing the framework for the mainstreaming of HCFC phase-out.[20]

— *World Bank resource mobilization project*

The process used to develop the development planning documents that underpin ODA are important to understand in order to identify the potential entry points that would enable an LVC to integrate or "mainstream" the ozone and climate goals from its HPMPs. As a foundation for ODA, the developing country government creates a Poverty Reduction Strategy Paper (PRSP) or a Country Assistance Strategy (CAS) to define and communicate the country's priorities. The PRSP or CAS is considered by most multilateral or bilateral donors as the avenue to identify opportunities for providing financial support to a developing country, since ODA is usually country-driven. Depending on the country, the PRSP or CAS assesses and diagnoses a country's policies, institutions and capacity using as a basis, work by the country or development partners that include sector analyses and strategies such as impact assessments and evaluations from prior or ongoing operations. Priorities are then identified in consultation with all relevant stakeholders, including civil society and donors. The PRSP or CAS is subsequently laid out with attention placed on macroeconomic policies, governance, sector policies, and costing and budget for proposed programs, as well as a monitoring and evaluation component. The nature and level of stakeholder participation has a significant impact on proposed priority actions in a PRSP or CAS.

The development planning process in most (though not all) developing countries is typically on a 4-5-year cycle, with a mid-term review to allow for adjustments to changing circumstances. Development planning is an intensive cross-sectoral effort for any country, usually led by a central agency, such as the Ministry of Finance and/or Development Planning, a National Planning Commission, a Prime Minister or President's Office, etc. The major development plan of the government is a key (but not exclusive) driver of national budgetary decisions and expenditures, and is the main basis for discussions with development partners (donor countries) regarding assistance for the development of the country.

Opportunities to integrate ozone and climate benefits of the HPMP into the PRSP or CAS development planning documents can be initiated at the following stages in the process:

1. During analytical and diagnostic work to increase awareness
2. Through discussions with relevant government ministries, in particular ministries of finance
3. Through the mobilization of environment and health constituencies, including civil society
4. When coordination, decision-making and monitoring are established for institutional and technical aspects of the development plan
5. Through overall coordination and partnerships at various levels.

<u>2. Global Level Financial Institutions and Partnerships with Climate Programs</u>

There are certain global level financial institutions that offer support for climate-related projects. These are introduced below.

[20] *World Bank Final Report on Resource Mobilization for HCFC Phase-out and Climate Mitigation Co–Benefits*, p. iv (UNEP/OzL.Pro/ExCom/71/6/Add.1).

The World Bank (www.worldbank.org). Financing climate change is an important part of the World Bank Group's business. This focus has resulted in financing flowing to support low-emissions and resilient development. For example, mitigation support for the world's poorest countries through the Bank's International Development Association (IDA)[21] reached USD 2.3 billion during fiscal year 2013, while the International Finance Corporation's (IFC)[22] mitigation financing increased 50 percent to USD 2.5 billion. The World Bank has demonstrated innovative ways to mobilize additional resources to finance climate action by working with partners. The most notable success has been the USD 7.3 billion Climate Investment Funds (CIFs),[23] which are playing a key role in meeting international objectives regarding climate change. The World Bank is trustee of 15 carbon finance initiatives. The Carbon Finance Unit (CFU)[24] supports more than 150 projects through purchase of about 220 million metric tonnes of CO_2 equivalent emissions.

The World Bank helps countries to assess and manage climate risks and provide analytical guidance. Portals such as the Climate Change Knowledge Portal[25] and the Climate Finance Options Platform[26] provide cutting edge information, analysis, and tools on climate change. Increasingly, the Bank is engaging in strategic partnerships to both deepen the climate change knowledge base for clients and to address critical issues such as low-GWP refrigerants.

Within the context of Climate Finance is the certified emission reduction (CER) which is a unit representing one tonne of carbon dioxide-equivalent (CO_2-e) sequestered or abated. CERs are issued to project participants in Clean Development Mechanism (CDM) projects pursuant to Article 12 of the Kyoto Protocol and the CDM modalities and procedures.[27] CERs have, in the past, been important sources of financial support for climate-related projects. In August 2008 prices for CERS were USD 20 per tonne but by October 2012, CER prices had fallen to €1.36 per tonne on the London ICE Futures Europe exchange. In October 2012 Thomson Reuters Point Carbon calculated that the oversupply of units from the CDM and Joint Implementation would be 1,400 million units for the period up to 2020.[28] It is unlikely, therefore, that CERs will prove to be a feasible source of financial support for an HPMP for the coming years.

Global Environment Facility (GEF) (http://www.thegef.org/gef/). The GEF has served as the largest provider of grants to address climate change for the past 20 years. Its goal is to transform the market development paths for eligible countries into trajectories with lower

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[21] International Development Association (IDA) http://www.worldbank.org/ida/
[22] International Finance Corporation (IFC) http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/home
[23] http://treasury.worldbank.org/cmd/htm/index.html
[24] http://www.worldbank.org/en/topic/climatefinance
[25] http://sdwebx.worldbank.org/climateportal/index.cfm?page=why_climate_change
[26] http://www.climatefinanceoptions.org/cfo/index.php
[27] Clean Development Mechanism: Rules, Practice and Procedures. http://cdmrulebook.org/304
[28] Wikipedia, the free encyclopedia. http://en.wikipedia.org/wiki/Certified_Emission_Reduction

GHG emissions in energy, industry, transport and land-use sectors. The way the GEF achieves its climate-related goals is by removing barriers to sustainable market development and through pilots and demonstration projects. Support is provided as grants and limited non-grant instruments. Over the 2010-2014 period, USD 350 million per year has been allocated to this area - USD 2.7 billion since the GEF's inception. The size of the GEF grants for projects range from 5 million USD to 50 million USD.[29] An example of a project supported by the GEF that has both ozone and climate benefits is provided in box 7.[30]

Box 7: Swaziland SolarChill project

In support of technology transfer to increase energy independence, the GEF has approved USD 2.7 million for the further development of "SolarChill", combining the use of solar energy with "Greenfreeze" hydrocarbon refrigeration in Kenya, Swaziland and Colombia. The "Solar-Chill Development, Testing and Technology Transfer Outreach" project is intended to increase the market potential of SolarChill technology in vaccine and food refrigeration applications in areas without electricity. The technology integrates the use of solar energy with hydrocarbon refrigeration and eliminates the need for lead storage batteries by using solar direct drive compressors to create an ice bank, thus storing the energy of the sun in ice. The intent of the GEF funding is a large-scale demonstration of SolarChill technology, to give it higher global recognition, especially in developing countries. A second aim is to encourage companies, especially in Southern African and Latin American regions, to take up production of the technology.

The Climate and Clean Air Coalition (www.unep.org/ccac/). This broad coalition of State and non-State partners was launched by UNEP and six countries — Bangladesh, Canada, Ghana, Mexico, Sweden and the United States — in 2012. The CCAC aims to catalyze rapid reductions in short-lived climate pollutants to protect human health, agriculture and the environment. The CCAC's HFC Initiative works with governments and the private sector to address rapidly growing HFC emissions. The initiative aims to bring together a high-level global roundtable to establish private sector and government pledges to promote climate-friendly alternatives and technologies; minimize HFC leaks; and encourage recovery, recycling, reclamation, and destruction of HFCs. The CCAC has supported certain pilot projects in countries, including several LVCs, that can be considered as resource mobilization for the climate co-benefits of the HCFC phase out (see box). The initiative has so far worked with Bangladesh, Chile, Colombia, Ghana, Indonesia and Nigeria to conduct HFC inventories in their countries, and UNEP recently received approval to support. The initiative has also sponsored two major conferences on HFC alternatives and developed case studies for commercial refrigeration technologies (see box 8).

[29] The World Bank. Beyond the Sum of Its Parts Combining Financial Instruments for Impact and Efficiency. ISSUES BRIEF #3, June 2010. Table 1. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/06/25/000334955_20100625030802/Rendered/PDF/553290BRI0Box349445B01PUBLIC1.pdf.

[30] United Nations Industrial Development Organization, SHECCO SPRL. *Guide 2013: Natural Solutions for Developing Countries including UNIDO Atmosphere Summary Report*. November 2013. Page 43 http://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Multilateral_environmental_agreements/GUIDE-UNIDO-natural-substances-2013-small.pdf

Box 8: Lesson learned
The CCAC experience was successful with the approved feasibility study for Maldives, with an "out of the box" approach regarding technology choices, such as District Cooling. UNDP believes that once the study is finalized this demonstration project could be used by other countries, especially SIDS. [31]
— *UNDP resource mobilization project*

3. Regional Financial Institutions that support Climate Benefits

Financial institutions at the regional level that support climate-related goals are very important to LVCs with servicing only. As discussed in Section 3, the fact that individual LVCs have less HCFCs to phase-out and therefore less CO_2 equivalent emissions to avoid can make access to financial support difficult. An LVC by itself may, therefore, not be able to find support for its own ozone and climate-related projects. On the other hand, a regional approach for LVCs could attract more interest among financial institutions. There is, therefore, value in exploring a regional approach by collaborating with other LVCs to seek support from a financial institution that has a regional focus.

Regional-level financial institutions can also be a valuable source of advice and can bring together a number of public and private sources of finance for support in project development and implementation. An example of this is the project to promote energy efficiency in Cook Islands, Samoa, Tonga, Vanuatu and Papua New Guinea (see box 9).[32]

Box 9: Promoting Energy Efficiency in the Pacific
The Cook Islands, Samoa, Tonga, Vanuatu and Papua New Guinea have developed an innovative project for the GEF to be co-financed by the Asian Development Bank (14%), Governments of Cook Islands, Samoa, Tonga, and Vanuatu (26%), Power Utilities & Private Sector (24%), Government of Australia (14%) and Government of Japan (22%). The proposed project will result in the reduction in electricity and fuel consumption due to higher energy efficiency. The electricity and fuel saved from the successful implementation of the project will lead to a reduction of carbon dioxide emissions, which is estimated at 42,851 tons of CO_2 annually and an emissions reduction impact of 642,765 tons CO_2 over a 15-year period. Such an innovative regional project should provide inspiration for other countries to consider similar approaches related to the climate benefits of the HCFC phase out.

Regional Development Banks through which LVCs could find support for mitigation projects with climate co-benefits as well as support regionally in coordinating donors and mobilizing co-financing.

- The Asian Development Bank (ADB)[33], based in Manila, is dedicated to reducing poverty in Asia and the Pacific through inclusive economic growth, environmentally sustainable growth and regional integration. Established in 1966, it is owned by 67 members – 48 from the region. In 2012, ADB assistance totaled USD 21.6 billion, including co-financing of USD 8.3 billion. The ADB is providing financial and other assistance to implement solutions, providing technical

[31] *UNDP Final Report on Resource Mobilisation for Climate Co-Benefits*, p. 6 (UNEP/OzL.Pro/ExCom/71/6/Add.1).
[32] Promoting Energy Efficiency in the Pacific Phase 2. http://www.ee-pacific.net/
[33] Asian Development Bank. Mainstreaming climate change in ADB operations—Climate change implementation plan for the Pacific. Mandaluyong City, Philippines. 2009. Page 10 http://www.adb.org/publications/mainstreaming-climate-change-adb-operations-climate-change-implementation-plan-pacific

assistance, grants, and loans, in combination with access to mitigation funds (e.g., the in-house Asia Pacific Carbon Fund and Future Carbon Fund) and adaptation funds (e.g., the Water Financing Partnership Facility, and Adaptation Fund). ADB is an implementing agency of the GEF. ADB plays an important role in the Pacific region in donor coordination and mobilization of co-financing.

- Inter-American Development Bank (IADB)[34] In IADB's International Climate Programs and Finance, the Bank has a capacity to facilitate access to international sources of climate finance. Key sources of finance include: funds under the UN Framework Convention on Climate Change (UNFCCC) such as the GEF (particularly its climate window); carbon finance including the Kyoto Protocol's CDM; the CIF and the Adaptation Fund.

- Caribbean Development Bank (CDB)[35] The CDB Strategic Plan 2010-2014 outlines the climate change focus for the bank. Since many of the LVCs in the Caribbean region are Small Island Developing States (SIDS) that are particularly vulnerable to the effects of climate change, the CDB views assistance to its member States as support "to develop and implement mitigation and adaptation measures as a pro-growth strategy for the longer term." The CDB also sees the value of mainstreaming climate risk management in CAS papers and sector policies and strategies and of developing internal capacity within CDB to take on board climate change risk management, prepare and use climate risks tools, and develop external partnerships and networks.

- African Development Bank (AfDB)[36] The AfDB plays a role in backing climate change mitigation initiatives with its own resources, including leveraging financing from other sources, to incite investor confidence and participation in this emerging area. AfDB is working alongside other development partners including other Multilateral Development Banks (MDBs), UN organizations and bilateral development agencies to implement interventions that help Africa adapt to a changing climate as well as mitigate its risks.

  The AfDB has embarked on an ambitious program at powering a low-carbon pathway in Africa. Through the Energy, Environment and Climate Change Department, the Bank serves as a platform to deliver advisory services necessary to mobilize transformative environment and climate finance, including assisting countries with projects to access carbon markets. Funds channeled through financing windows such as the CIF, the GEF, a recently created Sustainable Energy Fund for Africa (SEFA), the first phase of African Carbon Support Programme (ACSP), and the new Africa Hub of the Sustainable Energy for All Initiative (SE4ALL) are directly invested to support the transport, communications, agriculture, water and energy sectors. The

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[34] Inter-American Development Bank. IDB Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy. March 18, 2011. http://www.iadb.org/en/civil-society/public-consultations/climate-change-strategy/climate-change-strategy,6974.html

[35] Caribbean Development Bank (CDB). Strategic Plan 2010 – 2014 (Approved at the Two Hundred and Forty-First Meeting of the Board of Directors Held in The Bahamas on May 17, 2010). http://www.caribank.org/uploads/2012/03/Strategic_Plan2010_to_2014.pdf.

[36] African Development Bank Group. http://www.afdb.org/en/

goal is to ensure that climate finance effectively reaches the continent and is tailored to Africa's needs.[37]

- European Bank for Reconstruction and Development (EBRD)[38] The overall goal of the EBRD is to foster transition to market economies in countries from Central and Eastern Europe to Central Asia and the Southern and Eastern Mediterranean. Underlying the work of the Bank is its Environmental and Social Policy[39] in which the EBRD states its intention to "support climate change mitigation and adaptation, in particular by investing in energy efficiency and renewable energy projects and by supporting best practices in climate change adaptation." In addition to support for projects, the EBRD also is developing financing instruments that could be of interest to an NOU seeking support for climate co-benefits.

4. Government Support for Climate Benefits as Bilateral Donors

Funding organizations from other governments also play an important role in financial support to LVCs. Bilateral projects that are organized under the auspices of the Multilateral Fund as part of a Party's contributions to Multilateral Fund funding are not described here, since that assistance is officially part of the ODA provided to developing countries. Rather, this sub-section describes government organizations that provide funding assistance for environmental protection measures on a bilateral or regional basis outside of the Multilateral Fund. [40]

- Government funds for bilateral development and technical assistance. Many developed countries, and an increasing number of developing countries, such as China, offer bilateral financial and technical assistance to support goals such as economic development, health and environmental protection in LVCs and other developing countries. Some of these bilateral funding organizations allocate specific funds to environmental protection programmes under which projects relevant to the Montreal Protocol and climate benefits of the HCFC phase-out can qualify. In a number of cases, national funding agencies already support work related to ODS phase-out under the Multilateral Fund. For example, the governments of Japan and Australia are co-funding, with the national governments in the Cook Islands, Samoa, Tonga, and Vanuatu, the project to increase energy efficiency described in Box 3.

There is potential for a group of Montreal Protocol donor Parties to consider organizing coordinated or bilateral support for Montreal Protocol-related activities that are beyond the scope or remit of the Multilateral Fund, e.g. for the adoption of low-GWP alternatives to HCFCs. If

[37] AfDB Continues to Support Low-carbon Development Pathways for Africa. 12/07/2013. http://www.afdb.org/en/news-and-events/article/afdb-continues-to-support-low-carbon-development-pathways-for-africa-12109 /

[38] European Bank for Reconstruction and Development. http://www.ebrd.com

[39] European Bank for Reconstruction and Development. http://www.ebrd.com/pages/about/what/policies/environmental/review/review.shtml

[40] Touchdown Consulting. Information Paper on Funding Sources for Measures to Protect the Global Environment. December 2012. Prepared for the European Commission. Ref. Ares(2013)1410965 - 27/05/2013. page 10-12. http://ec.europa.eu/clima/policies/ozone/research/docs/funding_information_en.pdf

several such Parties were willing, there could be potential for formally or informally developing a strategic plan for such activities.

5. Private Sector Support

Industry can be an important player in providing financial support to projects in an LVC particularly where there is an opportunity to increase market share for products including continuing the provision of parts and labour. The private sector participates in every aspect of the RAC sector including the design of RAC equipment, development of HCFC alternatives and substitutes, helping to design minimum standards for safety, health and environment, and setting costs of refrigerants and equipment. If there is an opportunity for a private sector firm to profitably participate in an LVC's HCFC phase-out project, there is a potential for private sector financial support (see box 10).

Box 10: Lesson learned

Over 90 percent of climate change finance is sourced from private markets (venture capital, asset financing, etc.), however, public finance is critical to removing barriers to climate technologies and attracting direct investment.[41]

— UNDP resource mobilization project

The private sector actively participated in the regional workshops on resource mobilization organized by UNEP in Australia, Macedonia and Jamaica and in each case, their contributions were related to introducing or extending their equipment and refrigerant product lines into the countries in the region. For instance, a Canadian company, Sustainable Options Limited, presented its experience with retrofitting hydrocarbon refrigerants within the English-speaking Caribbean. In the Australia workshop, the Australian Institute of Refrigeration Air Conditioning and Heating presented "PRIME," which is an initiative developed by a coalition of stakeholders from within the Australian heating, ventilation, air conditioning, and refrigeration (HVAC&R) industry to help reduce the environmental impact of HVAC&R. According to the presentation, a key driver for PRIME was the fact that a 2012 report showed that Australian refrigeration and air conditioning was responsible for 11.7 per cent of total national CO_2-eq emissions, with more than 45 million individual pieces of equipment consuming about 22% of all electricity used nationally. Among the outcomes of PRIME will be changes within the sector that are low cost, low carbon and low environmental impact – all of which are important components for an HCFC phase-out project in an LVC.

WHAT CAN BE FUNDED

All government institutions that provide funding to developing countries have limitations with respect to what types of activities their financial support can be directed towards. While this is not the case for private sector assistance, any financing proposals to industry may need to demonstrate how the proposed activities could benefit business, at least in the long-term.

With respect to the HCFC phase-out, the Multilateral Fund supports Article 5 countries for both the preparation and implementation of their HPMPs including projects to phase-out HCFCs,

[41] *UNDP Final Report on Resource Mobilisation for Climate Co-Benefits*, p. 5 (UNEP/OzL.Pro/ExCom/71/6/Add.1).

strengthening their regulatory frameworks, building capacity and increasing awareness, training custom officers and refrigeration servicing technicians, promoting alternatives, recovery and recycling of ODS, etc. The Executive Committee has produced guidelines for HPMPs for Article 5 countries that includes specific criteria for LVCs.[42]

Co-funding with the Multilateral Fund is necessary to achieve climate benefits since these are not supported by the Multilateral Fund. For instance, energy efficiency gains or a country's energy independence may be outcomes of an HCFC phase-out project but support for these benefits must be found among the financial institutions that support climate benefits.

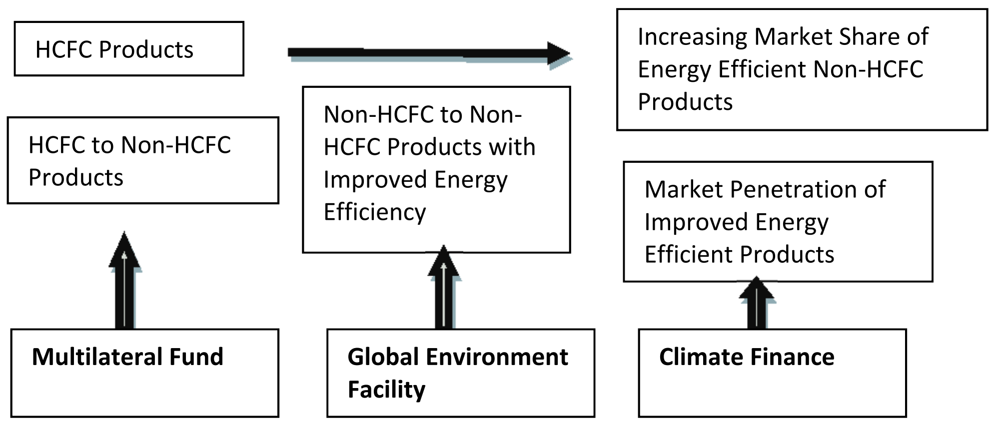
The World Bank's India Chiller Energy Efficiency Project is an interesting example of a project focused on energy efficiency and ODS phase-out. In that project, the Multilateral Fund, the GEF and Climate Finance under the World Bank have been combined with the Industrial Development Bank of India (IDBI) to support a common objective – sector-wide chiller replacement – for global environmental co-benefits.[43] The four financial institutions together are able to financially support the following activities:

- First component supported by the GEF: provision of incentives for investment in energy efficient chillers including providing the following incentives to remove market and techno-economic barriers: (a) chiller owners with either: (i) an upfront financial incentive to subsidize the cost of the replacement of centrifugal chillers before end of technical life; or (ii) an annual payment from a share of certified emission reductions to be generated from the actual energy savings achieved by the new chillers; (b) an incentive for chiller manufacturers, suppliers and energy service companies to actively participate in the project.
- Second component supported by the GEF and Carbon Finance: measurement, monitoring and verification of the power-output function of old chillers to be replaced, electrical consumption of new chillers, and cooling output in order to measure energy savings and emission reductions. The methodology for this measurement is from the CDM Executive Board.[44]
- Third component supported by Multilateral Fund: technical assistance to support project readiness and sustainability through enhancing the awareness of relevant stakeholders in energy conservation measures, enhancing the understanding of the impact on the servicing sector of the decision to accelerate the phase-out of production of CFC, and strengthening the capacity of chiller owners and other stakeholders to monitor the performance of new chillers and to undertake refrigerant management.
- Fourth component: project management through a Project Management Unit established at IDBI which is a financial intermediary and responsible for implementing all activities under the project.

[42] See Annex 3.
[43] India Chiller Project – MP Component. http://www.worldbank.org/projects/P102790/india-chiller-energy-efficiency-project-mp-component?lang=en. IDBI India Chiller Project. http://www.climatefinanceoptions.org/cfo/node/65
[44] Clean Development Mechanism (CDM) Executive Board. https://cdm.unfccc.int/EB/index.html

Figure 1 depicts how the three financial institutions – the Multilateral Fund, the GEF and Climate Finance have been designed to work together within the project to achieve the results. In this particular example, the Climate Finance support is in the form of payments for CO_2-equivalent CERs which are only provided after project implementation. This means that the Multilateral Fund and the GEF provide the crucial upfront financing to initiate the replacement program, put in place the operational framework and policies and deliver technical assistance.

Figure 1: Funding Sources and Objectives[45]



A good discussion of how various financing instruments support different aspects of a project can be found in *Beyond the Sum of Its Parts Combining Financial Instruments for Impact and Efficiency Beyond*[46]. Table 6 is adapted from this publication suggests which financing instruments are able to finance the various components of a potential project.

[45] *Leveraging Support for HCFC Phase-out: Opportunities and Modalities for Pursuing Linkages with the Climate Change Agenda*. Montreal Protocol Operations, Environment Department, The World Bank. www.worldbank.org/montrealprotocol www.carbonfinance.org

[46] The World Bank. *Beyond the Sum of Its Parts Combining Financial Instruments for Impact and Efficiency*. ISSUES BRIEF #3, June 2010. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/06/25/000334955_20100625030802/Rendered/PDF/553290BRI0Box349445B01PUBLIC1.pdf.

Table 6: Climate change financing instruments to meet potential LVC needs in project design[47]

Project financing needs	Available financing instruments
Creation of enabling environment	
To initiate and/or continue a relevant policy dialogue To make adjustments to policy or regulatory framework To provide project development funds To undertake technology piloting and demonstration To build capacity and train personnel To increase awareness	• GEF • Multilateral Fund • Trust funds such as Energy Sector Management Assistance program (ESMAP), Asia Sustainable and Alternative Energy Program (ASTAE), Public Private Infrastructure Advisory Facility (PPIAF) • Bilateral donor funds • IBRD resources also available
Investment resources	
Private financing: To invest in those projects that have a favorable risk-return profile for private sector financiers	• International private sector resources • National private sector resources • International Finance Corporation (IFC) resources
Regional Development Banks or government financing: To invest resources for short-to medium term investments with rate of return at or near market levels	• IBRD (Specific investment loan (SIL) or Development Policy Loan (DPL)) • Government resources • GEF (limited incremental investment resources)
Risk mitigation	
To cover risks or enhance credits associated with new technology, business models, resource certainty and country or currency risks	• Clean Technology Funds (partial risk guarantees) • GEF (limited resources or non-grant risk coverage) • Carbon finance (may help defray currency risks) • Multilateral Investment Guarantee Agency (MIGA)
Revenue enhancement	
To provide additional revenue stream to improve financial viability of investment	• Carbon finance funds • Output-based aid (Global Partnership for Output-Based Aid) • Non-World Bank carbon funds • Voluntary carbon markets

The *Desk Study on the Evaluation of Chiller Projects*[48] makes some further observations with respect to seeking financial support since it evaluated the funding and financial mechanisms used in the chiller projects. These observations, which are compiled in table 7, add some practical detail that could be useful for an Ozone Officer seeking co-funding to supplement support from the Multilateral Fund.

Table 7: Co-funding mechanisms involved in chiller projects

Co-funding Mechanisms	Time to Secure Co-financing	Availability of Funds	Observations
Appliance Owners or Users			Incentives are often required for purchase of

[47] The World Bank. *Beyond the Sum of Its Parts Combining Financial Instruments for Impact and Efficiency.* ISSUES BRIEF #3, June 2010. Adapted from Table 3. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/06/25/000334955_20100625030802/Rendered/PDF/553290BRI0Box349445B01PUBLIC1.pdf.

[48] Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol Sixty-eighth Meeting. Desk Study on the Evaluation of Chiller Projects. UNEP/OzL.Pro/ExCom/68/10. 12. Montreal, 3-7 December 2012. Paragraphs 33-42. http://www.multilateralfund.org/68/English/1/6810.pdf.

Co-funding Mechanisms	Time to Secure Co-financing	Availability of Funds	Observations
			replacement equipment.
Climate-oriented ODA	ODA funds are typically available within three months		
Bilateral ODA	Bilateral ODA funds typically are made available annually for Developing Country support which means that approved projects can be funded quickly.	Only a small number of countries are selected by donor countries to receive bilateral ODA. The reasons for choice of countries may be based on the current priorities of the donor country.	
GEF	GEF funding took up to two years after project approval.		
Private sector funds using innovative funding such as mandated contributions from national third party utility companies	National private sector funds could be secured on average in about 16 months		Innovative funding arrangements (ODA + private sector and/or carbon funding) possess a superior leveraging capacity, in particular where projects create tangible benefits for the co-financing entities.
Private sector funds using globally certified emission reduction credits in carbon markets (CDM)	Approval of a related globally applicable CDM methodology took about 30 months, but in exchange for the time lag, it created the potential for carbon market funding from verified energy savings in the future.		

Finally, further observations of practical interest came from the 2010 Joint Network Meeting for Ozone Officers of the Europe and Central Asia and South Asia Regional Networks in which lessons learned in the chiller projects were discussed.[49] Among the key messages given at the meeting that could be useful for Ozone Officers in LVCs who are interested in seeking financing outside of the Multilateral Fund for climate co-benefits includes:

- The Multilateral Fund and GEF have different project cycles (see box 11).
- Working with two GEF implementing agencies – the UNDP and the IADB, is difficult; and
- The performance guarantee fund and management structures are complex particularly considering the number of players involved and the detail in the management structure.

Box 11: Lesson learned on GEF
In average, GEF full size project development processes may take 3 to 8 years, depending on many factors, including but not limited to GEF availability of resource to respond to large pipeline of climate mitigation

[49]UNDP. Joint Network Meeting for Ozone Officers of the Europe and Central Asia and South Africa networks Achievements and Lessons Learned Chillers Projects. Suely Carvalho, Chief Montreal Protocol & Chemicals Unit, UNDP. 26-30 April 2010, Istanbul

projects, including from previous replenishment cycles. In view of the long waiting list of projects, prioritization of pipeline entry by implementing agencies is an issue to overcome.[50]

— *UNDP resource mobilization project*

[50] *UNDP Final Report on Resource Mobilisation for Climate Co-Benefits*, p. 5 (UNEP/OzL.Pro/ExCom/71/6/Add.1).

6. GUIDE FOR OZONE OFFICERS

This part of the financing options paper is intended to build on the information provided in Sections 1 through to 5, presenting a step-by-step guide for an Ozone Officer seeking to take advantage of climate co-benefits during the HCFC phase-out.

It should be noted that the suggestions in this guide are intended to supplement, not replace, the actions taken by an Ozone Officer in an LVC with servicing only when developing phase-out projects to replace, recycle or destroy HCFCs in accordance with the obligations under the Montreal Protocol.

STEP I – What you need to know: Understand your refrigeration servicing sector, potential climate co-benefits and possible barriers

It is important for the Ozone Officer to have the following kinds of information in order to prepare for discussions with national partners and potential donors for co-funding. While some of the information may already be in the HPMP, it may be necessary to collect other data in order to make the climate benefits case.

- Understanding the refrigeration and air conditioning servicing sector in your country
    - *Existing Refrigeration*/Air Conditioning *appliances* - What RAC equipment is used in the country? How many units are used in the commercial and domestic sectors? What are their capacities and efficiencies? What is the average remaining life of the equipment? What is the refrigerant leak rate? What is the current and forecast availability of different refrigerants? What is the estimated running time and average electricity consumption of the existing appliances? At what ambient temperature does the equipment operate?
    - *Socio-economic context* – What is the cost of electricity? Who owns the equipment? If the equipment is owned by commercial enterprises, what is the solvency of the companies? Are the owners willing to co-fund? What is the motivation for owners to replace their RAC equipment – is it the end of life of the appliance, the lack of ODS refrigerant supply, or some other reason?
    - *Regulatory context* – Are their existing national standards for RAC equipment? Does the country's import/export licensing system restrict imports of HCFC-based equipment imports? Are there any regulations or policies that promote the adoption of energy-efficient, low-GWP RAC technology?
    - *Replacement refrigeration and air conditioning* – What are the energy efficiency ratings for the equipment? What are the refrigerants and their GWPs? How much electricity does the equipment consume? What is the cost of the equipment? What is the cost and availability of refrigerants? Do servicing technicians have the skills and know-how required for servicing equipment using alternatives to HCFCs?
- Estimates of potential climate co-benefits
    - What are the estimated climate benefits if the existing equipment is replaced with new equipment with higher energy efficiency ratings that also use low- or zero-GWP

refrigerants? Such estimates could include, for example, avoided GHG emissions and cost savings for equipment owners and governments. Such estimates would depend on the specific RAC equipment and could be developed on the basis of the discussion in Sections 3 and 4 of how to calculate the CO2-eq emissions and the potential climate benefits from the refrigeration servicing sector.

- Understanding possible barriers to taking action[51]
  While developing a program with national partners and potential donors about co-financing opportunities, Ozone Officers should identify potential barriers and consider strategies to overcome them. The common types of barriers include:
  - *Technical (refrigeration)* – Where there are specific technical issues that will not allow the use of a certain refrigerant, e.g. when the properties or characteristics of a refrigerant mean that it cannot be applied to a specific type of system or application.
  - *Technical (safety)* – When there are specific safety issues that will not allow the use of a certain refrigerant, e.g. where the safety characteristics of a refrigerant are such that it cannot be applied to a particular application.
  - *Supply and availability* – When a particular "part", be it material, equipment, component or fluid or even a particular service (or activity), that is necessary for the operation (in-use or service/maintenance) of a system is not physically available or will not be or cannot be supplied to the user, thereby preventing the use of a specific refrigerant.
  - *Commercial (investment, profit, financial incentives)* – Where an enterprise establishes that the cost of adopting a specific refrigerant will incur additional costs that will reduce profits beyond what is acceptable or where insufficient finding is available for investment or adequate financial incentives are unavailable.
  - *Market* – Where an enterprise believes that there is no customer demand for a product that uses a particular refrigerant, or where the end-user or consumer would not accept a given refrigerant.
  - *Information resources* – When insufficient information, know-how, guidance, or technical data either in the form of literature or training, is available to enterprises or technicians that need the know-how before they can embark on using a particular refrigerant.
  - *Regulations and standards* – Where existing regulations prohibit the use of a particular refrigerant and where necessary standards do not exist within the country, or where the requirements of a regulation or standard are very restrictive thereby physically or financially (through stringent demands) prohibiting the use of the refrigerant.
  - *Psychological and sociological aspects* – Where individuals, management of an enterprise or broader industry organisations hold a general resistance to change for the use of a particular refrigerant on the basis of rumour, influence of peer groups, or unwillingness to change to alternative technologies.

[51] UNEP, *Barriers to the Use of Low-GWP Refrigerants in Developing Countries & Opportunities to Overcome These* (2010), pages 11-12, http://www.unep.fr/ozonaction/information/mmcfiles/7476-e-Report-low-GWPbarriers.pdf

STEP II – Who you need to convince: Persuade your management that your country should seek climate co-financing for the HCFC phase-out

Armed with an overview of the scope and nature of HCFCs in the country's refrigeration servicing sector, an estimate of the potential climate benefits both in terms of GHG emissions avoided and cost savings to the consumer, equipment owners and governments and a realistic view of any barriers to be overcome, an Ozone Officer can make a compelling case within the NOU and with key decision-makers that his/her government should seek climate co-financing for the HCFC phase-out.

STEP III - Who you need to meet: Bilateral donors, international organizations and regional organisations that work in your country

An important first step in accessing co-funding for climate co-benefits is for an Ozone Officer to become familiar with the key officials within the country and in other agencies in the government where actions of interest to the implementation of the HCFC phase-out may be underway. Examples include actions to implement standards, labeling and energy efficiency programs. Among the contacts Ozone Officers may want to engage are the following.

1. National focal points for the GEF and any other contacts or focal points in Climate type Funds described in Section 5.[52] In an effort to promote "working with your partners on climate co-benefits", this should be the first order of business for an Ozone Officer in a NOU seeking financial support for climate co-benefits. Not only can there be complementary funding programs available but discussion and engagement may also reveal potential synergies or scope for cooperation between Multilateral Fund and GEF programs and projects.

2. Key individuals in central government agencies who are involved in the development of the country's CAS or the PRSP for the purposes of receiving ODA. As is described in Section 5, the major development plan of the government serves as the main basis for discussions with donor countries regarding assistance for the development of the country. Therefore donors could be looking for climate-related priorities in PRSPs or CASs to which their financial assistance can be targeted. The preparation of the PRSP or CAS is usually led by a central agency, such as the Ministry of Finance and/or Development Planning, a National Planning Commission, a Prime Minister or President's Office.

   Experience from around the world indicates that extensive interagency and public consultation is critical to conclude a successful national development planning effort. The end result of the development planning process is the 5 year plan – the CAS or the PRSP depending on the development planning process. Through consultation with the central agencies that are developing the HPMP, it may be possible for an Ozone Officer to integrate or "mainstream" the HPMP and climate co-benefits into the country's sustainable development objectives and targets which could lead to support from IDA or IBRD and other global financial institutions.

[52] See Annex 2.

Typically, development planning work starts at least 12-18 months in advance of the conclusion of the 5-year development plan that is in place. The following generic elements of development planning are typical:

- Diagnostics to determine the highest development priorities for the country and the key issues related to those priorities (e.g. poverty assessments, sector and sub-sector papers, assessments of technical and financial assistance needed to achieve the Millennium Development Goals (MDGs) over the long term, etc.);
- Identifying policy options and choices to move towards national development objectives and targets (e.g. sectoral and cross-sectoral policy reforms and frameworks needed to accelerate growth with equity and promote long-term human development, etc.);
- Identifying national capacity development needs to support implementation of priority actions to achieve national development objectives and targets (e.g. enable effective service delivery at the national and local levels, institutional changes, training needs, etc.);
- Development of implementation plans and schedules for high priority objectives and targets; and
- Investment planning and resource mobilization (costing infrastructure investments, equipment investments, micro-finance initiatives, assessing national budgetary implications, awareness raising and discussion with development partners, etc.).

3. <u>Regional Development Banks</u> operating in the region and in particular those that are implementing agencies for the GEF usually have contacts that can be engaged either by email or in person to discuss needs and ideas. They may be willing to develop projects including seeking public and private co-funding. For LVCs, a regional approach that is developed with several LVCs and implemented through a regional development bank such as the Asia Development Bank can be much more feasible than one operating individually as a country. An Ozone Officer should be able to contact their finance or development ministry for assistance in identifying representatives from these organizations.

4. <u>Bilateral donors</u> with an interest in assisting the countries of the region will often be national governments with a presence in the LVC and officials within the embassy or consulate that can be engaged to discuss and develop projects. Bilateral donors have specific countries that they have identified as priorities. The Ozone Officer can find this information on the national governments aid agency websites that are provided in the Annex 2. Any of these governments that are operating in an LVC could be approached by an Ozone Officer in a NOU for discussion of the HPMP implementation and achieving climate co-benefits. Another avenue through which bilateral donors can be identified is through discussions in the margins of the Meetings of the Parties, Open-ended Working Group, Executive Committee, and Regional Networks of Ozone Officers, as well as “corridor discussions” during climate negotiations and other regional environmental meetings and conferences.

5. Internationally-recognized and reputable appliance manufacturers and their representatives that are operating in the developing country may become important players in a projects to achieve climate co-benefits, for example for replacing refrigeration equipment. The example of the efforts of the company *Dybvad Stål Industri* (DSI) in the Solomon Islands is described in box 12.[53] The national RAC association is an extremely important partner for the Ozone Officer in the RAC sector, and it can provide ideas and contacts for reputable RAC companies that could be approached. Additionally, an Ozone Officer can identify companies that are both active in the region and have interests in low-GWP or zero GWP technology by researching the websites of RAC appliance manufacturers. By emailing or calling a customer relations contact in a RAC company, it should be possible to begin explorations of possible collaborations.

Box 12: Private sector assists with RAC investments in Solomon Islands
The company Dybvad Stål Industri (DSI) has sold many freezers for the seafood industry in Asia. In a recent project, a freezer was installed in a fish processing plant in the Solomon Islands, freezing tuna loins. The self-contained plate freezer DSI PFP 2810 operates on ammonia. It is equipped with a refrigeration system and needs only a power connection and cooling water to operate. The end-users are mainly fish factories that are exporting some of their products to the USA and Europe. The DSI 2000 series has a high freezing rate and low power consumption and meets new strict hygienic standards. It is suitable for marine and land installation. Primary use is to freeze seafood such as fish, fish fillets, shrimps, roe, squid, etc.; vegetables such as chopped spinach, broccoli, carrots, etc.; pulp and concentrates.

STEP IV – Make a compelling proposal: Calculate the climate co-benefits of the HPMP

To convince a potential donor that its support would be an effective and appropriate use of funds, Ozone Officers should link their project proposals with the national priorities and plans such as the national development strategy, the PRSP, the CAS, or UNDAF. In addition, it is important to demonstrate any benefits (especially climate benefits) from energy efficiency gains is an important tool to obtain financial support from potential donors. If possible, get the endorsement from the appropriate line ministries. An example of how to calculate the benefits is as follows:

1. Forecast the growth rate of HCFC-22 consumption

   Note: For small countries where HCFC-22 is consumed solely for servicing refrigeration and air conditioning, an increase of HCFC-22 consumption could mean increasing numbers of RAC units that will require servicing in the future.
2. Develop the "Case" for climate co-benefits
   - Determine the popular model size of RAC appliances in kW (or Btu) and the average charge size in kg per unit.
     - Assume average charge for servicing in kg/year.

[53] UNIDO and SHECCO SPRL, *Guide 2013: Natural Solutions for Developing Countries including UNIDO Atmosphere Summary Report* (November 2013), page 50, http://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Multilateral_environmental_agreements/GUIDE-UNIDO-natural-substances-2013-small.pdf

- Outline the HCFC Phase-out Strategy:
  Describe Assumptions
    - refrigeration and air conditioning Charge Size
    - Refrigeration Recharge (Service) in Kg/unit/year
    - Useful Life in Years
- Current Regional Market of refrigeration and air conditioning:
  Number of replacement units + Number of units for growth = Number of units in the regional market
- Develop Assumptions to define climate co-benefits of more energy efficient appliances:
    - Carbon Intensity Factor – in Kg CO_2/kWh
    - Baseline Energy Efficiency Rating (EER)
    - New EER
    - Cooling Capacity (for Air Conditioning) in kW
    - Operating Hours in hours/day
    - CDM No. of Days in Days/Year
    - Cost of electricity in $ per kWh
    - If appropriate - Carbon Revenue in $ per tCO_2

- Determine the cost and specifications for the existing stock of HCFC-based RAC equipment:
    - An example of costs for HCFC-22 residential air conditioning units

Capacity (Btu)	Capacity (kW)	Voltage	Price (USD)	EER (Btu)	EER (SI)
9,000	2.93	220	379	10	2.93
13,000	3.81	220	450	10	2.93
18,000	5.28	220	599	10	2.93
24,000	7.03	220	732	10	2.93

- Estimate the cost and specifications of the new energy efficient low-GWP RAC equipment that could be introduced:
    - An example of costs for R-410A residential air conditioning units

Capacity (Btu)	Capacity (kW)	Voltage	Price (USD)	EER (Btu)	EER (SI)
9,000	2.64	110	450	14.5	4.25
12,000	3.52	220	525	13.5	3.96
18,000	5.28	220	659	13.5	3.96
24,000	7.03	220	895	13.5	3.96

3. Ban imports/production of R-22 refrigeration and air conditioning with CDM (0% and 20% Growth) if appropriate

- Example of Benefits Calculation

- R-22 Consumption:
  - R-22 consumption for the servicing sector will be phased out within 10 years.
- Energy Savings
  - 1.5 – 5.5 million MWh in 2018
  - 450 – 1,680 MW of Electricity Generation Saved (USD 0.9 - USD 3.4 billion deferred investment)
- Additional Revenues if appropriate
  - Energy Savings -USD 0.6 - USD 1.7 billion
  - CDM Revenue If available - USD 50 - USD 138 million

4. Sensitivity Analysis

- Example of a sensitivity analysis for residential air conditioning units

Growth Rate per Annum	0%	10%	15%	20%
Energy Consumption Reduction	1.45 million MWh	2.9 million MWh	4 million MWh	5.5 million MWh
Reduced Demand for Electricity Generation Capacity	450 MW	890 MW	1,200 MW	1,670 MW
Deferred Investment for New Capacity	$1 billion	$1.7 billion	$2.4 billion	$3.4 billion
Energy Savings (7 years)	$0.6 billion	$1 billion	$1.3 billion	$1.7 billion
CDM Revenues (7 years) If this is available	$50 million	$84 million	$108 million	$138 million

STEP V – "Making the case": Prepare yourself for discussions with potential donors

The situation faced by each Ozone Officer in preparing for discussions with potential donor partners will be unique; therefore they should consider the following suggestions in their own national and regional contexts:

1. The most important preparations will be around understanding in detail your country's HPMP and refrigeration sector, as outlined in Step I.

2. "Do your homework" on which potential partners exist inside your own country is equally as important as knowing the technical details of what is contained in the HPMP and in the refrigeration sector. This "homework" includes having formal and informal discussions with colleagues who are national focal points for the GEF or other international agreements as well as public servants in other government agencies responsible for the CAS, PRSPs or UNDAF processes described in Section 5, and who may be willing to include the HPMP in those strategies as a priority. The Ozone Officer's "homework" also includes identifying any other governments with embassies in the country, regional development banks or other international development agencies that might be willing to discuss partnering or co-funding –

or other financial assistance to support climate co-benefits of the HPMP. When researching the potential partners, do not forget to note any international private sector organizations or companies in the refrigeration sector that might be able to participate in a partnership.

3. It is important to try to estimate what the climate co-benefits might be in improving energy efficiency of refrigeration in your country. In many LVCs, the number of appliances may be so small that the value of the climate co-benefits may not be sufficient to interest potential partners. In that case, a regional approach, such as that which was created with the assistance of the ADB for Cook Island, Samoa, Tonga, Vanuatu and Papua New Guinea (See Box 3) may be a worthwhile line of attack to pursue.

At this point, you should be ready to engage potential national, bilateral, regional and multilateral public and private partners to seek financial support for the climate co-benefits of the HPMP. During the engagement, there will be certain issues and constraints that will add to the effort and time that an Ozone Officer will need to set aside to undertake the engagement. These may require strategic and targeted discussions with potential partners beyond the discussion of how to financially support climate co-benefits of the HPMP. It may be important to discuss support for the resources required for mobilization, time required for applications, length of time from application through to receipt of financing. [54]

As with the development of any projects to implement the HPMP,[55] when developing project concepts and speaking with a potential financing institution or implementing partner about your project ideas, there are certain elements that should be kept in mind:

- Ensure additionality. "Additionality" is a term frequently used in relation to project proposals that means the measurement of an intervention (i.e., doing something), when the intervention is compared to the baseline or status quo situation (i.e., doing nothing). This term is frequently used in relation to climate change, however it applies equally to any type of projects, including ODS phase out, chemicals and energy efficiency projects.
- Transparency and good governance.[56] These key principles are familiar to most civil servants, including Ozone Officers and other professionals working under international financial mechanisms like the Multilateral Fund. Design any resource mobilization project for

[54] UNIDO, *Chiller demonstration projects: Achievements & lessons learnt*. Joint meeting of the Regional Ozone Networks for Europe & Central Asia (ECA) and South Asia (SA). Istanbul, Turkey. 26-30 April 2010; *Chiller Demonstration Projects: Achievements and Lessons Learnt. The Global Chiller Replacement Project*. Mary-Ellen Foley. Montreal Protocol Operations, The World Bank. 26-30 April 2010. Istanbul, Turkey; Viraj Vithoontien, Montreal Protocol Operations, The World Bank Group, *Strategies for HCFC Phase-out Management Plan*. Regional Workshop of Caribbean Ozone Officers. 25 March 2009.

[55] UNEP/OzL.Pro/ExCom/63/L.1 7 April 2011. Para 84 (a) (ii).
http://www.multilateralfund.org/63/Draft%20Report%20English/1/63L1draft-8-April.doc

[56] Good governance has 8 major characteristics. It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society.
http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.asp

- Avoid "perverse incentives." This term, which is usually applied in the context of climate change, describes a situation where an action that is supposed to achieve one result (positive) accidentally creates a problem somewhere else (negative). It is a type of unintended consequence when the impacts and outcome of a project are not considered carefully. In the context of resource mobilization related to climate co-benefits of HPMPs, practically speaking this means that the Ozone Officer should be particularly careful during the project design stage to consider all possible outcomes (intended and unintended).
- Explore possibilities of profit-sharing, including return of funds to the Multilateral Fund. When designing a co-funding proposal, if the project includes potential profit generation (e.g. from private sector involvement), try to consider what would happen to any new funds that might be generated. The Multilateral Fund has traditionally collected any funds generated from projects that it has financially supported (notably the chiller replacement programme), and used those new resources to finance new Multilateral Fund projects (the resource mobilization projects of all Implementing Agencies are good examples of this "recycling" process). Accordingly, when designing your resource mobilization project, consider whether any funds might be generated and if so, make a plan for how they will be collected and informed to the Multilateral Fund.
- Ensure sustainability of the projects proposed. As with any good project design, the resource mobilization proposal should consider ways and means to sustain the outcome of the project after the initial funding is used. Try to identify and build such approaches into the original proposal.
- Avoidance of duplication of similar projects. This is part of the due diligence process you should follow for any project proposal. It is part of your "homework" to ensure that whatever resource mobilization proposal related to climate co-benefits of HPMPs does not duplicate any other existing project, either inside or outside of the Multilateral Fund. Make sure that what you are proposing does not duplicate activities currently funded or eligible for future funding under the Multilateral Fund (consult the Implementing Agency working with you).
- Information on transaction costs. Developing, submitting and negotiating project proposals takes resources takes expertise, time, and energy. Sometimes it takes considerable effort to do it right. It is important to keep track of your estimated "transaction costs" from the start of the project concept until the project is approved (or not approved). This information is useful to provide as feedback to both your Director/management, the organization from which you are seeking financing, and also to and even the Executive Committee. Such information could be reported under the HPMP in terms of activities/resources undertaken to seek climate co-benefits for the HCFC activities.

STEP VI - Next Steps

Finally, undertake the necessary final internal discussions within the country and with partners either in the public or private sector to establish the agreed terms and conditions of the project and financial support including management, monitoring, evaluation, reporting.

During the project development and submission process — and even during implementation — UNEP encourages Ozone Officers to share the project experience with other NOUs through presentations and discussions at the Regional Network meetings (see box 13). Such exchanges can inform and inspire colleagues to achieve similar results.

Box 13: Lesson learned
Experience shows that Regional networking plays an important role in helping replicate the successful features of well-designed co-financing projects into future or on-going projects. During meetings and workshops, project managers and country office personnel discuss both technical and administrative issues, share experiences and best practices, and gain a sense of how the portfolio functions at a regional level.[57]

— *Multilateral Fund chiller project desk study*

[57] Multilateral Fund *Desk Study on the Evaluation of Chiller Projects* (UNEP/OzL.Pro/ExCom/68/10), para 14.

Annex 1: Overview of UNEP's resource mobilization project

UNEP submitted a project proposal for "Resource mobilization to address climate co-benefits for the HCFC phase-out in LVC countries with servicing sector only" as part of its 2011 Work Programme Amendment for the consideration of the 63rd Executive Committee.[58] The original project sought to prepare a detailed study outlining specific financing options, complete five regional workshops on resource mobilisation, and prepare a pilot application for one LVC for funding for activities in HPMP not covered by the Multilateral Fund, at a budget of US$ 250,000 plus programme support costs.

Following discussions, the Executive Committee through Decision 63/22 (a) approved a project for UNEP[59] as follows:

> "a) To approve funding at the level of US $100,000, plus agency support costs of US $13,000 for UNEP, for a study on financing options, regional workshops on co-financing, and/or one or more pilot applications of co-financing for one or more low-volume-consuming countries with an approved HCFC phase-out management plan, to be funded as resource mobilization activities on the condition that an interim report would be provided at the 66th meeting, which would include an update on the activities so far undertaken and address the following elements:
>
> (i) Additionality of the projects proposed;
> (ii) Transparency and good governance, as well as covering the cash flow;
> (iii) Assurance that these projects would avoid perverse incentives for countries;
> (iv) Exploring possibilities of profit-sharing, including return of funds to the Multilateral Fund;
> (v) Ensuring sustainability of the projects proposed;
> (vi) Avoidance of duplication of similar projects;
> (vii) Information on transaction costs;
>
> (b) To request UNEP to ensure that the regional workshops were held in the context of the network meetings under UNEP's Compliance Assistance Programme so as to ensure cost-effectiveness, and that the timing of the workshops would be such to allow the experiences of other agencies' resource mobilization activities to be incorporated;
>
> (c) To note that the funds approved would be taken from the budget reserved for unspecified projects that had been set aside from the funds returned from the Thai chiller project; and
>
> (d) To request UNEP to provide a final report for consideration by the Executive Committee at its 69th meeting."

Under this revised project scope and resources, and following consultations within the CAP team and with select Ozone Officers, UNEP selected the first option in the decision, i.e. the study and regional workshops, instead of developing a pilot application the former option would have a wide impact on many LVCs.

UNEP engaged an international expert in the field of resource mobilization to research and draft the study on financing options (i.e. this document), and arranged for quality review by two experts, one of whom is an Ozone Officer from an LVC. UNEP conducted the workshop component of the project over the period May 2013 to March 2014 (see Annex 2) in a way that was mutually supportive with the development of this document.

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[58] UNEP/OzL.Pro/ExCom/63/19.
[59] GLO/SEV/63/TAS/308.

UNEP submitted an interim report on the project to the 66th Executive Committee meeting, which noted the report and requested UNEP to submit a more substantial report to the 68th meeting (Decision 66/15(m)). At the 68th meeting, UNEP submitted another interim report. During the discussions of the resource mobilization projects of all Implementing Agencies, the Executive Committee noted the important information on resource mobilization provided in the *Desk Study on the Evaluation of Chiller Projects*[60] and the 68th meeting report,[61] and requested that UNDP, UNEP, UNIDO and the World Bank take into account the information provided the desk study, where relevant, and incorporate such information in the final reports on resource mobilization for in the context of the terms of reference set out in decisions 63/20, 63/22, 63/23 and 63/24 (Decision 68/4 (c)).

For both project components, UNEP considered the Multilateral Fund *Desk Study on the Evaluation of Chiller Projects* during the project development insofar as its recommendations apply to the LVC context, as per Executive Committee decision 68/4(c). UNEP also considered the information contained in the final reports on resource mobilization for climate co-benefits submitted by UNDP,[62] UNIDO,[63] and World Bank[64] as they became available.

UNEP submitted an interim report on the project[65] to the 69th meeting, which the Executive Committee noted and then urged UNEP to provide a draft of the study in the form of an information paper to the Executive Committee's 70th meeting; to submit the final study to the 71st meeting, taking into account guidance provided by the Executive Committee at the 70th meeting; and to complete the regional workshops on co-financing by December 2013 with a view to providing a report on their conclusions to the first meeting in 2014 (Decision 69/4 (c)).

UNEP submitted to the 70th meeting of the Executive Committee (1-5 July 2013) the *Draft Annotated Outline of the Study on Financing Options to Address Climate Co-Benefits for HCFC Phase-out in LVCs with Servicing Sector Only*.[66] In that detailed submission, UNEP noted that the project was a work in progress and it welcomed any guidance or inputs (e.g. examples of successful resource mobilisation in LVCs) from Executive Committee members or others to consider during the finalization of the document. During the Committee's deliberations, a member noted the relation between the *Discussion Paper on Minimizing Adverse Climate Impact of HCFC Phase-Out in the Refrigeration Servicing Sector*[67] and the study being prepared by UNEP. He encouraged the Secretariat to conduct further analysis of the issue and to engage in further discussion with UNEP and the other implementing agencies in order to exchange ideas and strategies to address the servicing sector in the most effective way possible to achieve compliance

[60] UNEP/OzL.Pro/ExCom/68/10.
[61] UNEP/OzL.Pro/ExCom/68/53, paragraphs 48 to 54.
[62] UNEP/OzL.Pro/ExCom/71/6/Add.1.
[63] UNEP/OzL.Pro/ExCom/69/5.
[64] UNEP/OzL.Pro/ExCom/71/6/Add.1.
[65] UNEP/OzL.Pro/ExCom/69/5.
[66] UNEP/OzL.Pro/ExCom/70/Inf.3.
[67] UNEP/OzL.Pro/ExCom/70/53.

and minimize adverse climate impact.[68] The Executive Committee agreed to defer consideration of the draft annotated outline of the study.[69]

As the consideration of the outline was not continued during the 71st or 72nd Executive Committee meetings, UNEP proceeded with the finalization of the document on the basis of the previously-submitted outline, the comment received during the 70th meeting, and inputs from Ozone Officers and others received during the four resource mobilisation workshops. UNEP submitted the final version of the study to the Executive Committee for consideration at its 73nd Meeting.

[68] UNEP/OzL.Pro/ExCom/70/59, para 117.
[69] UNEP/OzL.Pro/ExCom/70/59, para 149.

Annex 2: Summary of the regional resource mobilization workshops

As part of the project on "Resource mobilization to address climate co-benefits for the HCFC phase-out in LVC countries with servicing sector only,"[70] UNEP organized four regional workshops on co-financing with the objective of bringing stakeholders and representatives of the various appropriate funding mechanisms together to build the capacity of the participating Ozone Officers from Article 5 countries on accessing these financial mechanisms. UNEP also used the workshops as an opportunity for Ozone Officers from LVCs to share their experiences/inputs and voice their needs in relation to the guidance document on financing options that UNEP was preparing in parallel to the workshops. Thus, the workshops and the document were integrated throughout the project duration.

In accordance with Decision 63/22 (b), UNEP ensured that the regional workshops were held in the context of the 2013/2014 meetings of the Regional Networks of Ozone Officers under UNEP's Compliance Assistance Programme so as to ensure cost-effectiveness, and that the timing of the workshops would be such to allow the experiences of other agencies' resource mobilization activities to be incorporated. Accordingly, the four workshops on "Opportunities for resource mobilization and climate benefits related to refrigeration servicing sector" were held as follows:[71]

- Asia-Pacific: The workshop on was organized on 8 May 2013 in Gold Coast, Australia, back to back with the Joint Meeting of the South Asia (SA), South East Asia and the Pacific (SEAP) and the Pacific Islands Countries (PIC) Regional Networks of Ozone Officers.
- Europe and Central Asia: The workshop on was organized on 21 May 2013 in Ohrid, Macedonia FYR, back to back with the Annual Meeting of the ECA Network of Ozone Officers.
- Latin America and the Caribbean: The workshop on was organized in Kingston, Jamaica on 30 September 2013 back to back with the Meeting of the Latin American and Caribbean Networks of Ozone Officers.
- Africa: The workshop on was organized in Addis Ababa, Ethiopia on 28 March 2014, back to back with the Joint Meeting of French-Speaking and English-Speaking Africa.

The workshops were one half day or one day in length, depending on the preference and schedule of the respective Network meetings. Model agendas were prepared to ensure some level of standardization across the Networks, with the provision that each region could adapt the agendas as per its local requirements. The workshops were designed to be inter-active to encourage discussion and brainstorming on the subject, and included both presentations, discussion panels, and roundtable exchanges.

The workshop participants were all of the National Ozone Officers who participated in the associated Regional Network meetings. UNEP also invited the following organizations as speakers share their resource mobilization experiences: Multilateral Fund Secretariat, Ozone Secretariat, Implementing Agencies, bilateral agencies/non-Article 5 countries, and selected Ozone Officers with relevant co-financing experience. In all of the workshops, UNDP, UNIDO and the World Bank conveyed the results to-date of their own resource mobilization projects separately-approved under the Multilateral Fund, shared their

[70] See Annex 1.

[71] UNEP did not organize a resource mobilization in West Asia since the region does not have any low-volume consuming country, and it is therefore outside of the scope of the approved project. However, discussions on resource mobilization for the climate co-benefit of the HCFC phase out have taken place during the region's Network and thematic meetings, to a certain extent.

extensive experiences with resource mobilization with respect to both LVCs and non-LVCs, and participated actively in the ensuing roundtable discussions.

UNEP retained external experts familiar with resource mobilization to moderate the workshops in a neutral and unbiased manner, and to make the framework presentations. During some of the workshops, other organisations also delivered presentations or moderated sessions during some of the workshops, such as the Asia-Pacific Technical College (APTC), Colombia, Croatia, Macedonia (Former Yugoslav Republic of), Saint Lucia, United States and private sector companies. In some of the workshops, other UNEP staff members working on related issues outside of Montreal Protocol (i.e. climate change and financing) also participated as speakers or moderators.

The agendas of the four workshops covered a range of topics, such as:

- Overview of financing options for LVC countries with servicing sector only.
- Resource mobilization to address climate co-benefits for HCFC phase- out in the context of Multilateral Fund decisions and policies.
- Experiences of the implementing agencies and bilateral agencies.
- Clean Development Mechanism.
- Global Environment Facility.
- Case studies or experiences (Caribbean, Colombia, Gambia, Ghana, Macedonia FYR, Croatia, Vietnam, etc.)
- European financing instrument for pre-accession countries.
- NAMAs in the refrigeration, air conditioning and foam blowing sector.
- Prospects for regional development banks to contribute to resource mobilization related to the HCFC phase out in Article 5 countries.

The Africa workshop provided the Implementing Agencies with a good opportunity to share the results of their resource mobilization projects, particularly the experiences with Gambia, Ghana and Vietnam projects co-financed with the GEF. The workshop also discussed the fundamentals of resource mobilization including development and submission of grant proposals, mobilization of national resources, and fundraising principles. The Asia-Pacific workshop provided a good opportunity for Australia, Italy and the United States to share their experience in offsetting costs in their own domestic HCFC phase-out program. A few countries like Fiji, Cook Island, Bangladesh noted efforts in attracting financing for the climate co-benefits. The Europe and Central Asia workshop highlighted the keen interest by Ozone Officers in better understanding the resource mobilization opportunities with Macedonia and Croatia mentioning the creation of funding opportunities to support their Montreal Protocol programs. The Latin America and the Caribbean meeting clarified that there is a need to have a system in place that provides the most up to date information on technologies in terms of performance and alternative gases. There was also an interesting discussion on the need for a few pilot countries to demonstrate how this financing could take place.

Some of the common messages received from Ozone Officers during the workshops include:

- The subject of resource mobilization and climate co-benefits is new to virtually all Ozone Officers and is not traditionally an area in which they have worked. Ozone Officers need assistance to develop their own expertise in project financing and designing project proposals. They also need assistance to further develop their capacity for making the linkages between the HCFC phase out, energy efficiency and climate co-benefits.

- Due to the shortage of human resources in NOUs, as well as lack of skills and knowledge in this area, resource mobilization for the climate benefits of the HCFC phase out needs more efforts. National Ozone officers highlighted the need for continued assistance from all agencies on this subject.
- Resource mobilization does not necessarily mean just funds, but can also mean human resources such as training and knowledge sharing.
- Ozone Officers expressed the need for project preparation funds that focus on the climate co-benefits.
- Ozone Officers should explore as a priority the opportunities for internal (i.e. domestic) resource mobilization. This can include the use of economic instruments, other government programmes and private sector resources.

Annex 3: Useful contacts and background information

Final reports of Implementing Agency resource mobilization projects

- UNDP, *Final report on resource mobilization for climate co-benefits* (UNEP/OzL.Pro/ExCom/71/6/Add.1), http://www.multilateralfund.org/71/English/1/7106a1.pdf
- UNIDO, *Final report on development of pilot proposals for possible co-financing for HCFC activities, to be be funded as resource mobilization activities* (UNEP/OzL.Pro/ExCom/69/5) http://www.multilateralfund.org/69/English/1/6905.pdf
- World Bank, *Final report on resource mobilization for HCFC phase-out and climate mitigation co-benefits* (UNEP/OzL.Pro/ExCom/71/6/Add.1), http://www.multilateralfund.org/71/English/1/7106a1.pdf

Multilateral Fund documents

- Multilateral Fund Senior Monitoring and Evaluation Officer, *Desk Study on the Evaluation of Chiller Projects* (UNEP/OzL.Pro/ExCom/68/10), http://www.multilateralfund.org/68/English/1/6810.pdf
- Multilateral Fund Secretariat, *Minimizing Adverse Climate Impact of HCFC Phase-out in the Refrigeration Servicing Sector* (UNEP/OzL.Pro/ExCom/72/42), http://www.multilateralfund.org/72/English/1/7242.pdf

GEF Focal Points

GEF Focal Points play a critical coordination role regarding GEF matters at country level as well as serving as the liaison with the GEF Secretariat and Implementing Agencies while representing their constituencies on the GEF Council. The GEF Political Focal Points and Operational Focal Points have different functions, although the exact specifications of the two designations may vary from country to country. All GEF member countries have Political Focal Points, while only recipient member countries eligible for GEF project assistance have Operational Focal Points. *GEF Political Focal Points* are concerned primarily with issues related to GEF governance including policies and decisions, as well as relations between member countries and the GEF Council and Assembly. *GEF Operational Focal Points* are concerned with the operational aspects of GEF activities, such as endorsing project proposals to affirm that they are consistent with national plans and priorities and facilitating GEF coordination, integration, and consultation at country level. The list of focal points is found at http://www.thegef.org/gef/focal_points_list

Climate-related programs

- Clean Development Mechanism (CDM), http://cdm.unfccc.int/
- Climate and Clean Air Coalition (www.unep.org/ccac/).
- Sustainable Energy for All, http://www.sustainableenergyforall.org/
- The World Bank, http://www.worldbank.org/en/topic/climatechange/overview
    - Climate Investment Funds (CIFs), https://www.climateinvestmentfunds.org/cif/

- Climate Finance and Carbon Finance Unit, http://www.worldbank.org/en/topic/climatefinance
  - Climate Change Knowledge Portal, http://sdwebx.worldbank.org/climateportal/index.cfm
  - Climate Finance Options Platform, http://www.climatefinanceoptions.org/cfo/index.php

Regional Development Banks

- The Asian Development Bank (ADB), http://www.adb.org/
- Inter-American Development Bank (IADB), www.iadb.org/
- Caribbean Development Bank (CDB), www.caribank.org/
- African Development Bank (AfDB), http://www.afdb.org/en/
- Climate Investments Funds (CIF), http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/climate-investment-funds-cif/
- the Global Environment Facility (GEF), http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/global-environment-facility-gef/
- Sustainable Energy Fund for Africa (SEFA), http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa/
- African Carbon Support Programme (ACSP), http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/african-carbon-support-program/
- European Bank for Reconstruction and Development (EBRD), http://www.ebrd.com

Funding Organisations of National Governments

- Australia: Australian AID (AUSAID), http://www.ausaid.gov.au/Pages/home.aspx
- Austria: Austrian Development Agency, http://www.entwicklung.at/en/
- Belgium: Belgian Development Cooperation (DGDC), http://diplomatie.belgium.be/en/policy/development_cooperation/
- Belgium: Belgian Technical Cooperation (BTC), http://www.btcctb.org/
- Canada: Canadian International Development Agency (CIDA), http://www.acdi-cida.gc.ca/acdi-cida/acdi-cida.nsf/eng/home
- Denmark: Danish International Development Assistance (DANIDA), http://um.dk/en/danida-en/
- Denmark: Danish Ministry of Foreign Affairs (MOFA), http://um.dk/en
- European Commission: DG Development (DG DEV) also EU Enlargement-related funds, http://ec.europa.eu/trade/policy/countries-and-regions/regions/africa-caribbean-pacific/
- France: Ministère des Affaires étrangères et européennes (MAEE), http://www.diplomatie.gouv.fr/en/
- France: Direction générale de la Coopération internationale et du Développement (DGCID), http://www.irc.nl/page/6890
- Finland: Ministry of Foreign Affairs (MoFA), http://formin.finland.fi/public/default.aspx?culture=en-US&contentlan=2
- Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), http://www.giz.de/en/
- Germany: Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), http://www.bmz.de/en/index.html
- Ireland: Irish Aid, http://www.dci.gov.ie/
- Italy: Cooperazione Italiana allo Svililuppo, http://www.cooperazioneallosviluppo.esteri.it/pdgcs/

- Japan: International Cooperation Agency (JICA), http://www.jica.go.jp/english/
- Japan: Official Development Assistance (ODA), Ministry of Foreign Affairs (MoFA), http://www.mofa.go.jp/policy/oda
- Japan: Bank for International Cooperation (JBIC), http://www.jbic.go.jp/en/
- Luxembourg: Ministère des Affaires Étrangères, http://www.mae.lu/en
- Luxembourg: Agence Luxembourgeoise pour La Coopération Luxembourgeoise au Développement, http://luxdev.lu/en
- Netherlands: Ministry of Foreign Affairs (MoFA), http://www.government.nl/ministries/bz
- New Zealand: New Zealand Aid (NZAid), http://www.aid.govt.nz/
- Norway: Ministry of Foreign Affairs, http://www.regjeringen.no/en/dep/ud.html?id=833
- Norway: Norwegian Agency for Development and Cooperation (NORAD), http://www.norad.no/en/front-page;jsessionid=0D0F0A6AF492616F55F671C9D9D94F11
- Portugal: Instituto Português de Apoio Ao Desenvolvimento (IPAD), http://ns1.ipad.mne.gov.pt/
- Spain: Agencia Española de Cooperación Internacional (AECI), http://www.aecid.es/en/aecid/
- Sweden: Swedish International Development Cooperation Agency (SIDA), http://www.sida.se/english/
- Switzerland: Swiss Agency for Development and Cooperation (SDC), http://www.sdc.admin.ch/en/Home
- Switzerland: State Secretariat of Foreign Affairs (SECO), http://www.seco.admin.ch/index.html?lang=en
- United Kingdom: Department for International Development (DFID), https://www.gov.uk/government/organisations/department-for-international-development
- United State: United States Agency for International Development (USAID), http://www.usaid.gov/
- United States: Millennium Challenge Corporation (MCC), http://www.mcc.gov/

Clean Development Mechanism approved methodologies

- AMS-II.O.: Dissemination of energy efficient household appliances --- Version 1.0, http://cdm.unfccc.int/methodologies/DB/OE502PQ0NA9ETZ5IB6HL0ZT2BBKZ35
- AMS-III.X.: Energy Efficiency and HFC-134a Recovery in Residential Refrigerators --- Version 2.0, http://cdm.unfccc.int/methodologies/DB/983EQY2RSIYT5Q1KN4FIWHU2FL3MHP
- AMS-III.AB.: Avoidance of HFC emissions in Standalone Commercial Refrigeration Cabinets --- Version 1.0, http://cdm.unfccc.int/methodologies/DB/GZRYKNFXDOFO6WWJ3DG87GU8I4H1EZ
- AM0060: Power saving through replacement by energy efficient chillers --- Version 1.1, http://cdm.unfccc.int/methodologies/DB/YK8TH8WJAQDX52TC32G9C627X17P38
- AM0070: Manufacturing of energy efficient domestic refrigerators --- Version 3.1.0, http://cdm.unfccc.int/methodologies/DB/R66P8LFQUC30O9F2GX9Z9CTMN9B8W5
- AM0071: Manufacturing and servicing of domestic refrigeration appliances using a low GWP refrigerant --- Version 2.0, http://cdm.unfccc.int/methodologies/DB/ZWFKA8F3U3CSHU75ST3VCPZMVN5VG0

Annex 4: Multilateral Fund eligible incremental costs of HCFC phase-out projects[72]

Decision 60/43

Eligible incremental costs of HCFC phase-out projects

(f) To apply the following principles in regard to eligible incremental costs of HCFC phase-out projects for the first stage of HPMP implementation to achieve the 2013 and 2015 HCFC phase-out compliance targets, subject to a review in 2013:

(i) When preparing HCFC phase-out projects in the foam, refrigeration and air-conditioning sectors, bilateral and implementing agencies shall use the technical information contained in document UNEP/OzL.Pro/ExCom/55/47 as a guide;

(ii) The current cost-effectiveness threshold values used for CFC phase-out projects in paragraph 32 of the final report of the 16th Meeting of the Executive Committee (document UNEP/OzL.Pro/ExCom/16/20), to be measured in metric kilogrammes, shall be used as guidelines during the development and implementation of the first stage of HPMPs;

(iii) That countries will have the flexibility to allocate the approved funding from incremental operating costs to incremental capital costs and to allocate up to 20 per cent of the approved funding for incremental capital costs to incremental operating costs, as long as the use of the flexibility does not change the intent of the project. Any reallocation should be reported to the Executive Committee;

(iv) Funding of up to a maximum of 25 per cent above the cost effectiveness threshold will be provided for projects when needed for the introduction of low global warming potential (GWP) alternatives;

HCFC phase-out in the refrigeration and air-conditioning manufacturing sector

(viii) Incremental operating costs for projects in the air conditioning sub-sector will be considered at USD 6.30/metric kg of HCFC consumption to be phased out at the manufacturing enterprise;

(ix) Incremental operating costs for projects in the commercial refrigeration sub-sector will be considered at USD 3.80/metric kg of HCFC consumption to be phased out at the manufacturing enterprise;

(x) Consistent with decision 31/45 of the Executive Committee, incremental operating costs will not be considered for enterprises categorized under the refrigeration equipment assembly, installation and charging sub-sector;

HCFC phase-out in the refrigeration servicing sector

(xi) Article 5 countries that have total HCFC consumption of up to 360 metric tonnes must include in their HPMP, as a minimum:

a. A commitment to meeting, without further requests for funding, at least the freeze in 2013 and the 10 per cent reduction step in 2015, and if the country so decides, the 35 per cent reduction step in 2020. This shall include a commitment by the country to restrict imports of HCFC-based equipment if necessary to achieve compliance with the reduction steps to support relevant phase-out activities;

b. Mandatory reporting, by the time funding tranches for the HPMP are requested, on the implementation of activities undertaken in the refrigeration servicing sector and in the

[72] Excerpt from UNEP/OzL.Pro/ExCom/60/54
www.multilateralfund.org/sites/60/Document%20Library2/1/6054.pdf

manufacturing sector when applicable, in the previous year, as well as a thorough and comprehensive annual work plan for the implementation of the following activities associated with the next tranche;

c. A description of the roles and responsibilities of major stakeholders, as well as the lead implementing agency and the cooperating agencies, where applicable;

(xii) Article 5 countries that have total HCFC consumption of up to 360 metric tonnes will be provided funding consistent with the level of consumption in the refrigeration servicing sector as shown in the table below, on the understanding that project proposals will still need to demonstrate that the funding level is necessary to achieve the 2013 and 2015 phase-out targets, and if the country so decides, the 2020 phase-out targets:

Consumption (metric tonnes)*	Funding up to 2015 (US$)	Funding up to 2020 (US$)
>0 <15	51,700	164,500
15 <40	66,000	210,000
40 <80	88,000	280,000
80 <120	99,000	315,000
120 <160	104,500	332,500
160 <200	110,000	350,000
200 <320	176,000	560,000
320 <360	198,000	630,000

(*) Level of baseline HCFC consumption in the refrigeration servicing sector

(xiii) Article 5 countries that have total HCFC consumption of up to 360 metric tonnes and that receive funding consistent with the above table, will have flexibility in utilizing the resources available to address specific needs that might arise during project implementation to facilitate the smoothest possible phase-out of HCFCs;

(xiv) Article 5 countries that have total HCFC consumption of up to 360 metric tonnes, used in both the manufacturing and refrigeration servicing sectors, could submit HCFC phase-out investment projects in accordance with prevailing policies and decisions of the Multilateral Fund, in addition to funding for addressing HCFC consumption in the servicing sector;

(xv) Article 5 countries that have total HCFC consumption above 360 metric tonnes should first address consumption in the manufacturing sector to meet the reduction steps in 2013 and 2015. However, if such countries clearly demonstrate that they require assistance in the refrigeration servicing sector to comply with these targets, funding for these activities, such as training, will be calculated at US$4.50/metric kg, which will be deducted from their starting point for aggregate reductions in HCFC consumption.