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DESK STUDY ON THE EVALUATION OF TERMINAL PHASE-OUT MANAGEMENT PLANS

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Executive summary

- 1. The objective of this evaluation is to analyze the role of terminal phase-out management plans (TPMPs) in low-volume-consuming (LVC) countries for achieving CFC phase-out in the servicing sectors and enabling compliance with the 85 per cent reduction target for 2007. Among the issues to be evaluated are the reasons for implementation delays, the late submission of funding requests, the coordination between the lead agency and the cooperating agency, the quality of monitoring and reporting, the difficulties encountered and overcome, the prospects for sustainability of the measures taken and institutional capacities created and the lessons learned for the final phase-out of CFCs and the preparation of phase-out plans for HCFCs.
- 2. The concept of TPMPs was introduced through decision 45/54 of the Executive Committee to enable the total phase-out of CFCs or other ODS as applicable in LVC countries. In most cases, the funding would be released in at least two tranches with the second and subsequent tranches being available after meeting the phase-out commitments for the previous tranche(s). This decision defined the maximum funding levels depending on the baseline for CFC consumption and described the project modalities to be used. Of 99 eligible LVC countries, 66 have had so far their TPMPs approved. Twenty-six TPMPs were approved up to the end of 2006 and another 40 in 2007 and 2008. In some of the early approvals, like Albania and Bosnia and Herzegovina, the plans are called National Phase-out Plans. As they are approved for LVC countries and cover all remaining ODS, they are likewise included in this evaluation.
- 3. The consultant, in co-operation with the Senior Monitoring and Evaluation Officer, reviewed the documents available on TPMPs (mainly project documents, Secretariat's comments, annual progress reports and work programmes, as well as relevant decisions and guidelines of the Executive Committee). Most of the 16 countries analyzed in more detail have completed at least one tranche of their TPMP and all have had their second or subsequent tranches approved.
- 4. This desk study shows that TPMPs are essentially continuing the earlier RMPs. Some include new activities such as retrofit to hydrocarbon blends, addition of reclamation facilities, incentive schemes and management units. All TPMPs show an integrated approach at the planning level, but the individual activities, in particular the investment and the non-investment parts, are implemented separately and coordination between the lead agency and the cooperating agency does not always work as intended, creating delays for subsequent tranches. The flexibility clause has been used primarily to move savings from activities not done to other budget lines with overruns. Of the countries which have submitted their 2007 consumption data, all have met the 2007 reduction requirements under the Agreements.
- 5. It is suggested that country studies be prepared in some LVC countries that have several tranches approved, including some where there have been delays of 18 months or more in submitting the request for the next tranche. The sample will be established by the Senior Monitoring and Evaluation Officer, in consultation with the Ozone Units of the countries to be visited and the implementing and bilateral agencies concerned.

I. Background and methodology

- 6. The preparation of a desk study and final report on the evaluation of TPMPs is part of the monitoring and evaluation work programme for 2008 approved at the 53rd Meeting of the Executive Committee. TPMPs are the main modality for phasing out the remaining consumption of CFCs and other ODS in LVC countries. In view of the large number of such plans and their importance for achieving the 85 per cent reduction target for CFC consumption in 2007 and the final phase-out in 2010, it appears timely to evaluate the progress achieved in terms of phase-out and compliance with the 50 per cent and 85 per cent reduction steps for CFCs. Among the issues to be evaluated are the reasons for the delays in implementing activities and submitting funding requests, the quality of monitoring and reporting, the difficulties encountered and overcome, the prospects for sustaining the results achieved and institutional capacities created, and the lessons learned on the way to final phase-out of CFCs and in the future of HCFCs.
- 7. In contrast with national ODS phase-out plans, the TPMP implementation modalities do not envisage using independent verifications for all such plans. In accordance with decision 45/54, only 10 per cent of approved TPMPs under implementation are to be subjected to independent verification. Therefore, the evaluation of a sample of TPMPs has great importance, the more so as so far no such verifications have taken place.
- 8. This desk study reviews in particular the following:
 - (a) The follow-up to the evaluation of RMPs in LVC countries in 2003 and the resulting recommendations in decision 41/100;
 - (b) Quality and completeness of project documents and reports submitted as supporting documents for the next tranche of funding;
 - (c) Compliance with CFC reduction targets and completion of planned activities;
 - (d) Review of project cost, cost-effectiveness, disbursement rates and implementation delays;
 - (e) Project monitoring and reporting: as per decision 45/54, up to 20 per cent of approved funds should be used by the bilateral or implementing agency and/or country concerned to ensure comprehensive annual monitoring and reporting of the TPMP, including the recovery and recycling (R&R) programme;
 - (f) Modalities for selection of beneficiaries and efficiency of R&R and retrofit projects for CFC phase-out and future use of R&R equipment in HCFC phase-out activities:
 - (g) Sustainability of the created infrastructure within the transition period (after TPMP funding stops and HCFC phase-out management plan (HPMP) funding starts up); and
 - (h) Lessons learned, specifically in relation to future HPMPs and potential links with them.

- 9. The documentation and data sources used for this desk study were:
 - (a) Executive Committee decisions, documents and reports relating to TPMPs;
 - (b) Project documents for TPMPs, progress reports and requests for subsequent tranches for a representative sample of 16 TPMPs with more than one funding tranche approved;
 - (c) Article 7 and country programme data submitted by the 16 sample countries;
 - (d) Multilateral Fund Secretariat's inventory of approved projects and progress report data on TPMPs approved;
 - (e) Desk study on the evaluation of institutional strengthening (IS) projects;
 - (f) Desk study, case studies and final report prepared for the evaluation of RMPs in LVC countries in 2003; and
 - (g) Discussions with Multilateral Fund Secretariat staff; and
 - (h) Information and comments provided by the implementing agencies.

II. Main decisions of the Executive Committee on RMPs and TPMPs

- 10. The concept of RMPs was adopted by the Executive Committee at its 22nd Meeting in June 1997. At the 31st Meeting, it was decided that LVC countries with already approved RMPs could get up to 50 per cent additional funding for supplementary activities necessary to reduce consumption and thereby ensure compliance with the Protocol (decision 31/48).
- 11. The main objective of RMPs was to develop and implement a comprehensive strategy for phasing out CFC consumption in the refrigeration servicing sector. The RMPs aimed at establishing the proper sequencing of projects and policy measures and to proceed in a coordinated way taken into account the linkages between the various activities. RMP projects included generally the following sub-projects:
 - (a) Adoption of ODS control regulations, including licensing system;
 - (b) Training of technicians in good practices in refrigeration;
 - (c) Training of customs officers in controlling imports of ODS; and
 - (d) Recovery and recycling including a hands-on training on the respective practices;
 - (e) Support for the establishment of refrigeration associations and certification schemes for trained technicians.
- 12. These projects were generally complemented by additional measures such as the improvement of data collection, monitoring, awareness raising, and other related activities.

- 13. RMPs and RMP updates required the beneficiary country to commit to achieve, without further requests for funding, the 50 per cent reduction step in 2005 and the 85 per cent reduction step in 2007. This would include a commitment by the country to restrict imports if necessary to achieve compliance with the reduction steps and to support RMP activities.
- 14. To provide further assistance for the post-2007 period in LVC countries the Executive Committee decided at its 38th Meeting (decision 38/64) that specific requests for funding of terminal CFC phase-out plans for LVC countries might be considered on a case-by-case basis, provided that the country concerned has a licensing system in operation. The Government concerned also needed to give a commitment to achieve, without further request for funding from the Multilateral Fund, the complete phase-out of CFCs and provide annual reporting of progress in implementing the activities proposed and meeting the reduction steps in cooperation with the implementing and/or bilateral agency(ies) responsible for implementing the terminal phase-out plan (see text of the decision in Annex II).
- 15. Decision 45/54 further reinforced the criteria for TPMP proposals to assist LVC countries for the post-2007 period. These can be summarized as follows:
 - (a) TPMP project proposals should contain, as a minimum, the commitment by the Government concerned to the phased reduction and complete phase-out of the consumption of CFCs in the country according to a specific phase-out schedule which is at a minimum consistent with the Montreal Protocol's control measures;
 - (b) The Government concerned would 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 ODSs;
 - (c) Annual reporting on the implementation of the activities undertaken in the previous year as well as a thorough and comprehensive work plan for the implementation of next year's activities are mandatory;
 - (d) The roles and responsibilities of the major national stakeholders, as well as the lead implementing agency and the co-operating agencies when applicable, must be defined;
 - (e) The funding levels can vary between a maximum of US \$205,000 for countries with a CFC baseline consumption under 15 ODP tonnes and US \$565,000 for countries with a baseline higher than 120 ODP tonnes. Individual project proposals need to demonstrate that the funding level is necessary;
 - (f) Up to 20 per cent of approved funds should be used to ensure comprehensive annual monitoring and reporting and up to US \$30,000 for the preparation of a transitional strategy for CFC-MDIs where the need is fully demonstrated and documented. No additional resources would be requested from the Multilateral Fund or bilateral agencies for activities related to the phase-out of CFCs and other ODS where applicable.
- 16. At its 49th Meeting, the Executive Committee approved a categorized compendium of recommendations relevant to the evaluation of RMPs and national phase-out plans in

non-low-volume-consuming (non-LVC) countries, focusing on the refrigeration servicing sector. The text of the decision distinguished between new recommendations and those that had previously been approved by the Executive Committee (decision 49/6). It added to decision 41/100 mainly provisions on legislation, training and reporting. The full text can be found in Annex II.

III. Overview of TPMPs approved and implemented

- 17. The first TPMP for the refrigeration sector for the Bahamas was approved at the 35th Meeting of the Executive Committee. From then until the 54th Meeting, 66 LVC countries have had their TPMPs approved for a total funding (in principle) of US \$ 25,709,104, the majority of them (49) with two funding tranches. Twenty-six TPMPs were approved by the end of 2006, 31 in 2007 and 9 in 2008. Project preparation funds have been approved for TPMP preparation in another 18 LVC countries. These TPMPs were not submitted as of April 2008.
- 18. The 146 approved tranches of TPMPs in 66 LVC countries plan to phase out 1,054.7 ODP tonnes. As of 21 May 2008, 492.5 ODP tonnes (46.7 per cent) have been reported as phased out. A total of US \$18,851,245 (73.3 per cent) has been approved for these tranches of which US \$4,942,614 (26.2 per cent) had been disbursed by the end of 2007.
- 19. The TPMPs approved by agency along with the funding approved and disbursed are presented in table 1 below:

ODP Number Number Number of Funds Funds Percentage ODP Percentage Agency **Tranches** Approved Disbursed To Be Phased οf % of % **TPMPs** Tranches Completed (US \$) (US \$) Phased Out Approved Approved Out (ODP (ODP Tonnes) Tonnes) 5 1 820,000 342,120 42 64.9 Canada 6 n 3 4 814,414 109,187 13 65.1 0 France 4 10 1,291,830 1.105.595 86 Germany 69.9 47.3 68 6 IBRD 3 2,300,866 8 3 985,715 43 272.0 207.0 76 220,000 0 Italy 1 1 0.0 0 1 2 52 Japan 205,000 105,655 2.2 0 1 3 3 92,200 92,200 100 13.0 13.0 100 Sweden UNDP 5,292,394 37 41 2 552,207 10 257.7 67.0 26 UNEP 42 44 2 3,917,225 615,192 16 0.0 0.0 0 UNIDO 27 8 3,897,316 1,034,743 14 27 309.9 158.2 51 Total 111* 146 25 18,851,245 4,942,614 26 1,054.7 492.5 47

Table 1: TPMPs APPROVED BY IMPLEMENTING AGENCIES

20. The TPMPs approved for countries in the four main regions are shown in table 2 below (regions as defined in the inventory database):

 $[\]ast$ For 66 countries: in 45 cases 2 agencies implement the TPMP, in 21 only one agency.

Region	Number of Countries With TPMPs	Tranches	Number of Tranches Completed	Funds Approved (US \$)	Funds Disbursed (US \$)	Percentage %	Phased Out	ODP Phased Out (ODP Tonnes)	Percentage %
Africa	29	60	5	6,984,138	1,351,569	19	161.5	41.2	26
Asia and the Pacific	13	24	1	3,527,300	807,866	23	121.1	32.8	27
Europe	7	27	13	2,935,941	1,053,591	36	277.5	163.5	59
Latin America and the Caribbean	17	35	6	5,403,866	1,729,588	32	494.6	255.0	52
Total	66	146	25	18,851,245	4,942,614	26	1,054.7	492.5	47

Table 2: TPMPs APPROVED BY REGION

- 21. It appears that so far spending of 26 per cent (disbursed) of total allocated funds for the tranches approved resulted in phasing out of 47 per cent of total ODS consumption in 66 countries with an overall cost-effectiveness of US \$10/kg ODP. The implementation of TPMPs in Central and Eastern Europe and Latin America and the Caribbean regions is on average more advanced than in Africa and Asia and Pacific regions. Some of the delays might be due to start up problems like delayed signing of project agreements, time needed for the recruitment of PMU staff and for arranging cooperation with stakeholders.
- 22. For 2005, 6 of the 99 LVC countries eligible for TPMPs were not in compliance for CFCs. One was not in compliance for halon, 6 for MB and 2 were not in compliance for carbon tetrachloride. Fifty-five of the 99 LVC countries have so far submitted their 2007 consumption data (due until 1 September 2008) and all of them have reported to be in compliance with the 85 per cent reduction target for CFCs. Fifteen LVC countries, which so far have only reported 2006 data showed CFC consumption above the 2007 reduction target, some of them by a large margin which might make it difficult for them to reach the 2007 reduction target.

IV. Review of documentation on TPMPs in 16 selected countries

IV.1 Sample selected and documentation analyzed

23. For this desk study, the consultant reviewed in detail the TPMP project documents, annual implementation plans, progress reports submitted, and requests for subsequent tranche(s), for 16 selected LVC countries. Most countries have completed at least one tranche and all have had at least one subsequent tranche approved. They include 2 countries from Francophone Africa, 5 from Anglophone Africa, 2 from Asia, 2 from the Caribbean, 4 from Europe and 1 from Latin America. Jamaica, the only country with a second tranche which was not included in the sample, had been covered by the 2003 evaluation of RMPs in LVC countries. The agencies involved are Canada, France, Germany, Japan, Sweden, IBRD, UNDP, UNEP and UNIDO, as shown in table 3 below.

Table 3: OVERVIEW OF TPMPs OF 16 SELECTED COUNTRIES REVIEWED

Country	Agency	Approv Principle Agreem	(As Per ents)	Actual Approvals and Implementations							
		Total Funds (US\$)	Phase- Out (ODP Tonnes)	Number of Tranches Approved ¹	Number of Tranches Completed ²	Funds Approved (US\$)	Funds Disbursed (US\$) ²	ODP To Be Phased Out (ODP Tonnes) ²	ODP Phased Out (ODP Tonnes) ²		
Albania	UNEP/UNIDO	653,125	68.0	9	6	608,481	234,629	68.1	34.1		
Bahamas	IBRD	560,000	66.0	3	2	560,000	240,000	66.0	41.0		
Bosnia and Herzegovina	UNIDO	864,160	121.1	3	1	864,160	375,422	121.1	58.4		
Burkina Faso	UNEP/Canada	345,000	7.4	4		$388,000^3$	141,203	7.4	0.0		
Cameroon	UNIDO	800,000	50.6	2		705,000	244,007	26.6	12.7		
Croatia	Sweden/UNIDO	379,700	98.0	8	6	399,700 ³	335,390	76.1	66.0		
Ecuador	IBRD	1,689,800	246.0	4	1	1,671,466	745,715	204.0	166.0		
Georgia	UNDP	325,000	8.2	2		325,000	27,456	8.2	5.0		
Ghana	UNDP	344,894	17.5	2		344,894	112,853	17.5	12.2		
Kenya	France	725,000	138.8	2		512,914	97,759	65.1			
Lesotho	Germany	127,300	2.6	3	2	127,300	117,330	2.6	1.4		
Mauritius	Germany	212,030	4.0	3	2	212,030	204,130	4.0	4.6		
Mongolia	Japan	205,000	3.3	2		205,000	105,655	2.2			
Namibia	Germany	252,500	12.0	2	1	252,500	177,235	12.0	10.5		
Papua New Guinea	Germany	700,000	35.0	2	1	700,000	606,900	35.0	30.8		
Trinidad and Tobago	UNDP	460,000	77.0	3	1	480,000 ³	240,245	77.0	46.0		

¹ Number of tranches approved includes tranches approved for each implementing agency for the same year.

24. In some of the early approvals, such as for Albania and Bosnia and Herzegovina, the plans are called National Phase-out Plans. As they are for LVC countries and covering all remaining ODS, they are likewise included in this evaluation.

IV.2 Main findings

IV.2.1 Overview

- 25. Twelve of the 16 countries selected had completed or were in the process of completing their RMPs or RMP updates. The remaining 4 did not have RMPs. All the TPMPs except one were linked to the RMPs and were essentially continuations of the RMP, mainly with regard to the training of technicians and customs officers. The Bahamas reported the RMP activities were successful, but the RMP results were not covered in the project document for the TPMP. Some had new activities such as retrofit to HC (1), addition of reclamation facilities (2), incentive schemes (4) and creation of PMUs (4, possibly 7 but not clearly reported).
- 26. One TPMP included an investment project in the solvent sector, a project in the refrigeration sector, one in the foam and refrigeration sectors, and one in the foam, refrigeration and solvent sectors.

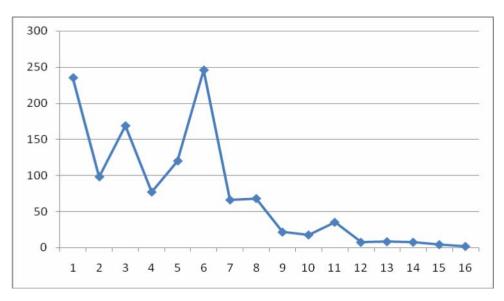
² Data until end of 2007, as per latest progress report of the implementing agencies.

³ In Burkina Faso, residual funds from the RMP have been added to a TPMP tranche. Croatia and Trinidad and Tobago have been given an additional US \$20,000 to prepare a monitoring and verification audit report.

- 27. The 16 TPMPs also included 1 non-investment project for halon phase-out; 2 MDI transitional strategy projects; 2 non-investment projects for methyl chloroform (TCA) phase-out; and 3 non-investment projects for MB phase-out.
- 28. In most instances there was mention of the various stakeholders, but the roles and responsibilities of the stakeholders were not always clearly defined. Only two countries had outlined agreements with implementing agencies, enterprises, consultants and Customs. ODS phase-out regulations, including licensing systems if adopted by the Government typically delineate responsibilities of governmental bodies, including the NOU. Discussions about the distribution of responsibilities and reporting lines have usually caused delays in timely adopting such regulations.
- 29. It seems that the establishment of PMUs resulted in competition with the NOUs in some Article 5 countries. Others rejected the creation of a PMU mainly to avoid such conflicts. The expediency and the specific circumstances which may necessitate the establishment of PMUs in LVC countries have to be considered on a country-by-country basis.
- 30. In the majority of the countries, the population of domestic and commercial refrigerators and MACs, operating on CFC was estimated. One country did a household survey for domestic refrigeration, some provided clarifications on their methodology to the Fund Secretariat when asked for clarification. In most cases, the consumption data was based on surveys of workshops.
- 31. All the traditional uses of CFCs were covered. In coastal countries with refrigerated fishing vessels this important sub-sector was also covered. However, for countries which are destinations for cruise ships and private yachts, this type of CFC consumption was not surveyed or estimated. Also HCFCs were not covered.
- 32. It should be noted though, that the above does not fully reflect the reality in collection of ODS consumption data in LVC countries. The review of TPMPs demonstrated the absence of standardized meaningful methodology in conducting surveys and collecting ODS consumption data in Article 5 countries and in LVC countries in particular. Currently, the methodologies are very diverse and mainly consultant driven. Implementing agencies need to make an effort in harmonizing their ODS consumption data collection at least within the same agency.
- 33. All TPMPs show an integrated approach at the planning level, but the individual activities, in particular the investment and the non-investment parts, are implemented separately. Thirteen of the 16 TPMPs are being executed by a single agency IBRD (2), GTZ (4 plus one on behalf of France), UNDP (3), UNIDO (2), and Japan (1 with UNEP CAP implementing training activities). In addition, UNIDO/ UNEP, UNEP/Canada and UNIDO/Sweden are jointly implementing one TPMP each. Reportedly, there is generally good coordination between the lead agency and the cooperating agency in multi-agency projects. However, in several instances, deficiencies in planning and timing have occurred when two or more agencies were involved resulting in overall delays. The following problems occurred most frequently:
 - (a) Lack of coordination between training and procurement of equipment, especially in the planning and implementation of R&R programmes;
 - (b) Funding and procurement of R&R equipment far exceeding the quantities of recoverable and recyclable refrigerants which resulted in idle units;

- (c) Use of international consultants for the training of local custom officers as trainers has rarely been sustainable, given the big rotation of staff in customs in Article 5 countries and the frequent lack of integrating ozone-related issues in the general curricula of customs training;
- (d) Training programmes in the refrigeration servicing sector have been limited frequently to individual training seminars not sufficiently involving local vocational schools and universities by providing them with teaching curricula and support that would have brought about more sustainable capacities;
- (e) Establishment of local facilities for assembling recovering machines has been requested and initiated in recently submitted TPMPs. These requests have not been accompanied with solid business analysis of future commercial and economic sustainability of such facilities. The technical specifications of future products do not indicate that these machines would be usable for recovering of HCFC alternatives (for example R410A blend with much higher working pressures).
- 34. Government commitment to the phase-out was spelled out in the Agreements on the phase-out plans with 12 countries. Four countries did not have Agreements with the Executive Committee since the funding was small and government commitments have been incorporated in Executive Committee decisions.
- 35. The graph below shows the cost-effectiveness in US \$/kg of the 16 TPMPs, that means the average cost per kg of ODP to be phased out.

ODP Tonnes



C.E. \$/kg

36. It is interesting to note that the higher the ODS consumption, the better the cost effectiveness. In the graph above, the high peak is for a country where the TPMP also includes investment projects in the manufacturing sectors, the cost of which turned out to be

overestimated. TPMPs for countries with consumption under 10 ODP tonnes have cost-effectiveness ratios of more than 10 US $\frac{10}{10}$ This corresponds to the funding scale approved in decision $\frac{45}{54}$.

IV.2.2 Licensing system and customs training

- 37. Nine countries proposed activities to develop licensing systems or to strengthen the existing regulations/licensing system. Twelve countries proposed continuation of the customs training or start-up of customs training. Seven countries did not have licensing systems in place; of these 4 were proposing to develop them as part of the TPMP (3 of these did not have RMPs), another 3 were prepared but not yet approved by the government. Eleven of the countries had some legislation related to ODS in place, the remaining were either proposing to do so or were already in the process of developing and finalizing such legislation. All TPMPs depended on the legislation and quota system to meet their phase-out commitments. Two countries, which did not have any RMP or investment projects, were also looking at investment projects to quickly reduce their consumption.
- 38. Only two countries have informed that regional agreements had an impact on ODS phase-out. Burkina Faso stated that UEMOA legislation bans import of ODS and ODS using equipment since January 2006. But UEMOA regulations also allow member states to issue special ODS permits to meet each country's needs. Croatia stated that EU directives require early phase-out except for special needs.

IV.2.3 R&R and retrofit

- The R&R equipment in all 16 countries has been supplied during the stand alone R&R projects, during the RMP, or for the TPMP. One country has reported that most of the R&R equipment has malfunctioned. Other equipment is possibly still usable but may need spare parts to get it to function again. Functioning recovery equipment should generally also be able to recover HCFC-22 provided that the equipment is flushed well to ensure removal of all CFC-12. Recovery equipment supplied after 2005 may be of the oil-less compressor type allowing multi-refrigerant use, which is interesting in view of the fast approaching controls on HCFCs. Most of recently provided recovery equipment will be able to handle HFC-134a, too. The recovery of R-410A however will require special attention and adjustments to handle higher pressure. The supplier of R&R equipment has to be approached for technical advice. Implementing agencies should be able to provide lists and specifications of equipment supplied. Countries need to be asked whether the equipment is still functioning and what arrangements are in place for spare parts and consumables. It should be noted that the above comment is related to the recovery part only; it has already been observed that the bulk of refrigerant recovered by existing R&R equipment is HCFC-22 while most R&R machines may not be able to recycle HCFC-22.
- 40. Full records are not available, as reporting on recovery and recycling of refrigerants is generally weak, in spite of substantial funds being earmarked for monitoring and reporting. As per decision 45/54, up to 20 per cent of approved funds should be used by the bilateral or implementing agency and/or country concerned to ensure comprehensive annual monitoring and reporting of the TPMP, including the R&R programme. Funding ranged from 6 per cent to 36 per cent of the total funding approved. Fifty per cent of the TPMPs specifically referred to monitoring of R&R projects taking place or that there was a need to do so in order to follow-up

on the efficiency of using of the equipment. The earlier R&R projects, if revived under the TPMP, will also presumably be monitored.

41. Eight countries have proposed retrofit activities such as training in retrofit to HC and/or drop-in substitutes or other alternatives, and in some cases demonstration retrofit projects or incentive based retrofit projects. Burkina Faso has proposed a detailed HC retrofit project for refrigeration and MAC; Mauritius and Papua New Guinea have proposed training in HC retrofit. Training on retrofit to HC has been conducted for many years in India, Indonesia and several central American countries and a bilateral demonstration project on HC retrofit has been completed in 2004 in Senegal as part of their RMP (as Swiss bilateral project). Detailed reports have been produced but were not widely disseminated. Proposals for HC retrofits have been included in several recently submitted TPMPs without making reference to the experience in HC retrofit available so far.

IV.2.4 Compliance with decision 41/100

- 42. Elements of decision 41/100 which resulted from the 2003 evaluation of RMPs in LVC countries (see text of the decision in Annex II) are being implemented by several countries. It should be noted that 10 of the 16 countries reviewed had their TPMPs approved at or before the 41st Meeting.
 - (a) Flexibility: six countries reallocated savings from budget lines to either cost overruns or to other existing budget lines; one country proposed using its savings from investment projects for R&R and retrofit as well as incentives for chiller replacement, and for a reclamation unit; one country used its savings to procure a multi-gas identifier; two countries added more R&R equipment, another one changed its incentive scheme from retrofit to drop-in substitutes, and two countries proposed using the incentive scheme to partially pay for retrofit on some government owned equipment.
 - (b) Support for legislation, training, awareness and tools for technicians: all TPMPs have covered this requirement of decision 41/100.
 - (c) Cost-effective retrofitting and/or drop-in substitutes through incentive programmes: eight countries have proposed incentives for retrofit or training in retrofit as mentioned above.
 - (d) Selective recovery and in particular recycling projects: for the TPMPs, three countries have proposed reclamation units, two with gas chromatographs for determining the purity of the reclaimed gas; the equipment has not been procured as per last progress report. One country has dropped the proposed recycling project and reallocated the funds; one country scrapped its MAC recycling project and procured basic tools for technicians instead. However, five countries have proposed to set up recycling centres.
 - (e) The methodology used for selecting R&R beneficiaries: this is not spelled out in any document reviewed. Some refer to a selection process but do not provide any details. It can be assumed though, that the beneficiaries would be the workshops dealing with larger quantities of CFC-12. In the more recent R&R projects,

including TPMPs, it can be assumed that, in line with decision 41/100, the R&R equipment would be given to workshops servicing primarily commercial and industrial refrigeration/air-conditioning equipment such as cold rooms, chillers, etc. The more established MAC workshops would be the beneficiaries for the MAC R&R equipment. It is not clear whether the provision in decision 41/100 and in the more recent TPMP agreements requiring a staged approach in implementing R&R programmes is being adhered to.

- (f) Significant cost participation of beneficiaries: only three countries proposed beneficiary participation in financing R&R equipment, two of them (Albania and the Bahamas) in the framework of leasing arrangements. One has subsequently dropped the R&R project; two have not yet started their R&R project.
- (g) Locally assembled equipment: none of the 16 countries has proposed the use of locally assembled service equipment. One has procured equipment from the local market. However, eestablishment of local facilities for assembly of recovering machines has been requested and initiated in recently submitted TPMPs. These requests have not been accompanied with a solid business analysis of the future commercial and economic sustainability of such facilities. The technical specifications of future product do not indicate that these machines would be usable for recovering HFCs (for example R410A blend with much higher working pressure).
- (h) Monitoring: four countries have started up dedicated Project Management Units (PMUs) for implementation and monitoring of the TPMP. Another 2 plan to establish a PMU soon. The rest of the TPMPs are being implemented and monitored by the NOUs. All countries with R&R projects have proposed monitoring of R&R activities but implementation seems weak, as said above.

IV.2.5 Implementation delays

- 43. Eight of the 16 countries have funding tranches scheduled for implementation during more than 12 months. Six of them submitted their requests for the next tranche as per schedule. The remaining two were delayed by up to 12 months. The other 8 had annual implementation cycles. Two of them submitted requests for their second tranche in advance, two had substantial delays in submitting requests for subsequent tranches, and the remaining 4 were on time or delayed by one meeting of the Executive Committee.
- 44. Several countries have not completed the activities in their previous tranches but have met the phase-out commitment under the Agreement. This suggests that legislation and quota systems and/or market forces and industry initiatives are important tools for a country to meet its CFC phase-out commitment. However, the 2007 requirement of an 85 per cent reduction may pose challenges and encourage illegal trade.

IV.2.6 Compliance issues

45. Among the 16 countries analyzed, only Bosnia and Herzegovina and Kenya had non-compliance issues for CFCs during their TPMP implementation.

- 46. Bosnia and Herzegovina's TPMP was approved in December 2003 at the 41st Meeting of the Executive Committee. It was noted that pursuant to decision XIV/21 of the Meeting of the Parties, the Government of Bosnia and Herzegovina submitted to the Implementation Committee at its 30th and 31st Meetings a plan of action with time-specific benchmarks to ensure a prompt return to compliance. Subsequently, the Implementation Committee, at its 31st Meeting noted with appreciation Bosnia and Herzegovina's submission of its plan of action committing to reduce its CFC consumption from 243.6 ODP tonnes in 2002 to 235.3 ODP tonnes in 2003; to 167 ODP tonnes in 2004; to 102.1 ODP tonnes in 2005; to 33 ODP tonnes in 2006; to 3 ODP tonnes in 2007; and to phase-out CFC consumption by 1 January 2008, except for essential uses that might be authorized by the Parties. Bosnia and Herzegovina also committed to establish, by 2004, a system for licensing imports and exports of ODS, including quotas and to ban, by 2006, imports of ODS-based equipment.
- 47. The verification of the 2005 consumption, along with Bosnia and Herzegovina's request for the third tranche, showed a lower level than the 2005 data (50.8 ODP tonnes) submitted to the Ozone Secretariat, which is well below the limit of 102.1 ODP tonnes agreed upon in the Action Plan. The 2006 data submitted indicate CFC consumption of 32.6 ODP tonnes as against the target of 33 ODP tonnes in the Action Plan. The 2007 data have not been reported yet (as of 1 June 2008). It is to be noted that Bosnia and Herzegovina has committed to fully phase out CFCs as of 1 January 2008 except for essential uses that might be authorized by the Parties. This might have been over-optimistic also in view of the fact that the country has not signed a funding agreement with UNIDO for the IS project since more than three years.
- 48. The Secretariat's comments and recommendations on Kenya's TPMP second tranche request states "The levels of CFC consumption reported by the Government of Kenya were 131.7 and 160.6 ODP tonnes in 2004 and 2005 respectively. These levels of consumption were 16.7 and 70.6 ODP tonnes above the allowable levels under the Agreement." The Secretariat noted, however, that although implementation of the TPMP only started after the approval of ODS regulations in May 2007, the levels of CFC consumption for 2006 and 2007 were below the maximum levels allowed under the Agreement for those years, as shown in the table below:

	2004	2005	2006	2007	2008	2009
Montreal Protocol limits	239.5	119.0	119.0	35.9	35.9	35.9
Consumption limit under the TPMP	115.0	90.0	60.0	30.0	10.0	-
Actual consumption reported	131.7	160.6	57.7	22.7		
Difference (limit TPMP - actual)	(16.7)	(70.6)	2.3	7.3		

- 49. Following discussion at the 54th Meeting of the Executive Committee, the second tranche of Kenya's TPMP was approved at the amount of US \$297,000, which took into account a penalty of US \$73,000 for non-compliance with the Agreement in 2004 and 2005 (decision 54/34).
- 50. Of the remaining 14 countries in the sample selected, Cameroon and Lesotho had on 1 June 2008 not submitted their 2007 consumption data (due 1 September 2008). The other 12 were in compliance with the 2007 reduction requirements. It should be noted that Namibia has been reporting zero CFC consumption from 2005 onwards, while Mauritius and Trinidad and Tobago have reported zero CFC consumption in 2007.

V. Tentative lessons learned

- 51. None of the reports on implementation of tranches has a section on lessons learned. It would be useful to include this in the reporting on the implementation of annual work programmes.
- 52. Some tentative lessons learned, which need to be further explored during country case studies, are as follows:
 - (a) It is possible to achieve early CFC phase-out with a well designed plan and the commitment of the Government as well as cooperation of the importers, service sector and end users, as can be seen from the consumption reports submitted by Namibia, Mauritius and Trinidad and Tobago. Sometimes, phase-out targets are achieved although activities are delayed, probably due to legislation and enforcement, market trends and industry initiatives.
 - (b) For realistic planning, consideration should be given to the time required to start up activities. The first year usually takes time to complete all agreements and formalities between bilateral and implementing agencies and the country; in some cases, each tranche requires the same formalities to be carried out.
 - (c) It is important to have a full time person or a PMU to implement and monitor the TPMP which is a combination of several projects, some of which are interlinked. Effective coordination is likewise important between the NOU and the PMU and between the lead agency and the cooperating agency.
 - (d) From the time of designing the project to the time of implementing it, the market situation may be changing quite fast, as can be seen from some of the R&R projects being down-sized, delayed or cancelled. Close contact with the service sector needs to be maintained to ascertain the actual needs before implementing the R&R component which, in line with decision 41/100, is supposed to be implemented in stages anyway.
 - (e) In view of the experience with RMP and TPMP implementation and with the infrastructure established (political support, support by the industry, particularly refrigeration associations, database of consultants, cooperation and collaboration with Customs and importers) it should be possible for NOUs to deal with HCFC phase-out in a proactive and knowledgeable way. This, of course, presupposes that there is no big time gap between TPMP completion and HPMP start up.

VI. Suggested issues for the field evaluation of TPMPs

VI.1 Phase-out achieved, compliance and delays

53. In several instances phase-out targets have been met without completion of activities proposed in the TPMP. This raises the question of whether illegal ODS are finding a way onto the market. The mechanisms in place to prevent such imports and use need to be ascertained. The question whether the CFC phase-out has been achieved without or with minimum disruption of economic activities needs to be raised, as well as whether ODS consumption had been

over-reported originally or under-reported recently. It will also be useful to analyze the market situation, in particular whether the current prices of ODS are higher than those of alternatives in the country. This is crucial to sustain the phase-out achieved.

- 54. It would also be useful for the field evaluation to determine the causes for implementation delays reported for many countries, to explore the reasons for the delays in submitting the TPMPs and to analyze whether this has led to non-compliance in 2007 and the possibility of non-compliance in 2010.
- 55. A number of countries will have to comply with regional agreements such as the European Union (EU), UEMOA (Economic and Finance Union in West Africa), COMESA (Common Market for Eastern and Southern Africa), MERCOSUR (Argentina, Brazil, Paraguay and Uruguay) or CARICOM (Caribbean Community). The evaluation will attempt to analyze their impact on phase-out of ODS and on illegal trade in Article 5 countries selected for case studies.

VI.2 Adequacy of funding and support by the governments and the implementing agencies

- 56. It would be helpful to ascertain whether the funding received for the TPMP implementation is adequate for achieving and maintaining the phase-out, taking into account the contributions expected from and provided by the beneficiary companies. In this context, the impact of the declining U.S. dollar exchange rate, in particular on countries attached to the Euro currency should be analyzed.
- 57. Whether there has been full government support across the different government ministries, departments and agencies to support the phase-out also needs to be evaluated as well as whether the government has provided additional funding or in-kind support, if required.
- 58. With regard to support by the implementing agencies, an analysis is needed on whether it has been adequate and timely, and whether funds have been released on time. Whether the implementing agencies have sufficient resources to provide follow-up support including missions to the countries to sort out implementation difficulties and delays during all tranches of the TPMPs will also be addressed. The coordination between the lead agency and the cooperating agency will be examined as well as the timing between investment and non-investment activities.

VI.3 TPMP implementation

- 59. The experience with implementing RMPs will be examined, in particular whether this helped in better planning and implementing the TPMPs as a holistic approach rather than a set of individual activities, and whether there is now more ownership by the country or the planning and implementation of TPMPs is still largely driven by the respective implementing agency(ies).
- 60. A new element in most TPMPs is the appointment of a dedicated individual manager or a team working as the PMU. The question is whether this has led to better coordination and implementation.
- 61. The individual activities implemented under TPMPs consist usually of support for legislation and licensing systems, customs training and training of technicians, R&R and retrofit

as well as monitoring. The results of such activities will be analyzed in some detail focusing on the questions outlined in Annex III.

VI.4 Monitoring, reporting and verification

62. How data on the results of the different activities are collected and synthesized by the NOUs, PMUs and implementing agencies for the annual implementation reports will be analyzed also in light of the overview tables on multi-year agreements. The main question is whether the data collected and reported provide a clear picture of the overall progress achieved, the difficulties encountered and overcome and the prospects and risks for achieving the final ODS phase out as scheduled. In this context why so far annual verifications of 10 per cent of approved TPMPs as requested by decision 45/54 have not been conducted will also be established.

VI.5 Lessons learned for achieving full CFC phase-out and preparing HPMPs

63. Finally, lessons learned will be presented with the intention to identify any adjustments needed to achieve the final CFC phase-out in a timely manner and to draw conclusions for the preparation of HPMPs for LVC countries.

VII. Evaluation work plan for the full evaluation of TPMPs

- 64. It is suggested that country case studies are conducted in a number of LVC countries including those which had TPMPs approved before decision 45/54. The sample should include some countries which achieved early CFC phase-out and some with delayed activities and submission of subsequent tranches. A comparison is needed between TPMPs implemented by one implementing agency and those by two agencies to see whether this makes a difference for the implementation. As usual countries in all regions and TPMPs implemented by various agencies should be covered.
- 65. Several of the 16 countries whose documentation has been evaluated should be visited such as the Bahamas, Croatia, Ghana, Mauritius, Namibia and Mongolia. In addition, it is suggested that a range of countries, which had TPMPs approved between the 44th and 51st Meetings of the Executive Committee but have not yet requested their second tranche, be included in the country studies. In some countries, the evaluation of the TPMP will be combined with the evaluation of institutional strengthening projects in order to limit travel cost. The final list will be established by the Senior Monitoring and Evaluation Officer, in cooperation with the NOUs and implementing agencies concerned.
- 66. The target groups to be met during the evaluation, in addition to the NOUs and PMUs, would be customs, reclaim centres, technician associations, R&R facilities, retrofit centres, and training institutions. Specific questions will be asked during the different meetings as applicable to the country and target group.

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Annex I
OVERVIEW OF PROJECT APPROVALS AND IMPLEMENTATIONS BY COUNTRY

Country	Sector	Agency	Approved i	-			Actual Appr	ovals and Im	plementatio	ns	
			Total Funds (US \$)	Phase-Out (ODP Tonnes)	Number of Tranches Approved	Number of Tranches Completed	Funds Approved (US \$)	Funds Returned (US \$)	Funds Disbursed (US \$)	ODP To Be Phased Out (ODP Tonnes)	ODP Phased Out (ODP Tonnes)
Albania	ODS Phase Out Plan	UNEP/UNIDO	653,125	68.0	9	6	608,481	-7,594	234,629	68.1	34.1
Antigua and Barbuda	CFC Phase Out Plan	IBRD	97,300	1.8	1		69,400	0	0	2.0	0.0
Bahamas	CFC Phase Out Plan	IBRD	560,000	66.0	3	2	560,000	0	240,000	66.0	41.0
Bahrain	CFC Phase Out Plan	UNEP/UNDP	642,500	58.7	2		482,500	0	11,801	38.4	2.0
Belize	CFC Phase Out Plan	UNEP/UNDP	295,000	3.7	2		175,000	0	0	0.0	0.0
Bhutan	CFC Phase Out Plan	UNEP/UNDP	75,000	0.1	2		75,000	0	289	0.0	0.0
Bolivia	ODS Phase Out Plan	Canada/UNDP	540,000	26.9	2		230,000	0	57,712	0.1	0.0
Bosnia and Herzegovina	ODS Phase Out Plan	UNIDO	864,160	121.1	3	1	864,160	0	375,422	121.1	58.4
Burkina Faso	CFC Phase Out Plan	UNEP/Canada	345,000	7.4	4		388,000	0	141,203	7.4	0.0
Cambodia	CFC Phase Out Plan	UNEP/UNDP	450,000	13.5	2		315,000	0	0	3.5	0.0
Cameroon	ODS Phase Out Plan	UNIDO	800,000	50.6	2		705,000	0	244,007	26.6	12.7
Cape Verde	CFC Phase Out Plan	UNEP	100,000	0.0	1		70,000	0	,	0.0	
Chad	CFC Phase Out Plan	UNEP/UNDP	345,000	5.2	2		186,000	0	0	0.0	0.0
Comoros	CFC Phase Out Plan	UNEP/UNDP	205,000	0.4	2		120,000	0	49,011	0.0	0.0
Congo	ODS Phase Out Plan	UNEP/UNIDO	205,000	3.4	2		118,000	0	ŕ	0.0	
Costa Rica	CFC Phase Out Plan	UNDP	565,000	37.5	1		200,000	0	0	0.0	0.0
Cote D'Ivoire	CFC Phase Out Plan	UNEP/UNIDO	565,000	44.1	2		335,000	0		0.0	
Croatia	CFC Phase Out Plan	Sweden/UNIDO	379,700	98.0	8	6	399,700	0	335,390	76.1	66.0
Djibouti	CFC Phase Out Plan	UNEP/UNDP	285,000	3.2	2		227,000	0	0	0.0	0.0
Dominica	CFC Phase Out Plan	UNEP/UNDP	217,000	0.7	2		75,000	0	20,518	0.0	0.0
Ecuador	CFC Phase Out Plan	IBRD	1,689,800	246.0	4	1	1,671,466	0	745,715	204.0	166.0
El Salvador	CFC Phase Out Plan	UNEP/UNDP	565,000	46.0	2		250,000	0	0	16.0	0.0
Eritrea	ODS Phase Out Plan	UNEP/UNIDO	345,000	4.2	2		200,000	0		0.0	
Fiji	CFC Phase Out Plan	UNEP/UNDP	120,000	0.5	2		120,000	0	80,000	0.5	0.0
Gabon	CFC Phase Out Plan	UNEP/UNDP	205,000	1.5	2		115,000	0	34,522	0.0	0.0
Gambia	CFC Phase Out Plan	UNEP/UNDP	295,000	3.6	2		192,500	0	0	0.0	0.0
Georgia	CFC Phase Out Plan	UNDP	325,000	8.2	2		325,000	0	27,456	8.2	5.0
Ghana	CFC Phase Out Plan	UNDP	344,894	17.5	2		344,894	0	112,853	24.4	12.0
Grenada	CFC Phase Out Plan	UNDP/UNEP	250,000	3.0	2		77,000	0	14,992	0.0	0.0
Guyana	CFC Phase Out Plan	UNEP/UNDP	345,000	8.0	2		182,000	0	0	0.0	0.0
Jamaica	CFC Phase Out Plan	UNDP/Canada	380,000	59.5	2	2	380,000	0	349,928	59.5	2.0
Kenya	CFC Phase Out Plan	France	725,000	138.8	2		512,914	0	97,759	65.1	
Kuwait	ODS Phase Out Plan	UNEP/UNIDO	565,000	70.0	2		460,000	0	66	15.0	0.0

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Country	Sector	Agency		in Principle greements)	Actual Approvals and Implementations						
			Total Funds (US \$)	Phase-Out (ODP Tonnes)	Number of Tranches Approved	Number of Tranches Completed	Funds Approved (US \$)	Funds Returned (US \$)	Funds Disbursed (US \$)	ODP To Be Phased Out (ODP Tonnes)	ODP Phased Out (ODP Tonnes)
Kyrgyzstan	CFC Phase Out Plan	UNEP/UNDP	550,000	7.0	2		336,600	0	80,188	1.0	0.0
Lao, PDR	CFC Phase Out Plan	France	320,000	6.5	1		181,500	0		0.0	
Lesotho	CFC Phase Out Plan	Germany	127,300	2.6	3	2	127,300	0	117,330	2.6	1.4
Liberia	CFC Phase Out Plan	UNEP/UNDP	345,000	8.4	2		235,500	0	0	0.0	0.0
Madagascar	ODS Phase Out Plan	UNEP/UNIDO	345,000	2.3	2		211,000	0	86,066	0.0	0.0
Malawi	CFC Phase Out Plan	UNEP/UNDP	345,000	8.7	2		220,500	0	25	0.0	0.0
Maldives	CFC Phase Out Plan	UNEP/UNDP	180,000	0.7	2		165,000	0	0	0.7	0.0
Mali	CFC Phase Out Plan	UNEP/UNDP	520,000	16.2	2		292,000	0	0	0.0	0.0
Mauritania	CFC Phase Out Plan	UNEP/UNDP	295,000	3.0	2		181,000	0	0	0.0	0.0
Mauritius	ODS Phase Out Plan	Germany	212,030	4.0	3	2	212,030	0	204,130	6.0	4.6
Moldova	CFC Phase Out Plan	UNEP/UNDP	520,000	10.0	2		227,000	0	506	0.0	0.0
Mongolia	CFC Phase Out Plan	Japan	205,000	3.3	2		205,000	0	105,655	2.2	
Montenegro	ODS Phase Out Plan	UNIDO	270,295	5.2	1		175,000	0	0	3.0	0.0
Namibia	CFC Phase Out Plan	Germany	252,500	12.0	2	1	252,500	0	177,235	13.5	10.5
Nepal	CFC Phase Out Plan	UNEP/UNDP	170,000	12.0	2		110,000	0	109	0.0	0.0
Niger	CFC Phase Out Plan	UNEP/UNIDO	333,000	4.8	2		212,000	0		0.0	
Oman	CFC Phase Out Plan	UNIDO	470,000	35.0	1		305,800	0	1,803	10.0	0.0
Papua New Guinea	CFC Phase Out Plan	Germany	700,000	35.0	2	1	700,000	0	606,900	47.8	30.8
Paraguay	CFC Phase Out Plan	UNEP/UNDP	565,000	31.6	2		240,000	0	0	68.7	0.0
Qatar	CFC Phase Out Plan	UNIDO/UNEP	432,500	15.0	2		307,500	0	0	3.0	0.0
Rwanda	CFC Phase Out Plan	UNEP/UNDP	345,000	4.6	2		234,500	0	0	0.0	0.0
Saint Kitts and Nevis	CFC Phase Out Plan	UNEP/UNDP	252,000	1.8	2		90,000	0	15,000	0.0	0.0
Saint Lucia	CFC Phase Out Plan	Canada	205,000	1.2	1		156,000	0	15,000	0.0	
Saint Vincent and the Grenadines	ODS Phase Out Plan	UNEP/UNDP	237,000	2.1	2		168,000	0	30,478	1.3	0.0
Samoa	CFC Phase Out Plan	UNEP/UNDP	150,000	0.0	2		100,000	0	1,243	0.0	0.0
Sao Tome and Principe	CFC Phase Out Plan	UNEP/UNIDO	190,000	0.7	2		120,000	0		0.0	
Senegal	CFC Phase Out Plan	UNEP/Italy	565,000	23.4	2		329,500	0	76,000	0.0	0.0
Seychelles	CFC Phase Out Plan	France	193,000	1.4	1		120,000	0	11,428	0.0	
Tanzania	ODS Phase Out Plan	UNEP/UNDP	485,000	54.0	2		335,000	0		15.9	
Togo	CFC Phase Out Plan	UNEP/UNDP	316,000	5.9	2		184,000	0		0.0	
Trinidad and Tobago	CFC Phase Out Plan	UNDP	460,000	77.0	3	1	480,000	0	240,245	77.0	46.0
Uruguay	CFC Phase Out Plan	UNDP/Canada	565,000	29.9	2		400,000	0	0	0.0	0.0
Zambia	CFC Phase Out Plan	UNEP/UNDP	245,000	4.1	2		203,000	0	0	0.0	0.0
Total			25,709,104	1,646.4	146	25	18,851,245	-7,594	4,942,614	1,054.7	492.5

Annex II

RELEVANT EXECUTIVE COMMITTEE DECISIONS

Decision 31/48

The representative of Sweden, facilitator of the contact group on refrigerant management plans, introduced document UNEP/OzL.Pro/ExCom/31/57, containing draft guidelines on refrigerant management plans. He recalled that an original draft (UNEP/OzL.Pro/ExCom/30/39) had been produced at the 30th Meeting of the Executive Committee, when some issues had been discussed within a contact group, after which the Executive Committee had urged the contact group to continue its deliberations.

Following a discussion, the Executive Committee decided:

A. Already approved refrigerant management plans (RMPs) for low-volume-consuming countries (LVCs)

- (a) To request national ozone officers, with the assistance of the implementing agency concerned, to review and assess the content, implementation to date and expected outcomes of their RMPs against their objective to phase out all consumption in the refrigeration sector according to the Montreal Protocol timetable. In undertaking this review, national ozone officers should:
 - (i) Calculate current and forecast future consumption in relation to the freeze, 50 % cut in 2005, 85 % cut in 2007 and phase-out in 2010 and calculate the size of consumption cuts in the refrigeration sector required to meet these targets;
 - (ii) Include forecast cuts in consumption attributable to the activities already approved under the RMP, including training activities and recovery/recycling;
 - (iii) Ensure that the current and expected future consumption of all sub-sectors, including the informal sector, small and medium-sized enterprises and mobile air conditioners, are included in the review;
 - (iv) For each activity identified, consider the cost and means of funding, including national financing;
 - (v) Ensure that the RMP and government strategy for delivering phase-out includes adequate provision for monitoring and reporting on progress;
- (b) That LVCs (or groups of LVCs) with already approved RMPs may submit to the Executive Committee requests for funding additional activities necessary to reduce consumption and thereby ensure compliance with the Protocol. Such additional activities should be essential parts of their comprehensive strategy for phase-out in the refrigeration sector. Additional funding shall not exceed 50 % of the funds approved for the original RMP or, where relevant, RMP components.

With the possible exception of the post-2007 period noted in sub-paragraph (d) below, no further funding beyond this level, including funding related to retrofits, would be considered for activities in this sector;

- (c) That requests for additional funding consistent with sub-paragraph (b) above should be accompanied by:
 - (i) A justification for the additional activities to be funded in the context of the country's national phase-out strategy;
 - (ii) A clear explanation of how this funding, together with the initial RMP funding and steps to be taken by the government, will ensure compliance with the Protocol's reduction steps and phase-out;
 - (iii) A commitment to achieve, without further requests for funding for the RMP, at least the 50 % reduction step in 2005 and the 85 % reduction step in 2007. This shall include a commitment by the country to restrict imports if necessary to achieve compliance with the reduction steps and to support RMP activities;
 - (iv) A commitment to annual reporting of progress in implementing the RMP and meeting the reduction steps;
- (d) That it will review in 2005 whether further assistance is needed for the post-2007 period, and what assistance the Fund might consider at that time to enable full compliance with the Protocol's phase-out requirements;

B. Preparation and approval of new RMPs for LVCs

- (e) That the project preparation phase for RMPs should, as intended by the existing guidelines, include a full survey of CFC consumption in all sub-sectors, the development of a comprehensive government phase-out strategy and a commitment by the government to enact regulations and legislation required for the effective implementation of activities to phase out the use of CFC refrigerants. To enable these preparatory activities, including the development of legislation and regulations, to be completed in full, the funding provided for the project preparation phase should be double the level traditionally provided;
- (f) That the provisions relating to existing RMPs in section A, subparagraphs (a), (c) and (d) above shall also apply to new RMPs submitted pursuant to this decision;
- (g) That in lieu of the ability given to already approved RMPs to request additional funds, the total level of funding for the implementation of new RMPs could be increased by up to 50 % compared to the level of RMP funding typically approved to date, with flexibility for the country in selecting and implementing the RMP components which it deems most relevant in order to meet its phase-out commitments. With the exception of the post-2007 phase noted in section A, subparagraph (d) above, no further funding beyond this level, including funding

for retrofits, would be considered for activities in this sector;

(h) That the following text should be added to the RMP guidelines (decision 23/15) after the last bullet in section 3.1:

The elements and activities proposed for an RMP, whether they are to be funded by the Multilateral Fund or the country itself should reflect the country's particular circumstances and address all relevant sectors including the informal sector. They should be sufficient to ensure fulfilment of the countries' control obligations at least up to and including the 85 % reduction in 2007, and should include mechanisms for reporting progress."

C. RMPs for higher-volume-consuming countries

- (i) That, taking into account the need for large consuming countries to initiate planning for dealing with this large and complex sector, as well as the related decision of the Meeting of the Parties, it will consider requests for funding the development of long-term strategies for the refrigeration sector for high-volume-consuming countries. High volume-consuming countries that have not yet undertaken country programme updates should undertake this strategic RMP development in the context of such updates, consistent with any Executive Committee guidance on country programme updates;
- (j) That future Executive Committee decisions on funding the implementation of the elements of such RMP strategies should take into account the relative priority in national government planning of CFC reductions in the refrigeration sector and the availability of other reduction opportunities in meeting the country's control obligations;
- (k) That, in that context, the Executive Committee may consider whether certain activities often considered to be part of an RMP (such as training of customs officers) could be initiated before an RMP was developed.

Decision 38/64

The Executive Committee <u>decided</u> that specific requests for funding of terminal CFC phase-out plans for LVC countries might be considered on a case-by-case basis, provided that:

- (a) The country concerned has a licensing system in operation and has enacted or improved legislation to phase-out ODS consumption;
- (b) The Government concerned is committed to achieve, without further request for funding from the Multilateral Fund, the complete phase out of CFCs in accordance with its obligation under the Montreal Protocol;
- (c) The Government is committed to annual reporting of progress in implementing the activities proposed and meeting the reduction steps; and

(d) Implementing and/or bilateral agency(ies) responsible for implementing the terminal phase-out plan be requested to advise the Government concerned on the financial implications to the country for submitting a terminal phase out plan, and make every effort to assist the Government concerned to achieve phase-out targets specified in the plan.

Decision 41/100

Following a discussion, in recognition of the fact that in certain cases Article 5 countries needed flexibility in implementing refrigerant management plans in order to reflect changing circumstances, the Executive Committee <u>decided</u>:

- (a) To recommend that bilateral and implementing agencies, in collaboration with Article 5 countries preparing and implementing refrigerant management plans, be given flexibility, within historically agreed funding levels, to implement refrigerant management plan components that are adapted to meet the specific needs of relevant Article 5 countries, and that planned changes to project activities be clearly documented and available for future monitoring and evaluation in accordance with Fund rules; and
- (b) That in developing appropriate interventions, Article 5 countries and bilateral and implementing agencies should give consideration to:
 - (i) Concentrating support on the development of legislation and coordination mechanisms with industry, where these are not yet in place, and on further training programmes for refrigeration technicians and customs officers, using existing national capacities and providing expert support and resources such as equipment and tools required; this should also include efforts to raise awareness of the value of skilled technicians for end users and for stakeholders;
 - (ii) Also concentrating recovery and reuse of CFC on large-size commercial and industrial installations and mobile air conditioner (MAC) sectors, if significant numbers of CFC-12 based systems still exist and the availability of CFC is strongly reduced by the adoption of effective import control measures;
 - (iii) Further exploring possibilities for facilitating cost-effective retrofitting and/or use of drop-in substitutes, possibly through incentive programmes;
 - (iv) Becoming more selective in providing new recovery and in particular recycling equipment by:
 - a. establishing during project preparation a sounder estimate of the likely demand for recovery and recycling equipment;
 - b. delivering equipment to the country only against firm orders and with significant cost participation by the workshops for equipment

provided, using locally-assembled machines to the extent possible;

- c. procuring, delivering and distributing equipment in several stages, after reviewing the utilization of equipment delivered and verifying further demand; and
- d. ensuring that adequate follow-up service and information are available to keep the recovery and recycling equipment in service; and
- (v) Monitoring the use of equipment and knowledge acquired by the beneficiaries, on an ongoing basis, through regular consultations and collection of periodic reports from the workshops, to be carried out by national consultants in cooperation with associations of technicians. Progress reports based on such monitoring should be prepared annually by the consultant and/or the National Ozone Units, in cooperation with the implementing agency, as provided for in Decision 31/48, and sufficient additional resources should be made available to allow for such follow-up and reporting work.

Decision 45/54

Following a discussion on the need to provide assistance to low-volume-consuming countries for the post-2007 period, the Executive Committee decided:

- (a) To urge bilateral and/or implementing agencies on behalf of low volume consuming countries without an approved terminal phase out management plan (TPMP) to submit TPMP proposals, on the understanding that:
 - (i) TPMP project proposals should be in conformity with all relevant decisions taken by the Executive Committee;
 - (ii) TPMP project proposals should contain, as a minimum, a commitment by the government concerned to the phased reduction and complete phase-out of the consumption of CFCs in the country according to a specific phase out schedule, which was at a minimum consistent with the Montreal Protocol's control measures;
 - (iii) No additional resources would be requested from the Multilateral Fund or bilateral and/or implementing agencies for activities related to the phase out of CFCs and other ODS where applicable;
 - (iv) The government concerned would 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 ODS;
 - (v) Annual reporting on the implementation of the activities undertaken in the previous year, as well as a thorough and comprehensive work plan for the

- implementation of the following year's activities, would be mandatory; and
- (vi) The roles and responsibilities of the major national stakeholders, as well as the lead implementing agency and the cooperating agencies when applicable, must be defined;
- (b) That additional funding of up to US \$30,000 could be requested for the preparation of a TPMP proposal on the understanding that up to US \$10,000 of this funding could be earmarked for the bilateral and/or Implementing Agencies to report on the implementation and impact of the approved recovery and recycling programme, where applicable, and that this report should be integrated within the resulting TPMP proposal;
- (c) That future TPMP proposals for the post-2007 period might include requests for funding up to the levels indicated in the table below, on the understanding that individual project proposals would still need to demonstrate that the funding level was necessary to achieve complete phase-out of CFCs. Up to 20 per cent of approved funds should be used by the bilateral or implementing agency and/or country concerned to ensure comprehensive annual monitoring and reporting of the TPMP, including the recovery and recycling programme:

CFC baseline	Funding level (US \$)
(ODP tonnes)	
<15	205,000
15 to 30	295,000
30 to 60	345,000
60 to 120	520,000
>120	565,000

- (d) To require, on an annual basis, verification of a randomly selected sample of approved TPMPs for low volume-consuming countries under implementation (i.e., 10 per cent of approved TPMPs). The costs associated with verification would be added to the relevant work programme of the lead implementing agency; and
- (e) To approve, on a case-by-case basis, up to US \$30,000 for the preparation of a transitional strategy for CFC-MDIs in low-volume-consuming countries where the need for a strategy had been fully demonstrated and documented.

Decision 49/6

Following discussion of those modifications, the Executive Committee <u>decided</u>:

(a) To recommend that National Ozone Units (NOUs) in planning and implementing refrigerant management plans and national or terminal phase-out plans consider, where feasible and in cooperation with other relevant government ministries/agencies:

- (i) Updating and complementing ODS-related legislation where additional legal measures were needed and further specification of enforcement mechanisms had been identified, including, for example:
 - Banning the import and export of CFC-based second-hand refrigeration equipment;
 - Mandatory certification of technicians performing professional activities in refrigeration servicing;
 - Specification of a system of sanctions in cases of violation of legal regulations;
 - Improvement of the mechanisms for import and export quota allocations under the licensing system and the monitoring of their actual use;
 - Enhancement of cooperation between the NOU and the customs authorities:
- (ii) Upgrading the curriculum for technical training in refrigeration, where needed, and providing all training institutions with the latest relevant information with regard to the general application of good practices to significantly reduce usage of ODS and to promote the use of alternatives;
- (b) To request implementing and bilateral agencies, when implementing ongoing national phase-out plans and when planning new national phase-out plans, to take into consideration decision 41/100 for the recovery and recycling part of national phase-out plans, in particular the following paragraphs:
 - (i) "Concentrating recovery and reuse of CFCs in large-size commercial and industrial installations and mobile air conditioning sectors, if significant numbers of CFC-12-based systems still existed and the availability of CFC was strongly reduced by the adoption of effective import control measures;
 - (ii) Further exploring possibilities for facilitating cost-effective retrofitting and/or use of drop-in substitutes, possibly through incentive programmes;
 - (iii) Becoming more selective in providing new recovery, and in particular recycling, equipment by:
 - a. Establishing during project preparation a sounder estimate of the likely demand for recovery and recycling equipment;
 - b. Delivering equipment to the country only against firm orders and with significant cost participation by the workshops for equipment provided, using locally-assembled machines to the extent possible;
 - c. Procuring, delivering and distributing equipment in several stages, after reviewing the utilization of equipment delivered and verifying further demand;

- d. Ensuring that adequate follow-up service and information was available to keep the recovery and recycling equipment in service;
- (iv) Monitoring the use of equipment and knowledge acquired by the beneficiaries, on an ongoing basis, through regular consultations and collection of periodic reports from the workshops, to be carried out by national consultants in cooperation with associations of technicians. Progress reports based on such monitoring should be prepared annually by the consultant and/or the National Ozone Units, in cooperation with the implementing agency, as provided in decision 31/48, and sufficient additional resources should be made available to allow for such follow-up and reporting work" (from decision 41/100);
- (c) To request bilateral and multilateral implementing agencies, in cooperation with the relevant national institutions:
 - (vi) To base the training of technicians on a strategy combining theoretical training with practical exercises during seminars with limited numbers of participants, and assisting in upgrading the curriculum of technical training institutes for refrigeration servicing in countries where it had not yet been done;
 - (vii) To pay full attention to safety aspects and the necessary modification or replacement of electrical components in countries where training in the use of hydrocarbons and particularly retrofitting was carried out; and
 - (viii) To select carefully the type of refrigerant identifiers to be purchased, taking into account preferences for small portable units, suitable for identifying different types of refrigerants, and including a test phase, where feasible, before buying larger numbers. Moreover, the administrative details of their distribution, usage and storage should be planned in advance in order to avoid delays and to increase the effectiveness of their use;
- (d) To request the Fund Secretariat, in cooperation with bilateral and multilateral implementing agencies, to develop recommendations for indicative lists of appropriate equipment for the main target groups and share information about competitive suppliers, including from Article 5 countries; and
- (e) To request the Fund Secretariat, in cooperation with bilateral and multilateral implementing agencies, to develop an appropriate reporting format for the tracking of cumulative progress achieved in the annual work programmes, summarizing in standardized overview tables the information requested in decision 47/50, with a view to simplifying and rationalizing the overall reporting requirements and to report back to the 51st Meeting of the Executive Committee. Such assessment should contain a "comparison of what had been planned in the previous annual tranche and what had been achieved. The disbursement information should be provided cumulatively and data concerning actual or planned commitments could also be provided, as appropriate. The information

should also specify how the relevant flexibility clause in the agreement was implemented and/or how to allocate unused funds from previous tranches" (from decision 47/50, subparagraph (b)(i)).

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Annex III

LIST OF EVALUATION QUESTIONS WITH REGARD TO ACTIVITIES UNDER TPMPS

1. Legislation and customs

- (a) Is the licensing scheme fully operational and is it consistently applied?
- (b) Does it cover imports and exports of all ODS, including HCFCs? If not, how lengthy a process would it be to get them included?
- (c) Is the customs training now sustainable? Has national capacity been built up to continue the training?

2. Training of technicians

- (a) Has the formation of an association in the refrigeration service sector been encouraged?
- (b) What support is given to the association by the NOU and what is the level of "buy in" by the associations?
- (c) What are the numbers of technicians trained, how effective was the training and is the training of technicians sustainable?
- (d) Have national vocational or training centres incorporated training modules into their curricula and developed the capacity to continue the training?
- (e) Has the curriculum been changed to reflect the Good Refrigerant Management Practices?
- (f) In countries with significant numbers of expatriate workers how is the training being conducted (language issues) and is it sustainable?
- (g) How is the informal sector of service technicians being identified and induced to participate in the training programme? Is a different modality of training, compared to the in-class and practical training normally given, being used or planned?
- (h) No RMP and TPMP can cover the training needs of all technicians. How is it foreseen to make further training activities financially sustainable?

3. Recovery, recycling, reclaim and retrofit

- (a) Where recycling centres have been proposed and are active, what has been the service sector response to it?
- (b) How is the operating cost of the centre being covered? Approval of recovery/recycling for halon banking requires presentation of a business plan to

- demonstrate the sustainability. Would a similar approach be meaningful for R&R operations in refrigeration servicing?
- (c) Has it been considered to cancel the plans for recycling centres and providing instead self purging recovery machines with built-in moisture and particle filters to a larger number of service companies dealing with commercial and industrial equipment?
- (d) Has the use of hand pumps and recovery bags been monitored after they were distributed, either through RMPs or TPMPs? Is there any benefit being seen by the service companies?
- (e) Some new TPMPs have proposed local assembly of recovery equipment. Has an economic analysis been done? How do the prices compare with imported equipment? Can they deal with multi-refrigerants (self purging) and do they have basic filters?
- (f) Are retrofit projects successful? What alternative refrigerants are being used?
- (g) What is the cost per item retrofitted (domestic refrigerators and freezers, small commercial refrigerators, MAC)?
- (h) Is the alternate refrigerant readily available? What is the price compared to CFC-12?
- (i) Has experience available from several retrofitting projects implemented under RMPs, NPPs and TPMPs been considered?
- (j) Where reclaim equipment is proposed, can the equipment deal with CFC-12, HCFC-22, HFC-134a, etc.?
- (k) Where gas chromatographs are proposed to certify purity of refrigerant how is the cost of operation and consumables being covered?
- (1) Are purity standards readily available?
- (m) Have other alternatives such as sub-renting equipment from university laboratories or elsewhere been investigated?
- (n) How effective is the monitoring of the recovery/recycling/reclaim projects? Is regular and appropriate data being made available by the beneficiaries?
- (o) What is done if a beneficiary is not making use of the equipment?
- (p) What is done with regard to the disposal of unusable recovered ODS?

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