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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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REPORT ON THE REVIEW OF GUIDELINES RELATING TO COLLECTION, RECOVERY, RECYCLING AND DESTRUCTION OF OZONE-DEPLETING SUBSTANCES (DECISION 44/63)

1. The Secretariat has prepared this report in response to decision 44/63. This document therefore presents a compilation of decisions and other guidance provided by the Meeting of the Parties and the Executive Committee with respect to the indicative list of categories of incremental costs; collection, recovery, recycling and reclamation; refrigerant recovery; halon banking; methyl bromide; destruction of ODS and concludes with recommendations. The relevant decisions and guidelines have been set out according to the subject matter covered, starting with the decision for the 44th Executive Committee Meeting which reads as follows:

"The Executive Committee:

`*Recalling* decision IV/18 by which the Meeting of the Parties identified, as agreed incremental costs for illustration, the cost of collection, recovery, recycling, and, if cost-effective, destruction of ozone-depleting substances,

Recalling also that decision IV/11 facilitated access to and transfer of approved destruction technologies in accordance with Article 10 of the Protocol, together with provision for financial support under Article 10 of the Protocol for the Parties operating under paragraph 1 of Article 5,

Noting that decision IV/24 urged the Parties to take all practicable measures to prevent releases of controlled substances into the atmosphere, including, *inter alia*, the recovery of controlled substances for the purposes of recycling, reclamation or destruction and the destruction of unneeded ozone-depleting substances where economically feasible and environmentally appropriate,

Noting that decision X/7 requested the Parties to consider promoting appropriate measures to ensure the environmentally safe and effective recovery, storage, management and destruction of halons in preparing halon management strategies,

Mindful that the Technology and Economic Assessment Panel Task Force on Collection, Recovery and Storage, in its 2002 report, pursuant to decision XII/8, had concluded that the collection, recovery and storage of ozone-depleting substances was technically feasible and economically viable,

Recognizing that several million ODP tonnes of ozone-depleting substances were estimated to have been installed in equipment and as foams in 2002, according to the report of the Task Force, and were likely to be released into the atmosphere if preventive measures were not taken,

Decided:

(a) to request the Secretariat to collect existing guidelines relating to collection, recovery, recycling and destruction of ozone-depleting substances in the light of paragraph 6 of decision IV/18 of the Meeting of the Parties on the indicative list of categories of incremental costs and to report its findings to the 46th Meeting of the Executive Committee; and

(b) to consider whether to elaborate further guidelines for the funding of projects for the collection, recovery, recycling and destruction of ozone-depleting substances while ensuring economically feasible and environmentally appropriate management of ozone-depleting substances at the 46th Meeting on the basis of the report of the Secretariat."

(UNEP/OzL.Pro/ExCom/44/73, decision 44/63)

Indicative List of Categories of Incremental Costs

2. The Indicative List of Categories of Incremental Costs specifies what incremental costs are to be met by the financial mechanism. It states that "if incremental costs other than those mentioned below are identified and quantified, a decision as to whether they are to be met by the financial mechanism shall be taken by the Executive Committee consistent with any criteria decided by the Parties and elaborated in the guidelines of the Executive Committee" (paragraph 2). The Indicative List of Categories includes three main categories of costs: supply of substitute; use in manufacturing as an intermediate good; and end use. Eligible incremental costs under the end use category include:

(i) Cost of premature modification or replacement of user equipment;

(ii) Cost of collection, management, recycling, and, if cost-effective, destruction of ozone depleting substances; and

(iii) Cost of providing technical assistance to reduce consumption and unintended emission of ozone depleting substances.

(UNEP/OzL.Pro/2/3, Appendix I of decision II/8, para. 2) (UNEP/OzL.Pro/4/15, decision IV/18, Annex VIII) (Supporting document: UNEP/OzL.Pro/2/3, Annex IV, Appendix I) (UNEP/OzL.Pro/4/15, Annex VIII)

Recovery, reclamation, recycling and atmospheric emissions

3. The preamble to the Montreal Protocol notes that "Parties were determined to protect the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete it, with the ultimate objective of their elimination on the basis of developments in scientific knowledge, taking into account technical and economic

considerations and bearing in mind the developmental needs of developing countries." (Article 1, para. 1)

4. The preamble to the Protocol also notes the "importance of promoting international cooperation in the research, development and transfer of alternative technologies relating to the control and reduction of emissions of substances that deplete the ozone layer, bearing in mind in particular the needs of developing countries." (Article 1, para. 3)

5. However, emissions are not taken into account for calculating consumption nor is the import and export of recycled and used controlled substances pursuant to decision IV/24, paragraph 2 (UNEP/OzL.Pro/4/15, decision IV/24). The Parties also agreed on the following clarifications of the terms "recovery", "recycling" and "reclamation":

(a) "Recovery: The collection and storage of controlled substances from machinery, equipment, containment vessels, etc., during servicing or prior to disposal;

(b) Recycling: The re-use of a recovered controlled substance following a basic cleaning process such as filtering and drying. For refrigerants, recycling normally involves recharge back into equipment which it often occurs 'on-site';

(c) Reclamation: The re-processing and upgrading of a recovered controlled substance through such mechanisms as filtering, drying, distillation and chemical treatment in order to restore the substance to a specified standard of performance. It often involves processing 'off-site' at a central facility."

(UNEP/OzL.Pro/4/15, decision IV/24)

Refrigerant Recovery

6. The Executive Committee and the Parties have taken several decisions on refrigerant recovery. Those decisions include addressing operating savings resulting from recovery and recycling of refrigerants; operating savings resulting from recovery and recycling; expediting provision of necessary regulatory and legislative actions; recovery and recycling of HFCs and CFCs; chillers; and retrofitting.

7. The Fourth Meeting of the Parties urged the Parties to adopt appropriate policies for export of the recycled and used substances to Parties operating under paragraph 1 of Article 5 of the Protocol, so as to avoid any adverse impact on the industries of the importing Parties, either through an excessive supply at low prices which might introduce unnecessary new uses or harm the local industries, or through an inadequate supply which might harm the user industries. (UNEP/OzL.Pro.4/15, decision IV/24)

8. Prior to the 22nd Meeting of the Executive Committee, reductions in CFC consumption in the servicing sector in LVC countries were addressed through training programmes to enhance technician skills and R&R projects for containing and reusing CFCs in refrigeration equipment. The 22nd Meeting of the Executive Committee expanded the scope of assistance for the CFC servicing sector when it decided:

(a) "That future refrigerant recovery and recycling projects should be prepared within the context of the refrigerant management plan/strategy of the country concerned; but that small demonstration projects designed to inform a larger country could be considered; (Note: as amended by decision 23/16).

(b) To urge the implementing agencies to work with the countries concerned to ensure that the prerequisites for success were put in place before refrigerant recovery and recycling projects were implemented; …

(e) To take note of the view that it was necessary to take account of the costs involved in undertaking the necessary support measures for refrigerant recovery and recycling projects, such as training and efforts to reduce CFC emissions resulting from leakages."

(UNEP/OzL.Pro/ExCom/22/79/Rev.1, decision 22/23)

9. The 22nd Meeting of the Executive Committee also decided:

(a) "To note the potential usefulness of demonstration projects for refrigeration recovery and recycling in other ODS-producing countries;

(b) To note that, while in many cases there may be financial benefits in recycling projects, there could be cases in which the operational costs of refrigerant recovery and reclamation projects could exceed their benefits;

(c) To note that measures needed to support recovery and recycling projects needed to be appropriate to local circumstances and could involve, for example, incentives affecting the operational level or regulatory measures."

(UNEP/OzL.Pro/ExCom/22/79/Rev.1, decision 22/22)

10. At its 31st Meeting, the Executive Committee took a decision to allow for updates of existing refrigerant management plans and guidelines for updates and new RMPs that would assist LVC countries in achieving their 2005 and 2007 control measures for CFCs. At the meeting, the Executive Committee decided:

(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 subparagraph (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 subparagraph (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; …

(h) That the following text should be added to the RMP guidelines 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."

(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."

(UNEP/OzL.Pro/ExCom/31/61, decision 31/48)

11. The 41st Meeting of the Executive Committee, 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, decided:

(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 31/4, and sufficient additional resources should be made available to allow for such follow-up and reporting work."

(UNEP/OzL.Pro/ExCom/41/87, decision 41/100)

12. 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;

(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 (ODP tonnes)	Funding level (US $)
<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."

(UNEP/OzL.Pro/ExCom/45/55, decision 45/54)

Operating savings resulting from recovery and recycling of refrigerants

13. The 17th Meeting of the Executive Committee decided that "there should be an investigation of the practicality and implications of taking operating savings resulting from recovery and recycling into account and adjusting at a subsequent meeting of the Executive Committee institutional-strengthening grants or any other Fund-supported activity related to ozone layer protection for the country concerned on the basis of reported quantities of recovered ozone-depleting substances. This would not apply to small demonstration projects, and requested the Secretariat to prepare a paper on the subject for submission to the Committee at its Eighteenth Meeting …"

(UNEP/OzL.Pro/ExCom/17/60, decision 17/12)

14. The 25th Meeting of the Executive Committee decided "to request the Secretariat to undertake further study on the question of the gains arising from recovered and recycled ozone-depleting refrigerants, which would lead to a renewed discussion within the Sub-Committee on the issue of offsetting benefits in large recycling efforts."

(UNEP/OzL.Pro/ExCom/25/68, decision 25/32)

Expedite provision of the necessary regulatory and legislative

15. The 38th Meeting of the Executive Committee decided that "in future, in proposing for approval any projects that included a CFC recovery and recycling programme, the Implementing Agencies would consistent with previous decisions, not commence the recovery and recycling component of the RMPs until the legislation controlling CFC imports was in place and measures had been taken to ensure that the local market prices of CFCs and non-ODS refrigerants were similar."

(UNEP/OzL.Pro/ExCom/38/70/Rev.1, decision 38/38)

Recovery and recycling of HFCs and CFCs

16. The 38th Meeting of the Executive Committee decided that "in future, in proposing for approval any projects that included a CFC recovery and recycling programme, the Implementing Agencies would examine the possibility of collaboration for leveraging additional financing, for example from the Global Environment Facility (GEF), to fund the acquisition of machinery which could be used for recovery and recycling of both HFCs and CFCs."

(UNEP/OzL.Pro/ExCom/38/70/Rev.1, decision 38/38)

Chillers

17. The 12th Meeting of the Executive Committee adopted the following recommendations on chiller project proposals:

(a) "That consideration be given to the Total Equivalent Warming Impact (TEWI) in selecting alternative technology in the chiller sector, which would include both direct effects (refrigerant global warming potential) and indirect effects (system energy efficiency), and to human health and safety aspects.

(b) That the Executive Committee approves refrigerant containment and better operation and maintenance practices, including recovery/recycling/reclamation as a strategic option in ODS phase-out in the chiller sector in Article 5 countries. Article 5 countries should be encouraged to pursue a more aggressive refrigerant containment programme, including recovery/recycling/reclamation. The Implementing Agencies should be requested to intensify their efforts in formulation of new investment projects in this area."

(UNEP/OzL.Pro/12/37, paras. 159-160)

18. Issues related to the phase-out of CFCs in the chiller sub-sector have also been discussed by the Parties to the Montreal Protocol. At their Fourteenth Meeting, the Parties requested the TEAP *inter alia* "to identify incentives and impediments to the transition to non-CFC based chillers".

(UNEP/OzL.Pro.14/9, decision XIV/9)

19. The report by the TEAP Chiller Task Force was presented to the Parties at their Sixteenth Meeting. The Parties then decided "to request the Executive Committee to consider funding of additional chiller demonstration projects to help demonstrate the value of replacement of CFC-based chillers, pursuant to relevant decisions of the Committee, and funding actions to increase awareness of users in countries operating under paragraph 1 of Article 5 of the impending phase-out and options that may be available for dealing with their chillers and to assist Governments and decision makers; and requested those countries preparing or implementing RMPs to consider developing measures for the effective use of CFCs recovered from the chillers to meet servicing needs in the sector."

(UNEP/OzL.Pro.16/17, decision XVI/13)

Retrofitting of refrigeration equipment

20. At its 28th Meeting, the Executive Committee agreed on (for an initial period of 18 months) relevant circumstances which must prevail before priority would be accorded to end-user conversion projects, namely: that the country has production and import controls on CFCs and CFC-based equipment in place and restricts the deployment of new CFC components; … that the remaining CFC consumption is mainly in the refrigeration servicing sector; … that either no other possible activities would allow the country to meet its CFC control obligations, or the comparative consumer price of CFCs, relative to substitute refrigerants, has been high for at least 9 months and is predicted to continue to increase.

21. The guidelines for the initial period of 18 months were: retrofitting of commercial refrigeration equipment should continue to be assessed on a case-by-case basis; training of refrigeration technicians should be a part of end-user conversion projects and the retrofitting of refrigeration equipment would be considered for funding based on the experience gained from implementation of the relevant parts of RMPs. During the initial period, conversion should be proposed for cold stores in the agricultural, fisheries or other food-chain industries important for the economies of the countries concerned and indicated which costs would be eligible incremental costs…. Funding for the initial period would be limited to US $10 million.

(UNEP/OzL.Pro/ExCom/28/57, decision 28/44)

22. Retrofit incentive projects for LVCs countries were also considered by the Executive Committee at its 32nd Meeting. At that meeting, the Committee decided that projects for retrofitting of refrigeration equipment could be submitted within an RMP, on the understanding that all of "the implementing agencies concerned should consult with the country concerned and that the country was fully informed about all of the investment and non-investment activities which might be available …"

(UNEP/OzL.Pro/ExCom/32/44, decision 32/28)

Halon banking

23. The Fourth Meeting of the Parties "urged the Parties to encourage recovery, recycling and reclamation of halons in order to meet the needs of all Parties, particularly those operating under paragraph 1 of Article 5 of the Protocol; and to call upon Parties importing recovered or recycled substances in Group II of Annex A to apply, when deciding on the use of those substances, the essential-use criteria set out in the 1991 report of the Halons Technical Options Committee. The purpose of these criteria is to minimize the use of halons in non-essential applications."

(UNEP/OzL.Pro.4/15, decision IV/26)

24. The Fourth Meeting of the Parties also requested "the Industry and Environment Programme Activity Centre of the United Nations Environment Programme to function as a clearing-house for information relevant to international halon bank management and further request the Centre to liaise with and coordinate its activities with the Implementing Agencies

designated under the Financial Mechanism to encourage Parties to provide pertinent information to the clearing-house."

(UNEP/OzL.Pro/4/15, decision IV/26)

25. The 13th Meeting of the Executive Committee "recommended that UNEP and UNDP should examine arrangements that could be made for a regional or national approach to halon recycling and banking, depending on the specific circumstances of the country involved."

(UNEP/OzL.Pro/ExCom/13/47, para. 101)

26. The 18th Meeting of the Executive Committee decided to approve on an interim basis the guidelines as follows:

(i) "Countries with installed capacities exceeding 250 MT of Halon 1301 and 1,000 MT of Halon 1211 should be classified as countries with a high-level of installed capacity and should qualify for reclamation facilities for Halon 1301 and Halon 1211, respectively;

(ii) Countries with a medium level of installed capacity (250 MT of Halon 1301 and 1,000 MT of Halon 1211) should be classified for servicing requirements with Halon 1211 and Halon 1301 recycling and recovery machines. The number will depend on national conditions, but Halon 1301 and Halon 1211 recycling and recovery machines depend on the size of country and the location of main/critical users;

(iii) Countries with a low level of installed capacity should qualify for a one time funding of US $25,000 which can be used for the acquisition of recycling equipment or as an incentive to recover halons from existing systems, or the establishment of exchange programmes to be decided by the country;

(iv) The brokerage function of identifying sources of supply for those with an identified need should be handled by a steering committee consisting of authorities, the fire protection industry, and main users;

(v) Regulations facilitating production and import bans should be established within six months after the reclamation centre is set up; and

(vi) Halon banking operations could be established for eligible countries. The costs for providing capital equipment and management range from US $250,000 to US $500,000. Funds for Halon 1211/Halon 1301 reclamation centres could, if appropriate, are provided on a concessional basis containing a 25 per cent grant component."

(UNEP/OzL.Pro/ExCom/18/75, decision 18/22)

Evaluation of on halon projects

27. The 44th Meeting of the Executive Committee decided:

(a) "In view of the particularly high ODP values of halons, to continue to consider the volume of funding for countries with low volumes of installed halon capacities with some degree of flexibility regarding the one-time funding of US $25,000 foreseen in the Halon Banking Guidelines. Taking into account this flexibility, to allow the submission of halon banking update projects for countries which had received less than US $50,000 for halon banking;

(b) That countries with low volumes of installed halon capacities should concentrate project activities on stakeholders workshops, training, development of import controls/bans and awareness-raising, and consider the usefulness of the creation of a regional clearing house for providing information on sources for recycled halons and on alternatives. The import controls/bans should include provisions for the allowance of imports of recycled and/or reclaimed halons;

(c) That recycling equipment should only be funded (i) if a significant volume of installed halon capacities in the country or region had been clearly established; (ii) if alternative recycling facilities in the country or region were not available in the medium and long terms, or were in poor condition; (iii) if the technical competence and economical viability of the proposed host company or institution had been demonstrated; (iv) if a network of recovery centres had or would be established, so as to ensure that the recycling equipment was used; and (v) if a regulatory framework which established periodical checks of equipment containing halons was in place;

(d) To request bilateral and implementing agencies concerned to assist the companies or institutions hosting recovery and recycling centres to review the original planning agreed by the countries and stakeholders in developing a new business plan, which should include calculations of operational costs and projections of revenues, as well as costs and modalities for transporting halon and/or equipment to and from clients. New projects should also include a detailed business plan."

(UNEP/OzL.Pro/ExCom/44/73, decision 44/8)

Methyl bromide uses

28. The Seventh Meeting of the Parties encouraged the recovery and recycling of methyl bromide:

"(c) All countries are urged to refrain from use of methyl bromide and to use non-ozone-depleting technologies wherever possible. Where methyl bromide is used, Parties are urged to minimize emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible."

(UNEP/OzL.Pro.7/12, decision VII/5)

29. The Tenth Meeting of the Parties requested the Technology and Economic Assessment Panel, as part of its ongoing work:

(b) "To report on the existing and potential availability of alternative substances and technologies, identifying those applications where alternative treatments do not currently exist, and also on the availability and economic viability of recovery, containment and recycling technologies; …

(d) To report on existing and potential options that individual Parties might consider to reduce the use and emissions of methyl bromide from its application under the quarantine and pre-shipment exemption and to elaborate further on their recommendations in previous reports, and taking into account the special circumstances of Parties operating under paragraph 1 of Article 5 of the Protocol."

(UNEP/OzL.Pro.10/9, decision X/11)

30. At its Eleventh Meeting, the Parties encouraged "the use of methyl bromide recovery and recycling technology (where technically and economically feasible) to reduce emissions of methyl bromide, until alternatives to methyl bromide for quarantine and pre-shipment uses are available."

(UNEP/OzL.Pro.11/10, decision XI/13)

Destruction technologies

31. This section addresses the decision related to destruction technologies and also provides information on the handling and destruction of foams containing ODSs and the movement of used ODS for destruction.

32. The First Meeting of the Parties decided with regard to destruction: "(a) to agree to the following clarification of the definition of Article 1, paragraph 5 of the Protocol: 'a destruction process is one which, when applied to controlled substances, results in the permanent transformation, or decomposition of all or a significant portion of such substances' and (b) to request the Panel for Technical Assessment to address this subject for the Parties to return to it at their second and subsequent meetings with a view to determining whether it would be necessary to have a Standing Technical Committee to review and recommend for approval by the Parties methods for transformation or decomposition and to determine the amount of controlled substances that are transformed or decomposed by each method."

(UNEP/OzL.Pro.1/5, para. 12 (f))

33. An Ad Hoc Technical Advisory Committee on Destruction Technologies was established at the Second Meeting (UNEP/OzL.Pro.2/3, decision II/11). The Parties' noted the constitution of the Committee at their Third Meeting. (UNEP/OzL.Pro.3/11, decision III/10)

34. The Parties at their Fourth Meeting decided to "annul decision I/12 H of the First Meeting of the Parties ('Imports and exports of bulk used controlled substances should be treated and recorded in the same manner as virgin controlled substances and included in the calculation of the Party's consumption limits')." (UNEP/OzL.Pro.4/15, decision IV/24)

35. The Fourth Meeting of the Parties "approved, for the purposes of paragraph 5 of Article 1 of the Protocol, the destruction technologies that are operated in accordance with the suggested minimum standards (Annex VII to the report of the Fourth Meeting of the Parties) unless similar standards currently exist domestically (this also applies to pilot-scale as well as demonstration-scale destruction technologies)."

36. The Parties also decided to call on each Party that operates, or plans to operate, facilities for the destruction of ozone-depleting substances:

(a) "To ensure that its destruction facilities are operated in accordance with the Code of Good Housekeeping Procedures set out in section 5.5 of the report of the Ad Hoc Technical Advisory Committee on Destruction Technologies, unless similar procedures currently exist domestically; and

(b) For the purposes of paragraph 5 of Article 1 of the Protocol, to provide each year, in its report under Article 7 of the Protocol, statistical data on the actual quantities of ozone-depleting substances it has destroyed, calculated on the basis of the destruction efficiency of the facility employed.

(c) To clarify that the definition of destruction efficiency relates to the input and output of the destruction process itself, not to the destruction facility as a whole."

(UNEP/OzL.Pro.7/12, decision IV/11)

37. The Parties decided to "facilitate access and transfer of approved destruction technologies in accordance with Article 10 of the Protocol, together with provision for financial support under Article 10 of the Protocol for Parties operating under paragraph 1 of Article 5."

(UNEP/OzL.Pro.4/15, decision IV/11)

38. At their Fifth Meeting, the Parties decided further to their decision IV/11 of the Fourth Meeting of the Parties on destruction technologies:

(a) "That there shall be added to the list of approved destruction technologies, which was set out in Annex VI to the report of the work of the Fourth Meeting of the Parties, the following technology: Municipal solid waste incinerators (for foams containing ozone-depleting substances;

(b) To specify that pilot-scale as well as demonstration-scale destruction technologies should be operated in accordance with the suggested minimum standards

identified in Annex VII to the report of the Fourth Meeting of the Parties unless similar standards currently exist domestically."

(UNEP/OzL.Pro.5/12, decision V/26)

39. At their Seventh Meeting, the Parties decided to:

(a) "To note that the Technology and Economic Assessment Panel examined the results of testing and verified that the "radio frequency plasma destruction" technology of Japan meets the suggested minimum emission standards that were approved by the Parties at their Fourth Meeting for destruction technologies;

(b) To approve, for the purposes of paragraph 5 of Article 1 of the Protocol, the radio frequency plasma destruction technology and to add it to the list of destruction technologies already approved by the Parties."

(UNEP/OzL.Pro.7/12, decision VII/35)

40. After asking for a report from TEAP at their Ninth Meeting (decision IX/21), the Parties at the Tenth Meeting decided to:

(a) To request all Parties to develop and submit to the Ozone Secretariat a national or regional strategy for the management of halons, including emissions reduction and ultimate elimination of their use;

(b) To request Parties not operating under Article 5 to submit their strategies to the Ozone Secretariat by the end of July 2000;

(c) In preparing such a strategy, Parties should consider issues such as:

(1) Discouraging the use of halons in new installations and equipment;

(2) Encouraging the use of halon substitutes and replacements acceptable from the standpoint of environment and health, taking into account their impact on the ozone layer, on climate change and any other global environmental issues;

(3) Considering a target date for the complete decommissioning of non-critical halon installations and equipment, taking into account an assessment of the availability of halons for critical uses;

(4) Promoting appropriate measures to ensure the environmentally safe and effective recovery, storage, management and destruction of halons;

(d) To request the Technology and Economic Assessment Panel to update its assessment of the future need for halon for critical uses, in light of these strategies;

(e) To request the Technology and Economic Assessment Panel to report on these

matters to the Twelfth Meeting of the Parties."

(UNEP/OzL.Pro.10/9, decision X/7)

41. The task force on destruction technologies created by the Parties at its Twelfth Meeting (decision XII/8) presented a report to the Fourteenth Meeting. The Fourteenth Meeting of the Parties decided:

- "To note that the Task Force has determined that the destruction technologies listed in paragraph 3 of this decision meet the suggested minimum emission standards that were approved by the Parties at their Fourth Meeting;
- To approve the following destruction technologies for the purposes of paragraph 5 of Article 1 of the Protocol, in addition to the technologies listed in annex VI to the report of the Fourth Meeting and modified by decisions V/26 and VII/35:

  (a) For CFC, HCFC and halons: argon plasma arc;

  (b) For CFC and HCFC: nitrogen plasma arc, microwave plasma, gas phase catalytic de-halogenation and super-heated steam reactor;

  (c) For foam containing ODS: rotary kiln incinerator."

(UNEP/OzL.Pro.14/9, decision XIV/6)

42. The Fifteenth Meeting of the Parties decided:

1. "To recall that the Montreal Protocol on Substances that Deplete the Ozone Layer does not require the Parties to destroy ozone-depleting substances;

2. To note that the report of the Technology and Economic Assessment Panel of April 2002 (volume 3, report on the Task Force on Destruction Technologies) provides information on the technical and economic performance and commercial viability of destruction technologies for ozone-depleting substances;

3. To take note of the previous decisions of the Meeting of the Parties on the approval of destruction technologies (decisions IV/11, VII/35 and XIV/6) and, in particular, to note that those decisions did not distinguish between the capabilities of destruction technologies for specific types of ozone-depleting substances;

4. To approve, for the purposes of paragraph 5 of Article 1 of the Montreal Protocol, the destruction technologies listed as "approved" in [Annex I to this document], which were found by the Task Force on Destruction Technologies to meet the destruction and removal efficiencies set out therein;

5. To recognize that, in approving the technologies, the Parties acknowledge that two technologies previously approved for all ozone depleting substances have been limited in their scope to omit halons;

6. To call on each Party that operates, or plans to operate, approved technologies in accordance with paragraph 2 above to ensure that its destruction facilities are operated in accordance with the Code of Good Housekeeping Procedures, as updated in the progress report of the Technology and Economic Assessment Panel in May 2003 and subsequently amended by the Parties, unless similar or stricter procedures currently exist domestically;

7. To highlight the need for Parties to pay particular attention to the adherence of facilities for the destruction of ozone-depleting substances to relevant international or national standards addressing hazardous substances and taking into account cross-media emissions and discharges including those identified in [Annex II to this document]."

(UNEP/OzL.Pro.15/9, decision XV/9)

43. At their Sixteenth Meeting of the Parties requested a report on new information on destruction technologies. (UNEP/OzL.Pro.16/17, decision XVI/15)

Handling and destruction of foams containing ODSs at the end of their life

44. The Fifteenth Meeting of the Parties decided to request the Technology and Economic Assessment Panel, in its April 2005 report:

(a) "To provide updated useful information on the handling and destruction of ozone depleting substance-containing thermal insulation foams including thermal foams situated in buildings, with particular attention to the economic and technological implications;

(b) To clarify the distinction between the destruction efficiency achievable for ozone depleting substances recovered from foams prior to destruction (re-concentrated) and the destruction efficiency achievable for the foams themselves containing ozone-depleting substances."

(UNEP/OzL.Pro.15/9, decision XV/10)

Movement of used ODS for destruction

45. The Fourth Meeting of the Parties urged all the Parties to take all practicable measures to prevent releases of controlled substances into the atmosphere, including, *inter alia*:

(a) "To recover controlled substances in Annex A, Annex B and Annex C of the Protocol, for purposes of recycling, reclamation or destruction, that are contained in the following equipment during servicing and maintenance as well as prior to equipment dismantling or disposal:

(i) Stationery commercial and industrial refrigeration and air conditioning equipment;

(ii) Mobile refrigeration and mobile air-conditioning equipment;

(iii) Fire protection systems;

(iv) Cleaning machinery containing solvents;

(b) To minimize refrigerant leakage from commercial and industrial air-conditioning and refrigeration systems during manufacture, installation, operation and servicing;

(c) To destroy unneeded ozone-depleting substances where economically feasible and environmentally appropriate to do so.

(UNEP/OzL.Pro.4/15, decision IV/24)

46. The Seventh Meeting of the Parties decided, on the status of recycled CFCs and halons under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, "that the international transfers of controlled substances of the Montreal Protocol which are recovered but not purified to usable purity specifications prescribed by appropriate international and/or national organizations, including International Standards Organization (ISO), should only occur if the recipient country has recycling facilities that can process the received controlled substances to these specifications or has destruction facilities incorporating technologies approved for that purpose."

(UNEP/OzL.Pro.7/12, decision VII/31)

Recommendations

The Executive Committee may wish to:

1. Note the report on the Guidelines relating to Collection, recovery, recycling and destruction of ozone-depleting sustances as contained in UNEP/OzL.Pro/ExCom/46/---.

2. Consider whether to elaborate further guidelines for the funding of projects of collection, recovery, recycling and destruction of ozone-depleting sustances as proposed in decision 44/63 (b).

Annex I

APPROVED DESTRUCTION PROCESSES (DECISION XV/9 OF THE FIFTEENTH MEETING OF THE PARTIES)

	Applicability		
	Concentrated sources		**Dilute sources**
Technology	**Annex A, Gp. I Annex B Annex C, Gp. I**	**Halon (Annex A, Gp. II)**	**Foam**
Destruction and removal efficiency (DRE)	*99.99%*	*99.99%*	*95%*
Cement kilns	Approved	*Not Approved*	
Liquid injection incineration	Approved	Approved	
Gaseous/fume oxidation	Approved	Approved	
Municipal solid waste incineration			Approved
Reactor cracking	Approved	*Not Approved*	
Rotary kiln incineration	Approved	Approved	Approved
Argon plasma arc	Approved	Approved	
Inductively coupled radio frequency plasma	Approved	Approved	
Microwave plasma	Approved		
Nitrogen plasma arc	Approved		
Gas phase catalytic dehalogenation	Approved		
Superheated steam reactor	Approved		

Notes: 1. The DRE criterion presents technology capability on which approval of the technology is based. It does not always reflect the day-to-day performance achieved, which in itself will be controlled by national minimum standards.

2. Concentrated sources refer to virgin, recovered and reclaimed ozone-depleting substances.

3. Dilute sources refer to ozone-depleting substances contained in a matrix of a solid, for example foam.

Annex II

SUGGESTED SUBSTANCES FOR MONITORING AND DECLARATION WHEN USING DESTRUCTION TECHNOLOGIES (DECISION XV/9 OF THE FIFTEENTH MEETING OF THE PARTIES)

Substances	Units
PCDDs/PCDFs	ng-ITEQ*/Nm3**
HCl/Cl_2	mg/Nm3
HF	mg/Nm3
HBr/Br_2	mg/Nm3
Particulates (TSP***)	mg/Nm3
CO	mg/Nm3

*. ITEQ – international toxic equivalency.
** Normal cubic metre.
*** TSP – total suspended particles.
