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Tenth meeting
Nairobi, 5 - 8 July 1994

REPORT OF THE TENTH MEETING OF THE OPEN-ENDED WORKING GROUP OF THE PARTIES TO THE MONTREAL PROTOCOL **(continued)**

Rapporteur: Mr. Jose Ampeso (Philippines)

Addendum

AGENDA ITEM 6: CONSIDERATION OF THE REPORT OF THE SCIENTIFIC **ASSESSMENT** PANEL ON THE IMPACT ON THE OZONE LAYER OF CONTINUED USE OF RECYCLED CONTROLLED SUBSTANCES (DECISION IV/24, PARAGRAPH 6)

1. The Working Group took up agenda item 6 at its 3rd meeting, on 6 July 1994.

2. On behalf of the Chair of the Scientific Assessment Panel, a representative of the Ozone Secretariat presented the report of the Scientific Assessment Panel on the impact on the ozone layer of continued use of recycled controlled substances (UNEP/OzL.Pro/WG.1/10/4). He pointed out that, for any CFC, halon or methyl bromide to cause damage to the ozone layer, it must first be released into the atmosphere. Consequently, recycled compounds which were not released would have no impact on ozone depletion, while any that were, accidentally or deliberately, would cause such depletion. The Panel's study compared the impact of destroying CFCs with that of recycling and reusing them, in which case they would ultimately be released into the atmosphere. The comparison was based on the global production of CFC-11 and CFC-12 for various applications,

assuming a four-year average lifetime for the release of those CFCs from such applications and the complete recapture and destruction of all the

gases stored in 1994. The calculations showed that the difference between the total effective atmospheric chlorine in the two scenarios was less than 0.65 per cent. The report concluded that the impact on the ozone layer of the continued use of recycled controlled substances was minimal.

3. One representative enquired as to how the difference in effect on the ozone layer between the two methods could be so minimal.

4. The representative of the Ozone Secretariat explained that the regulated release of the substances resulting from recycling led to this minimal difference.

5. In response to another question by a representative, on the impact on the ozone layer of by-products created in the destruction of CFC-11 and CFC-12, the representative of the Ozone Secretariat explained that, 98-99 per cent efficiency could be achieved in the destruction of CFCs and hence the process of destruction would have little impact on the ozone layer.

6. In response to a question asked by an observer, the representative of the Ozone Secretariat agreed that serious efforts to implement recycling as well as destruction at an appropriate stage were needed in all countries.

7. **One representative said that the phase-out of ozone-depleting substances did mean a halt to emissions of freous into the atmosphere since there were no strict limits in the framework of the Montreal Protocl to the use of large quantities of ozone-depleting substances that had been stored, especially with regard to fire-extinguishing substances containing foam. N**oting that the purpose of the Protocol was to protect the ozone layer, **he** said that the Protocol should be refined to include fuller protection measures, with the possible inclusion of national emission quotas, thus ensuring gradual reduction. That regime should be as strictly enforced as the regime pertaining to nuclear material, involving such measures as international inspections and sanctions etc.

8. The representative of the European Community, referring to the lack of any mandatory requirement for recovery or recycling under the Protocol, noted that a European Community regulation due to enter into force later in the year required countries to take all practical measures to recover and recycle ozone-depleting substances and to prevent the leakage of ozone-depleting substances. He hoped that other countries would consider the adoption of similar legislation.

9. The representative of Sweden informed the Working Group that regulations on the recycling and recovery of ozone-depleting substances had been enforced in her country since 1989. In addition, she asked for further clarification on action by the Scientific Assessment Panel taken in response to the request from Parties that it should compare the impact of the use of CFCs with the impact of the use of alternative available environmentally sound substances.

10. The representative of the Ozone Secretariat said that the question would be taken up by the Panel at its next meeting.

11. One representative asked how the Panel had arrived at such a high rate of success for recycling. In addition, with regard to the need for mandatory measures, he wondered whether consideration had been given to those practical measures which were already in place in different countries.

12. The representative of the Ozone Secretariat suggested that the question regarding the success levels of recycling would be more appropriately answered by the Technology and Economic Assessment Panel.

13. One representative stressed that the options of recycling and destruction should only be considered when there were no feasible alternatives to ozone-depleting substances. He also pointed out that a combination of recycling and destruction could be very costly and it might therefore be preferable for countries to select an alternative approach.

AGENDA ITEM 7: CONSIDERATION OF THE REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL

14. The Working Group took up agenda item 7 at its 3rd meeting, on 6 July 1994.

15. Dr. Andersen, Co-Chair of the Technology and Economic Assessment Panel, introduced the report of the Panel.

16. Dr. Tope, the alternate Co-Chair of the Aerosols, Sterilants, Miscellaneous Uses and Carbon Tetrachloride Technical Options Committee reported on the work of that Committee. In response to the question by one representative, as to whether solvents used in the purification of pharmaceuticals could be seen as process agents, she drew attention to the concept of process agents used by the Technology and Economic Assessment Panel.

17. Dr. Kuijpers, as Chair of the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee and Mr. Taylor, Chair of the Halons Technical Options Committee, reported on the work of their respective committees, regarding essential use nominations.

18. One representative asked what progress had been made in research into alternatives to the use of halons in fire prevention and how much longer halons would continue to be used for such purposes.

19. Mr. Taylor said that alternatives to halons were already available for many - but not all - uses. As additional alternatives were developed, pressure on the existing halon bank was lessened, releasing more halons for the remaining essential uses for which there were no adequate alternatives.

20. The representative of the Russian Federation said that his country had still failed to find a satisfactory solution to the problem posed by the continued use of halons and intended to continue production of halons in the forseable future. While large quantities of halons were available in banks, they could not be recycled and production would continue to be necessary for certain strategic uses. The Russian Federation requested the Technology and Economic Assessment Panel and its Halons Technical Options Committee (HTOC) to review materials to be submitted by the Russian Federation by the end of July 1994 concerning essential halon uses for the year 1995. Furthermore, the Russian Federation accepted the offer of the HTOC to propose alternatives and substitutes to halon uses now considered as essential. The Russian Federation also welcomed any assistance of HTOC in identifying sources of recycled halons to supply essential uses. It was the intention of the Russian Federation to submit by 1 January 1995, nominations for essential halon use in 1996. The Russian Federation reserved its right to revert to **the** issue at the Sixth Meeting of the Parties.

21. Mr. Taylor said that the Committee had had discussions earlier in the year in Warsaw with experts from the Russian Federation on the use of halons. The 440 tons of halons mentioned represented a 90 per cent reduction of previous levels. That was a significant achievement but the Russian Federation should move to meet all its requirements from halon banks. The Halons Technical Options Committee would help in this respect.

22. The Ozone Secretariat said that the Parties had decided on the procedure for essential use nominations and those relating to 1995 had already been submitted. Any further nominations could not be processed for

the current year but would be processed for being placed before the seventh Meeting of the Parties to the Protocol in 1995. The fruitful cooperation between the Russian Federation and the Technology and Economic Assessment Panel would continue in the meantime.

23. The representative of France said that France was now able to withdraw the nomination it had made concerning halon requirements. In addition, she asked for clarification concerning one halon which, she understood, was not covered by the Montreal Protocol.

24. Mr. Taylor clarified that the substance in question had an ozone-depleting potential of approximately 0.4 and its use was limited to highly specialized areas. His Committee would investigate the matter further.

25. The representative of Canada said that his Government would host a workshop on laboratory and analytical uses in order to bring together key players, including regulators, producers, laboratory users and organizations that determined reference methods and standards. Canada would discuss the matter of participation with other countries, especially those that had nominated laboratory uses. It would also urge any interested country to consider informing it of any national experts who might be able to contribute. Although no date had yet been fixed for the workshop, his Government would do its utmost to hold the workshop before the Sixth Meeting of the Parties.

26. The representative of the United Kingdom withdrew his country's nominations for the use of CFC-113 as a solvent for the purposes of fingerprinting and membrane manufacturing. He was, however, concerned about the **Panel's suggested** alternative **to CFC-113 in fingerprinting applications** which **was flammable and** did not meet existing standards. The United Kingdom would therefore welcome information on other alternatives. In the meantime, it would use existing stocks of CFC-113 for fingerprinting purposes but might revisit the issue at some later date.

27. Dr. Andersen said that the Panel would publish a technical note on fingerprinting describing the system used in the United States and other systems. Efforts to find alternatives would be increased, with seminars being organized, if necessary. Dr. Andersen further informed the Working Group that the Panel would publish a technical note on alternatives for the cleaning of live electrical equipment and was also planning a workshop on gyroscope uses.

28. Dr. Van Slooten, as a member of the Technology and Economic Assessment Panel, recalled the request made by the Fifth Meeting of the Parties for the Panel to assemble and distribute a handbook on essential uses nominations (decision V/18, para. 5). He noted that some of the nominations had been incomplete, or had been received in languages other than the working language of the Panel. He said that it was important for Parties to require their industries to complete the nomination document and that criteria that must be met would be established. On the final point, the Panel proposed that translation services should be provided through UNEP for nominations submitted in languages other than the working language of the Panel. The Panel was considering the draft handbook and would circulate it to the Parties in time for the next round of nominations.

29. Dr. Kuijpers, Co-Chair of the Technology and Economic Assessment Panel, introduced the Panel's report on inadvertent production (UNEP/OzL.Pro/WG.1/10/3, section ES.6, and UNEP/OzL.Pro/WG.1/10/2/Add.1, para 16), which had been prepared in accordance with decision IV/12 of the Fourth Meeting of the Parties. He said that the worst-case estimate for inadvertent emissions would be approximately 7,200 ODP-weighted tons in 1994 falling to 5,800 ODP-weighted tons by the year 2000. Those figures were broken down by source of emission in chapter 9 of the Panel's report. Since those levels amounted to about 0.5 per cent of the amount of controlled substances produced in the baseline years, the Panel had concluded that global inadvertent production was very low. It did,

however, recommend that Parties work with their respective Governments and industries to take steps to reduce such emissions, including such steps as avoidance of creation of such emissions, reduction of emissions using practicable technologies, containment or destruction. Finally, the Panel had stressed the importance of technology transfer to developing countries.

30. One representative said that she believed that, for global emissions rather than just emissions from developed countries, the figures given in the worst-case scenario were a gross underestimate.

31. Mr. Reed, Senior Advisor to the Technology and Economic Assessment Panel, introduced the conclusions of the Panel on recovery and recycling (UNEP/OzL.Pro/WG.I/10/3, section ES.4, and UNEP/OzL.Pro/WG.1/10/2/Add.1, paras. 17-18).

32. One representative noted that the Panel had suggested that recovery and recycling of methyl bromide in fumigation in chambers appeared likely to be feasible with recovery of methyl bromide at a rate of about 90 per cent and it was expected that equipment for that application would be generally available soon. It was also stated that commercially demonstrated and effective technologies were available for the recovery, recycling, containment and leakage control of methyl bromide. However, his delegation considered that there was a need for further consideration of the development and extension of such technology. He would therefore appreciate it if the Panel clarified the reason for its statement. Emphasizing the significance of methyl bromide for the agricultural production and plant quarantine, he expressed serious concern with the possible impact for such production and quarantine if no consideration was given to the difficulty regarding the availability of alternatives and further regulation was imposed on methyl bromide uses. Accordingly, regulatory measures should be in step with the development of alternative

leakage control technologies. **The Panel should suggest the technology development targets, such as efficiency of recovery and tolerable residual emissions.**

33. Dr. Banks, Chair of the Methyl Bromide Technical Options Committee said that the Panel had stated that the overall scope of recovery of methyl bromide from fumigation was low and **might be feasible** only in a few specific situations, **with some potential recoveries** as listed in chapter 6, page 13, of the Panel's report. **T**echnologies were currently under development but were not available. Recovery was dependent on the specific situation or commodity.

34. In response to a question from one representative, Mr. Reed, Senior Advisor to the Technology and Economic Assessment Panel, said that, although trade in recycled and recovered CFCs was encouraged by decision IV/24 of the Fourth Meeting of the Parties, he did not believe that there was the same need to manage activities by establishing a bank similar to that of halons. In response to further questions, he said that there was no practical way of distinguishing between virgin and recycled substances since it was always possible to contaminate virgin material to make it look like used stock. He did not, however, believe that that was an impediment to the implementation to the Protocol. He further pointed out that by 1996, there would be no newly produced materials in the developed countries in any case.

35. Speaking in response to a question from a representative concerning the geographical distribution of pilot methyl bromide projects and on the way in which developing countries could benefit, the Chief Officer of the Secretariat of the Multilateral Fund said that the Executive Committee had, to date, approved one such project, which related to data collection in

China.

36. Dr. Kuijpers, Co-Chair of the Technology and Economic Assessment Panel, introduced the Panels work on the evaluation of alternatives to HCFCs, carried out pursuant to decision IV/30 of the Fourth Meeting of the Parties (UNEP/Ozl.Pro/WG.1/10/3, section ES.3, and UNEP/Ozl.Pro/WG.1/10/2/Add.1, paragraphs 19-22).

37. In response to a question from one representative, Dr. Kuijpers said that the Panel had not investigated the quantities of HCFCs that would be required. It was, however, endeavouring to produce a report by the end of the year in which consumption forecasts would be made.

38. One observer raised serious doubts about the accuracy of the information and the vigour of the Assessment Panel's evaluation of the alternatives to HCFCs pursuant to decision IV/30. Not-in-kind alternatives were commercially available for a wide variety of current uses. His organization did not believe that HCFCs were technically or commercially necessary for the transition in the majority of refrigeration or air-conditioning applications or in the manufacturing of insulating foams. He urged Parties to recall Article 2 F of the Protocol and consider the Panel's recommendations in that light.

39. In response, Dr. Kuijpers said that the phasing-in of non-ozone depleting substances in the sectors referred to by the **observer** depended, inter alia, on the energy efficiency standards in the country concerned. HCFCs could be used as a transitional substance to obtain the energy efficiency required by current standards. Domestic refrigeration, for which non-ODS alternatives did exist, only represented a small part of the whole sector, and, therefore the Panel statement concerning the majority of refrigeration and air-conditioning applications was valid.

40. In response to a further question from a representative, Dr. Kuijpers

said that while, in principle, the Panel had looked at all substitutes including not-in-kind alternatives, most of such methods had not been commercialized and had therefore not been considered. In response to a further question, he said that it was difficult to generalize about safety standards. In addition, he said that the Economic Options Committee was considering the issue of technology transfer and would submit its report by the end of 1994. On a further point he clarified that the values in table 4-1 of the Panel's report were averages over a number of applications. The purpose of the table was to show the disadvantage in terms of increased energy consumption in moving from full CFC-11 technologies to water-blown CFC-11 technologies. HFC-134a had not been added because its energy consumption index was even higher. It was clear from the averages that the use of cyclopentane did imply reduced energy efficiency.

41. Mr. Reed, Senior Advisor to the Technology and Economic Assessment Panel, introduced the report and recommendations of the Panel on destruction technologies (UNEP/OzL.Pro/WG.1/10/3, section ES.5). Chapter 10 of the report of the Panel gave a detailed elaboration of specific issues.

42. Dr. Banks, Chair of the Methyl Bromide Options Committee, introduced the recommendations of the Panel on problems of Protocol definitions and methyl bromide control (UNEP/OzL.Pro/WG.1/10/3, section ES.7, and UNEP/OzL.Pro/WG.1/10/2/Add.1, paragraph 28). The Panel's recommendations were contained in Annex 3 to its report, which also contained two alternative sets of definitions "quarantine" and "pre-shipment" for the consideration of the Working Group.

43. Dr. Andersen, Co-Chair of the Technology and Economic Assessment Panel, introduced the recommendations of the Panel on the list of products containing controlled substances from Annex B of the Protocol (UNEP/OzL.Pro/WG.1/10/2/Add.1, paragraphs 22-27).

44. Dr. Kuijpers, Co-Chair of the Technology and Economic Assessment Panel, elaborated on the use of hydrocarbons, particularly for domestic refrigeration, and summarized future activities concerning the issue. In particular, he drew attention to paragraph 21 (c) of the note **by** the Secretariat (UNEP/OzL.Pro/WG.1/10/2/Add.1). The Refrigeration Options Committee was conducting a thorough analysis of the potential for using hydrocarbons in refrigeration and its report would be produced by the end of 1994.

45. Dr. Carvalho, Co-Chair of the Technology and Economic Assessment Panel, introduced the report of the Assessment Panel on developing country concerns, especially with regard to public awareness, technology cooperation, technology choices, availability of technical information, supplies and cost of alternative substitutes and technologies, servicing of existing equipment, estimates of quantities needed, recovering, recycling and reclamation, and HCFCs (UNEP/OzL.Pro/WG.1/10/3, section ES.2). Concluding her statement, she cautioned that the success of a phase-out in developing countries would require concentrated efforts from all. It was therefore essential to ensure that, once phase-out was completed in developed countries, those countries did not lose interest in the whole process.

46. In reply to one representative, who felt that the implementing agencies were not properly briefed on the issues, she said that Parties could both obtain information and convey their concerns through the panel members from developing countries.

47. One representative drew attention to the problem faced in developing countries resulting from the import of second-hand equipment containing controlled substances. Such imports not only affected those countries' calculations regarding their domestic consumption but also posed the problem that such equipment would eventually become useless.

7 (a): Nominations for essential uses, for 1995, of halons (decision V/18 and decision IV/25)

48. Introducing the discussion of agenda item 7 (a), at the 4th session of the meeting, on 6 July 1994, the Chairman recalled that the only nomination for essential uses of halons in 1995 had been withdrawn at the previous session.

49. The representative of the Russian Federation pointed out that the Russian Federation was unable fully to renounce production of halons for 1995. He reiterated his earlier offer to provide full information to the Halons Technical Options Committee before January, so that it could review the requirements of the Russian Federation. In the light of suggestions by Dr. Taylor and Dr. Andersen, he said that total production requirements might in fact be somewhat lower than the 450 tons mentioned earlier but that some production would still be necessary in 1995, since the consequences, in terms of atmospheric impacts, of the lack of halons could be worse than those caused by halons that were produced.

50. The Chairman suggested that **the report should reflect** to the concerns of the Russian Federation **and, if needed, the issue could be considered by the Sixth Meeting of the Parties.**

51. The Working Group agreed to recommend that the Meeting of the Parties should decide that no level of production or consumption is necessary to satisfy essential uses of halon in Parties not operating under paragraph 1 of Article 5 of the Protocol, for the year 1995 since there are technically and economically feasible alternatives and substitutes for most applications, and since halon is available in sufficient quantity and quality from existing stocks of banked and recycled halon.

7 (b): Nominations for essential uses of controlled substances other than halons (decision V/18 and decision IV/25)

52. Many representatives concurred with the recommendations of the Panel on essential uses. Some representatives pointed out various errors in the report of the Assessment Panel.

53. The representative of Poland, referring to his country's nomination for 300 tons for refrigeration-servicing purposes, pointed out that in his country there was an eight-year obligation period for insurance servicing of refrigeration equipment. In addition, his country had no national system for recycling of CFCs, lacked the new equipment and trained personnel required for retrofitting and had insufficient stocks of CFCs. As a result, it risked losing the use of much of its refrigeration equipment, with serious social consequences. He undertook to submit further information and Poland's future nominations for essential uses. **In that context, Poland would like to ask for a final decision regarding essential use nominations for refrigeration-servicing to be taken by the Sixth Meeting of the Parties.**

54. The representative of the European Community said that the scope of MDI should be limited to asthma and chronic obstructive pulmonary disease (COPD) - the scope within which the European Community had made its MDI nominations.

55. One representative expressed the belief that it was inadvisable to narrow the scope of MDIs.

56. One representative suggested that a global exemption might be granted for MDIs, in view of the large number of countries submitting nominations. The situation could be reviewed as and when commercially acceptable substitutes became available.

57. One representative stressed the need to limit the number of

exemptions. Her delegation believed that rapid advances in technology meant that no new exemptions should be adopted beyond **1997**.

58. Noting that the issue of process agents raised in paragraph 10 of the Secretariat's note, contained in document UNEP/OzL.Pro/WG.1/10/2/Add.1, had not been taken up, one representative said that her delegation considered the recommendation to be contrary to the spirit of the Protocol. It understood that some Parties might have difficulties in that area, however, and therefore proposed that a subgroup should be formed under the Panel with a view to preparing recommendations for the consideration of the Open-ended Working Group on that issue.

59. One representative suggested that, since laboratory and analytical methods had to be internationally accepted by competent standards organizations, the issue of such uses should also be referred to such international organizations as the International Union of Pure and Applied Chemistry and the International Standardization Organization (ISO).

60. One representative suggested, with regard to analytical uses, that a two-year time limit should be considered. Another representative had reservations about the proposed two-year limitation as an across-the-board measure, since in some cases there was good reason for a longer exemption.

61. One representative, supported by another, pointed out that when the nominations had been prepared the concept of multiple-year exemptions had not been fully understood and he wondered, therefore, whether single-year nominations which were deemed to be complete might be considered as multiple-year nominations. In response to a question from the Secretariat, he confirmed that the countries concerned would, in any event, repeat their nominations.

62. With regard to essential use nominations for all controlled substances other than halons, the Working Group agreed to recommend that

the Sixth Meeting of the Parties should decide:

1. To note with appreciation the work done by the Technology and Economic Assessment Panel and its Technical Options Committees pursuant to decision IV/25 of the Fourth Meeting of the Parties;

2. That, for 1996 and subsequent years for Parties not operating under paragraph 1 of Article 5 of the Protocol, levels of production or consumption necessary to satisfy essential uses of CFCs and 1,1,1-trichloroethane for metered dose inhalers (MDIs) and the Space Shuttle are authorized as specified in annex I hereto, subject to annual review of quantities and biennial review of whether the use remains essential **[and the possible further consideration of the MDI exemption referred to below**;

3. That for 1996, 1997, and **[**1998**]** for Parties not operating under paragraph 1 of Article 5 of the Protocol, production or consumption necessary to satisfy essential uses of ODSs for laboratory and analytical uses are authorised as specified in annex II hereto;

4. That Parties shall endeavour to minimize use and emissions by all practical steps. In the case of metered dose inhalers, these steps include education of physicians and patients about other treatment options and good-faith efforts to eliminate or recapture emissions from filling and testing, consistent with national laws and regulations.

63. <u>bis</u> The Chairman noted that, at their Sixth Meeting, Parties would

have an opportunity to review whether the scope of the essential use recommendations shoould include treatment of non-asthma and non-chronic obstructive pulmonary diseases.

64. With regard to process agents, the Working Group decided to recommend that the Sixth Meeting of the Parties should decide:

Taking into account

That some Parties may have interpreted use of controlled substances, in some applications where they are used as process agents, as feedstock application;

That other Parties have interpreted similar applications as use and thereby subject to phase-out;

That the Technology and Economic Assessment Panel has been unable to recommend exemption, under the essential use criteria, to Parties submitting applications of such uses nominated in 1994;

That there is a pressing requirement for elaboration of the issue and need for appropriate action by all Parties;

1. To request the Technology and Economic Assessment Panel:

(a) To identify uses of controlled substances as chemical process agents;

(b) To estimate emissions of controlled substances when used as chemical process agents and the ultimate fate of such emissions and to evaluation emissions associated with the different control technologies and other process conditions

under which chemical process agents are used;

(c) To evaluate alternative process agents or technologies or products available to replace controlled substances in such uses; and

(d) To submit its findings to the Open-ended Working Group of the Parties to the Montreal Protocol not later than March 1995, and to request the Open-ended Working Group to formulate recommendations, if any, for the consideration of the Parties at their seventh meeting.

[2. That Parties, for an interim period of 1996 only, **treat chemical process agents in a manner similar to foodstocks,** as advanced by the Technology and Economic Assessment Panel **and take a final decision on such treatment at their Seventh Meeting**.]

7 (c): Supply of halons to Parties operating under paragraph 1 of Article 5 of the Protocol (decision V/16)

65. One representative said that, in times of scarcity, supplies of halons might be hard for developing countries to obtain. He requested, therefore, that the Panel should examine the issue in greater depth.

66. Another representative drew attention to the provisions of paragraph 4 of Article 5 **of the protocol**, to the effect that controlled substances must be available in adequate quantities during the grace and phase-out period, and stressed that the availability and economic feasibility of alternatives must be given due attention, particularly with regard to fire-fighting applications. For that reason, he found it difficult to accept the contention that recycled halon should be the sole source of supply.

67. In addition, he said that each country should have its own halon banking system appropriate to its needs and conditions and that there should be a transparent accounting system of banked halon. The Parties might consider whether, to that end, it was necessary to revise the data format and the matter could also be reviewed by the Implementation Committee. In addition, software costs should be taken into consideration in assessing incremental costs for such a banking system.

68. One representative, noted that, according to the report of the Halons Technical Options Committee, there was a large stock of halons in existence and that the efforts made by UNEP in that regard should be sufficient to meet the concerns of developing countries.

69. The Chairman drew attention to the decision adopted by the Fifth Meeting of the Parties on the halon bank support system. Nonetheless, the concerns of developing countries with regard to the supply of halons should be taken into account. The need for UNEP, IE/PAC and the Panel to keep the issue under constant review was obvious.

7 (d): Total emissions resulting from trace impurities, emission during manufacture, etc. (decision V/12 paragraph 3)

70. One representative noted that the figures relating to such emissions were global estimates and her delegation believed that they could be grossly underestimated. She therefore requested the Panel to review the figures and advise Parties accordingly.

71. Dr. Andersen, Chairman of the Technical and Economic Assessment Panel, said that he would be pleased to consider any additional information on the issue and would incorporate a necessary supplement in the Panel's next report.

72. One representative, noting the difficulty of quantifying such

emissions, expressed satisfaction with the quality of the Panel's work but placed on record his serious concerns regarding the alarmingly high level of inadvertent emissions of methyl bromide. His recommendation that countries should give their urgent attention to the issue and should make efforts to minimize such emissions was supported by another representative who recommended in addition that developing countries should be encouraged to adopt appropriate technologies and to tailor them to local conditions for effective performance.

7 (e): Recycling of controlled substances (decision V/24, paragraph 7)

73. One representative said that all options, such as recovery, recycling, retrofit and others should be properly evaluated and Parties encouraged to adopt those which were technically and economically feasible in **the** specific situation **of their countries**. In addition, Parties should be encouraged to ensure that recycled substances were economical in comparison to newly produced controlled substances. The developing countries should be encouraged to establish their own recovery and recycling facilities. In particular, he stressed that the recovery and recycling of methyl bromide should be encouraged, including in those uses yet to be identified.

7 (f): Evaluation of alternatives to HCFCs (decision V/30, paragraph 1)

74. In the Working Group's discussion of the conclusions of the Technology and Economic Assessment Panel on alternatives to HCFCs, several delegations questioned the statement that HCFCs were technically and economically necessary in some of the sectors listed in paragraph 21(b) of the note by the Secretariat and, in particular, in the manufacture of insulating foam and in firefighting applications. Some of those representatives also stated that there was a need for an extensive evaluation of not-in-kind alternatives by the Panel. One representative, in stating that the **P**anel could reconsider the question of the use of HCFCs

in sterilization, pointed to the general difficulty of giving a clear-cut answer on whether or not a substitute was acceptable, in view of the complex trade-offs involving such aspects as global warming potential, toxicity, flammability and energy efficiency. Another representative said she was unable to agree with the Panel's recommendation that HCFCs were necessary for efficiency requirements. One representative stressed the need for alternatives to be technically and economically feasible, as well as practical to implement. They should take into account national industrial structure, taxation systems, servicing methods and other local conditions. They had to be situation-specific and should not be generalized or prejudged. **Some representatives were not in favour of controls and specific uses of HCFC's, suggesting that a tighter cap was a more effective mechanism for controlling HCFC consumption.**

75. One representative, supported on some items by other representatives, asked the Panel to evaluate, in their next report: the amounts of HCFCs currently used, and the predicted use within 5 and 10 years; "not-in-kind" and alternative technologies in the foam sector; and the use of hydrocarbons in refrigeration. The same representative proposed that **in** its report to the Sixth Meeting of the Parties, the Panel should consider: changing the word "necessary" to "needed" in the first sentence of paragraph 21(b) in the note by the Secretariat; changing the words "The majority" to "some" in paragraph 21 (b) (**i**i); adding the words "for some limited applications" to paragraph 21 (b) (i); and adding "as retrofit for CFC-12 in refrigeration" and "the majority of insulating foams" to the list in paragraph 21 (c).

76. With regard to paragraph 22 (d) (i) of the note by the Secretariat, one representative expressed concern about the identification of methylene chloride as an alternative in flexible foam blowing in view of its toxicity.

77. Several representatives supported a proposal **by the EC and its 12**

States and Australia, Finland, Norway and Sweden that the Panel should be given a mandate to investigate an earlier phase-out of HCFCs. Some of those representatives referred to the two declarations made at the Fifth Meeting of the Parties. One representative said that an earlier phase-out of HCFCs would act as a good stimulus for the use of alternatives, which were preferable to recycled CFCs. **Furthermore, he stressed the need to emphasise more the availability of alternative non-ozone-depleting substances and alternative techniologies not harmful to the ozone layer, instead of recycled substances and HCFCs.**

78. Other representatives, however, questioned the justification for an early phase-out of HCFCs, one stating that the question was basically an economic one. In that context, another of those representatives stressed the importance of HCFCs as a transitional substance in developing countries and the need for these countries to have guaranteed supplies. He also expressed concerns regarding the cost of an early phase-out. One representative said that any review must consider the economic and technical role and need for HCFCs. He further added that developing countries should not be excluded from the use of technologies available in the developed countries.

79. Following its discussion of this item, the Working Group **asked TEAP to reconsider its evaluation in the light of comments made in the discussion and noted that further consideration of the Panel's conclusions could take place at the Sixth Meeting of the Parties. The group also** agreed on a bracketted proposal on HCFCs as part of a proposal on the mandate of the Assessment Panels
(see UNEP/OzL.Pro/WG.1/10/L.1/Add.3, para. 9).

7 (g): List of products containing controlled substances from Annex B (paragraph 3 *bis* of the Montreal Protocol and decision IV/28)

80. Introducing the Working Group's discussion of agenda item 7(g), the

Chairman drew attention to the difficulties faced in developing a list of products containing controlled substances from Annex B, as outlined in the report of the Technology and Economic Assessment Panel. He invited the Chairman of the Legal Drafting Group to present a legal opinion.

81. The Chairman of the Legal Drafting Group said that, although Article 3 bis, of the Protocol clearly stated that the list was to be established by a given date, there were reasons why the establishment of such a list would be both difficult and impractical. Having reviewed the relevant articles of the Vienna Convention on the Law of Treaties and their applicability in the current case, he suggested that the Meeting of the Parties should adopt a decision giving express consent as provided for in the Convention, which allowed for the termination of a provision of a treaty by consent of the Parties after consultation with other Parties in specified circumstances. In addition, Since some Parties might not be represented at the Sixth Meeting of the Parties, he suggested that the consultation requirement of the Vienna Convention could be satisfied if the draft decision was brought to the attention of all Parties with other documentation for the Meeting.

82. Another representative agreed with the Chairman of the Legal Drafting Group in principle. The issue should also be seen in the context of trade questions under the Montreal Protocol. The draft decision should consider three parameters: feasibility; efficacy; and the effectiveness of contributing to the environmental objective.

83. The Committee then recommended that the Sixth Meeting of the Parties should decide that, in view of the tightening of the phase-out schedule for Annex B substances from 1 January 2000 and 1 January 1996, that the elaboration of the list called for in Article 4, paragraph 3 bis would be of little practical consequence and that the work entailed in drawing up and adopting such a list would be disproportionate to the benefits, if any, to the ozone layer.

7 (h): Recommendations of the Technical and Economic Assessment Panel regarding methyl bromide

84. Introducing the discussion of agenda item 7(h), the Chairman drew attention to the definitions of "bulk substances", "quarantine" and "preshipment" as related to methyl bromide contained in Appendix 3 of the report of the Technology and Economic Assessment Panel.

85. The Working Group approved the recommendation of the Technology and Economic Assessment Panel relating to the definition of "bulk substances" under decision I/12A, namely, that "trade and supply of methyl bromide in cylinders or in any other container in units greater than two kilogrammes net may be regarded as trade in 'bulk'".

86. Several representatives, some expressing concerns about the feasibility of proposed alternatives for methyl bromide, said that they did not support the recommendation of the Technology and Economic Assessment Panel that there should be no exemptions from controls on methyl bromide for quarantine and preshipment uses. One of those representatives stated that the Parties should wait for the report of the Methyl Bromide Technical Options Committee, while another pointed out that a general control scheme was to be developed at the Seventh Meeting of the Parties and that therefore the recommendation was premature. The same representative asked why the Panel had recommended using the essential use process, which applied only after the phase-out date for a substance, and believed it was difficult to find any rationale to amend Article 2 H of the **Protocol**.

87. Some representatives indicated their preferences regarding the proposed definitions of "quarantine" and "preshipment" in the Assessment Panel's report. One, however, suggested that the Parties should use the same definition of "quarantine" as that adopted by the Food and Agriculture Organization of the United Nations.

88. The Ozone Secretariat noted that the recommendations required an amendment to the Protocol, and that amendment would not enter into force before the time at which the 1995 amendments were being discussed.

Annex I

ESSENTIAL USE NOMINATIONS: METERED DOSE INHALERS

COUNTRY	CATEGORY	CHEMICAL	YEAR	QUANTITY (TONNES)	USE	ACTION
AUSTRALIA	AEROSOL	CFC-11	1996	80	MDI	RECOMMENDED
AUSTRALIA	AEROSOL	CFC-114	1996	10	MDI	RECOMMENDED
AUSTRALIA	AEROSOL	CFC-12	1996	200	MDI	RECOMMENDED
CANADA	AEROSOL	CFC-11	1996	152	MDI	RECOMMENDED
CANADA	AEROSOL	CFC-114	1996	70	MDI	RECOMMENDED
CANADA	AEROSOL	CFC-12	1996	377	MDI	RECOMMENDED
EC-BELGIUM	AEROSOL	CFC-11	1996	90	MDI	RECOMMENDED
EC-BELGIUM	AEROSOL	CFC-12	1996	95	MDI	RECOMMENDED
EC-DENMARK	AEROSOL	CFCS	1996	<5	MDI	RECOMMENDED
EC-FRANCE	AEROSOL	CFC-11	1996	618	MDI	RECOMMENDED
EC-FRANCE	AEROSOL	CFC-113	1996	30.1	MDI	RECOMMENDED
EC-FRANCE	AEROSOL	CFC-114	1996	153	MDI	RECOMMENDED
EC-FRANCE	AEROSOL	CFC-12	1996	1063	MDI	RECOMMENDED
EC-GERMANY	AEROSOL	CFC-11	1996	178	MDI	RECOMMENDED

EC-GERMANY	AEROSOL	CFC-114	1996	178	MDI	RECOMMENDED
EC-GERMANY	AEROSOL	CFC-12	1996	417	MDI	RECOMMENDED
EC-IRELAND	AEROSOL	CFC-11	1996	145	MDI	RECOMMENDED
EC-IRELAND	AEROSOL	CFC-12	1996	264	MDI	RECOMMENDED
EC-ITALY	AEROSOL	CFC-11	1996	145	MDI	RECOMMENDED
EC-ITALY	AEROSOL	CFC-113	1996	5	MDI	RECOMMENDED
EC-ITALY	AEROSOL	CFC-114	1996	50	MDI	RECOMMENDED
EC-ITALY	AEROSOL	CFC-12	1996	340	MDI	RECOMMENDED
EC-PORTUGAL	AEROSOL	CFC-11	1996	3.63	MDI	RECOMMENDED
EC-PORTUGAL	AEROSOL	CFC-12	1996	8.38	MDI	RECOMMENDED
EC-PORTUGAL	AEROSOL	CFC-114	1996	1.2	MDI	RECOMMENDED
EC-SPAIN	AEROSOL	CFC-11	1996	146	MDI	RECOMMENDED
EC-SPAIN	AEROSOL	CFC-12	1996	362	MDI	RECOMMENDED
EC-SPAIN	AEROSOL	CFC-113	1996	1	MDI	RECOMMENDED
EC-SPAIN	AEROSOL	CFC-114	1996	39	MDI	RECOMMENDED

ESSENTIAL USE NOMINATIONS: METERED DOSE INHALERS

COUNTRY	CATEGORY	CHEMICAL	YEAR	QUANTITY (TONNES)	USE	ACTION
EC-UK	AEROSOL	CFC-11	1996	1031	MDI	RECOMMENDED
EC-UK	AEROSOL	CFC-113	1996	32	MDI	RECOMMENDED
EC-UK	AEROSOL	CFC-114	1996	363	MDI	RECOMMENDED
EC-UK	AEROSOL	CFC-12	1996	1762	MDI	RECOMMENDED
FINLAND	AEROSOL	CFC-11	1996	6	MDI	RECOMMENDED
FINLAND	AEROSOL	CFC-12	1996	16	MDI	RECOMMENDED
JAPAN	AEROSOL	CFC-11	1996	75	MDI	RECOMMENDED
JAPAN	AEROSOL	CFC-113	1996	1	MDI	RECOMMENDED
JAPAN	AEROSOL	CFC-114	1996	22	MDI	RECOMMENDED
JAPAN	AEROSOL	CFC-12	1996	142	MDI	RECOMMENDED
POLAND	AEROSOL	CFC-11	1996	330	MEDICAL	RECOMMENDED
POLAND	AEROSOL	CFC-12	1996	330	MEDICAL	RECOMMENDED
POLAND	AEROSOL	CFC-114	1996	40	MEDICAL	RECOMMENDED
S.AFRICA	AEROSOL	CFC-11	1996	59	MDI	RECOMMENDED
S.AFRICA	AEROSOL	CFC-11	1997	67	MDI	RECOMMENDED

S.AFRICA	AEROSOL	CFC-114	1996	7	MDI	RECOMMENDED
S.AFRICA	AEROSOL	CFC-114	1997	9	MDI	RECOMMENDED
S.AFRICA	AEROSOL	CFC-12	1996	123	MDI	RECOMMENDED
S.AFRICA	AEROSOL	CFC-12	1997	138	MDI	RECOMMENDED
SWITZERLAND	AEROSOL	CFC-11	1996	8	MDI	RECOMMENDED
SWITZERLAND	AEROSOL	CFC-114	1996	8	MDI	RECOMMENDED
SWITZERLAND	AEROSOL	CFC-12	1996	8	MDI	RECOMMENDED
USA	AEROSOL	CFC-11	1996	749.8	MDI	RECOMMENDED
USA	AEROSOL	CFC-11	1997	658.3	MDI	RECOMMENDED
USA	AEROSOL	CFC-114	1996	343.7	MDI	RECOMMENDED
USA	AEROSOL	CFC-114	1997	343.1	MDI	RECOMMENDED
USA	AEROSOL	CFC-12	1996	2363.2	MDI	RECOMMENDED
USA	AEROSOL	CFC-12	1997	2177	MDI	RECOMMENDED

ESSENTIAL USE NOMINATIONS: SOLVENTS

COUNTRY	CATEGORY	CHEMICAL	YEAR	QUANTITY (TONNES)	USE	ACTION
USA	SOLVENTS	TCA	1996	56.8	SPACE SHUTTLE	RECOMMENDED
USA	SOLVENTS	TCA	1997	56.8	SPACE SHUTTLE	RECOMMENDED
[USA	SOLVENTS	TCA	1998	56.8	SPACE SHUTTLE	RECOMMENDED
USA	SOLVENTS	TCA	1999	56.8	SPACE SHUTTLE	RECOMMENDED
USA	SOLVENTS	TCA	2000	56.8	SPACE SHUTTLE	RECOMMENDED
USA	SOLVENTS	TCA	2001	56.8	SPACE SHUTTLE	RECOMMENDED]

Annex II

Conditions applied to exemption for laboratory and analytical uses

1. Laboratory purposes are identified at this time to include equipment calibration; use as extraction solvents, diluents, or carriers for chemical analysis; biochemical research; inert solvents for chemical reactions, as a carrier or laboratory chemical and other critical analytical and laboratory purposes. Production for laboratory and analytical purposes is authorized provided that these laboratory and analytical chemicals shall contain only controlled substances manufactured to the following purities:

CTC (reagent grade)	99.5
1,1,1-trichloroethane	99.0
CFC-11	99.5
CFC-13	99.5
CFC-12	99.5
CFC-113	99.5
CFC-114	99.5
Other w/Boiling P>20^{o} C	99.5
Other w/Boiling P<20^{o} C	99.0

2. These pure, controlled substances can be subsequently mixed by manufacturers, agents, or distributors with other chemicals controlled or not controlled by the Montreal Protocol as is customary for laboratory and analytical uses.

3. These high purity substances and mixtures containing controlled substances shall be supplied only in re-closable containers or high pressure cylinders smaller than three litres or in 10 millilitre or smaller

glass ampoules, marked clearly as substances that deplete the ozone layer, restricted to laboratory use and analytical purposes and specifying that used or surplus substances should be collected and recycled, if practical. The material should be destroyed if recycling is not practical.

4. Parties shall annually report for each controlled substance produced: the purity; the quantity; the application, specific test standard, or procedure requiring its uses; and the status of efforts to eliminate its use in each application. Parties shall also submit copies of published instructions, standards, specifications, and regulations requiring the use of the controlled substance.
