UNITED
NATIONS

EP

UNEP/OzL.Pro.WG.1/31/6

Distr.: General
17 August 2011

Original: English

United Nations
Environment
Programme

Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer
Thirty-first meeting
Montreal, 1–5 August 2011

Report of the thirty-first meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer

I. Opening of the meeting

1. The thirty-first meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer was held at the headquarters of the International Civil Aviation Organization in Montreal, Canada, from 1 to 5 August 2011. The meeting was co-chaired by Ms. Gudi Alkemade (Netherlands) and Mr. Ndiaye Cheikh Sylla (Senegal).

2. The meeting was opened at 10.15 a.m. on Monday, 1 August 2011, by Mr. Sylla.

3. Mr. Marco González, Executive Secretary of the Ozone Secretariat, made an opening statement in which he highlighted various milestones for the Montreal Protocol. The Multilateral Fund for the Implementation of the Montreal Protocol was celebrating its twentieth anniversary in 2011, which was also the year in which the Protocol's most important control measures would be assessed. He said that it had been a privilege to serve for 10 years as Executive Secretary, a time that had revealed to him the keys to the Protocol's success: trust between the parties and an attitude of understanding and assistance. Trust was demonstrated, among other things, by the fact that parties were willing to report their own non-compliance, knowing that they would be treated fairly and with a view to finding solutions rather than being named and shamed. That demonstrated how the Montreal Protocol exemplified the aspirations of the United Nations for global cooperation. Turning to data reporting, he said that obligations for the complete phase-out of all chlorofluorocarbons (CFCs), halons and carbon tetrachloride would be under review in 2011. Although the 2010 data were not due until September 2011, 119 parties, including 82 operating under paragraph 1 of Article 5, had already reported their data, and all were in compliance with the 2010 consumption and production targets.

4. On the subject of paperless meetings and technology, he said that the Montreal Protocol's paperless meeting system was set to spread throughout the United Nations system and that the United Nations Environment Programme stood ready to assist in any way that it could. The Ozone Secretariat had also been undertaking various initiatives aimed at improving the Secretariat's overall management of electronic communications, including the launch of a new and improved website (montreal-protocol.org and viennaconvention.org). Turning to the items on the agenda for the current meeting, he drew attention to the replenishment of the Multilateral Fund, the Technology and Economic Assessment Panel's recommendations on essential-use and critical-use nominations, the Panel's assessment of issues related to technologies for the destruction of ozone-depleting substances and new work on feedstocks and process agents. In closing, he congratulated various parties on the approval of their hydrochlorofluorocarbon (HCFC) phase-out management plans by the Executive Committee of the Multilateral Fund at its sixty-fourth meeting. The plans, when combined with earlier

approved projects, would enable compliance with the accelerated HCFC phase-out deadlines. He encouraged the parties to continue to show their creativity and innovation in future work on implementation of HCFC phase-out management plans.

II. Organizational matters

A. Attendance

5. The following parties to the Montreal Protocol were present: Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belgium, Belize, Benin, Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Cambodia, Cameroon, Canada, Cape Verde, Chad, Chile, China, Colombia, Comoros, Costa Rica, Croatia, Cuba, Czech Republic, Denmark, Djibouti, Dominica, Dominican Republic, Egypt, Estonia, Ethiopia, European Union, Fiji, Finland, France, Gabon, Georgia, Germany, Ghana, Grenada, Haiti, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Jamaica, Japan, Jordan, Kenya, Kyrgyzstan, Lebanon, Liberia, Madagascar, Malaysia, Maldives, Mali, Mauritius, Mexico, Micronesia, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Palau, Papua New Guinea, Paraguay, Philippines, Poland, Romania, Russian Federation, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Saudi Arabia, Senegal, Serbia, South Africa, Sri Lanka, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Thailand, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Turkmenistan, Uganda, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Uzbekistan, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam, Zambia, Zimbabwe.

6. Observers from the following United Nations entities, organizations and specialized agencies were also present: Global Environment Facility, Multilateral Fund for the Implementation of the Montreal Protocol, United Nations Development Programme, United Nations Environment Programme, United Nations Industrial Development Organization, World Bank.

7. A number of individual observers and observers from intergovernmental and non-governmental organizations and other bodies were also present. Their names can be found in the list of participants, which was issued as document UNEP/OzL.Pro.WG.1/31/INF/6.

B. Adoption of the agenda

8. The Working Group agreed to delete item 4 of the provisional agenda set out in document UNEP/OzL.Pro.WG.1/31/1/Rev.1, on adjustments to the Protocol, because no party had put forth a proposed adjustment for discussion. Subsequent items on the agenda as adopted would be renumbered accordingly. It also agreed to discuss under item 12 of the provisional agenda (item 11 of the agenda as adopted), “Other matters” a number of issues, including a presentation by the Government of Indonesia on the Twenty-Third Meeting of the Parties, to be held in Bali; the issue of the Executive Secretary’s tenure; procedures for reporting ozone-depleting-substance consumption on ships; the destruction of emissions from HCFC-22 production; the work of the steering panel on the evaluation of the financial mechanism; and the possibility of requesting the Technology and Economic Assessment Panel to provide additional information on the impact on the climate of efforts to protect the ozone layer, in addition to information on greenhouse-gas emissions linked to ozone-depleting substances and alternatives.

9. The Working Group also discussed the manner in which it should take up item 5 of the provisional agenda, on proposed amendments to the Montreal Protocol. Some representatives expressed the view that as the Working Group had discussed issues arising under the item at its two previous meetings without achieving consensus it would prove difficult to make progress on those issues at the current meeting. One representative expressed the view that when it came to the global-warming potential of alternatives to ozone-depleting substances the only appropriate topic for discussion was whether the Protocol was an appropriate forum for such issues. A number of representatives expressed reservations concerning discussion under the item of a draft decision on the phase-out of HFC-23 by-product emissions, given that a similar draft decision had been discussed at the Working Group’s thirtieth meeting. They suggested that the draft decision, like the proposed amendments, raised numerous technical, legal and policy implications that should preclude its further discussion at the current meeting given the failure to reach consensus on such issues at previous meetings. One of the proponents of the draft decision and amendments pointed out that the draft decision had been submitted in accordance with the rules of procedure of the Montreal Protocol and the Vienna Convention for the Protection of the Ozone Layer and was therefore appropriate for discussion. The Co-Chair said that the draft decision would be discussed under item 12 of the provisional agenda (item 11 of the agenda as adopted), “Other matters”.

10. The Working Group accordingly adopted the following agenda on the basis of the provisional agenda set out in document UNEP/OzL.Pro.WG.1/31/1/Rev.1, as amended:

1. Opening of the meeting.
2. Organizational matters:
   (a) Adoption of the agenda;
   (b) Organization of work.
3. Report of the Technology and Economic Assessment Panel's task force on the 2012-2014 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol.
4. Proposed amendments to the Montreal Protocol.
5. 2011 progress report of the Technology and Economic Assessment Panel.
6. Issues related to exemptions from Article 2 of the Montreal Protocol:
   (a) Nominations for essential-use exemptions for 2012 and 2013;
   (b) Nominations for critical-use exemptions for 2012 and 2013;
   (c) Quarantine and pre-shipment issues (decision XXI/10);
   (d) Laboratory and analytical uses of ozone-depleting substances (decisions XXI/6 and XXII/7);
   (e) Joint report of the Technology and Economic Assessment Panel and the Executive Committee of the Multilateral Fund on progress in phasing out ozone-depleting substances used as process agents (decision XXI/3);
   (f) Investigation by the Technology and Economic Assessment Panel into alternatives to ozone-depleting substances in exempted feedstock and process-agent uses and assessment of the feasibility of reducing or eliminating such uses and related emissions (decision XXI/8).
7. Environmentally sound management of banks of ozone-depleting substances (decision XXI/2, paragraph 7, and decision XXII/10).
8. Synthesis report of the 2010 assessments of the Montreal Protocol assessment panels.
9. Potential areas of focus for the assessment panels' 2014 quadrennial reports.
10. Status of Nepal relative to the Copenhagen Amendment to the Montreal Protocol.
11. Other matters.
12. Adoption of the report.
13. Closure of the meeting.

C. Organization of work

11. The Co-Chair presented a proposal on the organization of work. The Working Group adopted the proposal, as revised to permit the prompt establishment of contact groups, and agreed to establish such contact groups as it deemed necessary to accomplish its work.

III. Report of the Technology and Economic Assessment Panel's task force on the 2012–2014 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol

A. Presentation

12. Mr. Lambert Kuijpers, Co-Chair of the Technology and Economic Assessment Panel, and Mr. Roberto Peixoto and Mr. Miguel Quintero, members of the Panel, gave a presentation on the Panel's assessment of the funding required for the 2012–2014 replenishment of the Multilateral Fund. A summary of their presentation, as submitted by the presenters and without formal editing, is set out in annex II to the present report.

13. A period of questions and answers followed the presentation. In response to one question, Mr. Kuijpers explained that a group of countries described in the draft report as having ozone-depleting-substance consumption of 20,000 tonnes or less had included two countries whose consumption had in fact been slightly higher; the group had accordingly been redesignated in the final version of the report to include countries with consumption of 25,000 tonnes or less. That change did not, however, affect the calculations or figures given.

14. He also explained that the selection of a 75 per cent high-global-warming-potential and 25 per cent low-global-warming-potential option had been based on a detailed analysis of many subsectors in the refrigeration and air-conditioning sector, and best reflected the current situation. Whatever division was used, however, made no significant difference to the cost figures. The incremental operating cost for the sector had been capped by the Executive Committee; only the incremental capital costs varied, and it was impossible to say with certainty whether the threshold values were too low. He noted that both scenarios presented by the Panel were comparable, and it was on that basis that the Panel had reached the cost-effectiveness figures shown.

15. Responding to a question about the applicability of decision XIX/6, he said that the Panel had taken account of all Executive Committee decisions and used the same language as was used in those decisions. He expressed agreement with the remark that adoption of the 90 per cent foam and 10 per cent servicing scenario might cause minor difficulties in the third triennium because all foam production would have been phased out.

16. In response to a question concerning the use of water and carbon dioxide in foam production, he said that the report explained that the cost-effectiveness of that approach in the foams sector hinged on two factors: the technology chosen for HCFC replacement and the size of the enterprise at issue. He confirmed that the option had been considered by the Panel when calculating cost-effectiveness, pointing out two technical drawbacks that it entailed.

17. Responding to a question about the omission of retrofitting as an option in the refrigeration sector, he agreed that, while the technique might be a low-cost option, further research would be necessary. He also noted that the Panel had applied the cost-effectiveness figure of $14.5 per kilogram.

18. In response to a question, the co-chair confirmed that in the final version of the replenishment report, the task force included the funding of production closure of swing plants based on a cost-effectiveness figure of $3 per kilogram.

19. Concerns were expressed over the lack of change shown in the report for items that might in fact increase or decrease over time; funding for institutional strengthening, for example, was reviewed regularly by the Executive Committee and could thus change, and other costs, which were projected in the report to increase at 3 per cent annually, might actually decrease because there would be progressively fewer chemicals to phase out and because the implementing agencies would have gained experience and knowledge. In response Mr. Kuijpers said that as there was no reliable information on likely developments it had been decided to use the constant figures or apply a percentage growth factor. Furthermore, while project preparation costs might fall somewhat, given that stage two of HCFC phase-out management plans might involve a more complicated consideration of application sectors it had appeared more prudent for the Panel to assume that they would remain constant.

20. One representative said that the report used high estimates for incremental capital and operating costs in the foam and commercial refrigeration sectors; the Executive Committee, by contrast, had at its most recent meeting approved numerous HCFC phase-out management plans, some of which included cost-effectiveness figures far superior to those used in the report. That information should be taken into account in any subsequent iteration of the report. In response, Mr. Kuijpers said that the estimates had been made at a time when there had been few Executive Committee approvals and so were based not on such approvals but rather on capital and operating costs, which varied according to technological considerations. In addition, in some cases the lower costs in early project approvals were attributable to country-specific factors, which were not applicable to all parties operating under paragraph 1 of Article 5.

21. One representative pointed out that the report highlighted a discrepancy between reported consumption and production that was difficult to understand, asking whether the Panel intended to explain how that discrepancy might affect the replenishment. Mr. Kuijpers clarified that the Panel had examined the figures for all parties operating under paragraph 1 of Article 5 and for those not so operating, but had done so at the global level and not for individual countries.

22. One representative suggested that some areas on the production side needed further investigation. For example, the report assumed that production phase-out would result from plant closures but a wider range of outcomes should be considered, such as a shift to feedstock production.

Mr. Kuijpers explained that many additional scenarios could have been envisaged, but that that would have made the already complex report yet more difficult to understand. Nevertheless, such issues could be considered in a supplement to the report.

B. Discussion

23. Following the presentations there ensued a general discussion on the report of the replenishment task force.

24. Several representatives welcomed the report as a starting point for discussion and suggested that it would be useful to hold discussions in a contact group. One said that the triennium 2012–2014 would be critical for the accelerated phase-out of HCFCs. Countries would face many challenges, time would be short and there would be important technology choices to be made. Another queried some methodological assumptions in the report and said that he thought that greater economies of scale could be achieved.

25. One representative said that while the report was a useful input for the replenishment process it could not be used to prejudge the decision on replenishment to be taken by the Meeting of the Parties. The Meeting of the Parties would have to discuss economic sustainability when considering replenishment: many parties not operating under paragraph 1 of Article 5 were experiencing serious financial difficulties, while at the same time a number of parties so operating had achieved high economic growth and were receiving funding for projects. Such a situation was unsustainable and there might be a need to reconsider the financing system to better fit the realities of the global economy.

26. Another representative, speaking on behalf of 27 parties, observed that 81 countries had HCFC phase-out management plans in place and expressed the hope that with the replenishment all 144 eligible parties would be able to make similar progress. While he agreed in general with the task force on the models being discussed, he suggested, among other things, the consideration of other scenarios, the identification of possible gaps in data and further analysis of the HFC-23 crediting issue associated with the production of HCFC-22.

27. One representative pointed out that the task force had only considered the issue of stable funding and said that it was important that the replenishment should be adequate to cover all costs required to enable compliance with all control measures. Echoing the point, another recalled that decision XIX/6 called for funding that was both stable and sufficient to cover all incremental costs of the accelerated phase-out of HCFCs. She also said that there was a need to tap into all available resources for the next replenishment period and for the Executive Committee to make full use of all resources for approved projects.

28. One representative said that it was important for the task force to make clear the climate impacts under the various scenarios and to consider what amount might be required to help finance climate benefits.

29. Several representatives said that institutional strengthening was important to meeting the objectives of the Protocol, while others stressed the compliance needs of the parties. The replenishment, they said, should therefore take into consideration the effects of inflation and its impact on institutional strengthening. One representative, pointing out that his country was currently in crisis following a natural disaster and could not for the time being take advantage of institutional strengthening, asked that the task force consider what might be done in such situations.

30. The Working Group agreed to establish an open-ended contact group, co-chaired by Mr. Jozef Buys (Belgium) and Ms. Laura Berón (Argentina), to discuss the issue of replenishment further. The group was also asked to prepare a draft decision on the extension of the fixed-exchange-rate mechanism for three years.

31. Following the contact group's deliberations, its co-chair reported that the group had completed its work and developed a list of suggestions for the further development of the supplementary report of the replenishment task force. That list is set out in annex III to the present report, where it is presented as agreed by the contact group, without formal editing. As instructed, the contact group had also taken up the fixed-exchange rate mechanism and agreed on a draft decision, similar to previously adopted decisions on the same subject, for consideration by the Twenty-Third Meeting of the Parties.

32. The Working Group agreed that the list of issues developed by the contact group should be annexed to the present report and agreed to forward the draft decision on the fixed-exchange-rate mechanism to the Twenty-Third Meeting of the Parties for further consideration. The draft decision is set out in chapter II of annex I to the present report; the list of suggestions is set out in annex III. As with all the draft decisions forwarded to the Twenty-Third Meeting of the Parties, notwithstanding the

absence of square brackets the draft decision was forwarded to the Twenty-Third Meeting of the Parties for further consideration; it therefore did not constitute agreed text and was subject to further negotiation.

IV. Proposed amendments to the Montreal Protocol

A. Presentations

33. The representatives of Canada, Mexico and the United States of America jointly presented a proposal to amend the Montreal Protocol to include hydrofluorocarbons (HFCs) (UNEP/OzL.Pro.WG.1/31/5), a different version of which had been considered by the Working Group at its thirtieth meeting. The earlier version had been revised to take into consideration some comments that had been received at that meeting. Thus, the manner of calculating baselines had been adjusted and the language for HFC-23 by-product emissions that were not covered by the Clean Development Mechanism had been streamlined. Trade, the implementation of licensing systems and reporting requirements had also been addressed.

34. They said that there was a pressing need to deal with the unintentional climate consequences of the phase out of ozone-depleting substances, which was to be seen in the enormous growth in HFCs that had occurred as the parties to the Protocol had phased out CFCs and HCFCs. The parties, they suggested, bore a moral responsibility to respond to that challenge and to maximize the climate benefits gained from phasing out ozone-depleting substances. The total cumulative benefit of the proposed amendment would be the elimination of more than 98 gigatonnes of carbon dioxide equivalent up to the year 2050. They also said that the Montreal Protocol was particularly suited to dealing with HFCs as it was a model of global cooperation, had the knowledge of the relevant sectors and had already begun to tackle the issue of climate-friendly alternatives to HCFCs. Furthermore, it had the required technical expertise and an effective compliance regime that was cost-effective and could easily be applied to HFCs. Alternatives to HFCs were being developed and action under the Protocol would send a strong signal to industry to continue such work. The relationship between the Montreal Protocol and the United Nations Framework Convention on Climate Change, they said, was complementary.

35. The representative of the Federated States of Micronesia also presented a proposed amendment to the Protocol (UNEP/OzL.Pro.WG.1/31/4). Just as the other proposed amendment, the proposal called for the phase-down of HFC production and consumption. He stressed, however, that the use of HFCs might have to grow before they could be phased down as their use by developing countries was required until substitutes became available. The Protocol was the most appropriate treaty under which to tackle HFCs, as the increase in those substances stemmed from decisions adopted by the parties to the Protocol. The Executive Committee of the Multilateral Fund had in the previous week approved, among other things, HCFC phase-out management plans for Brazil, China and Indonesia; the Montreal Protocol's experience with the phase-out of CFCs and HCFCs was extensive, and meant that it was best placed to phase down the use of other gases such as HFCs.

B. Discussion

36. Many representatives expressed support for the general goal of the proposed amendments. Many reasons were cited, including that HFC abundance in the atmosphere had increased because of efforts under the Protocol to phase-out ozone-depleting substances; that the successful history of the Protocol and the potential to use well-known, proven and cost-effective institutions such as the Multilateral Fund afforded the best opportunity to tackle HFCs successfully; that HFC production and use had increased significantly in recent years and would continue to grow without action under the Montreal Protocol; that while HFCs did fall under the purview of the Framework Convention on Climate Change's Kyoto Protocol, the proposals were in harmony with the intentions and specific provisions of the Framework Convention and the Kyoto Protocol, and there was no legal impediment to tackling HFCs under the Montreal Protocol provided that parties structured and coordinated such actions appropriately; that climate change and the challenge of sustainable development were urgent issues that should be addressed through all available means; that it was in the interest of parties operating under paragraph 1 of Article 5 to address HFCs within the framework of the Montreal Protocol as they would then be able to take advantage of the resources of the Multilateral Fund, the expertise of the Technology and Economic Assessment Panel and the cooperation of other networks and partnerships that had developed under the Protocol; that alternatives to many uses of HFCs were already commercially available and the development of others would be sparked by the adoption of the proposed amendments; that HFCs had been under discussion within the Montreal Protocol regime for many years, within the context of evaluating alternatives to CFCs and HCFCs, and the proposed amendments represented a logical continuation of those discussions; that many of the concerns

expressed had been adequately addressed in the current proposals; and that after three years of discussion it was time for the parties to reach an environmentally sound agreement.

37. Some other representatives, however, expressed opposition to the proposed amendments. The views expressed included that HFCs were not ozone-depleting substances and thus could not be dealt with under the Vienna Convention and Montreal Protocol, which had been adopted specifically to tackle threats to the ozone layer; that HFCs were specifically addressed by the Kyoto Protocol and that measures to deal with them under the Montreal Protocol could have counterproductive legal, political and technical implications; that even if it should prove legally and politically possible to tackle HFCs under the Montreal Protocol, doing so would require waiting for the conclusion of related discussions under the climate regime; that HFCs were important alternatives to HCFCs in many countries and restricting them would impede the accelerated phase-out of HCFCs; that taking on HFCs would divert time, attention and resources from both the core mission of the Montreal Protocol and the most important implementation priorities, including the phase-out of HCFCs and measures to deal with banks of ozone-depleting substances; that, given the financial difficulties noted by various donors, new obligations to phase out HFCs might not be accompanied by new and adequate financial and technical assistance; that alternatives to HFCs did not exist for all uses, in all regions or in all climate conditions, especially for the most widely used HFCs in the air-conditioning and refrigeration sector; and that consultations with key stakeholders in several countries had revealed significant opposition to the proposed amendments and an inability to implement them in the time frames contemplated by the proposals.

38. Many representatives said that the proposed amendments as revised still did not address particular issues or answer important questions. Some expressing that view voiced opposition to the proposed amendments while other expressed support for continuing deliberations in the hope of forming a contact group to begin to discuss and resolve the relevant issues. Issues raised in that regard included the legal and technical implications of the proposed amendment for the relationship between the Montreal Protocol, the Framework Convention on Climate Change and the Kyoto Protocol; the market penetration of non-HFC alternatives to HCFCs in the air-conditioning and refrigeration sectors; the environmental impact of HFCs, taking into account the comparative impact of the substances that they replaced and the comparative impact of substances dealt with under other environmental conventions; the availability and cost of alternatives to HFCs; the time available for developing countries to produce alternatives to HFCs; the impact of an HFC phase-down on future replenishments of the Multilateral Fund; the comparative cost and efficacy of HFCs versus those of the potential low-global-warming potential alternatives to HFCs; the impact of the proposed amendment on very-low-volume-consuming countries; the impact of the accelerated HCFC phase-out on developing countries; how to treat HFCs with low global-warming potential; how to address HCFC/HFC conversion projects developed to meet the accelerated HCFC phase-out schedule; and how the Multilateral Fund should deal with potential triple conversions, or situations in which plants that had received funding for CFC and HCFC conversion would seek further funding for HFC conversion.

39. A number of representatives expressed support for other options for reducing HFC production and use. They included providing incentives for parties to adopt low-global-warming potential (low-GWP) alternatives to HCFCs, developing cost-effectiveness thresholds to ensure that more low-GWP alternatives were included in projects supported by the Multilateral Fund, and providing more financial and technical support for pilot projects using low-GWP alternatives. Several representatives suggested formulating a request to the Technology and Economic Assessment Panel to examine specific issues raised in the discussion.

40. Many representatives expressed support for establishing a formal contact group to consider the proposed amendments and all issues raised during the discussion. Several others, however, objected to establishing a formal contact group, saying that to do so would take time away from consideration of other important issues. One representative said that his delegation had no mandate to participate in a formal contact group on the proposed amendments. Some representatives said that the discussions of the proposed amendments at previous meetings precluded the possibility of establishing a formal contact group to discuss them at the current meeting. Several representatives suggested that the issues raised should instead be the subject of informal discussions to take place on the margins of the current meeting.

41. The representative of the United States undertook to answer the variety of comments and questions concerning the proposals by grouping them thematically. In what he termed the broadly scientific area, he confirmed that there were indeed several reliable studies into HFC growth, for which he could provide detailed references and some of which took account of measures to control HFC growth.

42. In the area of legal issues and the relationship between the Montreal Protocol and the Framework Convention on Climate Change, he argued that the Montreal Protocol could legitimately deal with HFCs because their use was a direct consequence of the process of phasing out ozone-depleting substances. Furthermore, dealing with HFCs was consistent with Article 2, paragraph 2, of the Vienna Convention, calling on parties to cooperate in harmonizing policies as part of ozone-depleting substance phase-out, and would not undermine the work of the Kyoto Protocol; reducing production and consumption under the Montreal Protocol would reduce levels of emissions, as sought under the Kyoto Protocol. In addition, the proposed amendment specifically stated that it was not intended to have the effect of excepting HFCs from the operation of the Framework Convention and the Kyoto Protocol.

43. He acknowledged that tackling HFCs would entail additional commitments and responsibilities for parties, noting that informal discussions were under way on the possibility of requesting the Technology and Economic Assessment Panel to assess the costs of an HFC phase-down. The United States would be happy to support further studies of potential market conditions both in parties operating under paragraph 1 of Article 5 and in those not so operating, including in respect of many of the issues raised during the discussion of the proposed amendments.

44. In response to the questions asked about the status and availability of alternatives to HFCs, and potential market penetration, he stressed that the proposal was for an 85 per cent phase-down from the baseline, not a complete phase-out. That was in recognition that alternatives were lacking in some sectors, which would constitute the 15 per cent of remaining HFC use. He also noted that in some areas the transition might be from high-GWP HFCs to low-GWP HFCs or hydrofluoroolefins. In addition, he said, adopting the proposed amendment would spur development of climate-friendly alternatives to HFCs; the current availability of HFC alternatives was comparable to that of CFC and HCFC alternatives when the phase-out of those chemicals had been envisaged. He then provided considerable detail regarding the availability of alternatives in various sectors.

45. The representatives of Canada, Mexico and the Federated States of Micronesia reiterated their earlier stated positions, supporting the points raised by the representative of the United States. In addition, the representative of Canada responded to an observation that parties not operating under Article 5 had only committed themselves to providing stable funding under the Multilateral Fund. He said that the limitation to stable funding only applied in the context of decision XIX/6 to the phase-out of HCFCs. It was clearly understood that should additional obligations be agreed to under the Montreal Protocol, such as in relation to HFCs, additional funding would be provided. He further indicated that, while discussions on funding for CFCs and HCFCs has been challenging, to date parties had been able to reach agreement on funding issues under the Multilateral Fund and successfully move forward.

46. Given the lack of consensus on how to proceed, the Co-Chair proposed that the matter should be discussed further in plenary session and that discussions might also continue in an informal group.

47. The proponents and a number of other representatives expressed disappointment at the lack of consensus on discussing the matter further in a formal contact group, describing it as setting an unfortunate precedent. One said that while his Government accepted the Co-Chair’s procedural proposal it reserved its right to pursue the matter formally during the Twenty-Third Meeting of the Parties.

48. One representative expressed satisfaction with the Co-Chair’s decision, saying that in the 20 years of the Montreal Protocol formal contact groups had been established only to discuss matters that fell under the mandate of the Protocol and of the Vienna Convention.

49. The Co-Chair also suggested that further discussion in plenary session should concentrate on five particular elements: the baselines and the scope of the amendment proposals; the phase-down schedules for parties operating under paragraph 1 of Article 5 and parties not so operating; the availability of alternatives, which would affect those schedules; technical and financial assistance aspects; control of by-products from HCFC-22 production; and legal issues and the relationship with the Framework Convention on Climate Change.

50. One representative said that the proposed amendments did not help the climate regime, owing to the sensitive political situation surrounding the climate change discussions; nor did it help the ozone layer: parties were currently grappling with the accelerated phase-out of HCFCs, and spending time discussing an amendment to cover HFCs would run counter to the core mandate of the current meeting. In addition, it was not beneficial to the spirit of cooperation characteristic of the activities of the Montreal Protocol.

51. The second issue, he said, was that from a legal perspective the matter of HFCs fell squarely under the Kyoto Protocol, whose Clean Development Mechanism was already quite successfully controlling them. The third issue was that from a technical standpoint there was considerable uncertainty about the status and availability of possible alternatives to HFCs. The technology was currently insufficiently mature for useful consideration by the Parties. The discussion of the amendment was therefore moot.

52. The Co-Chair recalled that in earlier discussions there had been some aspects of the amendment proposal that representatives had been interested in taking further. She suggested taking into account the concern of some parties that the Working Group should address the three elements that she had enumerated earlier, beginning with the technical issue of the availability of alternatives in relation to the phase-out schedules of the amendment proposal, technical and financial assistance, and, legal issues and the relationship with the Framework Convention on Climate Change. Some representatives expressed the view that it was premature to discuss specific technicalities related to the proposed amendment.

53. One representative said that reducing HFC use obviously helped the climate regime and that while doing so did not directly help the ozone layer it was a responsibility of the Montreal Protocol to reduce the use of harmful chemicals that had been introduced as a consequence of phasing out ozone-depleting substances. As to how the proposed amendment affected the historical spirit of cooperation of the Montreal Protocol, that was a question of perspective: some representatives saw it as a logical positive outgrowth of the work undertaken over the past two decades. He stressed that the model for financial assistance to countries would be the same as had been used so successfully by the Montreal Protocol over those two decades, with all its well-tried components.

54. One representative spoke on the availability of alternatives, recalling that the Technology and Economic Assessment Panel had shown in 2009 and 2010 that low-global-warming-potential alternatives were already available in some sectors, and that the history of the Montreal Protocol showed that a dynamic regulatory framework could drive technical innovation. Fundamental to the process of phase-down and its tail was the baseline: it was crucial that it should be set at a level that would require significant reduction efforts, but if it included historical HCFC consumption data that might disadvantage those countries that had phased out HCFCs more swiftly than others or had leap-frogged the use of HCFCs.

55. He suggested that the Multilateral Fund could serve as the financial mechanism to handle the incremental cost of phasing down HFCs. In addition, private-sector involvement might also be a subject for further discussion but needed thorough consideration, and the Technology and Economic Assessment Panel could be mandated to provide a preliminary assessment of the cost of phase-down to facilitate the discussion.

56. A number of representatives sought clarification of the way in which the baselines and phase-down schedules had been calculated.

57. The representative of the United States explained that the proposed baselines had been calculated on the basis of 2005–2008 HCFC data for parties operating under paragraph 1 of Article 5, while for parties not so operating the schedules had been based on combined data, including data on HFCs, for the same period. The schedules proposed had taken into account the availability of some alternatives and the impending availability of some others. On that basis parties operating under paragraph 1 of Article 5 would begin with a freeze in 2017, while the parties not so operating would start reducing HFCs in 2015.

58. Several representatives then suggested that data from more recent years should be used for calculating the baseline, while others questioned whether the baseline for HFCs should be based on HCFC data, suggesting that for parties operating under paragraph 1 of Article 5 the baseline could be calculated directly from HFC data.

59. The representative of the United States welcomed the suggestion of using more recent years to calculate the baselines, saying that if HFC data were widely extant in some parties operating under paragraph 1 of Article 5 they could indeed be used for the calculation of the baseline. Regarding the comment that including HCFC data could disadvantage parties that had eliminated the use of HCFCs earlier than scheduled, the proponents had considered that the baseline data should reflect both HFC and HCFC use, but there was room for flexibility in the proposal.

60. One representative said that his understanding from the earlier discussions was that some basic issues might be discussed but specific elements of the proposed amendment could not, as the Working Group had no mandate to discuss them. Furthermore, he said, none of his country's questions had yet been answered. For example, his country had sought to know of any reliable scientific study on the

effect of HFCs on climate, by comparison with all other greenhouse gases, taking into account the measures already taken under the various environmental treaties, but the proponents had been unable to cite a single authoritative study on that subject. He suggested that the Technology and Economic Assessment Panel could be mandated to carry out such a study.

61. The proposed amendment, he said, was an attempt to amalgamate the Vienna Convention and the United Nations Framework Convention on Climate Change, which was a political step that could only be taken, if at all, at a joint meeting of the parties to the two conventions. Furthermore, it was a fundamental reality that currently there were no technically proven, economically viable and environmentally benign alternatives to HFCs. The parties operating under paragraph 1 of Article 5 were already experiencing constraints in phasing out HCFCs owing to a lack of low-global-warming-potential alternatives, especially for refrigeration and air-conditioning applications. He observed that the parties not so operating had been converting from HCFCs to HFCs with abandon until recently, without any consideration of global-warming potential. Those countries were endeavouring to force developing countries to abandon HFCs, justifying their stance by offering to provide technical and financial assistance. Developing-country stakeholders had agreed to the accelerated phase-out of HCFCs on the basis that there were technically proven HFC technologies that were used in developed countries, but uncertainty had been created by the proposal to amend the Protocol.

62. The Co-Chair suggested that some of the concerns raised might be considered in the contact group that was discussing the draft decision on additional information on alternatives to ozone-depleting substances.

63. Responding to questions that had been raised, the representative of Canada proposed that, if it would be considered useful, information could be provided on countries' baselines in terms of carbon dioxide equivalent. Given the enormous growth in HCFC consumption, those baselines would be quite high, giving countries flexibility and room for manoeuvre in the phase-down period, allowing some transition to HFCs in earlier years when no other alternatives to HCFCs were available.

64. He said that there was in fact a scientific study that provided the information that the previous representative had been seeking, but that a further study by the Technology and Economic Assessment Panel would also be helpful. Information was also available from reporting on HFC emissions under the Framework Convention on Climate Change. Having incomplete information did not justify not taking needed action, however, and there was no need to tackle all sectors at once. He stressed that Article 2 of the Vienna Convention provided sufficient scope for the Montreal Protocol to tackle substances that had an adverse impact as a result of actions taken to control ozone-depleting substances.

65. While he sympathized with the legal and political concerns raised, he pointed out that in three years no alternative to the proposed amendment had been suggested, either under the Montreal Protocol or under the Framework Convention on Climate Change. If there were alternatives to amending the Protocol, they should be revealed. If there were none, and the current proposal was unacceptable, then it was difficult to see a way forward.

66. One representative suggested that rather than concentrating on a phase-down of HFCs it would be better to explore a range of other options for climate-friendly alternatives that would avoid the risk of interfering with the Kyoto Protocol. He said that the Framework Convention on Climate Change and its Kyoto Protocol constituted the relevant forum for addressing climate change and HFCs, and that any action undertaken in that regard under the Montreal Protocol must be complementary and coherent with the principles and provisions therein enshrined, in particular the principle of common but differentiated responsibilities. He observed that it was of paramount importance that developed countries should demonstrate an enhanced level of ambition and leadership under the climate change regime with a view to addressing climate change in a comprehensive manner. He said further that the proposed amendments were too controversial and had not met with consensual acceptance. Other policy approaches that would accommodate the needs and concerns of all Parties, in the spirit of consensus that the parties to the Montreal Protocol had long relied upon, should therefore be explored. Possible ideas in that regard might include increasing the cost-effectiveness threshold used by the Multilateral Fund to encourage the adoption of low-global-warming-potential alternatives and developing pilot-projects funded by the Multilateral Fund.

67. In response to questions, various representatives gave information on the regulatory provisions that had been put in place in their countries to prevent the phase-in of high-global-warming-potential substances as HCFCs were phased out.

68. One representative said that climate change, which some representatives had described as a political matter, was a matter of survival for small island States. Other representatives evoked the principle of common but differentiated responsibilities. It was said, too, that the disinclination to consider a phase-down of HFCs was a moral stance, not a monetary one.

69. Following the discussion, the representative of a non-governmental organization said that it was already possible to meet nearly all cooling needs with climate-friendly, technologically proven, safe and cost-effective technologies that used natural refrigerants, which in most applications were more efficient than their fluorocarbon-based counterparts. He also said that it was in the direct economic and environmental interest of developing countries to bypass the production of HFCs when phasing out HCFCs and that it behooved parties not operating under paragraph 1 of Article 5 to set an example by immediately taking further regulatory and fiscal measures to accelerate the phase-down and phase-out of HFCs domestically.

70. The Working Group agreed that interested parties would continue to discuss the proposals to amend the Protocol on an informal basis and that they would not be further discussed during the current meeting.

V. 2011 progress report of the Technology and Economic Assessment Panel

A. Presentation

71. Mr. Stephen O. Andersen, co-chair of the Technology and Economic Assessment Panel, opened the presentation of the 2011 progress report of the Technology and Economic Assessment Panel, which began with a report by two co-chairs of the Medical Technical Options Committee, Mr. Ashley Woodcock and Mr. José Pons Pons. Mr. Masaaki Yamabe and Mr. Ian D. Rae, co-chairs of the Chemicals Technical Options Committee, presented the report on that committee's activities, and Mr. David Catchpole, co-chair of the Halons Technical Options Committee, reported on that committee's work. Ms. Marta Pizano, co-chair of the Technology and Economic Assessment Panel, and Mr. Daniel Verdonik, co-chair of the Halons Technical Options Committee, outlined the work of the task force on decision XXII/22. Mr. Andersen closed the presentation by providing some highlights of the Panel's overall activities. A further presentation was made by Mr. Verdonik and Mr. Alain Coutu, International Civil Aviation Organization, on the progress made in phasing out halon use in the civil aviation sector. Summaries of the presentations, as submitted by the presenters and without formal editing, are set out in annex II to the present report.

72. A period of questions and answers followed the presentations. One representative asked why his country's request for an exemption for salbutamol and corticosteroid CFC metered-dose inhaler exports had been refused, while its request for an exemption for CFC exports for cromoglycate metered-dose inhalers had been granted. The representative of the Medical Technical Options Committee explained that the decision to allow the exports for cromoglycate inhalers had been based on the fact that alternatives had not yet been approved by the regulatory authorities. He also clarified that the discussion in the progress report of exports of HCFC metered-dose inhalers by one country, which the representative of that country said his country had never reported, had been based on information obtained from two technical experts and from the website of a major manufacturer of metered-dose inhalers in that country. Any misunderstandings in that respect could be resolved in bilateral talks between the Committee and the country, which could also deal with the issue of exemptions requested by the country for laboratory and analytical uses.

73. The representative of Canada provided clarification on section 3.7 of the Panel's progress report, which included the statement that his country party had imported 2,500 CFC-based metered-dose inhalers, explaining that the figure represented domestic sales of existing stocks rather than imports.

74. Another representative requested confirmation that, in reviewing essential-use nominations, the Medical Technical Options Committee had taken into account the principle that parties should only maintain stocks representing one year of operational supply for the manufacture of CFC-based metered-dose inhalers. The representative of the Committee noted that one party held stocks in excess of that amount but had indicated that no more CFCs would be manufactured until those stocks had been reduced to the established limit. On a related point raised by another representative he noted that there had been a case in one party of CFCs stockpiled for essential uses being diverted to process agent uses. As that arguably violated the principle that stockpiles created for a specific use should be destroyed if not put to that use he suggested that the parties might wish to discuss the matter.

75. In response to a question, the co-chair of the Panel said that there was as yet no estimate of the resources required for the creation of a database of expertise needed by the assessment panels. One representative voiced his intention to submit a conference room paper endorsing a new co-chair of the Chemical Technical Options Committee and a senior expert of the Technology and Economic Assessment Panel.

76. On the subject of the Panel's efforts to improve its procedures, one representative asked whether related work under other multilateral environmental bodies had been considered during the drafting of guidelines for member recusal. In response, the representative of the Panel noted that information had recently been obtained from the Intergovernmental Panel on Climate Change and the American Academy of Sciences, among other organizations. The literature had been circulated to the Panel and would be taken into account when finalizing the preliminary guidelines.

77. One representative reported that he had presented a list of detailed questions to the Panel. While he would pursue them further in bilateral discussions, he wished to highlight various issues, including in respect of feedstock uses, on which he intended to submit a conference room paper. In response to a question about estimates of total emissions from feedstock uses, the representative of the Chemical Technical Options Committee described difficulties in making such estimates owing to the lack of direct data and the fact that estimates had to be developed on the basis of factual anecdotes, estimates of usage, pollutant transfer records and other sources. Estimates were also difficult to confirm, as there was no desire on the part of industry representatives to reveal confidential commercial data.

78. The same representative clarified that, contrary to a statement in the Medical Technical Options Committee's report about CFC stockpiles, the European Union had phased out CFCs earlier than other parties and that under the applicable domestic legislation none of the few remaining stocks could be exported. The stocks had not been included in the accounting framework because no nominations had been requested for medical uses. The representative went on to ask how the Committee had quantified new CFC production for metered-dose inhalers and sought information on the use of CFCs in Chinese traditional medicine; the application of the phase-out plan in China; the production of dry-powder metered-dose inhalers in China; and levels of stocks in China.

79. The representative also requested clarification regarding the essential-use nominations for one party's aerospace industry, saying that according to its phase-out agreement only 80 metric tonnes should have been recommended instead of the 100 metric tonnes actually recommended. The representative of the Chemical Technical Options Committee explained that the recommendation of the Panel was based on the fact that the number of manned missions into space was expected to increase, along with the number of space vehicles, and that there was growing international market demand for space services.

B. Discussion

80. Following the presentations, two representatives made general comments on the progress report of the Technology and Economic Assessment Panel.

81. On the issue of the Panel's operating procedures, one representative welcomed the Panel's recommendations and stressed the need to ensure that the Panel selected the most appropriate experts for its activities in the most impartial way possible. The process for selecting experts for the task force on ozone-depleting substance destruction could serve as a model for future exercises of that nature. The draft guidelines on recusal of members would benefit from further development and consultation with other multilateral environmental agencies and should not be applied at the current time. As to minority reports, both representatives urged the technical options committees to do their utmost to avoid them.

82. With regard to decision XXII/22 and the nomination process, one representative said that the issue of ensuring balance in the membership of the Technology and Economic Assessment Panel and its technical options committees was too complex to resolve in the short term without further discussion. The issue of the resources needed to create and expand a searchable database of experts also required more attention. Some issues that should have been examined by the task force on guidelines for the nomination of experts, but had not been featured in its analysis, included the length of members' terms on the Panel and its committees, the reappointment of members and the need to communicate with national Governments when their nationals were nominated. One representative announced that she would submit a conference room paper on the nomination of experts.

83. Both representatives thanked the Halons Technical Options Committee and the International Civil Aviation Organization for working together to reduce halon use in airframes, noting that continuing cooperation would help to resolve any future and outstanding issues, such as the use of halons in cargo bays.

VI. Issues related to exemptions from Article 2 of the Montreal Protocol

A. Nominations for essential-use exemptions for 2012 and 2013

84. The Co-Chair, recalling the presentation made by the Technology and Economic Assessment Panel on the essential-use exemptions for 2012 and 2013 (see chapter III of the present report), introduced the sub-item.

85. One representative drew attention to a conference room paper that his country had prepared on its nomination for an essential-use exemption for CFC-113 for aerospace applications.

86. One representative sought further information on the health and environmental impacts of alternatives to bromochloromethane. Another said that although the Medical Technical Options Committee had found that there were alternatives to the use of CFC-based metered-dose inhalers using ipratropium as the active ingredient technical difficulties existed that made their use problematic in his country. Consequently, the clinical acceptance and use of those alternatives would take some time.

87. Another representative congratulated Argentina, India and the Islamic Republic of Iran on not requesting essential-use exemptions for the current period. He expressed concern, however, that some countries continued to allow the registration of CFC-based metered-dose inhalers; he therefore supported the recommendation of the Medical Technical Options Committee that parties should consider domestic regulations to ban the launch or sale of new CFC-based metered-dose inhalers. In addition he suggested that parties should consider the suggestion of the Medical Technical Options Committee to fast-track administrative processes and that the Meeting of the Parties should consider discussing the use of the remaining stocks of pharmaceutical-grade CFCs.

88. One representative pointed out that in his country the mortality rate for bronchial asthma was significantly greater than that for heart disease, saying that affordable metered-dose inhalers were therefore essential. He also reported on a project in his country to limit the use of CFCs in metered-dose-inhalers being jointly implemented by the United Nations Industrial Development Organization and the Global Environment Facility. The project was expected to be completed by the end of 2013 and would provide co-financing of some $5.5 million for the retrofitting of two plants and clinical trials of new pharmaceutical preparations.

89. In reference to the conference room paper on essential-use exemptions for CFC-113 for aerospace applications in the Russian Federation, one representative indicated that bilateral talks with the representative of the Russian Federation had revealed that current substitution of CFC-113 with HCFCs would cease in the near future, that alternatives to CFC-113 would be implemented by 2013 and that CFC-113 would be phased out in 2016. He requested the Chemicals Technical Options Committee to examine the issue intersessionally with a view to the finalization of the draft decision by the Twenty-Third Meeting of the Parties. He also requested the Medical Technical Options Committee to provide the information that he had requested on CFC-based metered-dose inhalers intersessionally to facilitate further discussion of that issue by the Twenty-Third Meeting of the Parties.

90. The Working Group agreed to forward the revised draft decision, enclosed in its entirety in square brackets as set out in chapter V of annex I to the present report, to the Twenty-Third Meeting of the Parties for further consideration.

B. Nominations for critical-use exemptions for 2012 and 2013

91. The four co-chairs of the Methyl Bromide Technical Options Committee provided a detailed presentation on the Committee's findings as set out in the report of the Technology and Economic Assessment Panel. Ms. Pizano reported on global production and use of methyl bromide and the report of the Methyl Bromide Technical Options Committee on quarantine and pre-shipment uses of methyl bromide. Mr. Mohamed Besri presented the progress report on soils, Ms. Michelle Marcotte on structures and commodities and Mr. Ian Porter on the economic assessment. Mr. Porter and Ms. Marcotte then concluded the Committee's presentation by outlining the Panel's interim recommendations on nominations for critical-use exemptions for 2012 and 2013. Summaries of the presentations, as submitted by the presenters and without formal editing, are set out in annex II to the present report.

92. A period of general discussion and questions and answers followed the presentation. The Co-Chair suggested that in many cases it would be appropriate for representatives to pursue bilateral discussions with the Committee to discuss their own critical-use nominations or provide additional information.

93. Many representatives welcomed the fall in the number of critical-use nominations and the declining quantities of methyl bromide involved. The representative of Japan reported that his country would not seek critical-use exemptions for chestnuts after 2013.

94. Several representatives noted that many parties, including those operating under paragraph 1 of Article 5, had eliminated the use of methyl bromide in all sectors, calling upon other parties, particularly developed-country parties, to strive to do the same. Several representatives expressed concern regarding the existence of stockpiles of methyl bromide, uncertainties regarding the size of such stockpiles and the difficulties that they posed for the phase-out of methyl bromide. They called upon parties and the Methyl Bromide Technical Options Committee to tackle the issue. One representative called for limiting the number of times that a party could seek the same critical-use exemption.

95. One representative reported that the use of some alternatives to methyl bromide in his country over several years had resulted in the return of specific pathogens, demonstrating the need for more effective, reliable and long-lasting alternatives. He called upon the parties to support more research on such alternatives, particularly for use in developing countries. In response to a question from another representative, the co-chair of the Methyl Bromide Technical Options Committee explained that in the Committee's view the return of pathogens to soils treated with particular alternatives to methyl bromide, as outlined in the Committee's report, had resulted not from the ineffectiveness of the alternatives used but from their misapplication. Another co-chair stated that the reemergence of certain insects in structures did not mean that a new alternative was necessarily ineffective; experts in the affected areas did, however, need to be aware of the reemergence so that it could be tackled appropriately.

96. In response to a question, the co-chair of the Methyl Bromide Technical Options Committee clarified that Committee members did not generally recuse themselves from deliberations on critical-use nominations from countries of which they were nationals. One representative expressed concern regarding that practice, saying that he would consult the Committee and other parties with a view to possible policy changes.

97. Several representatives expressed significant concerns regarding the increased number of minority reports prepared by members of the technical options committees. Concerns for the policy, procedural and practical implications of such reports were expressed. In response to several questions, the co-chair of the Methyl Bromide Technical Options Committee explained that the reasons for the production of minority reports varied significantly and that questions regarding specific reports would be best discussed bilaterally. The Committee had sought to reach an interim decision on each recommendation at its first meeting, even if sections of the nomination had information gaps. The Panel provided an interim recommendation for approval on that part of the nomination on which there was consensus. Minority reports were then produced in respect of those parts of the nomination on which consensus was lacking, to explain the differing views of the Committee members. The Committee's interim report thus highlighted for the nominating party the specific parts of its nomination on which the Committee could not agree and for which additional information was required. The minority views expressed did not, contrary to what some parties feared, represent the Committee's conclusions. Several representatives, however, expressed significant concern with the process used by the Committee to derive its recommendation. One representative asked what the amount recommended by the majority of the Committee members was and why it did not correspond to what was stated in the Panel's report. In response to a question from one representative, the Co-Chair of the Panel said that the recusal guidelines were generally not applied during the Committee's work.

C. Quarantine and pre-shipment issues (decision XXI/10)

98. The Co-Chair, recalling the presentation made by the Methyl Bromide Technical Options Committee on quarantine and pre-shipment uses of methyl bromide (see chapter VI, section B, of the present report), sought views on the Committee's findings.

99. In response to a question, the Co-Chair noted that it took approximately two to four years for the parties to the International Plant Protection Convention to approve a particular technology or process for the replacement or reduction of methyl bromide used as a phytosanitary measure in quarantine and pre-shipment applications.

100. One representative expressed regret that, as indicated in the Committee's report, significant quantities of methyl bromide continued to be used for quarantine and pre-shipment purposes and that such consumption had increased. He called upon parties to improve their reporting and to consider the regulation of methyl bromide use in the quarantine and pre-shipment sector. He also called for increased support for relevant pilot projects.

101. One representative pointed to a comment in the Technology and Economic Assessment Panel report on the global increase in methyl bromide use from 2008 to 2009. Increased ozone losses over the Arctic warranted further assessment of the effects of reducing ozone-depleting substances with short lifetimes. Also, health and safety issues were drivers for minimizing methyl bromide use. Use in quarantine and pre-shipment applications was linked to international trade, making it a sensitive topic that had to be tackled without creating unjustified barriers to trade. Alternatives to methyl bromide existed, however, and even in the absence of alternatives in some cases, the amount of methyl bromide used could be reduced significantly. The parties had agreed to collect and report data on methyl bromide use in quarantine and pre-shipment applications, but it was necessary to harmonize information collection methods and share data on alternatives so that operators could choose the best quarantine and pre-shipment treatments. In that way, biosecurity standards would be met and unnecessary uses of methyl bromide avoided.

102. One representative called for swift action to determine the reason for the increase in methyl bromide use, noting that his country had completely banned all uses of methyl bromide. Several others called for better information on the issue of methyl bromide use in quarantine and pre-shipment applications, agreeing that there was a need for a better understanding of the reported increase in methyl bromide use between 2008 and 2009. Given the complexity of the issue, which involved trade and national jurisdictions, complete information was required to make informed decisions. It was also necessary to obtain more information on alternatives.

103. One representative pointed out that the Commission on Phytosanitary Measures had at its third session, held in Rome from 7 to 11 April 2008, adopted a recommendation for the implementation of the International Plant Protection Convention on the replacement or reduction of the use of methyl bromide as a phytosanitary measure. The recommendation requested the parties to the Convention to submit information on methyl bromide use. The reports submitted could serve as a source of information for the parties to the Montreal Protocol. To implement the investigation, cooperation with the Intergovernmental Panel on Climate Change was necessary.

104. One representative, speaking on behalf of a group of countries, said that, although methyl bromide was a controlled substance under the Montreal Protocol, it was noteworthy that the use of Methyl Bromide for quarantine and pre-shipment applications had never been subject to the Protocol's control. As a consequence, parties operating under paragraph 1 of Article 5 did not have detailed information about such applications. Consequently, those parties would require financial and technical resources to enable them to provide the information being requested by the proposed decision. He also noted that the requirement to use methyl bromide for quarantine and pre-shipment purposes was often imposed on exporting parties by importing parties for sanitary and agricultural reasons. Accordingly, any new controls on methyl bromide used for quarantine and pre-shipment purposes should consider both importers and exporters in order to achieve a fair and balanced management system that met the sanitary and agricultural requirements of the importing country. Finally, he said that prior to the adoption of any decision on the matter parties must conduct internal consultations with relevant institutions to assess whether it was feasible to adopt new reporting commitments and to assess the human and financial resources that would be needed to comply with such commitments.

105. One representative indicated that he had communicated with the Methyl Bromide Technical Options Committee regarding discrepancies in the data reported for his country in the database for 2008. Rather than increasing, as stated in the Committee's report, his country's consumption and production of methyl bromide for quarantine and pre-shipment had in fact decreased from 2007 to 2009. The global increase that was the focus of discussion might simply be a reflection of that data discrepancy in the report. It was, however, important to collect and disseminate the best, up-to-date information. It was possible that the Committee lacked complete data on methyl bromide use for quarantine and pre-shipment applications, as only 24 parties had provided such data, and only for the period 2004–2006, which was the last time that there had been an attempt to gather data globally. A simple process for data collection and an agreed schedule for the submission of those data were required to move forward constructively on the issue of methyl bromide for quarantine and pre-shipment purposes.

106. Another representative said that the growth in international trade might be one cause for the increase in methyl bromide use in quarantine and pre-shipment applications when all other uses of

methyl bromide were decreasing. He suggested, however, that methyl bromide reported for quarantine and pre-shipment purposes might actually be concealing consumption for other, controlled uses. It was imperative to close any such loopholes that could enable illegal methyl bromide use. On the matter of the availability of alternatives, there did not appear to be easy and cost-effective alternatives to methyl bromide for quarantine and pre-shipment uses in Africa. Cost constraints and stringent pest control requirements by importing countries created challenges for regions such as Africa where affordable alternatives were lacking.

107. Subsequently, the representative of the European Union introduced a conference room paper setting out a draft decision on quarantine and pre-shipment uses of methyl bromide. Outlining the draft decision, he noted that it would introduce measures to increase the amount and accuracy of information on quarantine and pre-shipment uses of methyl bromide so that parties could strategically review the relevant issues.

108. Several representatives said that there remained a significant shortage of information on issues relating to quarantine and pre-shipment uses of methyl bromide, apparent increases in such uses notwithstanding, and that the issue merited further discussion. A number of representatives expressed reservations regarding the specific reporting requirements envisaged in the draft decision, saying that they could be expensive and operationally difficult to implement.

109. Some representatives underscored the continuing need for quarantine and pre-shipment uses of methyl bromide, in particular to protect against invasive species or particular pests, noting too that it was often required for the import or export of particular products or exports to particular destinations. One representative reiterated concerns regarding the availability of effective and sustainable alternatives to methyl bromide.

110. The Working Group agreed that interested parties would engage in informal consultations and intersessional communications on issues raised by the draft decision and consider the issue further at the Twenty-Third Meeting of the Parties.

111. Subsequently, the representative of Kenya introduced, on behalf of a number of other representatives, a draft decision on key challenges facing methyl bromide phase-out in Africa.

112. In the ensuing discussion, two representatives expressed support for the draft decision, saying that it was challenging to find alternatives to the use of methyl bromide. Another said that while African countries had already received funding to phase out methyl bromide, difficulties persisted and for that reason the parties might wish to discuss the issues raised by the draft decision. That would require a complete understanding of the issues involved. He also said that any request for the Technology and Economic Assessment Panel to include financial assistance for methyl bromide phase-out activities in Africa in its assessment of the amount needed for the 2012–2014 replenishment should be addressed to the contact group on replenishment as the Panel would not be able to take up that issue until after the Twenty-Third Meeting of the Parties. Two representatives also said that the draft decision raised issues requiring further consideration, but expressed doubt about whether there would sufficient time for that at the current meeting.

113. The Working Group agreed that interested parties should engage in informal consultations on the way forward. In the meantime, the working group agreed to forward the draft decision, as set out in chapter VI of annex I to the present report enclosed in square brackets, to the Twenty-Third Meeting of the Parties for further consideration.

D. Laboratory and analytical uses of ozone-depleting substances (decisions XXI/6 and XXII/7)

114. The Co-Chair, recalling the presentation made by the Technology and Economic Assessment Panel on laboratory and analytical uses of ozone-depleting substances (see chapter III of the present report), introduced the sub-item.

115. One representative expressed gratification that the Chemical Technical Options Committee had begun to review international standards for the use of ozone-depleting substances, saying that she expected the Committee to conclude that such uses were no longer necessary for most procedures given the availability of alternatives. She also noted that no party operating under paragraph 1 of Article 5 had provided the Technology and Economic Assessment Panel with information on laboratory and analytical uses of ozone-depleting substances that had been removed from the list of exempted uses. She recalled that the Chemical Technical Options Committee had suggested a number of ways to deal with that lack of information, including periodic reporting by all parties on the quantities of ozone-depleting substance used for laboratory and analytical purposes, procedures being followed and alternatives being considered and the time required to phase them in. She also explained

that her country needed to retain the use of carbon tetrachloride as a solvent for specific chemical reactions and for medical research, along with bromonchloromethane as a reagent, because suitable alternatives were not readily available.

116. Another representative said that the report of the Chemical Technical Options Committee should be corrected to reflect the fact that his country had provided information on laboratory uses of ozone-depleting substances on 30 April 2011. He also said that although laboratory uses of carbon tetrachloride had ceased in his country as from 1 January 2011, halons were still required to test for oil in water. He called for the specific needs of developing countries to be considered when discussing laboratory and analytical uses of ozone-depleting substance and their alternatives.

117. One representative said that he could not support all the uses being recommended by the Panel for deletion as his country continued to require carbon tetrachloride for some uses. He also said that the Technology and Economic Assessment Panel required more information from parties operating under paragraph 1 of Article 5 on laboratory and analytical uses of ozone-depleting substances for the Meeting of the Parties to make an informed decision on whether to extend the deviations from use bans granted to parties operating under paragraph 1 of Article 5 until the end of 2011 by decision XXII/7.

118. Another representative asked whether the Chemical Technical Options Committee could quantify the amount of ozone-depleting substances used for laboratory and analytical purposes and the magnitude of the reductions that could be achieved through their elimination.

119. The Working Group agreed that interested parties would engage in informal consultations with the Technology and Economic Assessment Panel on the subject of laboratory and analytical uses of ozone-depleting substances.

120. Subsequently, the representative of China introduced a conference room paper setting out a draft decision on global laboratory and analytical-use exemptions. He stressed the difficulty that many developing-country parties faced in employing alternatives to ozone-depleting substances in laboratory and analytical settings. The proposal would thus allow parties operating under paragraph 1 of Article 5 to deviate from the existing laboratory and analytical-use bans in individual cases until 31 December 2014 and that the issue would then be reviewed by the Twenty-Sixth Meeting of the Parties.

121. Several representatives expressed concern at elements of the proposal. One said that the essential-use nomination process would be an appropriate avenue for parties believing that they needed to deviate from existing laboratory and analytical-use bans. Another noted that the draft decision did not appear to reflect recent relevant work by the Technology and Economic Assessment Panel. A third suggested that it would merit review by the Chemical Technical Options Committee. One requested more information on specific elements of the proposal and the hurdles faced in complying with particular bans.

122. The Working Group agreed that the proponent of the draft decision would discuss it further with interested parties. In the meantime, the working group agreed to forward the draft decision, as set out in chapter VII of annex I to the present report, to the Twenty-Third Meeting of the Parties for further consideration.

E. Joint report of the Technology and Economic Assessment Panel and the Executive Committee of the Multilateral Fund on progress in phasing out ozone-depleting substances used as process agents (decision XXI/3)

123. Introducing the sub-item, the Co-Chair drew attention to the joint report of the Technology and Economic Assessment Panel and the Executive Committee of the Multilateral Fund on progress in phasing out ozone-depleting substances used as process agents (UNEP/OzL.Pro/ExCom/62/Inf.2/Rev.1).

124. One representative welcomed the report, observing that updated information had been provided by parties on both consumption and emissions of ozone-depleting substance used as process agents. He said that the parties should take that new information into account when updating the tables in decision X/14, suggesting that interested parties should discuss the issue informally with a view to developing a draft decision for consideration by the Twenty-Third Meeting of the Parties.

125. The Working Group agreed that the contact group set up to discuss feedstocks and process-agent uses under sub-item 6 (f) would also further discuss the joint report under the present sub-item.

126. The resolution of this sub-item following the work of the contact group set up to consider it is described in paragraphs 133 and 134 below.

F. Investigation by the Technology and Economic Assessment Panel into alternatives to ozone-depleting substances in exempted feedstock and process-agent uses and assessment of the feasibility of reducing or eliminating such uses and related emissions (decision XXI/8)

127. The Co-Chair, recalling the presentation made by the Technology and Economic Assessment Panel (see chapter III of the present report), introduced the sub-item, highlighting the Panel's observation that emissions of ozone-depleting substances could occur at any time during production, storage or transport and that its prior estimate of 1,660 ODP-tonnes of emissions from feedstocks was only a rough approximation as global data on the production and use of ozone-depleting substances as feedstocks did not exist.

128. Several representatives expressed concern at the large discrepancy between reported emissions and emissions calculated through atmospheric measurements. The representative of the European Union suggested that it would be useful to discuss that issue together with process agents in a contact group, and put forth a draft decision on sustained mitigation of ozone-depleting-substance emissions from feedstock and process-agent uses that he suggested could be considered by that group.

129. Another representative noted that the figure used by the Chemical Technical Options Committee to estimate 2007 global feedstock emissions, i.e., 0.5 per cent of the total raw chemicals used or 1,660 ODP-tonnes, accorded closely with the data reported by parties under Article 7 of the Protocol for that year.

130. One representative said that the parties should continue to investigate the discrepancy between atmospherically measured concentrations and reported emissions and welcomed the draft decision on sustained mitigation of ozone-depleting substance emissions from feedstock and process-agent uses. He suggested, however, that the draft decision did not address the emissions discrepancy in respect of carbon tetrachloride in a sufficiently comprehensive manner and should be discussed in a contact group with the participation of the Chemical Technical Options Committee, the Scientific Assessment Panel, the Ozone Secretariat and the Multilateral Fund Secretariat, the latter of which had prepared technical documents on the issue. Several other representatives voiced support for the proposal to discuss the issues in a contact group.

131. The Working Group accordingly agreed to establish a contact group, chaired by Mr. Blaise Horisberger (Switzerland), to consider process agents, feedstocks and the discrepancy between reported and atmospherically measured emissions. The contact group would be open to all interested parties and members of the Chemicals Technical Options Committee, the Scientific Assessment Panel, the Ozone Secretariat and the Multilateral Fund Secretariat.

132. Subsequently, the representative of the European Union introduced a conference room paper containing a draft decision on feedstocks and process agents. He stressed that the data discrepancies between bottom-up and top-down estimates of carbon tetrachloride emissions were considerable. The decision would help to reduce emissions of ozone-depleting substances from feedstock and process-agent uses, improve reporting on such emissions and help to track the production and movement of ozone-depleting substances used for feedstock and process agents. The Working Group agreed that the contact group previously established would also discuss the draft decision.

133. Following the contact group's deliberations its co-chair reported that the group had discussed relevant issues but had been unable fully to discuss the text of the draft decision. The co-chair said that the members of the contact group had agreed that discussion of feedstock and process agents should be broadened to include other production and destruction, and that it should focus on carbon tetrachloride without neglecting other ozone-depleting substances. He said that regional monitoring for the identification of the main sources of potential emissions should also be considered. The contact group had also agreed that there was a need for further information and that the Technology and Economic Assessment Panel would be requested, pursuant to decision XXII/8 and any decision to be taken by the Twenty-Third meeting of the Parties, to assess the issues further. The representatives of the Scientific Assessment Panel and the Chemicals Technical Options Committee participating in the contact group had said that they would continue to study the issue and that the Committee in particular would launch an in-depth study of the issues.

134. The Working Group agreed to forward the revised draft decision, accompanied by an explanatory note by the proponent presented without formal editing and enclosed in its entirety in square brackets as set out in chapter VIII of annex I to the present report, to the Twenty-Third Meeting of the Parties for further consideration, and that intersessional discussions would take place. The co-chair of the contact group, who would convene those discussions, proposed that representatives

should indicate their interest in participating in them by sending him an e-mail at the address indicated in the participants list under Switzerland.

G. Nomination processes for the Technology and Economic Assessment Panel

135. The representative of Australia introduced a conference room paper setting out a draft decision on updating the nomination processes for membership of the Technology and Economic Assessment Panel. The decision built on the existing terms of reference of the Panel, the Panel's own work, and decisions by the parties. It would provide for a more transparent nomination process and standardized procedures for the Panel. It would also set fixed, four-year terms for all Panel members, make the Executive Secretary an ex-officio member of the Panel, ensure confirmation of the list of technical options committees needed and give the parties a role in deciding whether any subsidiary body could exist for a period of more than one year.

136. Many representatives expressed support for the overall intent of the proposal, while suggesting that some elements warranted additional discussion. Several voiced particular support for establishing four-year terms and standard re-nomination procedures for all Panel members and increasing transparency, among other things.

137. Several representatives said that it was important to ensure that any transition to new procedures did not upset the balance of geography or expertise on the Panel and allowed newly nominated members sufficient time to serve. One suggested that all nominations and re-nominations should be accompanied by supporting materials and related justifications. Another expressed support for developing new policies on member recusal from consideration of issues involving their home countries. A third suggested that the Panel should develop a handbook that outlined relevant policies and practices for new members. Another suggested that the discussion should include guidelines for consensus and minority reports.

138. The Working Group agreed to establish a contact group, co-chaired by Mr. Javier Camargo (Colombia) and Ms. Masami Fujimoto (Japan), on updating the nomination processes for the Technology and Economic Assessment Panel.

139. Following the contact group's deliberations its co-chair reported that the group had discussed the draft decision and incorporated a number changes to the provisions, including to extend it to cover guidelines on the recusal of members of the Panel and its subsidiary bodies. As agreement on those changes had not yet been reached, however, they remained in square brackets to indicate a lack of consensus.

140. The Working Group agreed to forward the revised draft decision, enclosed in its entirety in square brackets as set out in chapter IV of annex I to the present report, to the Twenty-Third Meeting of the Parties for further consideration.

VII. Environmentally sound management of banks of ozone-depleting substances (decision XXI/2, paragraph 7, and decision XXII/10)

141. The Co-Chair introduced the item, inviting members of the Technology and Economic Assessment Panel's task force on decision XXII/10 to make a presentation on issues relating to banks of ozone-depleting substances discussed in the Panel's 2010 progress report.

142. Mr. Rae gave a presentation on destruction-related issues, including destruction and removal efficiency criteria for the destruction of methyl bromide and other substances, and the list of existing and emerging destruction technologies recommended for adoption by parties. Following that presentation, Mr. Paul Ashford, co-chair of the Rigid and Flexible Foams Technical Options Committee, gave a presentation on the criteria that could be used to verify the destruction of ozone-depleting substances. A summary of their presentations can be found in annex II to the present report.

143. In the ensuing discussion, one representative complimented the task force for its transparency in respect of membership. He asked why a 99.99 per cent benchmark for destruction and removal efficiencies had been chosen and why the task force, in considering dioxin/furan concentrations from destruction, had chosen concentration levels as a standard measure when it would favour destruction technologies with higher overall emissions instead of establishing a ratio between dioxins/furans level and the quantity of ozone-depleting substances destroyed. In response, the representatives of the Panel said that they had used the industry norm as a reference, but agreed that with some applications there could be a greater or lesser concentration of some chemicals in the total effluent being emitted and that in some cases there might be more concern over the total amount of dioxins being emitted than the

total effluent. They also explained that there was relatively little experience with the destruction of methyl bromide and that a more cautious figure had therefore been used for that chemical.

144. Regarding the possible listing of new destruction technologies, one representative, echoed by another said that more information was needed on technologies described in the task force report as having a high potential. Since the task force had indicated that it had received additional information on such technologies subsequent to publication of its report, he suggested that the parties should wait for publication of a supplementary report before taking a decision on the issue.

145. Speaking on the issue of the voluntary annex for verification purposes proposed by the task force, one representative said that the methodologies needed to be clear and that there was a lack of definite procedures in the voluntary code. He suggested that interested parties should work intersessionally to refine the proposal. Another representative said that the voluntary code needed further thought, and expressed interest in the possibility of developing co-financing with other sources of funding. Another representative suggested that the link to voluntary carbon markets required further consideration, and that parties should themselves decide on the appropriate destruction methodologies to employ rather than leave the decision to organizations such as Climate Action Reserve.

146. The Working Group agreed to discuss the approval of destruction methodologies further at the Twenty-Third Meeting of the Parties.

VIII. Synthesis report of the 2010 assessments of the Montreal Protocol assessment panels

147. Mr. Paul Newman, co-chair of the Scientific Assessment Panel, opened the presentation of the 2010 synthesis report by reporting on the Panel's findings, followed by another co-chair, Mr. A. R. Ravishankara. Ms. Janet F. Bornman and Mr. Nigel Duncan Paul, co-chairs of the Environmental Effects Assessment Panel, presented that Panel's work. Mr. Stephen O. Andersen, co-chair of the Technology and Economic Assessment Panel, gave a presentation on that Panel's findings. Summaries of the presentations, as submitted by the presenters and without formal editing, are set out in annex II to the present report.

148. One representative said that he had submitted detailed questions to the assessment panels in writing for bilateral consultation. He nevertheless wished to ask a few questions, notably about human-caused emissions of methyl chloride and n-propyl bromide. The representative of the Scientific Assessment Panel said that methyl chloride came in very large part from natural emissions, and that the biggest human-caused source of methyl chloride was believed to be forest fires. The difficulty resided in attributing forest fires to human activity. There had been no major findings regarding n-propyl bromide at the time of preparation of the 2010 Scientific Assessment Panel report. Since then, however, it had been determined that, just as with other short-lived substances, the ozone-depleting potential of n-propyl bromide depended on the source from which and the season during which it was emitted. That meant that the compound's ozone-depleting potential varied.

149. The same representative went on to seek clarification of discrepancies in the trade data on recycled non-virgin halons, which appeared to show a 300 per cent difference between import and export figures. The co-chair of the Halons Technical Options Committee explained that the data had been reported under Article 7 of the Protocol and that the discrepancy was about 20 per cent when taken over four years because higher imports had been reported in 2005 and 2006, along with higher exports in 2007 and 2008. In response to the representative's question about the ozone-depleting potential of a halon alternative, the co-chair of the Halons Technical Options Committee said that, according to the United States Environmental Protection Agency's calculations, phosphorous triptomide had an ozone-depleting potential of approximately 0.01 to 0.08 and, given the one minor use in an aircraft engine application, posed little risk to stratospheric ozone.

150. Another representative asked whether the graph representing the effects of the Protocol on ozone and climate portrayed a business-as-usual scenario or took into account control measures in various countries. He also sought clarification as to whether the findings for greenhouse gases were limited to carbon dioxide, or included other greenhouse gases covered by the Framework Convention on Climate Change, and asked where he could obtain further information. The co-chair of the Scientific Assessment Panel explained that the business-as-usual scenario from the fourth assessment report of the Intergovernmental Panel on Climate Change had been used and that only carbon dioxide had been factored into the measures for greenhouse gases. If there were a desire to take into account all other individual gases covered by the Framework Convention, sources could include all gases covered by the Framework Convention on Climate Change.

151. The same representative and an observer highlighted regulatory developments in the United States for the review of the acceptability of HFC-134a in mobile air-conditioning units, asking why there was no reference to those developments in the synthesis report. The co-chair of the Technology and Economic Assessment Panel explained that the developments had occurred after the preparation of the report and said that it could be included in future reports. Another representative asked why regulatory efforts in the European Union and initiatives in Switzerland and other countries had not been included in the list of actions to reduce HFCs. The representative of the Panel clarified that the presentation included only examples of such actions, and was not intended to be exhaustive.

152. One representative of a non-governmental organization asked about trifluoroacetate accumulation in freshwater, saying that projections based on measurements in Japan and the United States pointed to amounts equivalent to those that had accumulated in the ocean over thousands of years. The co-chair of the Scientific Assessment Panel and the co-chair of the Environmental Effects Assessment Panel both confirmed that trifluoroacetic acid concentrations in freshwater from the degradation of short-lived low-global-warming potential HFC alternatives were expected to be small.

153. The Working Group took note of the information presented.

IX. Potential areas of focus for the assessment panels' 2014 quadrennial reports

154. Introducing the item, the Co-Chair said that it was the custom of the parties to discuss guidance for the next assessment by the assessment panels and sought the Working Group's guidance for the 2014 quadrennial reports.

155. Several representatives pointed out that some suggestions for future focus had been released only very recently by the Scientific Assessment Panel and the Environmental Effects Assessment Panel, while the corresponding suggestions from the Technology and Economic Assessment Panel were not yet available. One representative noted that the Environmental Effects Assessment panel reported to parties annually, while the Scientific Assessment Panel reported every four years, suggesting that there was opportunity to streamline the reporting of the two panels.

156. The Working Group agreed that the Secretariat would compile all such suggestions, plus any additional ones that parties submitted to it, in a single document for consideration by the Twenty-Third Meeting of the Parties.

X. Status of Nepal relative to the Copenhagen Amendment to the Montreal Protocol

157. Introducing the item the Co-Chair recalled that in January 2011 the Ozone Secretariat had received a letter from the Government of Nepal explaining that the Government of Nepal had initiated the process of ratifying the Copenhagen, Montreal and Beijing amendments to the Montreal Protocol as early as 2001, but that due to frequent changes of Government and other reasons the ratification process had not yet been concluded. The Government had said that those issues notwithstanding it intended to ratify all the amendments at the earliest point possible and that in any event it had taken many steps to control HCFCs. The Party was requesting that in the meantime the Meeting of the Parties consider it to be in full compliance with the control measures of the Protocol in accordance with paragraphs 8 and 9 of Article 4. Those paragraphs, among other things, allowed a State that was not party to an amendment to avoid the imposition of trade sanctions if it was found to be in full compliance with the control provisions of the Protocol. The issue was also before the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol.

158. The representative of Nepal then addressed the Working Group, explaining that the ratification of the Copenhagen Amendment was before Parliament. The process could, however, take some time and there was an urgent need to implement projects and enabling activities to support HCFC phase-out in Nepal in order to achieve the 2013 and future targets. Furthermore, the Executive Committee of the Multilateral Fund had approved stage 1 of the party's HCFC phase out management plan in principle, but only on the condition that by the time of the Twenty-Third Meeting of the Parties, Nepal would have either officially deposited its instrument of ratification of the Copenhagen Amendment or submitted an official request to the Twenty-Third Meeting of the Parties for consideration under paragraphs 8 and 9 of Article 4 of the Montreal Protocol. Nepal was therefore asking that the Twenty-Third Meeting of the Parties deem it to be in compliance with the provisions of the Protocol. Nepal, he said, had fulfilled all its obligations under the Protocol: It was current with its reporting; institutional strengthening projects had been regularly renewed; it had complied with the 2010 control

measures for the complete phase out of CFCs, carbon tetrachloride and halons; and it had successfully seized illegal imports of CFCs and HCFCs in 2004. Non-ratification of the Copenhagen Amendment had not stopped Nepal from taking proactive steps to control HCFCs. He therefore urged the parties to consider Nepal to be in compliance with the Protocol and to be a de facto party, lest it have difficulties in achieving its compliance targets for 2013 and 2015.

159. One representative said that there could be little expectation of completion of the Nepal's ratification procedure, suggesting that the option described in paragraph 136 (a) (ii) of Executive Committee decision 62/53 was the only viable option. Another representative, however, said that there was no provision for declaring a State to be a de facto party and that Article 10 of the Protocol, which governed financial and technical assistance to parties, did not contemplate the provision of such assistance to non-parties.

160. The Working Group agreed that discussion of the issue should be continued by the Twenty-Third Meeting of the Parties, following its consideration by the Implementation Committee.

XI. Other matters

A. Draft decision on HFC-23

161. The representative of the United States introduced a conference room paper setting out a draft decision proposed by Canada, Mexico and the United States on the phase-out of HFC-23 by-product emissions. The decision, he said, would assist parties to gather important information and facilitate funding and other efforts to reduce or destroy emissions of HFC-23 produced as a direct by-product of HCFC-22 production in facilities or production lines that were not collecting emissions reduction credits under the Clean Development Mechanism.

162. One representative expressed support for the draft decision as part of the proposed amendment to the Protocol, saying that the information requested would assist parties in evaluating the issue, that support from the Multilateral Fund could be considered and should count towards parties' financial commitments under the Framework Convention on Climate Change and that the process would produce significant environmental benefit at modest relative cost by focusing on the destruction of by-product emissions. Another said that it was important to address such emissions as they were the direct by-product of the production of an ozone-depleting substance.

163. Several other representatives, however, expressed opposition to the proposal, reiterating their view that HFCs were not ozone-depleting substances and thus could not be dealt with under the Montreal Protocol.

164. A number of representatives stated that effective implementation of the accelerated phase-out of HCFCs would also address the issue of by-product emissions. One said that, given the limited financial resources available from the Multilateral Fund, funding should be provided to projects that directly implemented the Montreal Protocol. Another representative stated that rather than singling out HFC-23 all alternatives to ozone-depleting substances with high global-warming potential should be addressed systematically through pilot projects and increased funding.

165. The proponents of the draft decision responded to several questions that arose during the discussion. The representative of the United States clarified that the proposal could be taken up as a logical accompaniment to the proposed amendment on HFCs but could also be adopted on its own. The representatives of Canada and Mexico emphasized the importance of addressing emissions created by a substance controlled by the Montreal Protocol and noted that the proposal would address emissions not currently covered by the Clean Development Mechanism, arguing that there was thus no procedural overlap with any other regime or perverse incentives to produce more HCFC-22.

166. The Working Group agreed that interested parties would engage in informal consultations regarding the draft decision on by-product emissions, taking into account the concerns expressed, and return to it at the Twenty-Third Meeting of the Parties. The draft decision is set out, as submitted by its proponents and without formal editing, in chapter III of annex I to the present report.

B. Consumption and reporting of ozone-depleting substances used to service ships

167. The representative of Saint Lucia introduced a conference-room paper setting out a draft decision on ozone-depleting substances used to service ships. She explained that the issue was pressing because of the lack of clear guidance and a uniform approach by parties. In some cases, the ozone-depleting substances used to service ships were recorded for the country in which the ship was serviced and in others for the country whose flag the ship was flying. That complicated matters for

countries with open ship registries, whose flags could be flown by other countries' ships, which was the case for 11 of 15 Caribbean countries, for example. It was also difficult to determine whether those substances should be considered consumption or exports. Furthermore, the provision of ozone-depleting substances to ships did not require a licence in many countries. It was therefore important to arrive at a standard, effective approach.

168. Several representatives agreed that it was necessary to discuss the problem further. One pointed out that the estimates for ozone-depleting-substance emissions from ships were on a scale similar to the estimates for emissions from feedstock uses. Furthermore, the lack of agreement among parties as to whether the amounts were imports, exports or domestic consumption created data discrepancies that in turn opened loopholes for illegal trade. Amounts counted as consumption could even put the compliance of low-volume-consuming countries at risk. Another representative stressed that the matter was also of great concern for Pacific island States.

169. One representative expressed the view that, with ships operating beyond national borders, the ozone-depleting substances onboard effectively escaped licensing systems and other controls. Another pointed out that it was important to ensure that any decision by the parties tallied with other treaties and maritime and Customs law.

170. A number of representatives urged caution, saying that it would be premature to decide whether to consider sales of ozone-depleting substances to ships docked in parties' ports for use onboard part of that party's production rather than its export. More information and discussion was required, and internal consultations would be needed in the case of at least one country.

171. The Working Group agreed to establish a contact group, co-chaired by Mr. Cornelius Rhein (European Union) and Ms. Nicol Walker (Jamaica), to discuss preliminary issues linked to the treatment of ozone-depleting substances used in servicing ships, and to establish a procedure for continuing the discussion intersessionally in preparation for the Twenty-Third Meeting of the Parties.

172. Following the contact group's deliberations its co-chairs reported that the group had had an initial discussion of the issues in general. There was consensus on the relevance of the matter, and agreement that certain information should be provided by the Ozone Secretariat and interested parties. A number of issues had been raised for further discussion in preparation for future consideration of the draft decision, including standardization of the collection and reporting of information on ozone-depleting substances used on ships; the potential for obtaining data from the International Maritime Organization and the World Customs Organization; licensing for the use of ozone-depleting substances on ships; the status of ozone-depleting substances on ships as exports; the link between failure to record ozone-depleting substances used on ships and illegal trade; whether ship-borne ozone-depleting substances counted as stockpiles; and effect of ship-borne ozone-depleting substances on HCFC data discrepancies recorded by providing and receiving parties. The contact group had expressed an intention to continue discussions intersessionally with the aim of revising the draft decision for consideration by the Twenty-Third Meeting of the Parties.

173. The Working Group agreed to forward the revised draft decision, enclosed in its entirety in square brackets as set out in chapter XI of annex I to the present report, to the Twenty-Third Meeting of the Parties for further consideration.

C. Information on alternatives to ozone-depleting substances

174. The representative of Switzerland introduced a draft decision on additional information on alternatives to ozone-depleting substances.

175. One representative, recalling in particular a similar draft decision prepared for the Open-ended Working Group at its thirtieth meeting by his Government and some other countries, proposed additions to the draft decision.

176. The Co-Chair suggested that the draft decision should be discussed further in a contact group, to be co-chaired by Mr. Mikkel Sorensen (Denmark) and Ms. Donnalyn Charles (Saint Lucia).

177. One representative, supported by another, said that, if that discussion might cover HFCs, his country's position was that they constituted a topic to be discussed exclusively under the Framework Convention on Climate Change. If that position could be accommodated, his Government would be happy to participate in the discussions in the contact group.

178. Following the contact group's deliberations its co-chair reported that the group had discussed the preambular paragraphs of the draft decision and most of its operational paragraphs. Four new paragraphs had been proposed for the preamble and further discussion would be required.

179. The Working Group agreed to forward the draft decision, as set out in chapter X of annex I to the present report, without formal editing and with square brackets around some text and the entire decision to indicate a lack of consensus, to the Twenty-Third Meeting of the Parties for further consideration.

D. Report on the status of work of the steering panel on the evaluation of the financial mechanism of the Montreal Protocol

180. Pursuant to decision XXII/2, Mr. Husamuddin Ahmadzai (Sweden), co-chair of the steering panel on the evaluation of the financial mechanism, reported on progress in the panel's work. He said that two meetings had been held, at the first of which the panel had chosen an evaluator, ICF International. At the second meeting the evaluator had presented an inception report for review by the Panel. A third meeting would take place during the Twenty-Third Meeting of the Parties. He also noted that to facilitate participation by the parties and other stakeholders, the evaluator would request all parties to submit readily available information relevant to the evaluation. Members of the ICF International evaluation team were present at the current meeting and would attend the Twenty-Third Meeting of the Parties.

181. The Working Group took note of the report.

E. Extension of the tenure of the Executive Secretary

182. Mr. Michael Church (Grenada), President of the Twenty-First Meeting of the Parties, recalled that he had been mandated by the Twenty-Second Meeting of the Parties to take appropriate steps to seek an extension of the tenure of the present Executive Secretary. He had subsequently discussed the matter with the Executive Director of UNEP, stressing that it was the unanimous wish of the parties, and the Executive Director had communicated the same message to the Secretary-General of the United Nations. On 16 July 2011, the chef de Cabinet of the Office of the Secretary-General had confirmed that the Secretary-General had decided to extend the Executive Secretary's contract by two years. On 27 July the President was informed that the United Nations Office of Human Resources Management had been instructed to conclude the necessary administrative arrangements.

183. The Working Group took note of the information.

F. Presentation by the representative of Indonesia on arrangements for the sixty-fourth meeting of the Executive Committee, the forty-seventh meeting of the Implementation Committee and the joint ninth meeting of the Conference of the parties to the Vienna Convention and Twenty-Third Meeting of the Parties

184. The representative of Indonesia gave a presentation on his country and arrangements for the sixty-fourth meeting of the Executive Committee, the forty-seventh meeting of the Implementation Committee and the joint ninth meeting of the Conference of the Parties to the Vienna Convention and Twenty-Third Meeting of the Parties, which Indonesia would be hosting in November 2011.

XII. Adoption of the report

185. The present report was adopted on the afternoon of Friday, 5 August 2011, on the basis of the draft report contained in documents UNEP/OzL.Pro.WG.1/31/L.1, L.1/Add.1, L.1/Add.2 and L.1/Add.3. The Ozone Secretariat was entrusted with the finalization of the report following the closure of the meeting.

186. In reference to the draft decisions set out in annex I to the present report, it was reiterated by several representatives and agreed by the Working Group that, in accordance with the usual practice and irrespective of the presence or absence of square brackets, all draft decisions were forwarded to the Twenty-Third Meeting of the Parties for further consideration; the draft decisions therefore did not constitute agreed text and were subject in their entirety to further negotiation.

XIII. Closure of the meeting

187. Following the customary exchange of courtesies, the thirty-first meeting of the Open-ended Working Group of the Parties to the Montreal Protocol was declared closed at 5.15 p.m. on Friday, 5 August 2011.

Annex I

Draft decisions

The Working Group agreed to forward to the Twenty-Third Meeting of the Parties the following draft decisions for further consideration**,** with the understanding that they did not constitute agreed text and were subject in their entirety to further negotiation.

I. Draft decision on key challenges facing methyl bromide phase-out in Africa

Submission by Algeria, Cameroon, Egypt, Kenya, Morocco, Tunisia, Zambia and Zimbabwe

The Twenty-Third Meeting of the Parties decides:

Noting with concern that the report of the Technology and Economic Assessment Panel's task force on the 2012–2014 replenishment calls for no funds for methyl bromide phase-out activities in Africa for the triennium 2012–2014,

Aware that methyl bromide is the only ozone-depleting substance directly connected to food security (production and post-harvest applications) and that its phase-out could easily be reversed,

Considering that it is necessary to continue to use chemical and non-chemical alternatives but that their efficacy in the short term, medium term and long term should be taken into consideration,

Noting with concern that some applications of methyl bromide, such as the treatment of high-moisture fresh dates, still lack alternatives,

Aware that methyl bromide consumption, particularly in the quarantine and pre-shipment sector, is increasing in Africa,

Acknowledging that in Africa there is strong pressure to return to methyl bromide use as a result of the non-sustainability of alternatives, both in terms of availability and cost,

Noting that some chemical and non-chemical alternatives that have been adopted to replace methyl bromide in Africa have been unsustainable in terms of cost (steam), efficacy (phosphine, metam sodium), availability (pine bark, floating trays), technical capacity and regulatory constraints,

Aware that some chemical alternatives that have been adopted and are relied upon are being or will be banned completely in the future, such as 1,3-dichloropropene, metam sodium and chloropicrin,[1]

Concerned that the application of some chemical alternatives, such as dimethyl disulphide, which was registered in 2008 and 2010 and is under investigation in some African countries, is complicated and not cost-effective,

Recalling that methyl bromide is used in Africa to protect crops, which are considered to be the backbone of African economies,

Noting that without further financial assistance African countries may be unable to complete their methyl bromide phase-out activities,

Mindful that the Methyl Bromide Technical Options Committee pointed out in its May 2011 progress report that parties operating under paragraph 1 of Article 5 may wish to submit critical-use nominations for the remaining uses of methyl bromide that they consider appropriate for 2015 and possibly thereafter,

Taking into consideration the difficult and complex technical process involved in submitting critical-use nominations and the difficulties that parties operating under paragraph 1 of Article 5 are likely to encounter in making such submissions,

1 Bans will enter into force as part of, among others, European pesticide regulatory controls such as Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market.

1. To request the Technology and Economic Assessment Panel to review the trends in consumption of methyl bromide in Africa and to make appropriate recommendations on phase-out activities for consideration by the Open-ended Working Group at its thirty-second meeting;

2. To request the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol to carry out further studies on the technical and economic implications of methyl bromide phase-out in Africa, paying special attention to experience gained and observations made during the projects undertaken to date.

II. Draft decision on the extension of the fixed-exchange-rate mechanism to the 2012–2014 replenishment of the Multilateral Fund

Submission by the European Union

The Twenty-Third Meeting of the Parties decides:

1. To direct the Treasurer to extend the fixed-exchange-rate mechanism to the period 2012–2014;

2. That parties choosing to pay their contributions to the Multilateral Fund for the Implementation of the Montreal Protocol in national currencies will calculate their contributions based on the average United Nations exchange rate for the six-month period commencing 1 January 2011;

3. That, subject to paragraph 4 below, parties not choosing to pay in national currencies pursuant to the fixed-exchange-rate mechanism will continue to pay in United States dollars;

4. That no party should change the currency selected for its contribution in the course of the triennium 2012–2014;

5. That only parties with inflation rate fluctuations of less than 10 per cent, as per published figures of the International Monetary Fund, for the preceding triennium will be eligible to use the fixed-exchange-rate mechanism;

6. To urge parties to pay their contributions to the Multilateral Fund in full and as early as possible in accordance with paragraph 7 of decision XI/6;

7. To agree that if the fixed-exchange-rate mechanism is to be used for the replenishment period 2015–2017 parties choosing to pay their contributions in national currencies will calculate their contributions based on the average United Nations exchange rate for the six-month period commencing 1 January 2014;

III. Draft decision on the phase-out of HFC-23 by-product emissions

Submission by Canada, Mexico and the United States of America[2]

Recalling decision X/16 which recognizes the importance of implementing the Montreal Protocol and takes note of HFCs and PFCs as replacements for ozone depleting substances that have potentially substantial impacts on the climate system;

Noting with appreciation the special report of the Technology and Economic Assessment Panel and the Intergovernmental Panel on Climate Change, "Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons";

Recalling decision XVIII/12 which requested the Ozone Secretariat to facilitate consultations by the Technology and Economic Assessment Panel with relevant organizations to draw on the work already carried out under these organizations, including work relating to HCFC-22;

Recalling also the report of the Technology and Economic Assessment Panel pursuant to decision XVIII/12, in particular the chapter on the role of the Clean Development Mechanism with respect to HFC-23 byproduct emissions resulting from the production of HCFC-22;

Mindful that Parties not operating under paragraph 1 of Article 5 of the Montreal Protocol are obligated to freeze production of HCFCs by 2004 and phase out consumption by 2030 and that Parties

2 The present draft decision has not been formally edited.

operating under paragraph 1 of Article 5 are obligated to freeze production of HCFCs by 2016 and phase out consumption by 2040;

Recognizing the relationship of HFC-23 to the controlled substance HCFC-22, given that the production of HCFC-22 results in the by-production of emissions of HFC-23 and that the production of HCFC-22 for feedstock uses, under the Montreal Protocol, is expected to continue beyond the phase-out of production for controlled uses;

Recognizing also the opportunity to facilitate an environmentally responsible approach to managing the production of HCFC-22 for both controlled and feedstock uses;

Acknowledging that emissions of HFC-23 are covered by the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and that actions taken under this decision are not intended to affect this coverage;

Recognizing the need for immediate action to address uncontrolled HFC-23 byproduct emissions to avoid impacts on the climate system from their release, particularly in light of the near-term control measure of January 1st 2014 in the HFC amendment;

The Parties Decide:

1. To request the Executive Committee to review and update information presented in UNEP/OzL.Pro/ExCom/57/62 on HCFC-22 production facilities located in Parties operating under paragraph 1 of Article 5, including information on location, production capacity for the facility, production capacity for each individual production line, and whether the HCFC-22 production lines have ongoing projects under the Clean Development Mechanism to limit or destroy HFC-23, as well as the end dates of these projects, and present the findings to the Parties by 32nd Meeting of the Open-ended Working Group.

2. To request the Executive Committee, by its 67th Meeting, to develop estimates of the capital and operational costs associated with the collection and destruction of HFC-23 byproduct emissions from HCFC-22 or other hydrofluorocarbon production, including production for feedstock, in facilities located in Parties operating under paragraph 1 of Article 5.

3. To further request, as a matter of urgency, the Executive Committee to facilitate the formulation and implementation of projects to eliminate byproduct emissions of HFC-23 during the production of HCFC-22 for facilities or production lines that are not collecting emissions reduction credits under the Clean Development Mechanism.

4. To Request the Technology and Economic Assessment Panel, in consultation with the Science Assessment Panel, to conduct a study of the potential costs and environmental benefits from the implementation of HFC-23 byproduct control measures related to production of HCFC-22 by facility or production line, excluding the costs and benefits associated with existing Clean Development Mechanism projects when relevant, and to prepare a report 60 days before 32nd Meeting of the Open-ended Working Group, in order to assist the Parties in further considering this issue.

IV. [Draft decision on updating the nomination processes [and on recusal guidelines] for the Technology and Economic Assessment Panel

Submission by the contact group on procedures of the Technology and Economic Assessment Panel

The Twenty-Third Meeting of the Parties decides:

[*Recognizing* the need to encourage participation and the representativeness of the geographic balance of the composition of the Technology and Economic Assessment Panel, its technical options committees, its temporary subsidiary bodies while continuing to build and maintain public trust,]

[*Recognizing also* that the Panel should make the process and criteria for selecting the members of the Panel, its technical options committees and its temporary subsidiary bodies more transparent,]

[*Recalling* decision VII/34 on the organizational functioning of the Panel and specifically on efforts to increase participation of experts from parties operating under paragraph 1 of Article 5 of the Montreal Protocol and to improve geographical and expertise balance,]

Recalling the terms of reference for the Technology and Economic Assessment Panel set forth in decision VIII/19 and amended by decision XVIII/19,

[*Recalling* section 2.1 of those terms of reference, on the size and balance of the Panel, and, in particular, as regards the need to promote a membership that balances geography and expertise,]

Recalling also sections 2.2 and 2.3 of those terms of reference, on nominations to the Panel and appointment of members to the Panel, and, specifically, the provision that any nominations made by the Panel are to be communicated to the relevant party for consultation before recommendations for appointment are made,

[*Recognizing* the need for the Parties to receive from the Panel advice of the highest quality and to ensure that the experts giving the advice are retained for a period commensurate with the needs of the Panel in order to avoid a [sudden] loss of collective knowledge,]

[*Without prejudice* to the terms of reference of the Scientific Assessment Panel and the Environmental Effects Assessment Panel, which are unaffected by the present decision,]

Taking note of the information provided by the Panel in its 2011 progress report, [in particular] in response to decision XXII/22,

[(a) To request the Technology and Economic Assessment Panel, its technical options committees and its temporary subsidiary bodies to strive for a composition that reflects balance of expertise and perspectives such that their products are comprehensive, objective and neutral with respect to policy;]

(b) To request the Panel to update its matrix of needed capabilities calling for expertise on the Panel, its technical options committees and its temporary subsidiary bodies [,which should reflect balanced geographical representation of parties operating under paragraph 1 of Article 5 and parties not so operating,] twice a year and to publish the matrix on the Ozone Secretariat website and in the Panel's annual progress reports;

(c) Also to request the Panel to ensure that the information in the matrix is clear and sufficient to allow a full understanding of needed expertise and that information on the nomination process, the selection process, the Panel's terms of reference and the operation of the Panel and its subsidiary bodies is published on the Ozone Secretariat website in an easily accessible format;

(d) Further to request the Panel to standardize the information required from potential experts for all nominations to the Panel[, its technical options committees and its temporary subsidiary bodies] in line with section 9.5.4 of the 2011 progress report, and to prepare a draft nomination form for consideration by the Open-ended Working group at its thirty-second meeting;

(e) To request the Panel to ensure that all nominations for appointments to the Panel, [its technical options committees and its temporary subsidiary bodies,] including co-chairs, are received from the national focal points of the parties of the nominated experts and that [nominees are cognizant of and [agree to abide by] [intend to follow] the "code of conduct by members of the Technology and Economic Assessment Panel" set out in section 5 of the terms of reference of the Technology and Economic Assessment Panel so that] potential conflicts of interest [and sources of funding for participation] are identified in the nomination process;

(f) That all appointments to the Panel, [and its technical options committees,] including of co-chairs, should be for a period of no more than four years;

(g) That members of the Panel [or of the technical options committee] may be re-nominated for additional periods of up to four years [each];

(h) That the terms of all Panel [/technical options committee] members shall otherwise expire at the end of [2013] [2020] in the absence of reappointment by the parties prior to that time, except for those experts already nominated for four-year periods;

(i) [That the terms of paragraph (h) are only applicable if parties are satisfied that the future membership [for [2014] [2021] and subsequent years] of the Panel reflects an adequate balance of geography and expertise for its proper functioning,]

[(i) ALT That if the parties decide that they are not satisfied that the future membership of the Panel reflects an adequate balance of geography and expertise for its proper functioning, the terms of paragraph (h) will not apply,]

(j) To invite parties with existing Panel and technical options committee co-chairs and members to submit re-nominations for those experts in line with paragraphs (f), [(g) and (h)] of the

present decision for consideration by the [number] Meeting of the Parties or the [number] Meeting of the Parties;

(k) That a decision of the parties is required to confirm any nomination to the Panel [and its technical options committees];

(l) That a decision of the parties is required to confirm any temporary subsidiary body that exists for a period of more than one year;

(m) That the parties should confirm, every four years, beginning in 2012, the list of technical options committees needed to meet the parties' requirements;

(n) That the Executive Secretary of the Ozone Secretariat shall [henceforth be an ex-officio member] [provide appropriate support as necessary and when requested] to the Panel;

(o) To request the Panel to ensure that all new technical options committee members are properly informed of the Panel's terms of reference, relevant decisions of the parties, and Panel operational procedures, including those pertaining to consensus and [managing conflict of interest] [the "Code of conduct by members of the Technology and Economic Assessment Panel"];

(p) [To request the Panel to finalize its guidelines on recusal in time for reporting about them to the Open-ended Working Group at its thirty-second meeting;]

(q) [To request the Panel, its technical options committees and temporary subsidiary bodies [to apply] [to develop clear and comprehensive guidelines immediately, taking into account similar guidelines in other multilateral forums] the recusal guidelines contained in pages 226-228 of its 2011 progress report on a trial basis [until the final guidelines are approved] [for 2012 only].]]

V. Draft decision on essential-use exemption for chlorofluorocarbon-113 for aerospace applications in the Russian Federation

Submission by the Russian Federation

The Twenty-Third Meeting of the Parties decides:

Taking note of the evaluation and recommendation of the Technology and Economic Assessment Panel and its Chemicals Technical Options Committee in respect of the essential-use nomination for chlorofluorocarbon-113 (CFC-113) for aerospace applications in the Russian Federation,

Noting that the Russian Federation has presented the Chemical Technical Options Committee with the requested information and explanations regarding the current and future situation in relation to the use of CFC-113 in the aerospace industry,

1. To authorize an essential-use exemption for the production and consumption in 2012 of 100 metric tonnes of CFC-113 in the Russian Federation for chlorofluorocarbon applications in its aerospace industry;

2. To request the Russian Federation to continue to explore further the possibility of importing CFC-113 of the required quality for its aerospace industry needs from available global stocks;

3. To encourage the Russian Federation to continue its efforts to introduce alternative solvents and adopt newly designed equipment to complete the phase-out of CFC-113 according to the updated time schedule.

VI. Draft decision on quarantine and pre-shipment uses of methyl bromide

Submission by the European Union

The Twenty-Third Meeting of the Parties decides:

Recognizing the value of developing a strategic review on the use of methyl bromide for quarantine and pre-shipment purposes,

Mindful that consistent reporting on methyl bromide consumption for quarantine and pre-shipment purposes would enhance the value of the strategic review,

Recalling the definitions of "quarantine" and "pre-shipment", set forth in decisions VII/5 and XI/12, and the importance of applying them consistently,

Recalling decision XI/13, and in particular its paragraph 3 that provides that each party is to provide the Secretariat with statistical data on the annual amount of the controlled substance listed in Annex E used for quarantine and pre-shipment applications,

1. To request parties to implement procedures for monitoring the use of methyl bromide by commodity and quantity for quarantine and pre-shipment uses, as referred to in paragraph 6 of decision XI/13, and to invite parties to use the reporting format for the main categories of use for methyl bromide set out in annex I to the present decision;

2. Also to request parties to ensure that their national plant, animal, environmental, health and stored product regulations not require that consignments be treated with methyl bromide twice (both before shipment and upon arrival) unless a risk of an infestation with a targeted pest has been identified;

3. To request the Technology and Economic Assessment Panel, where appropriate in cooperation with the Scientific Assessment Panel [and the International Plant Protection Convention], to present for consideration by the Open-ended Working group at its thirty-second meeting a review study covering, among other things, trends and potential fluctuations in the use of methyl bromide for quarantine and pre-shipment purposes; commercial, technical and regulatory drivers for the use of methyl bromide and alternatives; economic impacts and impacts on the ozone layer of methyl bromide uses, with the study to cover, in particular, [to the extent possible on the basis of the information available], the issues listed in annex II to the present decision;

[4. To request the Ozone Secretariat to [study options for hosting and further developing] [host and further develop], with the assistance of interested parties and in consultation with the International Plant Protection Convention, an information tool that would facilitate access to information on alternatives and best practices for carrying out methyl bromide treatments, in particular for parties operating under paragraph 1 of Article 5 and economic operators in such parties;**]**

5. To urge parties to comply with their obligation under Article 7 to provide data on the annual amount of methyl bromide used for quarantine and pre-shipment applications and to invite parties to report, in addition to information that they report on aggregated consumption, information on amounts for the uses of methyl bromide set out in annex I to the present decision.

Annex I to decision XXIII/[ ]: Quarantine and pre-shipment uses of methyl bromide

Category	**Uses**	**Amount (kg)**
Commodities	Bulbs, corms, tubers and rhizomes (intended for planting)	
	Cut flowers and branches (including foliage)	
	Fresh fruit and vegetables	
	Grain, cereals and oil seeds for consumption, including rice (not intended for planting)	
	Dried foodstuffs (including herbs, dried fruit, coffee, cocoa)	
	Nursery stock (plants intended for planting other than seed) and associated soil and other growing media	

Category	Uses	Amount (kg)
	Seeds (intended for planting)	
	Soil and other growing media as a commodity, including soil exports and soil associated with living material such as nursery stock*	
	Wood packaging materials	
	Wood (including sawn wood and wood chips)	
	Whole logs (with or without bark)	
	Hay, straw, thatch grass, dried animal fodder (other than grains and cereals listed above)	
	Cotton and other fibre crops and products	
	Tree nuts (e.g., almonds, walnuts, hazelnuts)	
Structures and equipment	Buildings with quarantine pests (including elevators, dwellings, factories, storage facilities)	
	Equipment (including used machinery and vehicles) and empty shipping containers and reused packaging	
Soil as agricultural land*	Pre-plant and disinfestation fumigation of agricultural land*	
Miscellaneous, small volume uses	Personal effects, furniture, air* and watercraft*, artefacts, hides, fur and skins	

Source: IPPC (2008) List of categories
* Not on IPPC (2008) List of categories

Annex II to decision XXIII/[ ]: elements of a review study

1. Trends in the use of methyl bromide for quarantine and pre-shipment purposes and related emissions

Trends and potential fluctuations in the use of methyl bromide for quarantine and pre-shipment purposes, in particular in parties operating under paragraph 1 of Article 5, considering estimated developments in respect of trade volumes. Where possible the assessment should differentiate among the uses listed in annex I and highlight potential regional specificities.

Typical relocations of quarantine and pre-shipment treatments and between trading partners should be identified.

Emissions of methyl bromide from these uses should be assessed, in addition to the penetration rate of emission-reduction measures.

2. Environmental impacts

In addition to the scenarios presented in the 2010 assessment of the Scientific Assessment Panel, further scenarios should be added, also quantifying the short-term and medium-term effects of quarantine and pre-shipment uses of methyl bromide on the ozone layer, taking the short lifetime of methyl bromide into account. [Potential effects of changes in those uses on the occurrence of increased ozone depletion in the Arctic region, as observed in 2011, should be considered.]

The scenarios should be based on the projected development of methyl bromide use indentified under point 1.

3. Drivers for the use of methyl bromide and alternatives

Incentives for and obstacles to the use of methyl bromide and the adoption of alternatives should be identified, including regulatory matters, health and occupational safety concerns and impacts on the ozone layer. The economic impact of the options should be assessed. Additional information needs and means to facilitate data access should be identified.

4. Emission reduction measures

The report should provide updated information on the technical and economic feasibility, including investment and operating costs, of recapture and recycling, and the ability of equipment to reduce emissions. The emission-reduction potential of using best fumigation practices should be quantified.

VII. Draft decision on global laboratory and analytical-use exemption

Submission by China

The Twenty-Third Meeting of the Parties decides:

Recalling paragraph 1 of decision XXII/7, which allows parties operating under paragraph 1 of Article 5 of the Montreal Protocol until 31 December 2011 to deviate from the existing laboratory and analytical-use bans in individual cases, where a party considers that this is justified, and asks parties to revisit the issue at the Twenty-Third Meeting of the Parties,

Noting that some parties operating under paragraph 1 of Article 5 continue to have difficulty adopting alternatives for those laboratory and analytical uses already banned under the global exemption and need more time for information collection and related policy framework development,

1. To allow parties operating under paragraph 1 of Article 5 until 31 December 2014 to deviate from the existing laboratory and analytical-use bans in individual cases, where a party considers that this is justified, and to ask parties to revisit the issue at the Twenty-Sixth Meeting of the Parties;

2. To request parties operating under paragraph 1 of Article 5 to continue to take actions to replace ozone-depleting substances in those laboratory and analytical uses already banned under the global exemption, and to report progress to the Ozone Secretariat by 30 September of each year until 2015.

VIII. Draft decision on sustained mitigation of ozone-depleting substance emissions from feedstock and process-agent uses

Submission by the European Union[3]

Explanatory Note (tentative text)

1. Decision XXI/8 called for opportunities for reductions of emissions of ozone depleting substances (ODS), importantly carbon tetrachloride, in applications including process agents, feedstocks, products and requested the Technology and Economic Assessment Panel, in its 2011 Assessment Report, to look into chemical alternatives to ODS in exempted feedstock uses and investigate alternatives, including not-in-kind alternatives, to products made with such process agents and feedstocks and provide assessment of the technical and economic feasibility of reducing or eliminating such use and emissions. Decision XXI/8 also requested the TEAP and SAP to coordinate their relevant findings and report in time for the OEWG 31 for the consideration of the MOP 23 in 2011.

2. The SAP in its 2010 Assessment reports that carbon tetrachloride tropospheric abundances have declined less rapidly than expected and that emissions derived from UNEP data are highly variable and on average appear smaller than those inferred from observed abundance trends. The variability cannot be explained by lifetime uncertainties. SAP furthermore reports, that elimination of future CTC (CCl_4) emissions — after 2010 — would have an Equivalent Effective Stratospheric Chlorine (EESC) impact comparable to the capture and destruction of CFC and halon banks. This is a much larger effect than was estimated in the previous Assessment because of a revision in the estimated emissions.

3. The discrepancy between ‘bottom up’ estimates and ‘top down’ estimates of CTC has thus been left unsolved in spite of year-by-year reconsideration of possible emissions (and mitigation measures (Decisions X/12, X/17, XX/7)) including revision of its atmospheric lifetime by the Scientific Assessment Panel (SAP). TEAP 2011 Progress Report considers that it is likely that chemical manufacture using CTC as a feedstock would also result in accounting for CTC emissions. The TEAP 2011 Progress Report emphasises that better information will be needed and Parties may wish to consider requiring more thorough reporting of feedstock uses of CTC and the emissions there from.

4. In the context of emissions from process agent applications — being treated as feedstocks — progress has been made. Table A in decision XXII/8 contains 41 ODS uses registered as process agents. Based on information provided by the Parties and the report on process agent applications in Article 5 Parties submitted by the Executive Committee under decision XXI/3(5), Parties may consider removing 27 process agent uses from the Table A, which are no longer operational[4]. Ninety three parties so far confirmed that they do not have process agent uses.

5. TEAP however reports that the quantities of emissions from feedstock remain uncertain, partly because no reported global uses of ODS feedstock exist and better information is needed. Hence Parties may wish to consider requiring reporting of all ODS feedstock uses, including CTC, 1,1,1-trichloroethane, chlorofluorocarbons (CFCs), halons, hydrobromofluorocarbons (HBFCs), BCM, MB and hydrochlorofluorocarbons (HCFCs). Improved reporting on feedstock uses, combined with labelling of ODS containers intended for feedstock may help to estimate the quantities of ODS used as feedstock in different types of processes.

6. Thus continued work and information remains to be provided as called for in Decision XXI/8.

3 The explanatory text has been reproduced without formal editing.

4 See TEAP 2011 Progress Report, Table 4-1.

Draft decision on sustained mitigation of ozone-depleting substance emissions from feedstock and process-agent uses

The Twenty-Third Meeting of the Parties decides:

Noting that according to Article 1 of the Montreal Protocol the amount of any controlled substance entirely used as feedstock in the manufacture of other chemicals shall not be counted in the calculation of the "production" of controlled substances,

Noting also that decision IV/12 clarifies that only insignificant quantities of controlled substances originating from inadvertent or coincidental production during a manufacturing process, from unreacted feedstock, or from their use as process agents which are present in chemical substances as trace impurities, or that are emitted during product manufacture or handling, shall be considered not to be covered by the definition of a controlled substance contained in paragraph 4 of Article 1 of the Montreal Protocol,

Noting further that decision IV/12 also urges parties to take steps to minimize emissions of such substances, including such steps as avoidance of the creation of such emissions and the reduction of emissions using practicable control technologies or process changes, containment or destruction,

Noting that decision VII/30 exempts ozone-depleting substances produced and exported for the purpose of being used as feedstock from the calculation of "production" or "consumption" in exporting countries and states that importers "shall, prior to export, provide exporters with a commitment that the controlled substances imported shall be used for this purpose"; in addition, decision VII/30 states that importing countries "shall report to the Secretariat on the volumes of controlled substances imported for these purposes and that the amount of controlled substances entirely used as feedstock in manufacture of other chemicals should not be the subject of calculation of 'consumption' in importing countries",

Recognizing that the global production of ozone-depleting substances for feedstock uses is very significant, resulting in the continued abundance in the atmosphere of substances such as carbon tetrachloride, that the production, export and import of ozone-depleting substances for feedstock uses are not controlled by the Montreal Protocol, that although most uses of chlorofluorocarbons, carbon tetrachloride, methyl chloroform and methyl bromide have been phased out these substances are still commonly used as feedstock and that the feedstock uses of ozone-depleting substances such as hydrochlorofluorocarbons are growing,

Mindful of the need to reduce emissions of ozone-depleting substances from feedstock uses,

1. To remind all parties that reporting on amounts of ozone-depleting substances used as feedstock is obligatory under Article 7 of the Montreal Protocol;

2. Also to remind parties to take steps to minimize emissions of ozone-depleting substances from feedstock and process-agent uses, including such steps as avoidance of the creation of such emissions and the reduction of emissions using practicable control technologies or process changes, containment or destruction;

3. To call upon all parties to refrain from commissioning new production facilities in which ozone-depleting substances are planned to be used as feedstock if there are alternatives to such substances that could be used as feedstock to obtain the same final products;

4. To request all parties to identify processes in which ozone-depleting substances are used as feedstock on their territory and in which ozone-depleting substances have been replaced with alternatives, to submit to the Ozone Secretariat [by 31 January 2012] a list of such processes and the amount of ozone-depleting substances used in each such process, aggregating the data at the country level in order to avoid disclosure of confidential information, and to submit an updated version of that list when any new such processes are identified;

5. To request the Ozone Secretariat to publish on its website the aggregated list of feedstock uses of ozone-depleting substances and of alternatives to ozone-depleting substances for such uses reported by the parties in accordance with the preceding paragraph and to amend the list each year based on the reports received from parties;

6. To request all parties to consider introducing labelling requirements for ozone-depleting-substance containers that would allow verification that a substance in a container has been produced or imported for feedstock purposes only and may be used solely for such purposes;

7. To adopt, as part of its continuing efforts to mitigate emissions from process-agent and feedstock uses, the table set out in the annex to the present decision as a revised list of process-agent applications to replace table A of decision X/14 as amended by decision XXII/8;

8. To request the Technology and Economic Assessment Panel to continue its work and provide information as called for in decision XXI/8 by [31 May 2012], in particular with regard to the identification of alternatives to ozone-depleting substances for feedstock uses and alternatives, including not-in-kind alternatives, to products made with ozone-depleting substances applied as process agents and feedstock and with regard to assessing the technical and economic feasibility of reducing or eliminating such uses and emissions, taking into account the findings set out in the report by the Technology and Economic Assessment Panel and the Scientific Assessment Panel on the resolution of the discrepancy between reported and observed emissions of ozone-depleting substances, including in particular carbon tetrachloride.

Annex to decision XXIII/[ ]

Table A: List of uses of controlled substances as process agents

No.	*Process agent application*	*Substance*
1	Elimination of NCl_3 in chlor-alkali production	Carbon tetrachloride (CTC)
2	Chlorine recovery by tail gas absorption in chlor-alkali production	CTC
3	Production of chlorinated rubber	CTC
4 [5]	Production of chlorosulfonated polyolefin (CSM)	CTC
5 [6]	Production of aramid polymer (PPTA)	CTC
6 [7]	Production of synthetic fibre sheet	CFC-11
7 [9]	Photochemical synthesis of perfluoropolyetherpolyperoxide precursors of Z-perfluoropolyethers and difunctional derivatives	CFC-12
8 [10]	Preparation of perfluoropolyether diols with high functionality	CFC-113
9 [11]	Production of cyclodime	CTC
10 [12]	Production of chlorinated polypropene	CTC
11 [13]	Production of chlorinated ethylene vinyl acetate (CEVA)	CTC
12 [14]	Production of methyl isocyanate derivatives	CTC
13 [22]	Bromination of a styrenic polymer	BCM
14 [25]	Production of high modulus polyethylene fibre	CFC-113

IX. Draft decision on the endorsement of a new co-chair of the Chemicals Technical Options Committee and a senior expert of the Technology and Economic Assessment Panel

Submission by Japan

The Twenty-Third Meeting of the Parties decides:

1. To thank Mr. Masaaki Yamabe (Japan) for his long and outstanding efforts on behalf of the Montreal Protocol on Substances that Deplete the Ozone Layer as co-chair of the Chemicals Technical Options Committee;

2. To endorse Mr. Yamabe (Japan) as a senior expert of the Technology and Economic Assessment Panel;

3. To endorse Mr. Keiichi Ohnishi (Japan), a member of the Chemicals Technical Options Committee, as a new co-chair of the Chemicals Technical Options Committee.

X. Draft decision on additional information on alternatives to ozone-depleting substances

Submission by Switzerland

The Twenty-Third Meeting of the Parties [decides]:

[*Recognizing* that UNFCCC and its Kyoto Protocol are [the [only] appropriate and legal channel to address climate change issues,] [while the Montreal Protocol is the appropriate body to address the production and consumption of [HCFCs][HFCs]

[*Noting* that the Kyoto Protocol has put HFCs into its greenhouse gas control list, and parties to the Kyoto Protocol have taken concrete actions to reduce the emission of HFCs and make effective progress,]

[*Emphasizing* that the discussion of how to control the emission of green house gasses including HFCs [should][must] follow the principles and provisions of the UNFCCC and its Kyoto Protocol,][in particular the principle of common but differentiated responsibility which is paramount]

[*Recognizing* that the subsidiary body for scientific and technological advice of the UNFCCC is the body to provide [information and][policy] advice on scientific and technological matters relating to climate change issues,]

Recalling that decision X/16 recognizes the importance of implementing the Montreal Protocol on Substances that Deplete the Ozone Layer and takes note of hydrofluorocarbons and perfluorocarbons as alternatives to ozone-depleting substances that have substantial impacts on the climate system,

Expressing appreciation for the special report of the Technology and Economic Assessment Panel and the Intergovernmental Panel on Climate Change entitled “Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons”,

Recalling the report by the Technology and Economic Assessment Panel to the Open-ended Working Group at its thirtieth meeting on alternatives to hydrochlorofluorocarbons in the refrigeration and air-conditioning sector in parties operating under paragraph 1 of Article 5 with high ambient temperatures and unique operating conditions, based on the request made in decision XIX/8,

Concerned about the potential for unfettered growth in the production, consumption and use of alternatives with high global-warming potential as a result of the phase-out of ozone-depleting substances,

Recalling that decision XIX/6 requests the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, when developing and applying funding criteria for projects and programmes for the accelerated phase-out of hydrochlorofluorocarbons, to give priority to cost-effective projects that focus on, among other things, substitutes and alternatives that minimize other impacts on the environment, including on the climate,

Aware of the increasing availability of low-global-warming-potential alternatives to ozone-depleting substances, including in the refrigeration, air-conditioning and foam sectors,

Recognizing the important work undertaken by the Technology and Economic Assessment Panel on the status of alternatives to hydrochlorofluorocarbons and hydrofluorocarbons,

Reconfirming the expertise available under the Montreal Protocol in the sectors making a transition to alternatives to ozone-depleting substances,

Option 1

To request the Technology and Economic Assessment Panel to prepare a report containing information on low GWP and high GWP alternatives to ODS from the work done by UNFCCC and its Kyoto Protocol as well as IPCC.

Option 2

1. To request the Technology and Economic Assessment Panel to prepare a report for consideration by the Open-ended Working Group at its thirty-second meeting [including any work

done by the UNFCCC and its Kyoto Protocol as well as the IPCC] containing information on, among other things:

(a) The cost of [each of][the range of] low-global-warming-potential alternatives and high-global-warming-potential alternatives [which are technically proven, economically viable and environmentally benign] to hydrochlorofluorocarbons and chlorofluorocarbons;

(b) The low-global-warming-potential alternatives and high-global-warming-potential alternatives [which are technically proven, economically viable and environmentally benign] to hydrochlorofluorocarbons and chlorofluorocarbons suitable for use in high ambient temperatures, including how such temperatures may affect efficiency or other factors;

[(-) The extent to which the funding guidelines on HCFCs adopted by the Executive Committee at its 60th meeting would allow for the selection and financing of low global warming potential alternatives to HCFCs in Article 5 countries, [using the classification of GWPs presented by the Panel in its 2010 progress report,]

[(c) Data on annual [global] [emissions], production and consumption of [hydrofluorocarbons] [high GWP substances [used in the same sectors impacted by the Montreal Protocol]], including data disaggregated by [country and] sector where available;]

(d) Quantities and types of low-global-warming-potential alternatives and high-global-warming-potential alternatives projected to be phased in as replacements for ozone-depleting substances, disaggregated by application, or to meet growth in applications already using [hydrofluorocarbons][high GWP alternatives], in both parties operating under paragraph 1 of Article 5 and those not so operating;

(e) An assessment of the technical and economic feasibility of options for reducing reliance on [hydrofluorocarbons][high GWP alternatives] over the coming decade, including an [assessment][estimation] of current and future commercial availability [and an evaluation of it in the near future] [and safety] of alternatives, the [overall] (Japan) financial implications [for the Multilateral Fund] and [in consultation with the Science Assessment Panel] the resulting impacts on the climate [based on the work] [including the work] of the IPCC];

[(f) Quantities and types of hydrofluorocarbons that are likely to be phased in as alternatives to HCFCs, and in which sectors, [the underlying reasons for this phase in] [including][because] of a lack of low-GWP alternatives or insufficient funding for adopting low-GWP alternatives, taking into account environmental, health and safety requirements; (Colombia)]

2. [To encourage parties in a position to do so [to consider forwarding] [to forward] best available data or estimates of their current and historic annual production and consumption of individual hydrofluorocarbons [used s substitutes to ODS], [requesting those data to be treated as confidential where necessary, to the Ozone Secretariat [if possible by] [no later than] 30 April 2012;]

3. [To request the Executive Committee of the Multilateral Fund to consider whether any additional assistance may be needed to assist parties operating under paragraph 1 of Article 5 [when gathering][to gather] information on their hydrofluorocarbon consumption and production in sectors relevant to the phase-out of hydrochlorofluorocarbons and chlorofluorocarbons;]

4. To encourage parties to promote policies and measures aimed at avoiding the selection of high-global-warming-potential alternatives to hydrochlorofluorocarbons and other ozone-depleting substances in applications in which technological, economical, market-available and tested alternatives exist that minimize impacts on the environment particularly on the climate, [while meeting other] health, safety and economic considerations].

5. [to further encourage non article 5 parties to cooperate and provide the necessary transfer of financial and technological resources and capacity building for the promotion of the use of low GWP alternatives to hcfcs in article 5 countries]

XI. Draft decision on treatment of consumption [and reporting under the Montreal Protocol on Substances that Deplete the Ozone Layer on the consumption] of ozone-depleting substances used to service ships, including [flag of convenience ships] [ships from other flag States]

Submission by Saint Lucia, Belize, Marshall Islands, [Bahamas,] [United States of America,] Trinidad and Tobago, and Saint Vincent and the Grenadines

The Twenty-Third Meeting of the Parties decides:

Taking into account that Article 4B of the Montreal Protocol on Substances that Deplete the Ozone Layer requires parties to establish and implement systems for licensing imports and exports to phase out the [production and] consumption of Annex A, B, C, and D ozone-depleting substances,

Taking into account also that consumption is defined under the Montreal Protocol as production plus imports minus exports,

[*Acknowledging* that flag of convenience countries have the authority and responsibility to enforce regulations over vessels flying their flags, including those relating to inspection, certification and the issuance of safety and pollution prevention documents],

Recognizing that ships use equipment and technologies containing ozone-depleting substances [onboard during operations in national and international waterways],

[*Mindful* that many parties registered as flag States are unsure of the reporting requirements for ships under the Montreal Protocol,]

[*Concerned* that [differing party interpretations of the term "exports" under the Montreal Protocol may result in the miscalculation of consumption or disparities in the reporting of consumption] [there are [reported] cases of ozone-depleting substances supplied to service ships [with those exports being treated under the data reporting rules of Article 7 of the Montreal Protocol], including flag ships, that may be reported as exports under the regulations of the parties supplying the ozone-depleting substances, but not as consumption either by the parties to which the ships belong or by the parties under whose flags the ships sail],

3. To request the Ozone Secretariat to prepare a [study] [document] that reviews current ozone-depleting-substance data reporting under Article 7 of the Protocol with regard to sales to ships, including ships from other flag States, for onboard servicing and other onboard uses, including on how parties calculate consumption with regard to such sales, [and presents issues relevant to the treatment of the consumption of ozone-depleting substances used to service ships, including flag ships] for submission to the Open-ended Working Group at its thirty-second meeting to enable the Twenty-Fourth Meeting of the Parties to take a decision on the matter;

4. [To include in the [study] [document] any guidance to parties on ozone-depleting-substance reporting requirements previously provided to the parties regarding sales to ships for onboard uses;]

5. [To request that the [study] [document] be made available to all parties at least six weeks before the thirty-second meeting of the Open-ended Working Group];

6. To request parties to provide to the Ozone Secretariat, [by 1 April 2012,] information on [the current system used, if any,)] how to regulate and report on ozone-depleting substances supplied for the purpose of servicing ships, including ships from other flag States, for onboard use, on how they calculate consumption with regard to such ozone-depleting substances, and on any relevant cases in which they have supplied, imported or exported such ozone-depleting substances[;] [.]

7. [To request that, for the purposes of calculating consumption as defined in Article 1 of the Protocol, sales of ozone-depleting substances to a ship docked in a party's port for use onboard that ship be considered part of that party's production rather than its export.]

Annex II

Summaries of presentations by the members of the assessment panels and the technical options committees[5]

I. Presentation by the Technology and Economic Assessment Panel on the assessment of the funding requirement for the replenishment of the Multilateral Fund for the period 2012–2014 (agenda item 3)

Mr. Lambert Kuijpers, Co-chair of the Technology and Economic Assessment Panel and Co-chair of the TEAP Replenishment Task Force, started the presentation on the assessment of the funding requirement for the replenishment of the Multilateral Fund for the period 2012-14. He said that the Replenishment Task Force estimates the total funding requirement for the triennium 2012-14 to be in the range of US$ 390 to US$ 477 million. He then presented the membership of the Task Force, and passed on to Task Force member Mr. Miguel Quintero.

Mr. Quintero presented the outline of the report and also the time-line between September 2010 and May 2011. He described all the elements of Decision XXII/3, which requests to prepare a report on the funding requirement for the replenishment for 2012-2014, as well as to provide indicative figures for the periods 2015-2017 and 2018-2020. He said that Decision XXII/3 is related to XIX/6, which defines the accelerated HCFC phase-out, with specific emphasis on the fact that the Executive Committee should give priority to cost effective projects and programmes, focusing on phasing out first the HCFCs with higher ODP and focusing on substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account GWP, energy use and other relevant factors.

He mentioned that, in 2008, the Task Force estimate for the funding requirement was in the range of US$ 342.8-639.8 million, and that one can now conclude that the real funding requirement will be US$ 460 million, based on actual expenditure and on components in the MLF Business plan for the remainder of 2011.

Mr. Quintero said that the major HCFCs taken into account in the report are

HCFC-22, -141b and -142b, that the quantities of HCFC-123, -124 and -225 used in Article 5 Parties are very small and gave the relative shares of the three major HCFCs in consumption. He described the tendencies in global, non-Article 5 and Article 5 production and consumption of the three major HCFCs over the period 2000-2009, and mentioned discrepancies between the global figures. He mentioned that, for the analysis for the replenishment, the Panel had considered four country groups (very large, large, medium and small), which contained 1, 33, 25 and 86 Parties, respectively, and that the HCFC-22 consumption in Group 4 is for servicing only. He noted that China's HCFC consumption had increased from 5,000 ODP tonnes in 2000 to about 18,500 ODP tonnes in 2009 and that total Article 5 HCFC consumption was larger than 500,000 metric tonnes in 2009. He then elaborated on the cost effectiveness for foams, and said first that the alternatives for PU HCFC blown foam are hydrocarbons (HCs), pre-blended HCs, CO_2 (water), methyl formate, methylal, high GWP HFCs and low-GWP HFCs, including HFOs. On the basis of the approvals through ExCom-63, an average cost effectiveness of US$ 7.21/kg had been determined; however, on the basis of technical considerations, looking at all sub-sectors and sectors, a weighted average CE of US$ 7.27/kg was calculated. Since for XPS blown foam not enough practical information is yet available, a cost effectiveness value of US$ 2.56/kg was used based upon three project approvals.

Mr. Roberto Peixoto, Task Force member, dealt with the cost effectiveness for refrigeration and air conditioning conversions. He noted that it was important to recall that the Incremental Operating Cost values were capped in ExCom Decision 60/44. He said that from three available scenarios, a scenario characterized by the use of 25% low GWP refrigerants had been selected, and that, generally, considering the total HCFC consumption a 70% share of air conditioning was assumed. Overall, while adding 25% for conversions to low-GWP alternatives, an average cost effectiveness value for all refrigeration and AC sectors of US$ 11.1/kg had been determined. Concerning the methodology applied, Mr. Peixoto listed the input parameters such as the baseline, the 10% reduction in ODP-tonnes by 2015 in principle, the cost effectiveness of US$ 4.5/kg used for servicing operations, the percentage use of 70% for servicing and a certain distribution over the consumption

5 The summaries in the present annex appear as submitted by the presenters, without formal editing.

sectors foam, refrigeration and AC and servicing, the tranches in HPMP funding, specific ExCom guidelines for estimating the funding for Low Volume Consuming Countries and the 30% foreign ownership assumed for larger manufacturing countries.

Mr. Peixoto then said that the funding requirement for existing HPMP commitments after ExCom-63 is known for the period 2011-2014 and that funding for all subsequent HPMPs is estimated. He said that three funding cases had been chosen for the approval of funding for phase-out, equivalent to reductions from the baseline of 10, 15 and 20%, and that two reduction packages with an emphasis on foam had been chosen, yielding six scenarios in total. Reduction in consumption for the two subsequent triennia after 2012-2014 was 15% and 16.5%, respectively. Over time, the composition of reduction packages and cost effectiveness are likely to vary; lacking information they were kept constant.

Mr. Kuijpers then continued the presentation. HCFC production is for dispersive use and for feedstock, but the cost estimates derived by the Task Force are only for phase-out of production for dispersive uses. He mentioned that the production phase-out via HCFC manufacturing plant closures is assumed to go in parallel with the HCFC consumption reductions as of 2013 at costs of US$ 3/kg. He explained that, in a first instance, a four-year period 2011-2014 is calculated for the funding requirement, from which the balance of US$ 252.2 million for 2011 is subtracted as in the MLF Consolidated Business Plan, so that the 2012-2014 funding can be derived. He said that any funding not committed in 2011 will be automatically needed in the triennium 2012-2014 and this would therefore not affect the funding estimate, since this would then be carried over.

Mr. Kuijpers mentioned that US$ 195.2 million would be needed for the period 2011-2014 for all cost elements without new HPMPs and plant closure costs. He then showed a slide with the funding requirements for the six scenarios for the triennium 2012-2014, varying from US$ 306.1 to US$ 653.5 million for the foam and refrigeration and AC package and from US$ 245.2 to US$ 529.3 million for the foam and servicing package. He said that the proportion of baseline consumption funded for phase-out varies from 10 to 35% in the HPMPs so far approved.

Mr. Kuijpers noted that the funding scenario with the 15% reduction from baseline had been selected as mid-point for all countries and this with a plus and minus 10% spread, which yields a total funding requirement range for the triennium 2012-2014 of US$ 390.2 to US$ 477.0 million. He mentioned how Institutional Strengthening, CAP costs, core unit funding and operating costs for the Executive Committee, Secretariat and treasurer had been dealt with in the subsequent triennia, with Institutional Strengthening in principle constant over the years. He then dealt with the triennia 2015-2017 and 2018-2020 and gave an overview. He said that the figure for 2009-2011is likely to be US$ 461 million with an estimated range from the Task Force in 2008 of US$ 342.8 to US$ 639.8 million. For 2012-2014, the funding requirement range had been calculated as US$ 390-477 million, with indicative funding requirements for 2015-2017 of US$ 573-687 million and for 2018-2020 of US$ 611-776 million.

Under the concluding remarks part, Mr. Kuijpers said that HCFC production closure funds have a significant influence on the overall replenishment levels, with around 40% of the total funding in the first triennium 2012-2014. He further said that the production closure had been assumed at a cost level of US$ 3/kg, which is an experience value from the CFC production closure agreements and that further technical studies on closure will be required. Regarding the funding stability, Mr. Kuijpers mentioned that the funding requirements for the three triennia show an increasing trend, that the lower funding requirement for 2012-14 is in part due to the high level of funding available for HPMPs in 2011. He also said that funding levels in second and third triennium have to deal with larger consumption reductions. Options for smoothing the triennium funding include the funding of reductions in consumption greater than the 10% commitment included in most Stage 1 HPMPs so far approved and increasing relevant cost-effectiveness thresholds to encourage adoption of low-GWP alternatives in sectors where feasible. Mr. Kuijpers emphasised that practical challenges to smooth funding remain.

II. Presentation on the 2011 progress report of the Technology and Economic Assessment Panel (agenda item 5)

Mr. Stephen O. Andersen, Co-chair of the Technology and Economic Assessment Panel, started the presentation on the TEAP Progress Report 2011, and introduced the first presenters.

Mr. Jose Pons and Mr. Ashley Woodcock, Co-chairs of the Medical Technical Options Committee, presented the outcomes on the TEAP/MTOC review of the Essential Use Nominations for 2012, and significant future issues in the phase out of CFC MDIs. Mr. Woodcock said that four EUE

nominations were received from Bangladesh, China, Pakistan and the Russian Federation for 877 tonnes of CFC. He also mentioned that TEAP/MTOC were able to recommend 793 tonnes for 2012, which is a reduction of 65% on the volumes approved in 2011, and that there is now a wide range of affordable non-CFC alternatives available in all importing countries for beta agonists and inhaled corticosteroids. A category analysis of MTOC considerations was presented. Mr. Pons continued the presentation by reporting that China has the largest CFC MDI use, and has developed a domestic strategy for phase-out by 2016. The Russian Federation manufacturing transition is still stalled; either this transition needs to occur urgently, or patient demand for inhaled therapy should be met by import of affordable alternatives. He mentioned that the world-wide stockpiles of pharma-grade CFCs are approximately 2000 tonnes, a small amount of which might have been used in the EU as a process agent. He also stated that TEAP/MTOC understands that stocks arising from EUE nominations can only be used for inhaled therapy or destroyed. He noted that Parties could consider clarifying this issue.

Mr. Masaaki Yamabe, Co-chair of the Chemical Options Committee, reported the cessation of 27 process agent uses, leaving 14 uses in Table A of Decision X/14 and improved reporting to Table B. He said that alternatives are available for most laboratory and analytical uses of ODS but many Parties have been slow in adopting them. Mr. Ian Rae, Co-chair of the Chemicals Options Committee, reported that there had been no progress in determining the usage of n-propyl bromide. He also mentioned that resolution of the discrepancy between top-down and bottom-up determined CTC emissions had not progressed either. He said that the Essential Use Nomination for the use of CFC-113 in the Russian Federation space programme was recommended, but not the use of bromochloromethane in the chemical industry in Jordan. He also stated that ODS feedstock uses and estimated emissions had now been reported in the 2011 Progress Report.

Mr. David Catchpole, Co-chair of the Halons Technical Options Committee, delivered the 2011 HTOC Progress Report. He outlined the following six new halon alternatives/technologies that have been commercialised or are undergoing performance testing: twin fluid air/water system; water and nitrogen systems; water based agents using multiple salts to achieve a very low freezing point (-70^{o}C) and film-forming; pyrotechnic products that generate nitrogen and nitrogen/water; phosphorus tribromide; unsaturated HFCs and HBFCs as well as a fluoroketone. Mr. Catchpole also advised the Parties that halon 1301 is still produced in China and France for a feedstock application; that in India, recovered halon is often sold without proper purification and testing; and that in China recovered halon is now classified as a hazardous waste that cannot be reused, and that recycling companies are showing little interest in managing halons as a hazardous waste. He also advised that a new ASTM International Standard for halon 1211 had been issued.

In response to Decision XXII/22, TEAP formed a task force of eight members including representatives from each TOC plus two senior expert members. The two Co-chairs of this task force, Mr. Dan Verdonik and Ms. Marta Pizano, presented the results of the task force's work. Ms. Pizano reported that the task force had considered different criteria to define balance, including Article 5 versus non-Article 5 composition, and within that overall balance, regional distribution. She stated that when appointing members, TEAP strives for overall balance and expertise, with expertise being a deciding factor. Ms. Pizano then explained that TOC members are appointed by TOC co-Chairs in consultation with TEAP, (per para 2.5 of the TOR) and that they continually sought to round out expertise and balance, refresh TOC membership for upcoming Assessments, and identify candidates through nominations, TOC members, associates, industry, professional and academic organizations, and others. She further recalled that Parties, not TEAP, confirm the appointments to TEAP.

When referring to current and required capabilities, Mr. Verdonik stated that the task force had recognised that the current matrix of expertise appeared not to provide sufficient information and that more information on the required expertise and on TEAP or TOC membership might be needed. He said that the task force proposed the creation of a user-friendly website or interface where matrices on current capabilities where standardised and improved, under a standard format, and which could then be turned into a searchable database. However, significant changes and improvements would be necessary to achieve this and help from Ozone Secretariat, which has the means and resources would be clearly needed. He said the task force was proposing that the Matrix of expertise and required capabilities for TEAP be updated in TEAP progress report annually beginning in 2012 and for TOC members requirements, biannually (January and July) also beginning in 2012.

Mr. Verdonik then referred to the guidelines for nominations as contained in the TEAP terms of reference and recalled that TEAP membership is recommended to be 18-22 members, that TOCs have 2 or sometimes 3 Co-chairs and that TOC Co-chairs are appointed in coordination with TEAP. Dr Verdonik then said the task force proposed the creation of a standard nomination form, which would include information on the proposed candidate such as formal education and other

qualifications, employment or other relevant work experience, past experience conducting similar or related work, English language proficiency and relevant professional references and publications. He stated that additional qualifications that could aid selection process would be for example professional memberships and / or awards, the country and / or world region where the nominee was situated or had experience and the availability of funding or support for the proposed position.

Stephen O. Andersen, Co-chair of the Technology and Economic Assessment Panel, reported that there were about 5 minority reports in the first 20 years of the TEAP operation, but that there are 3 minority reports in 2011 regarding methyl bromide critical use exemptions and 1 minority viewpoint regarding methyl formate foam blowing agent. To enhance consensus he mentioned that TEAP had asked the MBTOC, where possible, to organize its meeting agendas in the future to allow members of each subcommittee to attend discussions on each topic necessary to contribute to an informed decision and to consider other strategies to support achieving consensus.

Co-Chair Andersen also reported that the Government of Japan has nominated Masaaki Yamabe to move from the position of Co-Chair of the Chemicals Technical Options Committee (CTOC) to the position of TEAP Senior Expert Member, and has nominated Keiichi Ohnishi to move to the position of CTOC Co-Chair.

He noted further that TEAP took two actions to avoid appearance or consequence of a conflict of interest. The Panel had instructed its members to redouble efforts to update and assure completeness of disclosures of interest, furthermore it had drafted preliminary internal guidelines for recusal of members from specific actions such as CUNs and EUEs when an interested party would have good reason to question the objectivity and fairness of involvement.

III. Joint presentation by the Halons Technical Options Committee and the International Civil Aviation Organization on progress in replacing halons in civil aviation (agenda item 5)

Dr. Dan Verdonik, co-Chair, Halons Technical Options Committee (HTOC) and Mr. Alain Coutu, Technical Officer, Air Worthiness Secretariat, Air Navigation Bureau, International Civil Aviation Organization made a joint presentation on the Progress in Replacing Halons in Civil Aviation. Dr Verdonik presented the background and results up to MOP XX/II. He expressed that this is a large effort involving the cooperation and agreement with ICAO, HTOC, UNEP Ozone Secretariat, National Regulatory Bodies and Industry. The interests of the Parties to engage ICAO and the civil aviation community was first expressed in Decision XV/11 in 2003 with follow up in Decisions XIX/16 and XXI/7. This effort of HTOC engaging with ICAO resulting in the 2010 ICAO General Assembly (similar to a Montreal Protocol MOP) adopted Resolution (similar to a Montreal Protocol Decision) adopted A37-9 which requires that they establish a mandate for implementing halon alternative. As a result, ICAO needed to get agreements on specific changes to two Annexes of the Chicago Convention.

Mr. Coutu presented that in November of 2010, the ICAO Air Navigation Commission (ANC) considered proposals that were supported by the HTOC to amend their Chicago Convention Annex 6 in 3 parts 1) *Operation of Aircraft, International Commercial Air Transport — Aeroplanes*, 2) *International General Aviation — Aeroplanes* and 3) *International Operations — Helicopters* and Annex 8 — *Airworthiness of Aircraft.* These amendments would establish requirements and timeframes for the replacement of halon fire extinguishing agents. The proposal specifically included language supporting the use of alternatives that cause the least amount of impact to the environment, e.g., climate, while performing the specific fire protection applications for which the equipment was designed. The ANC agreed that the proposals should be transmitted to ICAO Member States and appropriate international organizations for comment. The vast majority of replies indicated broad support for the proposed amendment. However, the Russian Federation provided Disagreement with Comments, due to concerns that there was a large financial impact on the industry and that considerable time would be needed to implement the requirements. ICAO and HTOC discussed the issues with the Russian Federation ICAO delegate and adequately resolved them. The ANC approved the proposals and forwarded them to the Council for final approval.

The vote had to be taken up in four parts as it required three changes to Annex 6 and one change to Annex 8. The proposals passed without one vote against a halon elimination mandate. The specific agreement is that “fire extinguishing systems shall use fire extinguishing agents that are not listed in Annex A, Group II of the Montreal Protocol on Substances That Deplete the Ozone Layer.”

The specific changes are 1: Lavatory fire extinguishing systems for in-production aircraft no later than 31 December 2011; 2) Handheld systems for in-production aircraft no later than 31

December 2016 (2016 was chosen to allow time to leapfrog high GWP alternatives for this application) and 3) for Lavatory and Engine/Auxiliary Power Unit fire systems for new designed aircraft (defined within the ICAO process as aircraft types for which an application for a type certificate is submitted to the State of Design) on or after 31 December 2014. This was a landmark decision. This is the first time an operative Annex of the Chicago Convention was changed to address an environmental issue.

The next steps are that individual countries will need to create and implement national regulations. ICAO will continue to monitor research for halon alternatives for cargo bays because there is no viable solution yet. ICAO will be asking its communities for halon supplies and needs and will provide that information to the HTOC. The ICAO and HTOC plan to continue their collaboration with the consent of the Parties. The next stakeholder meeting is planned for November 30 - December 1, 2011. HTOC plans to attend through participation from its co-Chair from the Russian Federation and its member from China. HTOC has requested that the Ozone Secretariat consider funding their travel so that we can assist ICAO to ensure that the agreed upon dates are met.

IV. Presentation on the progress report of the Methyl Bromide Technical Options Committee (agenda item 6 (b))

Ms. Marta Pizano, co-chair of the Methyl Bromide Technical Options Committee introduced the progress report by addressing controlled uses of methyl bromide. She said global production has decreased significantly since 1991 and according to Montreal Protocol guidelines, and stated that since 2004, China is the only Article 5 party reporting production of MB for controlled uses, however the committee had noted that some chemical companies in India indicated on their websites that they produced MB apparently to be for controlled uses (e.g. soil fumigation) but no official report of this had been received by the ozone secretariat. When referring to controlled consumption of methyl bromide, she highlighted the progress made in phasing out this substance and in particular, that in 2009, Article 5 consumption had been larger than non-Article 5 for the first time since the inception of the Protocol.

With respect to consumption of methyl bromide for exempted (quarantine and pre-shipment) uses, Ms. Pizano showed that four parties presently produce methyl bromide for this purpose. Further, that according to the latest consumption data officially available (2009) global consumption showed a downward trend but reflected an increase in 2009, and that average consumption over the last decade was about 11,400 tonnes. When examining regional consumption the committee had found that the non-Article 5 consumption trend went downwards, but was up in 2009, whilst the Article 5 trend was upwards, but had levelled off in that same year. Ms Pizano then noted that exempted MB consumption had been larger than controlled consumption for the first time in 2008 and this trend was continuing. When examining regional consumption, the committee had noted that Asia was the region reporting the larger increases in recent years.

Ms. Pizano then reported on work ongoing under the International Plant Protection Convention, a body that has provided recommendations and guidance to National Plant Protection Organisations on the replacement or reduction of methyl bromide used as a phytosanitary measure. She recalled that ISPM-15, which accounts for about 20% of global methyl bromide use for QPS purposes, allows heat instead of methyl bromide for the treatment of Wood Packaging Material and that this standard is presently met using heat treatment facilities located in both Article 5 and non-A5 Parties. Further, that non-wood pallets (plastic, cardboard, plywood, particle board) are exempt from ISPM-15 treatment and have been adopted by many countries around the world, thus avoiding use of methyl bromide. She then informed that an IPPC Expert Panel is evaluating more alternatives for ISPM-15 for the treatment of Wood Packaging Material including microwaves, hydrogen cyanide, methyl iodide and a methylisocyanate + sulfuryl fluoride mixture (Ecotwin).

In closing her presentation, Ms Pizano highlighted findings of the MBTOC progress report with regard to QPS uses by stating that methyl bromide used for QPS is now the largest remaining ODS which is not subject to a freeze and reduction under the Montreal Protocol, but that nevertheless 82% of Parties have never reported consumption, or reported zero tonnes, or less than 10 tonnes. She also noted that someparties have phased out methyl bromide used for quarantine and preshipment purposes whilst others have announced their intention to do so in the near future. Finally, that the committee had estimated that 31-47% of the top four highest consuming categories of methyl bromide for QPS (grain, logs, pre-plant soil fumigation and WPM) could be replaced immediately with commercially available alternatives.

Mohamed Besri, co-chair of the Methyl Bromide Technical Options Committee, introduced the progress report by summarizing the Methyl Bromide consumption in A5 and non Article 5

countries, and the current situation in A5 countries. He reported that 45,000 t of MB have been consumed in non A5 countries in 1991. In 2013, only 704 t have been requested for preplant soil uses. He explained that only 3 Parties, Australia, Canada and USA continue to use MB for preplant soil uses. He said that the fumigants, 1,3-D, Chloropicrin and Methyl Iodide are at the moment considered as key alternatives to MB and widely used in many countries. The restrictions on their use in some countries, especially European countries will increase the adoption of new chemical alternatives and of non chemical alternatives.

He reported that in A5 countries, the total consumption of MB for controlled uses in 2009 was 5,463 tonnes (over 75% reduction from the baseline of 16,000 tonnes) and that about 90% of controlled uses are for soil fumigation (about 4,916 tonnes). Cucurbits (28%), strawberries and other berries (21%) and tomatoes (14%) are the major remaining consumer sectors.

He said that technologies that avoid the need for MB (i.e substrates, soilless culture, grafting, resistant varieties) continue to expand worldwide for sectors previously using MB, as these technologies are becoming more cost effective.

He noted that preplant treatment with MB represents about 15% of global QPS use of MB. He concluded that MBTOC continues to urge Parties to review the status of these uses as QPS uses. Canada supplied a useful summary of their interpretation of these uses.

He said that emergence of new or re-emergence of previously controlled pathogens has occurred after repeated use of some MB alternatives. He concluded that, even in these rare situations, alternatives and IPM programs exist.

He noted that from 1991 to 2009, A5 regional consumption for controlled uses has decreased in Africa, Asia and Eastern Europe. Latin America is the only region using in 2009 more MB than in 19991.

He said that MB is due to be fully phased out in A5 Parties by Jan 1 2015. Nearly 80% of the controlled consumption in A5 Parties has already been phased out, well ahead of 2015. This has been achieved largely as a result of investment projects implemented by the agencies, with MLF funding. Nominations from A5 Parties may be submitted beginning in 2013 for use in 2015. MBTOC is mindful of the difficult and complex process that occurred during the first round of CUNs in 2003. TEAP urges Parties to consider the requirements for CUNs as set out in the 'Handbook on Critical Use Nominations

The cochairs of the Methyl Bromide Technical Options Committee, Mr. Ian Porter and Ms Michelle Marcotte provided a summary of findings set out in the progress report of the Technology and Economic Assessment Panel on interim evaluations of 2011 critical-use nominations for methyl bromide.

Introducing the issue, Mr. Porter presented an overview of the Critical Use Nominations sought for 2012 and 2013. He noted that since 2005 only 4 Parties continue to submit nominations and all these continue to fall for both preplant soil and post harvest uses, although this has occurred at different rates. He also showed that amounts being applied for critical use were relatively small compared to baselines.

In the 2010 round, MBTOC considered nominations for 704 tonnes of methyl bromide compared to 1,290 t nominated in 2010.

He stated that the amount of MB stocks held by parties has considerably decreased for all parties from 2005 to 2010. Stocks reported by USA are now over twice the annual nominations from the US.

Mr. Porter then presented an overview of nominations received for pre-plant soil use of methyl bromide in 2011 and 2012. In its initial meeting, interim recommendations were made on 14 critical use nominations for preplant soil use from 3 Parties (Australia, Canada, USA).

In its interim assessment, a total of 6.111tonnes were unable to be assessed for research use in 2011 and for 2012 the Committee had recommended 577.916 tonnes and not recommended 7.346 tonnes, 77.089 tonnes was 'unable to be assessed' pending further information.

He reported that future reductions in Australia and Canada were difficult for the strawberry runner sector. USA had made significant progress in the phase out of methyl bromide for most uses in this round, but reductions for the largest remaining single use of MB, the strawberry fruit nomination from USA, was of concern. Regulatory issues continue to hinder efforts to uptake alternatives in the largest nomination coming from the US for the strawberry fruit industry.

Seven nominations require reassessment, pending review of recent information provided by the Party.

He added that 3 minority reports arose from the assessments. Two concerned five nominations from the US strawberry fruit and the vegetable sectors and were considered 'unable to assess', another from Canada was considered 'not to recommend' as research effort was inappropriate under Decision IX/6.

Key issues were that most remaining CUNS do not use barrier films and the resultant dose reduction and emission reduction are not achieved, registration of an alternative for a small, specific use is often economically impractical to replace MB and the need for alternatives to satisfy Nursery Certification and slowing adoption of alternatives to MB.

He concluded with an overview of nominations for the research sector in the US, where only one of the 24 sectors was recommended and others considered 'unable to assess' pending further substantiation of the need for MB as a reference standard for evaluating alternatives.

Michelle Marcotte, MBTOC Co-chair, summarized the interim recommendations for the critical use nominations pertaining to structures and commodities. There were six CUNs, plus aspects of a multi-element CUN for MB on research in alternatives. Parties submitting CUNs were Australia, Canada, Japan and the US. Interim recommended amounts of MB were given for five CUNs and one was unable to assess pending the receipt of research results. One aspect of the postharvest research CUN was also unable to assess pending the receipt of further information. This information has since been received from the Party and it will be assessed before the next TEAP report.

Marcotte also summarized the postharvest aspects of the Assessment Report and the Progress Report. The Assessment Report reviews all alternatives to the use of MB for structures and commodities with special emphasis on integrated pest management, heat and sulfuryl fluoride for structures and on numerous fumigants and also controlled atmosphere treatment for commodities. In addition there is a special section on treatments for dates. The TEAP Progress Report focuses on a review of the fumigant sulfuryl fluoride with the intent to provide data and analysis which will improve its efficacy and reduce the prospect for pest resistance.

V. Presentation on the 2010 synthesis report (agenda item 8)

The Co-Chairs of the three Assessment Panels reported on the 2010 Synthesis Report of the Scientific Assessment Panel (SAP), the Environmental Effects Assessment Panel (EEAP) and the Technology and Economic Assessment Panel (TEAP). The SAP Co-Chairs spoke on the science findings from their 2010 assessment and their relevance to policy. The EEAP Co-Chairs spoke on the health and environmental effects related to exposure to ultraviolet radiation. The TEAP Co-Chairs spoke on the policy-relevant conclusions with regard to technology.

The SAP Co-Chair noted that the 2010 reports of the three panels show that the Montreal Protocol is working to protect the ozone layer, and that furthermore this finding has strengthened since the 2006 assessments. The total abundance of ozone depleting substances (ODSs) in the atmosphere continues to decline, even though atmospheric levels of ODS replacements such as hydrochlorofluorocarbons (HCFCs) are increasing as chlorofluorocarbons (CFCs) have been phased out. Ozone column amounts have neither increased nor decreased in the last decade, a finding that is consistent with both the small ODS changes during this period and the current understanding of the atmosphere.

The SAP Co-Chair summarized the overarching findings of the Synthesis Report on three topics. (1) *Ozone layer and climate*: the Synthesis Report finds that these two issues are intricately connected. Ozone as well as ODSs impact climate, and in turn, both are impacted by climate. Hence, it may be prudent to consider ozone layer and climate protection together when deciding upon control mechanisms for anthropogenic chemical emissions. The magnitude of the consequences of climate-ozone interactions for health, biodiversity, ecosystem function and feedbacks are currently uncertain. It is technically and economically feasible to accelerate the phase-out of ODSs that are greenhouse gases (GHGs), to phase down the use of high global warming potential (GWP) hydrofluorocarbons (HFCs), and to leapfrog the use of high-GWP HFCs as alternatives for most HCFC applications. (2) *Hydrofluorocarbons*: HFCs have essentially zero ozone depletion potentials (ODPs) but high GWPs; the Synthesis Report finds that alternatives with lower GWPs are emerging. If unabated, the current HFC levels could, by the year 2050, grow to become 20% of all GWP-weighted GHG emissions. Breakdown products from HFC and HCFC uses, such as trifluoroacetic acid (TFA), are not expected to be a significant risk to health or the environment. (3) *Methyl bromide*: the Synthesis Report finds that further control of methyl bromide is still possible. For example, approximately 20–35% of

present global consumption of methyl bromide for quarantine and pre-shipment (QPS) uses could be replaced with available alternatives.

The SAP Co-Chair then summarized major findings of the 2010 SAP report, noting that (1) atmospheric abundances of ODSs are behaving as expected; (2) the coupling of climate and the ozone layer means that Montreal Protocol decisions can impact (and indeed already have impacted) both issues, and that climate change will become increasingly more important to the future ozone layer as ODSs decline; (3) the ozone hole continues to occur as expected and will persist until after midcentury; (4) global ozone depletion is much smaller than the ozone-hole depletion and will persist until about midcentury; and (5) changes in surface ultraviolet radiation have been small to date, and in the future will be more influenced by climate change than by ozone depletion.

The EEAP Co-Chair gave an overview of the key findings of the 2010 EEAP report, stating that the success of the Montreal Protocol has prevented large-scale environmental impacts of ozone depletion, such as increases in UV radiation and consequent damage to human health and ecosystems. Increases in sun-burning (erythemal) UV-B radiation due to ozone depletion have been small outside regions affected by the Antarctic ozone hole. As a result of the Montreal Protocol, major increases in skin cancer rates that would have occurred with uncontrolled ozone depletion have been prevented. Large reductions in the growth and productivity of plants and aquatic organisms, and hence significant changes to the global carbon cycle, also have been avoided. In the future, environmental effects on human health, biota, and materials will be confounded by new combinations of environmental factors resulting from the interaction of increasing atmospheric CO_2, climate change, and UV radiation.

The EEAP Co-Chair then summarized the key consequences of ozone depletion, UV radiation and climate change interactions for human health, terrestrial and aquatic ecosystems, biogeochemical cycles, air quality and construction materials. It was noted that effects of UV-B radiation on human health include cataract and melanoma of the eye, decreased immunity for certain diseases, and increased skin cancer incidence. Interactions of climate variables, such as temperature, can exacerbate UV radiation effects on health. There is a need for further information to the public for following a balanced lifestyle to allow for sufficient Vitamin D production from UV-B radiation, which is important for maintaining bone structure and preventing certain diseases. Rising temperature, rainfall, extreme droughts and increasing carbon dioxide levels together with UV radiation result in complex responses and feedbacks for terrestrial ecosystems, raising concerns of significant implications for food security and food quality. The role of oceans as a sink for the rising carbon dioxide levels has contributed to the acidification of the water with negative effects for skeletal formation in calcified organisms. This can increase their vulnerability to UV radiation. Nutrient cycling through terrestrial and aquatic ecosystems and the loss of carbon dioxide to the atmosphere are accelerated by UV radiation and climate change. Increased photochemical smog at low and middle latitudes has implications for human health and the environment because of the decreased cleaning effect of UV-induced hydroxyl radicals as the stratospheric ozone recovers. Current research indicates that low concentrations of the breakdown products of HCFCs and HFCs (e.g., trifluoroacetic acid) do not constitute a significant risk to human health or the environment. The effects of climate change and UV radiation on construction materials such as plastics and wood indicate increased damage by UV radiation in combination with high temperatures, humidity and atmospheric pollutants. Some of these effects can be offset by protective stabilisers and wood-plastic composites.

The TEAP Co-Chair reported on the findings of the 2010 TEAP report, noting that it is technically and economically feasible to accelerate the phase-out of most ODSs, to reduce emissions in many applications, and to collect and destroy large amounts of ODSs. Technology is rapidly emerging to avoid and replace high-GWP HFCs, for example to phase-down the use of high-GWP HFCs in mobile air conditioning and other applications where ODS have already been phased out. Several actions are in progress or possible that would have dual benefits for the ozone layer and for climate by encouraging the use of low-GWP alternatives in applications such as automobile air conditioning. Technology is already available for the Parties to leapfrog the use of HFCs in some applications. Technology does not yet exist for replacing ODSs in some applications, such as metered-dose inhalers, fire suppression, some refrigeration applications, and other minor uses. The opportunity to destroy unwanted “banked” ODS refrigerants is leaking away as equipment reaches end-of-life and ODSs are discharged, but still the co-benefits of ozone and climate protection from collecting and destroying ODSs likely exceed the costs.

VI. Presentation by the task force on the environmentally sound management of banks of ozone-depleting substances (decision XXI/2, paragraph 7, and decision XXII/10) (agenda item 7)

Co-chair Mr Ian Rae introduced the members of the Task Force and the requirements of Decision XXII/10. He outlined the Task Force approach to the two criteria: Destruction and Removal Efficiency (DRE) and the more comprehensive Destruction Efficiency (DE), the suggested lowering of the dioxin/furan criterion, and the use of chlorine-related TEQs for the brominated dioxins and furans. Four of the submitted technologies for ODS destruction were recommended for approval and a further two were seen as highly promising (one concerning methyl bromide). A further methyl bromide technology was considered as unable to assess. In answer to a question on dioxin/furan concentration standards, he said these were internationally recognised but that jurisdictions could recognise alternative criteria such as quantities emitted. Mr. Paul Ashford continued the presentation by noting that the emphasis on the destruction of ODS had largely moved from production stockpiles to end-of-life recovery and destruction processes. With this shift had come an increasing need to have localised destruction facilities. These facilities would need to deal with a number of product types, with particular challenges arising from foams. He noted that experience was still largely limited to non-Article 5 countries and that TEAP was awaiting for further information from the Executive Committee on ODS bank management projects in order to respond fully to Decision XXI/2 para 7. In this context, TEAP welcomed the report contained in ExCom 64/49. In many instances the quantification of destroyed amounts was rapidly becoming a pre-requisite for co-financing and some ODS Destruction Protocols were restricting the number of facilities that could qualify through lack of appropriate verification criteria. It had been recognised that the Code of Good Housekeeping, whilst useful, was not sufficiently definitive to be the basis of verification. In this respect a proposal had been made for the text of a possible Voluntary Annex and this was contained in Section 5.6 of the TEAP's 2011 Progress Report. In answer to a question from Australia concerning the DRE proposal for methyl bromide, Mr. Ashford confirmed that the experience on destruction of methyl bromide was limited, leading to the proposal for a relatively precautionary DRE of 99.99%. He noted that this could be reviewed with a possible wider review of ODS destruction criteria in due course. It was noted that methyl bromide should be well destroyed by plasma technologies in view of the temperatures achieved.

Annex III

Co-chairs' summary of suggestions for elaboration in the supplementary RTF report

TEAP to update all funding requirements as presented in its May 2011 report taking into account:

(a) All ExCom decisions and approvals up to the 64th Meeting;

(b) Most recent HCFC consumption and production data reported to UNEP under Article 7 by 1 September 2011, which would have impact on baselines.

TEAP to present scenarios considering:

(a) IS in combination with certain inflation rates over the next three triennia;

(b) Sector distribution with higher servicing sector ratio (via package of 75-5-20%) and different manufacturing sectors ratios (70-20-10%).

(c) Including for all scenarios the reduction amounts in metric tonnes, in ODP tonnes and reductions in CO2-eq.;

(d) Funding and no funding for swing plants;

(e) Allocating some funding tranches for the HCFC production sector phase-out to replenishments after 2014;

(f) Zero and -3% growth rates for relevant "supporting activities";

(g) Changes in cost effectiveness figures and their consequent impact on the next three replenishments, taking into account:

(a) Possible economies-of-scale in large consuming countries;

(b) Possible improvements in cost effectiveness over time;

(c) Possible improved cost effectiveness for those HPMPs that go beyond 10% reductions;

(d) An update based on weighted average cost effectiveness for each sector and for groups of countries, based on all HPMPs, HCFC demonstration projects and individual investment projects approved by the 64th ExCom meeting, taking into account special circumstances and experiences by certain A5 Parties;

(e) Higher penetration rates of low-GWP alternatives;

(f) Higher and lower cost effectiveness figures for the HCFC production sector compared to the CFC production sector phase-out.

(h) The 25% additional funding for low-GWP alternatives only in the sectors: XPS foam, PU foam and commercial refrigeration that have established CE (IOC and ICC) thresholds as per ExCom decision 60/44;

(i) Zero, 25% and 50% penetration rates of low-GWP alternatives in the R/AC sector with 10% and 20% R/AC manufacturing ratios for the periods 2012-2014 and 2015-2017.

Furthermore, TEAP to:

(a) To the extent possible, present alternative production phase-out scenarios, taking into account the possible redirection of dispersive HCFC production to feedstock production;

(b) To the extent possible, present a range of approaches for swing plants and their funding implications;

(c) For each consumption scenario, estimate the replenishment for each production scenario;

(d) Provide a list of the alternatives that had been included under low-GWP calculations and provide an overview on how the ICC and IOC in table 5-7 were calculated for low-GWP alternatives, explaining the reasons for the large range of costs;

(e) Provide information on alternative growth rates for HCFCs between 2009 and 2013 taking into account available Article 7 data up to September 1, 2011.

_____