



Distr.: General
31 July 2014
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-fourth meeting
Paris, 14–18 July 2014**

Report of the thirty-fourth 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-fourth 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 United Nations Educational, Scientific and Cultural Organization in Paris from 14 to 18 July 2014. The meeting was co-chaired by Mr. Patrick McInerney (Australia) and Mr. Richard Mwendandu (Kenya).
2. The meeting was opened at 10 a.m. on Monday, 14 July 2014, by Mr. McInerney.
3. At the invitation of the co-chair, the Open-ended Working Group observed one minute of silence in memory of Mr. Nandan Chirmulay, staff member of the United Nations Development Programme Montreal Protocol team in Bangkok and a valued member of the ozone family, who had passed away in February 2014.
4. Ms. Tina Birmpili, Executive Secretary of the Ozone Secretariat, made an opening statement in which she said that the aspirations of the parties to the Montreal Protocol had been translated into a unique legal instrument that had enabled the international community to work together towards specific goals and targets to phase out ozone-depleting substances and thereby heal and protect the ozone layer. Over time, scientific knowledge had repeatedly provided parties with a compelling basis for action, and sometimes for the application of the precautionary principle. She welcomed the opportunity to facilitate the work of the parties to achieve their common objectives and she cautioned against complacency, noting that significant challenges lay ahead and that the Protocol's mission had yet to be accomplished in full. In addition to protecting the ozone layer, the Montreal Protocol had contributed a great deal to mitigating climate change, she said, and it was important to continue making the case for the Protocol, including by highlighting the challenges ahead and its increasing relevance to development as standards of living rose around the world, in particular in developing countries.
5. Highlighting items on the agenda for the current meeting, she noted that the Working Group would discuss, among other things, alternatives to ozone-depleting substances and the 2015–2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol, matters on which the Technology and Economic Assessment Panel had produced excellent reports to inform the consideration of the issues. Regarding the latter, she said that continued support from the Multilateral Fund would be key to enabling parties operating under paragraph 1 of Article 5 of the Protocol (Article 5 parties) to continue to comply with their obligations under the Protocol. For the global

partnership between developed and developing countries to work, it was important to build on the principle of common but differentiated responsibilities, and a strong Fund replenishment would send a strong signal to the global community in moving forward. At the current meeting, the Open-ended Working Group would decide on the need for any further guidance or clarification in respect of the replenishment report prior to its submission to the Twenty-Sixth Meeting of the Parties.

6. She drew attention to the forthcoming quadrennial assessments of the Protocol's three assessment panels, which forecast, among other things, a continued increase in the consumption of hydrofluorocarbons (HFCs), especially in developing countries. It was to be hoped that the workshop on HFC management issues that had been held on the two days immediately preceding the current meeting would provide a solid basis on which to continue the discussions on the matter. Whether or not HFCs were regulated, and regardless of by whom, the Montreal Protocol had a role to play, including in evaluating options for the phase-down of high-global-warming-potential (GWP) substances where alternatives were proven or becoming available.

7. Given that in 2014 Article 5 parties would be submitting nominations for critical-use exemptions for the first time, she urged all to allow ample time for bilateral discussions, with due consideration for the local circumstances of those parties, to ease their transition away from the use of ozone-depleting substances. She also urged parties to consider carefully the information document on financial issues (UNEP/OzL.Pro.WG.1/34/INF/2), including with regard to the implications of the new accounting system implemented by the United Nations. In closing, she urged parties to continue the spirit of cooperation, openness, fairness and respect for divergent views that had always characterized the work of the Protocol.

II. Organizational matters

A. Attendance

8. The following parties to the Montreal Protocol were represented: Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Bahamas, Bahrain, Bangladesh, Belarus, Belgium, Belize, Benin, Bolivia (Plurinational State of), Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Chile, China, Colombia, Comoros, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic Republic of the Congo, Denmark, Djibouti, Ecuador, Egypt, El Salvador, Estonia, European Union, Fiji, Finland, France, Germany, Ghana, Greece, Grenada, Guatemala, Haiti, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Lebanon, Lesotho, Lithuania, Madagascar, Malaysia, Maldives, Mauritius, Mexico, Micronesia (Federated States of), Mongolia, Montenegro, Morocco, Mozambique, Netherlands, New Zealand, Niger, Nigeria, Norway, Oman, Pakistan, Paraguay, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Rwanda, Saint Lucia, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Singapore, Slovakia, South Africa, South Sudan, Sri Lanka, Sudan, Swaziland, Sweden, Switzerland, Tajikistan, Thailand, the former Yugoslav Republic of Macedonia, Togo, Trinidad and Tobago, Uganda, Ukraine, 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, Yemen and Zimbabwe.

9. The following United Nations entities, organizations and specialized agencies were represented as observers: Secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol, Secretariat of the United Nations Framework Convention on Climate Change, Global Environment Facility, United Nations Development Programme, United Nations Environment Programme, United Nations Industrial Development Organization and World Bank. Also in attendance were representatives of the Environmental Effects Assessment Panel, the Scientific Assessment Panel and the Technology and Economic Assessment Panel of the Montreal Protocol.

10. The following intergovernmental, non-governmental and industry bodies were represented as observers: ACCORD 3.0 Network, Alliance for Responsible Atmospheric Policy, Arkema, Avery Dennison, Beijing CRAA Quality Certification Centre Co. Ltd., Cairo University, Carrier Transicold and Refrigeration Systems, Centre for Science and Environment, Chemtura Corporation, China Household Electrical Appliance Association, China Refrigeration and Air-Conditioning Industry Association, Cinco S Agro-Industrial SRL, Climalife, Como Consult GmbH, Council on Energy, Environment and Water, Cysda Corporativo, S.A., Daikin Europe N.V., Daikin Industries, Ltd., DuPont China Holding Co., Ltd., DuPont de Nemours (Deutschland) GmbH, DuPont de Nemours International S.A., Emergent Ventures India Pvt. Ltd., Environmental Investigation Agency, Eurammon, European Partnership for Energy and the Environment, GIZ Proklima, Great Lakes

Solutions, Gujarat Fluorochemicals Ltd., ICF International, Honeywell, Honeywell PMT, Industrial Technology Research Institute, Ingersoll Rand/Trane, Ingersoll Rand International Ltd., Institute for Governance and Sustainable Development, International Institute of Refrigeration, International Pharmaceutical Aerosol Consortium, IUCN Netherlands, Japan Fluorocarbon Manufacturers Association, Japan Refrigeration and Air Conditioning Industry Association, Keene Communications/Assure, Lambiotte and Cie, S.A., Mayekawa Europe, Lampert and Associates, League of Arab States, Mexichem UK Limited, Mitsubishi Electric Europe, B.V., Natural Resources Defence Council, National Trust for Scotland, Nolan-Sherry and Associates Ltd., Öko-Recherche GmbH, Quimobasicos S.A. de C.V., Refrigerant Reclaim Australia Ltd., Refrigerants Australia, Refrigeration and Airconditioning Manufacturers' Association, Shecco, SRF Limited, Trical, Toolangi Certified Strawberry Runner Growers Cooperative, United Technologies, Victorian Strawberry Industry Certification Authority and World Avoided Project.

B. Adoption of the agenda

11. The Working Group agreed to remove the reference to proposed adjustments to the Protocol from item 9 of the provisional agenda, given that no party had put forth a proposed adjustment for discussion. It also agreed to consider a presentation by the Scientific Assessment Panel on a scientific article published in March 2014 on newly detected ozone-depleting substances in the atmosphere under item 11, on other matters; and to consider laboratory and analytical use exemptions under item 4, on issues related to exemptions under Articles 2A–2I of the Montreal Protocol. The working group also agreed to consider three more issues under other matters: monitoring of trade in hydrochlorofluorocarbons (HCFCs) and substituting substances; emissions from the production sector linked to newly discovered ozone-depleting substances; and halons supplied to air carriers and the safe management of halon banks.

12. Some representatives requested the deletion from the agenda of item 7, on the outcome of the workshop on HFC management. Some representatives also requested the deletion of item 9, on proposed adjustments and amendments to the Montreal Protocol. Item 7 should not be on the agenda, they said, because the outcome document of the workshop was not a consensus document and did not fairly reflect the views of the workshop participants in a balanced manner, while the proposals under item 9 dealt with non-ozone-depleting substances and therefore did not coincide with the mandate of the Protocol.

13. Some other representatives, including one speaking on behalf of a group of countries, said that the items should remain on the agenda, arguing that the proposed amendments under item 9 had been submitted in accordance with the rules of procedure and must therefore remain. In addition, said one, HFCs were being released into the atmosphere as a result of measures taken under the Montreal Protocol, and it was therefore the responsibility of parties to the Protocol to deal with them. In relation to item 7, some representatives said that, given that the workshop had been convened pursuant to paragraph 2 of decision XXV/5, it was logical that its outcomes should be presented to the Open-ended Working Group, and parties could express their views about the workshop and its outcome document under the agenda item.

14. Following a request for clarification, the Senior Legal Officer of the Secretariat said that in accordance with rule 9 of the rules of procedure the provisional agenda was to include any item proposed by a party before the agenda was circulated. In addition, article 9 of the Vienna Convention for the Protection of the Ozone Layer stated that the text of any proposed amendment to the Convention or to any protocol, except as might otherwise be provided in such protocol, should be communicated to the parties by the Secretariat at least six months before the meeting at which it was to be proposed for adoption. He said that the two amendment proposals met those criteria and he suggested that any discussion regarding the suitability of any item should take place once the discussion was opened under the item itself, rather than during the adoption of the agenda.

15. The Chair said that it would be appropriate to consider the variety of viewpoints expressed under the relevant agenda items, noting that the inclusion of an item on the agenda did not prejudice the outcome of the discussions thereon. The objection by some to the inclusion of items 7 and 9 on the agenda would be reflected in the present report.

16. The Working Group accordingly adopted the following agenda on the basis of the provisional agenda set out in document UNEP/OzL.Pro.WG.1/34/1, as orally amended:

1. Opening of the meeting.
2. Organizational matters:
 - (a) Adoption of the agenda;

- (b) Organization of work.
3. 2014 progress report of the Technology and Economic Assessment Panel.
4. Issues related to exemptions under Articles 2A–2I of the Montreal Protocol:
 - (a) Nominations for essential-use exemptions for 2015;
 - (b) Nominations for critical-use exemptions for 2015 and 2016;
 - (c) Laboratory and analytical uses.
5. Issues related to alternatives to ozone-depleting substances:
 - (a) Report by the Technology and Economic Assessment Panel on alternatives to ozone-depleting substances (decision XXV/5, subparagraphs 1 (a)–(c)); updated information on alternatives to ozone-depleting substances in various sectors and subsectors; estimated current and future demand for alternatives to ozone-depleting substances; economic costs and implications and environmental benefits of various scenarios of avoiding high-global-warming-potential alternatives to ozone-depleting substances;
 - (b) Report by the Scientific Assessment Panel on the main climate metrics (decision XXV/5, subparagraph 1 (d));
 - (c) Information submitted by parties on their implementation of paragraph 9 of decision XIX/6 to promote a transition from ozone-depleting substances that minimizes environmental impact (decision XXV/5, paragraph 3).
6. Report of the Technology and Economic Assessment Panel on the 2015–2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol (decision XXV/8).
7. Outcome of the workshop on hydrofluorocarbon management (decision XXV/5, paragraph 2).
8. Organizational issues related to the Technology and Economic Assessment Panel:
 - (a) Renomination of co-chairs and members of the Technology and Economic Assessment Panel and its technical options committees (decision XXIII/10, paragraph 11);
 - (b) Update on processes of the Technology and Economic Assessment Panel for the nomination of members of its technical options committees (decision XXV/6, subparagraph 2 (a));
 - (c) Proposed configuration of the technical options committees from 1 January 2015 (decision XXV/6, subparagraph 2 (b));
 - (d) Options for streamlining the Technology and Economic Assessment Panel's annual technology updates to the parties (decision XXV/6, subparagraph 2 (c)).
9. Proposed amendments to the Montreal Protocol.
10. Update on liaison by the Secretariat with the organizers of the Third International Conference on Small Island Developing States regarding implementation of the Montreal Protocol by those States (decision XXV/9).
11. Other matters.
12. Adoption of the report.
13. Closure of the meeting.

C. Organization of work

17. The Working Group adopted a proposal on the organization of work presented by the Co-Chair, agreeing to establish such contact groups as it deemed necessary to accomplish its work.

III. 2014 progress report of the Technology and Economic Assessment Panel

18. Members of the Technology and Economic Assessment Panel made a presentation summarizing the main findings of the Panel's 2014 progress report, including information on nominations for essential-use and critical-use exemptions and a summary of progress in the various sectors of use of ozone-depleting substances. Co-chairs of the Panel's technical options committees summarized the findings of their committees as follows: Ms. Helen Tope – Medical Technical Options Committee; Mr. Keiichi Ohnishi – Chemicals Technical Options Committee; Mr. Miguel Quintero – Foams Technical Options Committee; Mr. Daniel Verdonik – Halons Technical Options Committee; Mr. Ian Porter and Ms. Marta Pizano – Methyl Bromide Technical Options Committee; and Mr. Roberto Peixoto – Refrigeration, Air-Conditioning and Heat Pumps Technical Options Committee. A summary of the presentation, prepared by the presenters, is set out in section A of annex III to the present report.

19. Representatives of all parties who took the floor thanked the members of the Panel for their hard work and excellent presentations. Expressing concern at the slow progress with the phase-out of halons, the representative of the United States of America said that her party, together with Norway and Australia, would be submitting a draft decision on halons, calling for liaison with the International Civil Aviation Organization and the International Maritime Organization over the management of the need for halons, calling on national ozone officers to carry out consultations with their local civil aviation organizations about the use of halons in national airlines and calling for further information on and continued scrutiny of the safe use of halon banks.

20. Responding to questions from representatives about why there were continued critical-use nominations for methyl bromide in non-Article 5 parties, given that the substance had been phased out for non-critical uses many years ago, Mr. Porter said that considerable research had been undertaken into alternatives and that only three non-Article 5 parties were still putting forward critical-use nominations. On a question about why critical-use nominations continue to be received from parties possessing stockpiles of methyl bromide, he noted that it was not the responsibility of the Panel to account for stockpiles and said that in any case the volume of stockpiles was in fact very low.

21. Responding to a question about the likelihood of Article 5 parties being able to meet their total phase-out target for methyl bromide by 1 January 2015, Ms. Pizano clarified that the figure of 85 per cent phased out related to December 2012 and that further progress had been made since then, to more than 90 per cent; she was confident that most, if not all, Article 5 parties would reach the 100 per cent target by 2015. On the critical-use nominations received from Article 5 parties, which so far covered only a few sectors, the Panel did not possess information on whether further nominations might be forthcoming.

22. The representatives of Australia and Canada clarified that decision XXV/4 requested them to report on progress in their research programmes on alternatives to methyl bromide for strawberry runners at the Working Group's thirty-sixth meeting, not its thirty-fourth meeting as indicated in the Panel's presentation. They could nevertheless provide information at the current meeting if so requested.

23. Responding to a question about alternatives to ozone-depleting substances in large and medium-sized refrigeration and air-conditioning equipment, Mr. Peixoto said that ammonia was the leading alternative for industrial chillers, while carbon dioxide was the leading alternative for commercial chillers, although low-GWP HFCs were being tested for the latter. A more comprehensive assessment of the alternatives was included in the Panel's report on alternatives, prepared pursuant to decision XXV/5, which would be discussed later in the meeting.

24. Responding to the questions on the slow progress in the phase-out of halons, Mr. Verdonik clarified that no newly designed military equipment required halons. Older equipment, however, had a continued requirement for the substance, as retrofitting was generally difficult and expensive. The Panel, however, strongly shared the concerns expressed by parties over the lack of progress with the phase-out of halons in civil aviation. It was difficult to understand, for example, why alternatives to halons in engine nacelles were not used in civil aircraft given that they were in common use in military aircraft and given that worldwide production of halons had ceased almost twenty years ago. Two major potential alternatives had recently failed in testing, and the manufacturers were reviewing the situation, but the sector was displaying a lack of urgency in addressing the issue. Responding to a question from the representative of the European Union, he said that alternatives were for the most part not being deployed despite the existence of relevant European Union regulations.

25. He said that he would welcome a mandate from the parties for the Panel to collaborate with the International Maritime Organization in addressing the use of halons in ships. The use of halons had been banned in ships built from 1993 onwards, but ships tended to have very long lifetimes, and the Panel suspected that old ships might be a significant source of recycled halons. It would be helpful to be able to confirm whether that was the case.

26. Responding to questions about the use of new blowing agents in foams, Mr. Quintero clarified that the ozone-depleting potentials of HFO-1233zd and HFO-1336mzz were both zero, while their global warming potentials were 1.0 and 2.0 respectively. Responding to a question about substances suitable for use in high-ambient-temperature environments, he said that such environments did not cause any problem for foam-blowing applications and that no special alternatives were needed.

27. Responding to a question about feedstock processes, Mr. Ohnishi clarified that the relevant tables in the Panel's report had been amended very shortly before publication; some errors might have crept in as a result, and he would clarify the matter.

28. The members of the Panel added that they would be happy to clarify any remaining or further questions in bilateral discussions with the parties concerned.

IV. Issues related to exemptions under Articles 2A–2I of the Montreal Protocol

A. Nominations for essential-use exemptions for 2015

29. Introducing sub-item 4 (a) of the agenda, the Co-Chair recalled the consideration of essential-use exemption nominations submitted by China and the Russian Federation discussed in the presentation by the Technology and Economic Assessment Panel of its 2014 progress report.

30. In the discussion that ensued, the representative of the Russian Federation indicated that his country would submit a draft decision for consideration at the current meeting that would approve the party's use of 75 metric tonnes of CFC-113 in the aerospace industry in 2015, leading to a full phase-out of the substance by 2016, as provided in the interim recommendation by the Panel. At his invitation, an aerospace industry expert from the Russian Federation added that the industry would no longer need CFC-113 in 2016, as the solvent was being replaced with alternatives such as HCFC-114b and methylene chloride.

31. The representative of China indicated that his delegation was prepared to hold bilateral consultations with other parties and Panel experts on the two nominations submitted by China and would submit a conference room paper on China's carbon tetrachloride nomination, which he said was of critical importance to China because the substance was needed to monitor water quality.

32. Two representatives, including one speaking on behalf of a group of countries, expressed interest in holding bilateral consultations with both nominating parties. One of them, speaking on behalf of a group of countries, commended the Russian Federation for its decision to phase out CFC-113 by 2016, suggesting that a phase-out date be clearly reflected in the draft decision, but expressed concern about the possible use of HCFC-114b as an alternative to CFC-113. Regarding the nominations submitted by China, he expressed support for the Panel's interim conclusions regarding both nominations, saying that it was his understanding that China had received support to facilitate the discontinuation of carbon tetrachloride for hydrocarbon water testing and that it seemed appropriate not to recommend the nomination at the current time.

33. One representative expressed support for approving all the interim Panel recommendations on essential use exemptions and suggested that the Panel be requested to carry out an evaluation of CFCs used in pharmaceuticals internationally and of obstacles to eliminating CFC consumption, especially for metered-dose inhalers with the active ingredients beclomethasone and salbutamol, and that the Panel should suggest a mechanism for eliminating essential-use exemptions. She commended those who would not submit essential-use nominations for 2016.

34. The representative of the Russian Federation introduced a conference room paper containing a draft decision on an essential-use exemption for CFC-113 for aerospace applications in the Russian Federation. He invited all interested parties to join the European Union and the United States in an informal meeting to discuss his delegation's proposed draft decision.

35. The representative of the Russian Federation subsequently reported that his delegation had met with all interested parties and that a final version of the draft decision had been submitted to the Secretariat. The essential-use nomination dealt with in the draft decision would be the Russian Federation's last.

36. The Working Group agreed to forward the draft decision on an essential-use exemption for chlorofluorocarbon-113 for aerospace applications in the Russian Federation, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.
37. The representative of China subsequently introduced a conference room paper containing a draft decision on an essential-use exemption for laboratory and analytical uses for 2015, explaining that the relevant authorities required 90 tonnes of carbon tetrachloride for testing new technologies, substitute substances and standards for monitoring the country's water systems, work on which should be completed within the next two years. Her delegation had already had fruitful discussions with the Chemicals Technical Options Committee and would provide the Committee with additional information pertinent to its recommendations before the next meeting of the Working Group.
38. Two representatives, including one speaking on behalf of a group of countries, expressed interest in following subsequent developments with the Chemicals Technical Options Committee and in seeing the final recommendations. The Co-Chair suggested that interested parties should consult with China in the period leading up to the Twenty-Sixth Meeting of the Parties.
39. The Working Group agreed to forward the draft decision on 2015 laboratory analytical uses in China, as set out in annex I to the present report, for further consideration by the Twenty-Sixth Meeting of the Parties.
40. Subsequently, the representative of China introduced a conference room paper containing a draft decision on essential use nominations for controlled substances for 2015, which she said would give effect to the recommendation by the Medical Technical Options Committee to authorize China an essential use of 182.61 metric tonnes of chlorofluorocarbons for metered-dose inhalers in 2015. She said that China was prepared to achieve a complete phase-out by 2016 with the assistance of the Multilateral Fund.
41. The Working Group agreed to forward the draft decision on an essential-use exemption for CFCs for metered-dose inhalers in China, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.

B. Nominations for critical-use exemptions for 2014 and 2015

42. Introducing sub-item 4 (b) of the agenda, the Co-Chair recalled the consideration of critical-use exemption nominations for 2015 and 2016 in the presentation by the Technology and Economic Assessment Panel of its 2014 progress report. At the request of the Secretariat, he drew attention to paragraph 1 of decision XV/12, on the use of methyl bromide for the treatment of high-moisture dates.
43. The representative of Argentina said that her delegation would hold bilateral discussions with the Methyl Bromide Technical Options Committee to provide further information on her country's nomination.
44. The representative of Australia said that her delegation would meet with the Committee to provide an update on her country's research programme to identify suitable and feasible alternatives for its strawberry runner sector. Outlining the progress made over the previous year in the wake of a major setback caused by the withdrawal of a promising alternative from the national registration process in 2012, she said that the Government had confirmed additional funding, that trials were being planned to investigate, inter alia, unresolved phytotoxicity issues associated with new co-application procedures, and that industry representatives were currently assessing the applicability of soilless production systems in Europe, South Africa and the United States. It was important, she said, not to adopt alternatives without sound evidence of their suitability.
45. The representative of the United States said that his country's nomination for a critical-use exemption for strawberry fruit production would be its last, thanks to, among other things, the results of continued investment and robust research programmes aimed at reducing reliance on methyl bromide and promoting a transition to new pest controls, underpinned by the active engagement of the authorities and the efforts of growers.
46. The representative of Canada, reporting on a research programme to identify the risks of groundwater contamination associated with the use of chloropicrin for pre-fumigation in strawberry runner production, said that the promising results to date would be confirmed in small-scale field studies pursuant to a government review launched in the wake of a European Union ban on chloropicrin. A final report would be presented to the Open-ended Working Group at its thirty-sixth meeting. Canada urged Article 5 parties that had submitted exemption nominations to seek bilateral meetings with the Methyl Bromide Technical Options Committee.

47. The representative of the European Union said that the member States of the European Union had phased out all uses of methyl bromide. Stating that there were alternatives available for all applications, he said that he would seek clarification from Canada on the end date of its federal review of chloropicrin, from Australia on its research programme, and from the Article 5 parties that had applied for exemptions on why the deadlines set by the Multilateral Fund for their phase-out programmes had not been met.

C. Laboratory and analytical uses

48. The Co-Chair announced that a conference room paper containing a draft decision on exemption of controlled substances for laboratory and analytical uses submitted by the United States was available on the meeting portal. The representative of the United States explained that the intention of the draft decision was to extend the current global laboratory and analytical use exemption beyond its current expiry date, and he invited interested parties to discuss it informally in the margins of the meeting.

49. The representative of the United States subsequently explained that the draft decision would allow for the production of small amounts of high-purity substances required for processes aimed at achieving very specific results.

50. One representative, supported by two others, one speaking on behalf of a group of countries, expressed support for the proposed draft decision because the small quantities of ozone-depleting substances needed for laboratory and analytical purposes, and the potentially high cost of developing new processes, constituted good grounds for extending the exemption beyond its current expiry date. Another representative requested a meeting with the United States to discuss the wording of the draft decision, saying that there was a need to examine the technical feasibility and cost of finding substitute substances.

51. The Co-Chair suggested that the United States meet with the interested party to finalize the wording of the draft decision.

52. Subsequently the Working Group agreed to forward the draft decision, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.

V. Issues related to alternatives to ozone-depleting substances

A. Report by the Technology and Economic Assessment Panel on alternatives to ozone-depleting substances (decision XXV/5, subparagraphs 1 (a)–(c)): updated information on alternatives to ozone-depleting substances in various sectors and subsectors; estimated current and future demand for alternatives to ozone-depleting substances; the economic costs and implications and environmental benefits of various scenarios of avoiding high-global-warming-potential alternatives to ozone-depleting substances

53. Introducing sub-item 5 (a) of the agenda, the Co-Chair recalled that in decision XXV/5 the parties had requested the Technology and Economic Assessment Panel, in consultation with external experts if required, to produce a report for consideration at the current meeting providing updated information on alternatives to ozone-depleting substances in various sectors and subsectors and assessing those alternatives against criteria such as commercial availability, cost-effectiveness, suitability in high-ambient-temperature environments and safety. The Panel had established a task force to implement the decision and the task force had produced a draft report that was contained in volume 4 of the Panel's 2014 progress report, which would be updated for consideration by the Twenty-Sixth Meeting of the Parties.

54. Task force co-chairs Mr. Lambert Kuijpers and Mr. Roberto Peixoto and task force member Mr. Paul Ashford then gave a presentation on the draft report. A summary of the presentation, prepared by the presenters, is set out in section B of annex III to the present report.

55. In the discussion that ensued, most of the representatives who spoke thanked the Panel for the preparation of the report. One representative questioned whether the Panel had gone beyond its mandate by producing climate change mitigation scenarios, which he said fell within the purview of the Intergovernmental Panel on Climate Change. Mr. Ashford responded that mitigation scenarios had been produced in accordance with paragraph 1 (c) of decision XXV/5, which requested the Panel to assess the environmental benefits of various scenarios of avoiding high-GWP alternatives to ozone-depleting substances.

56. One representative asked whether the Panel had considered decisions by the Executive Committee of the Multilateral Fund concerning hydrochlorofluorocarbon phase-out management plans and the fact that multinational corporations operating in Article 5 parties might not be eligible for funding to make conversions to low-GWP alternatives under the Montreal Protocol. Mr. Kuijpers responded that the business-as-usual scenario for HFCs did take into account conversions from HCFCs but the new equipment using HFCs being placed on the market in Article 5 parties far exceeded the conversions being financed by the Multilateral Fund; the impact of Executive Committee decisions on HCFC phase-out management plans on projections was therefore limited. As for multinational corporations, the report did not draw a distinction between them and national companies, but looked instead at consumption of and demand for HFCs and the cost of conversion to low-GWP alternatives.

57. Two representatives asked what temperatures were considered to be high for purposes of characterizing countries as high-ambient-temperature countries, with one suggesting that the information would help in the assessment of what alternatives were being used in such countries. One of them asked if the Panel had considered, with regard to alternatives to ozone-depleting substances in high-ambient-temperature countries, the charge amounts for flammable substances and restrictions adopted by non-Article 5 parties on the use of flammable alternatives, while the other asked about alternatives for warm ambient temperatures that did not reach the level of “high” ambient temperatures. Another representative asked if carbon dioxide was a suitable refrigerant for countries with ambient temperatures of 30–40 °C.

58. Mr. Peixoto said that high ambient temperatures began at approximately 40–42 degrees Celsius, based on information from manufacturers, technical assessments and international standards. Regarding flammable refrigerants, different countries and regions had different safety regulations and standards pertaining to the maximum charge for such substances, and it was up to each country to adopt its own standards; for installed equipment, a charge of between 100 grams and 1.7 kg was common. Carbon dioxide could be used in cascade commercial refrigeration systems in tropical countries but was not recommended for use at high temperatures. Countries had a degree of freedom in selecting refrigerants and should consider issues such as engineering and design for better performance. Mr. Kuijpers added that the Panel would elaborate further on alternatives that met all the requirements of decision XXV/5 in high-ambient-temperature environments in its final report.

59. Regarding a question on alternatives to ammonia for use in the health sector in rural areas with little or no electricity, Mr. Peixoto said that they included carbon dioxide, which could be used in cascading systems, or some low-GWP saturated HFC blends that were being developed.

60. Concerning the refrigeration and air-conditioning sector, one representative suggested that it would be useful to include in mitigation scenario 2 the five-year phase-out time lag between Article 5 parties and non-Article 5 parties. Another representative inquired if the Panel had considered in its projections the recovery of refrigerants and the overall costs of repair and maintenance of refrigeration and air-conditioning equipment. With regard to costs, she said that cost increases for such equipment in developing countries were a concern, as they would have an impact on the well-being of the populations of those countries. Another representative queried the criteria for determining the adoption of low-GWP alternatives under each scenario, stating that low-GWP alternative uptake seemed to be based on the European Union fluorinated gas (F-gas) regulations in the case of the refrigeration sector, and asked whether scenario estimates had taken into account service reductions in cases where there had been substitution with low-GWP alternatives in the manufacturing sector.

61. Mr. Kuijpers responded that the Panel had chosen two scenarios simply to illustrate what could happen under a given set of circumstances; the parties could determine, through bilateral consultations, what would be the most sensible way to show the outcomes of different scenarios and how a transition from high-GWP HFCs to low-GWP alternatives could be achieved. Regarding recovery and repair, the Panel had taken into account a conservative estimate for recovered and recycled refrigerants to estimate the total servicing percentage used in the business-as-usual figures in the mitigation 1 and mitigation 2 scenarios; no changes in servicing practices had been assumed in either mitigation scenario, as servicing practices would not have a significant impact on projected forecasts for climate effects. As for the uptake of low-GWP alternatives, the dates selected were random and were not necessarily linked to European Union or other regulations. Similarly, the assumption that a given alternative would be used as of 2020 in mitigation scenario 1, for instance, did not mean that the alternative was commercially available in 2014.

62. One representative suggested incorporating into the scenarios the impacts of a wide range of possible regulatory actions, rather than only the regulations of the European Union, as well as possible trends resulting from specific actions not being taken. She also asked whether the Panel had considered technologies that appeared to be exceeding expectations. Mr. Kuijpers said that the Panel

was prepared to incorporate additional information on specific regulatory actions taken by regions, which could be discussed bilaterally at the current meeting.

63. Regarding the foams sector, one representative asked about the level of penetration of low-GWP foams in developed countries that were not members of the European Union. Mr. Ashford replied that a large proportion of the foams sector in non-Article 5 parties was using low-GWP hydrocarbons, particularly in the polyurethane industry; the Panel was trying to obtain more information on the use of HFCs, especially in the extruded polystyrene sector, where it was tracking the uptake of new unsaturated blowing agents in connection with their conductivity performance. These new agents appeared to be exceeding expectations and could become drivers of change. Mr. Kuijpers added that the Panel would review its consideration of the uptake of technologies beyond expectations in various sectors and refine the report if necessary.

64. Two representatives asked about the basis for the various estimates and projections in the report, with one saying that most developing countries had not provided statistics on alternatives and that projections went far into the future and were thus uncertain. The other representative also asked whether the Panel had considered in its projections current and projected phase-out plans for HCFCs and the phase out of high-GWP alternatives in Article 5 parties.

65. Mr. Ashford replied that the Panel had used a bottom-up approach to make estimates in the refrigeration and air-conditioning sector, while a producer-oriented approach had been used with regard to the foams sector. Regarding time frames, the Panel had decided to extend projections to 2030 to align the report with the time frames of decision XIX/6 and, while it was aware that making projections further than 2025 created additional uncertainty, it was seeking feedback at the current meeting to help reduce that uncertainty.

66. Providing additional details on the bottom-up approach used, Mr. Kuijpers said that it had involved looking at refrigeration and air-conditioning equipment and calculating the amounts of refrigerants used in a given year, taking into account economic and other data, including on leaks, and estimating a servicing percentage and projecting it into the future. While it could be assumed that new equipment would be installed in the future, assumptions based purely on economic growth or growing consumer demand for certain types of equipment could lead to completely inaccurate estimates. Bottom-up approaches therefore required periodic reviews of accountancy reports to test assumptions against data on actual equipment imports and exports. Because such data did not exist for future years, however, any scenario that predicted the future was inherently uncertain. The Panel had estimated, on a preliminary basis, that the refrigeration and air-conditioning scenarios had an uncertainty factor of between 20 and 25 per cent.

67. In response to a question on the availability of data on the economic viability of implementing low-GWP alternatives in small and medium-sized enterprises, Mr. Ashford stated that it was difficult to determine costs due in part to the large number of such enterprises in both developed and developing countries and the range of definitions of the terms across regions. The Panel expected to obtain market intelligence and additional information from the Secretariat of the Multilateral Fund evaluating previous transitions in order to improve the report, but reliable estimates might be difficult to provide given changes in technology. Mr. Kuijpers added that the Panel would examine in its final report the percentage of small and medium-sized enterprises taking up certain technologies to examine their impact on assumptions about the timing of technologies being taken up.

68. Responding to a question on whether natural refrigerants had been considered in the report, Mr. Kuijpers said that they had been thoroughly discussed but the word "natural refrigerants" had not been used because low-GWP refrigerants included both natural and non-natural refrigerants.

69. The Working Group agreed to establish an informal group of interested parties, Panel members and representatives of the Secretariat to work in the margins of the current meeting to provide further guidance to the Panel on the finalization of its report for consideration by the Twenty-Sixth Meeting of the Parties.

70. Following the work of the informal group, a representative of the Panel reported that the group had requested the Panel to give further consideration to adding to its report a new unconstrained business-as-usual scenario, a scenario looking at the impact of projected and actual regulations, and a new annex on alternatives to HFCs suitable for use in high-ambient-temperature environments. The group had also agreed that the report should provide further sectoral analysis, additional information on assumptions concerning servicing and growth projections and more quantitative information regarding minor uses of HFCs, for instance in fire protection. Suggestions had also been made regarding the layout and presentation of the report. He said that the Panel would be happy to consider

additional comments submitted in writing but asked that any such comments be submitted by 8 August 2014.

B. Report by the Scientific Assessment Panel on the main climate metrics (decision XXV/5, subparagraph 1 (d))

71. Introducing sub-item 5 (b) of the agenda, Mr. A. R. Ravishankara, co-chair of the Scientific Assessment Panel, gave a presentation on the main metrics used to measure climate change attributable to gas emissions, namely, radiative forcing; global warming potential (GWP); and global temperature potential (GTP). The most commonly used metric currently was GWP, with the most common time horizon set, for political rather than scientific reasons, at 100 years. More details on the subject, including information on a broad range of gases, would be provided in the Panel's 2014 report, the final version of which was due for release towards the end of the year. A summary of the presentation is set out in section C of annex III to the present report.

72. Responding to questions from the floor following his presentation, he confirmed that selecting a shorter time horizon for a molecule with a shorter lifetime would produce a higher calculated value of GWP and GTP and that short- and longer-term temperature rises could be taken into account in calculating GTP.

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

C. Information submitted by parties on their implementation of paragraph 9 of decision XIX/6 to promote a transition from ozone-depleting substances that minimizes environmental impact (decision XXV/5, paragraph 3)

74. Introducing sub-item 5 (c) of the agenda, the Executive Secretary drew attention to an information document (UNEP/OzL.Pro.WG.1/34/INF/4) compiling information submitted by parties in response to paragraph 3 of decision XXV/5 on their efforts, pursuant to paragraph 9 of decision XIX/6, to promote a transition from ozone-depleting substances that minimized environmental impact. The 14 compiled submissions differed greatly in content and form and were presented in English only.

75. The Working Group agreed that the informal group of interested parties, Panel members and representatives of the Secretariat established under subsection A of section V above would also discuss advice to the Panel in respect of the information submitted by parties pursuant to decision XXV/5.

76. Following the discussions by the informal group the Executive Secretary reported that the Secretariat, in accordance with paragraph 9 of decision XXV/5 and additional requests and guidance provided by the parties at the current meeting, would prepare a summary of information submitted by parties pursuant to decision XXV/5 on their implementation of paragraph 9 of decision XIX/6, including the information set out in document UNEP/OzL.Pro.WG.1/34/INF/4 and its addendums and any additional information submitted by 30 August 2014. In preparing the summary the Secretariat would use the latest information provided by parties. The summary would be made available in the six official languages of the United Nations.

VI. Report of the Technology and Economic Assessment Panel on the 2015–2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol (decision XXV/8)

77. Introducing agenda item 6, the Co-Chair of the Technology and Economic Assessment Panel recalled that, pursuant to decision XXV/8, the Panel had established a task force to prepare a report on the funding required for the replenishment of the Multilateral Fund for the triennium 2015–2017, which was to include indicative amounts of funding needed for the trienniums 2018–2020 and 2021–2023. The report was contained in volume 6 of the Panel's report for 2014, and an executive summary was included in annex II of document UNEP/OzL.Pro.WG.1/34/2/Add.1. Ms. Shiqiu Zhang and Mr. Lambert Kuijpers, co-chairs of the task force on replenishment, and Mr. Marco Gonzalez, a member of the task force, presented the main findings of the report. A summary of their presentation, prepared by the presenters, is set out in section D of annex III to the present report.

78. Following the presentation Mr. Kuijpers responded to questions posed by representatives. Several representatives queried the allocation of funding for achievement of the 2020 HCFC target over the three trienniums in the two cases described in the report, asking whether it was consistent with the terms of reference set out in decision XXV/8. Mr. Kuijpers said that the Panel had decided to include, as supplementary information, a second possible allocation scenario, beyond that explicitly

called for in the terms of reference, in which the 2020 HCFC target funding was smoothed over the three trienniums, as illustrated in table ES-6 in the report. Table ES-5, however, showed the funding distributed in accordance with the terms of reference.

79. Regarding the basis for calculation of the funding figures in case 2, he said that it was based on data on the reductions achieved in projects approved by the Executive Committee for various subsectors, compared with the additional funding needed to achieve the 35 per cent phase-down target for 2020. That approach was in line with previous practice under the Montreal Protocol, whereby additional resources needed to achieve a particular target were calculated using the difference between a baseline, or the reduction already achieved in relation to that baseline, and the desired target. Under such an approach, if funding had previously been approved for a stage I HCFC phase-out management plan aimed at achieving consumption reductions in excess of the required 10 per cent then the funding required to achieve the 35 per cent target would be reduced accordingly. He clarified, in response to another query, that the 35 per cent phase-down target applied to 2020 and that after that date the conversion process would continue as planned, with a further 32.5 per cent reduction needed to attain the 67.5 per cent target in 2025.

80. On the cost-effectiveness of new technologies, he said that the task force had taken into account the funding already approved for new technologies in HCFC phase-out management plans. New technologies that were not fully established in the market had not been considered, as the work of the task force had to be firmly rooted in the activities of the Multilateral Fund and could not take account of future technological projections. On the same basis, country-level factors that might lead to differences in the competitiveness or implementation of alternatives could not be taken into account. Further, on the matter of the cost-effectiveness of low-GWP alternatives, he said that the cost-effectiveness figures in the report were based on values that had been valid for agreed projects or stage I HCFC phase-out management plans, but few data were available for guidance on low-GWP alternatives, and further study was needed on that issue. On the same basis, the task force had not taken into account the cost-effectiveness of low-GWP alternatives for air-conditioning units for countries with high ambient temperatures. On the matter of swing plants, he said that the task force lacked any guidance on additional funding for them and had therefore not taken them into consideration in its report. In response to a question about the relative environmental benefits of the two cases presented in the report, he said that case 2 took into account the real amounts that had been agreed for funding in various subsectors where consumption would be phased out shortly, resulting in lower levels of consumption – and therefore greater environmental benefits – than in case 1; careful analysis would be needed, however, to quantify any such benefits.

81. Responding to a question about whether the task force had taken account of the activities of multinational companies in its work, and whether an analysis had been undertaken to determine the percentage of consumption undertaken by multinationals in stage I HCFC phase-out management plans, he said that for those countries with a significant multinational manufacturing and servicing presence it had been assumed that no funding would be necessary for stage II, whereas no reductions had been made in the calculations for those countries in which multinationals were responsible for relatively little consumption. On the matter of whether funding estimates for non-low-volume-consuming countries had taken account of such matters as cut-off dates and exports, he said that the Panel had concluded that cut-off dates should not be applied, and there had been insufficient data regarding exports to make the necessary calculations. Exports could be taken into account if sufficient data were provided. He added that, while the task force was aware that compensation for lost profits resulting from phase-down in the production sector in China was normally disbursed upon the completion of phase-out, the Panel had decided, for ease of calculation, to spread the assumed available amount over a number of years to come up with an annual cost figure. In response to a question about possible additional funding for environmentally friendly technologies, he said that the data used in the calculations were based on existing commitments for the first two trienniums, while more indicative figures had been used for the third triennium.

82. Following those questions and answers the Working Group turned to a general discussion of the 2015–2017 replenishment of the Multilateral Fund. Representatives raised a number of issues that needed to be discussed when deciding the appropriate level of replenishment for the triennium, including the degree to which direct or indirect climate co-benefits should be taken into account in project preparation and the related issue of funding for low-GWP alternatives; the challenges facing low-volume-consuming countries in HCFC phase-out; the relationship between funding for the current replenishment and for future replenishments; clarification of the various scenarios put forward by the replenishment task force; and further consideration of the concept of commitment-based phase-out used in the task force's report.

83. One representative said that a number of Article 5 parties had experienced new challenges in addressing issues that had not been obvious to the parties when they agreed to the accelerated HCFC phase-out in 2007, including with regard to the quantities of HCFCs to be phased out, the selection of technologies in a period of rapid change, the climate impacts of technologies and the costs of alternative technologies. Despite that, effective fund management had enabled the Executive Committee to approve HCFC phase-out management plans and other projects in nearly all countries, and the compliance of most Article 5 parties with the 2015 phase-down target seemed assured. For the 2015–2017 triennium, it was important to remain cognizant of the long-term objectives of Article 5 parties and to be mindful of climate impacts in the work of the Protocol. On the matter of the task force report, he said that the task force had followed a traditional approach in its consideration of Executive Committee guidelines and the cost-effectiveness of the projects approved to date but had also adopted an innovative approach to the funding options it had presented. A factor to take into account when considering the “front-loaded” or more evenly spread funding scenarios was their impact on future replenishments. Another representative identified further factors as the importance to donor countries of the stability of future contributions and the rates of disbursement for stage I HCFC phase-out management plans, which had thus far been low. She added that, as indicated by the Multilateral Fund secretariat, 24 per cent of the global HCFC baseline had been addressed with funding to date, suggesting that the decisions regarding the forthcoming replenishment would be taken in the interests of all parties. One representative said that efforts should focus on ozone-depleting substances rather than HFCs.

84. The Working Group decided to establish a contact group to discuss further the report of the Technology and Economic Assessment Panel, to provide further guidance to the Panel and to discuss what additional information was needed to assist the Meeting of the Parties to come to a decision on the replenishment. The contact group would be co-chaired by Mr. Paul Krajnik (Austria) and Ms. Marissa Gowrie (Trinidad and Tobago).

85. Subsequently, the co-chair of the contact group reported that the group had discussed all sections of the report of the task force and had considered a wide range of issues, including general matters such as the mandate of the task force and the methodology used and specific issues such as consumption and production of ozone-depleting substances, the global warming potential of alternatives, support for small and medium-sized enterprises and the challenges faced by low-volume-consuming countries. The co-chairs had prepared a summary of suggestions for elaboration in a supplementary report by the replenishment task force. The contact group had reached agreement on a range of issues, but some of the text remained in square brackets to indicate a lack of agreement.

86. The Working Group agreed that a small group of interested parties would discuss the bracketed text informally in the hope of reaching agreement. Following those discussions the Working Group agreed to remove from the co-chairs’ summary of suggestions all bracketed text. It then adopted the summary of suggestions for elaboration in a supplementary report by the Panel’s replenishment task force. The summary as adopted is set out in annex II to the present report.

VII. Outcome of the workshop on hydrofluorocarbon management (decision XXV/5, paragraph 2)

87. Ms. Gudi Alkemade (Netherlands) gave a report on the workshop on HFC management held just prior to the current meeting, on 11 and 12 July, pursuant to decision XXV/5. She explained that she was delivering the report on behalf of herself and the other three workshop rapporteurs, Ms. Donnalyn Charles (Saint Lucia), Ms. Annie Gabriel (Australia) and Ms. Bitul Zulhasni (Indonesia). After initial presentations, mainly from members of the assessment panels, four sessions had been held on technical matters; legal matters, particularly mutually supportive measures between the ozone and climate change treaties; finance and technology transfer; and policies and measures for HFC management.

88. Each session had been guided by an independent facilitator and had featured presentations, responses from a panel of experts and questions and comments from the floor. All presenters and panellists had spoken in their personal capacities. At the end of the workshop, each rapporteur had presented a summary of the key issues arising from the session for which she had served as rapporteur. The rapporteurs had tried to capture all the views expressed, but their summaries did not represent any kind of negotiated outcome; nor did they aim to prejudge anything that the parties might decide on any issue. The summaries had been compiled in a single summary (UNEP/OzL.Pro.WG.1/34/3).

89. All representatives who took the floor in the ensuing discussion complimented the Secretariat on its organization of the workshop and the rapporteurs for their efforts in preparing the summary of the workshop. Some representatives said that the workshop had proved a great success, providing interesting information and new perspectives and a forum for a timely and valuable exchange of views and knowledge. Some representatives, however, said that there had not been sufficient time for all participants to express their views and that the results of the workshop did not reflect the positions of Governments.

90. Some representatives also said that the rapporteurs' summary did not reflect the range of views that had been expressed during the workshop and focused only on those of the presenters and panellists. Some representatives said in particular that the problems of high-ambient-temperature countries had not been dealt with. Another representative said that it was clear from the discussions that there was no consensus on phase-down schedules for HFCs.

91. A number of representatives queried the conclusions in the rapporteurs' summary on the legal aspects of addressing HFCs under the Montreal Protocol and the United Nations Framework Convention on Climate Change. One representative said that the report had ignored those presentations that had raised doubts about the legal relationship between the ozone and climate treaty regimes. Another representative said that the logical way to resolve the relationship between the two treaty regimes was for them to cooperate, rather than for unilateral action to be taken under the ozone regime in amending the Montreal Protocol. Another representative said that the global framework that was called for in the report already existed, in the form of the Framework Convention on Climate Change, and it was important that the Montreal Protocol not damage the climate regime. Another representative said that the argument that HFCs should be addressed under the Montreal Protocol because it had proved a successful treaty could be extended to all sorts of things and that parties should be careful not to overburden the Protocol. A more cautious approach was called for.

92. One representative, however, said that the report failed to stress the clear conclusion of the session on legal aspects: that there was no legal obstacle to addressing HFCs under the Montreal Protocol. Another representative expressed disagreement, saying that that conclusion was merely the opinion of the presenters and that it was regrettable that no counter-argument had been put forth during the session. He said that the text of Article 2 of the Vienna Convention for the Protection of the Ozone Layer was not sufficient to permit the Montreal Protocol to cover HFCs and that the clause in the Framework Convention on Climate Change that limited that treaty to greenhouse gases not controlled by the Montreal Protocol meant that both regimes could not control HFCs simultaneously. Neither point, he said, was reflected in the workshop summary.

93. Another representative said that while the workshop had provided an opportunity for very valuable discussions the legal issues had still not been resolved. A positive next step would be to invite the Ozone Secretariat and the secretariat of the Framework Convention on Climate Change to start a discussion on legal issues and the scope of the two agreements. That would help to form the basis of a true partnership between the two treaty regimes and offer a potential way out of the stalemate that had persisted within the Montreal Protocol over the past five years.

94. Several representatives said that the information and discussions at the workshop would prove particularly beneficial to Article 5 parties. One, however, said that the issue of technology transfer had not been adequately covered and expressed the hope that it could be in the future.

95. Another representative said that the workshop summary had failed to mention the need to collaborate with the private sector in developing alternatives to HFCs, even though the presentations at the workshop had shown that there was considerable activity already under way in that respect. Another representative expressed agreement, arguing that the report did not reflect comments from private sector presenters and panellists to the effect that more time was needed to develop and commercialize alternatives to HFCs.

96. One representative summarized the key conclusions that he had drawn from the discussions. It was clear that the Multilateral Fund could work effectively on HFC management, as HFCs were used in precisely the same sectors as the chemicals that the Fund already addressed. There had been enormous progress with the development of alternatives to HFCs, but commercially available and climate-friendly alternatives were not yet available for every application. That fact underlined the need to send a clear signal to the market that would drive investment in the research, development and commercialization of new alternatives. It was interesting to see the large number of countries that were now regulating HFCs, including his own party, which had recently introduced new regulations that could have been more comprehensive had they been issued under an amendment to the Montreal Protocol. He also said that the conclusion of the session on legal issues was that there was no legal

obstacle to working on HFCs under the Montreal Protocol, but the issue of sharing responsibilities between the two regimes still needed to be addressed.

97. Some representatives asked for it to be made clear that the summary presented the views of the rapporteurs only and not those of parties. It should, they said, be considered an information document only, and no further action should be taken on it. It should also be stressed that while it was of very high quality the workshop was an informal event.

98. One representative suggested that parties who felt that the report did not reflect their concerns be invited to submit comments on it. Others disagreed, pointing out that parties' concerns, as they had just been articulated, would be reflected in the present report. The issues would in any case be discussed further at the current meeting during the discussion of proposed amendments to the Protocol.

99. Other representatives said that the rapporteurs had done an excellent and professional job in summarizing the discussions, in a very short time, and that their summary was a balanced reflection of the views that had been expressed. The question of HFCs was such a sensitive issue that any attempt to summarize discussions on it was bound to leave some participants dissatisfied. The summary as a whole contained much of value and would prove useful in future discussions as a reference tool. In particular, the rapporteurs had identified five points for further discussion that warranted extensive consideration. It was always clear that the views expressed at the workshop, and particularly those of the presenters and panellists, were individual views and not those of any country or organization. The summary clearly stated that it was a summary of the rapporteurs, and not a negotiated document, so it made no sense to amend or add to it.

100. The Working Group, those representatives said, could decide to take note of the summary, but it should not be ignored; the workshop, after all, had been organized as the result of decision XXV/5 of the Meeting of the Parties. It had proved extremely useful in furthering understanding of the issue and should be consulted when the issue of HFCs was returned to in the future. No one had ever intended that the workshop should provide the basis of any decision of the meeting of the parties, and it was always clear that it was meant to serve as a forum for the exchange of ideas and knowledge.

101. Summarizing the discussion, the Co-Chair said that parties had clearly seen the workshop as a very useful exercise, although the workshop summary did not feature a comprehensive range of views on every subject. He recalled that the full report of the workshop would become available by the end of August. It would not be appropriate to amend the summary of the rapporteurs, since it was a summary of their views, but he suggested that parties could be invited to provide their own comments as an addendum. The content and the status of the summary and the workshop report could then be reconsidered by the Meeting of the Parties.

102. All representatives who responded objected to the proposal to invite parties to submit comments on the summary. Some suggested that to do so would tend to formalize what should remain an informal summary and give it a status that it was not meant to have. Any additional comments could instead be reflected in the present report. Some representatives also objected to the proposal to return to the issue at the next meeting of the parties; it would be sufficient to take note of the summary at the current meeting while recognizing that it did not, and was not intended to, reflect the views of all parties.

103. The Co-Chair noted that the full report of the workshop would be produced in due course, that the Working Group had taken note of, but not endorsed, the rapporteurs' summary, and that the comments that had just been made would be reflected in the present report. The item could be taken up again at the next meeting of the parties should any party wish to raise it.

VIII. Organizational issues related to the Technology and Economic Assessment Panel

104. The Working Group agreed to consider all sub-items of agenda item 8 together. Introducing the item, the co-chair said that the Technology and Economic Assessment Panel had prepared a report in response to decision XXV/6, which was contained in volume 5 of the Panel's 2014 report. The report provided information on processes of the Panel for the nomination of members of its technical options committees, a proposed configuration of the technical options committees from 1 January 2015 and options for streamlining the Panel's annual technology updates to the parties. The Panel had also included a section in volume 1 of its 2014 report on the status of reappointments of members of its technical options committees, prepared in response to decision XXIII/10.

105. Panel co-chairs Ms. Bella Marañon and Ms. Pizano then made a presentation on the reports, including recommendations for specific configurations of the technical options committees. A

summary of the presentation, prepared by the presenters, is set out in section E of annex III to the present report.

106. In the discussion that followed, all representatives who spoke thanked the Panel for its reports, with one commending the increased transparency, effectiveness and accountability in respect of the organization of the Panel. One representative expressed satisfaction with the proposed arrangements, saying that they would ensure that the members of the Panel and its technical option committees would continue to have the technical expertise, including on new technologies, necessary to their work.

107. Two representatives said that they had no objections to the proposed configuration of technical options committees, in particular the Methyl Bromide Technical Options Committee, but one of them expressed the hope that the Panel would continue to exhibit flexibility in the configuration of task forces and other groups in order to respond effectively to changing workloads over time.

108. One representative, speaking on behalf of a group of countries, said that it would be desirable for the Panel to provide additional information in respect of its 2014 report on past and projected efforts aimed at achieving geographic and gender balance among the members of the Panel and its technical options committees.

109. Regarding options for Panel technology updates, one representative said that her country looked forward to seeing the new formats proposed by the Panel over the next few years. Another representative expressed appreciation for Panel efforts to achieve efficiencies by, among other things, providing updates that included only new information and did not reiterate information that had already been reported.

110. One representative suggested that the structure of the Panel include members with expertise in high-ambient-temperature environments and that its mandate consider high-ambient-temperature requirements for the refrigeration and air-conditioning sector, including with regard to safety.

111. The Working Group agreed that interested parties would hold informal consultations with Panel members to address the issues raised, including additional information on Panel efforts to achieve gender and geographical balance.

IX. Proposed amendments to the Montreal Protocol

112. The representative of Canada introduced a proposed amendment to the Montreal Protocol, which her country had submitted together with Mexico and the United States. She said that the issue of growth in HFC use was an urgent one, that the institutions of the Montreal Protocol were best placed to address it and that they had both the responsibility and the legal ability to do so. The report of the Technology and Economic Assessment Panel showed that a range of alternatives were available or soon would be; the report, and the discussions at the workshop on HFC management, were rich sources of information on which the parties could draw.

113. She described the differences between the current proposed amendment and the proposed amendment put forward at the previous meeting of the parties: it included HCFCs as well as HFCs in the calculation of baseline figures; adjusted the dates for the control schedules to reflect the passage of time; and eliminated a proposed exemption for HFC-23 by-product projects generating emissions reduction credits under the Clean Development Mechanism. She proposed the establishment of a contact group to discuss the proposed amendment, along with another amendment proposed by the Federated States of Micronesia.

114. The representative of Mexico highlighted the amendment's provisions for providing financial assistance to Article 5 parties, calling such assistance an essential prerequisite, and noted that the proposed baseline for Article 5 parties was the average of HFC consumption and production plus 40 per cent of average HCFC consumption and production over the biennium 2011–2012, thus allowing for an element of growth in HFC production and consumption before the implementation of the first control measure. In proposing the amendment, he said, Mexico was staying faithful to the environmental vision of Mario Molina, the co-author of the first scientific paper on the ozone depletion hypothesis.

115. The representative of the United States added that his country was not standing still, having recently published two new proposed regulations, one to approve various alternatives to HFCs and another to prohibit certain uses of some high-GWP HFCs. Together, the regulations would contribute significantly to reducing greenhouse gas emissions, but more could be achieved with a global agreement to phase down the production and consumption of HFCs, which would provide a clear signal to the market and thereby stimulate investment and innovation, particularly in the sectors for

which alternatives to HFCs did not yet exist. The parties had an excellent opportunity to reduce the use of HFCs while at the same time improving energy efficiency, in total avoiding more than 90 gigatonnes CO₂ equivalent of emissions by 2050, roughly equal to two years' current global emissions of all greenhouse gases. He stressed that entering into discussions through a contact group did not commit any party to resolving all the issues and would simply provide an effective venue for debating them. There were many legitimate concerns about the proposals, which called for creative thinking, but the normal approach under the Protocol was for parties to sit down together in a group to address them.

116. Introducing his country's proposal for an amendment, the representative of the Federated States of Micronesia recalled past technological achievements that had been realized through the exercise of political will. Today the parties faced the more serious challenge of climate change, which threatened the very survival of humankind. The parties to the Montreal Protocol had to accept the responsibility for cleaning up the global warming gases they had created in solving the problem of ozone depletion, in accordance with the polluter pays principle. He recognized that parties had many concerns regarding the availability of alternatives and financing but believed that solutions to all of them – including, potentially, creating for special consideration a category of countries with high ambient temperatures – could be achieved through entering into discussions in a contact group. He argued strongly that there was no legal obstacle to the Montreal Protocol addressing HFCs and pointed out that in his country's proposal the duty to phase down HFCs fell primarily on non-Article 5 parties and that no specific timeframe was proposed for Article 5 parties. Observing that the Montreal Protocol was a perfect example of the principle of common but differentiated responsibilities and respective capabilities at work, he called on the Protocol to once again lead the world by showing its genius of common sense and cooperation.

117. The representative of Morocco said that the HFC management workshop had provided much useful information but that further work needed to be carried out to identify alternatives to HFCs, particularly for countries with high ambient temperatures; the creation of a global framework would encourage further research and development in respect of alternatives. He stressed that the proposed amendment was based on the principle of common but differentiated responsibility, with non-Article 5 parties providing additional contributions to the Multilateral Fund.

118. In the ensuing discussion some representatives expressed disagreement with the arguments of the proponents and stated that they could not accept the proposal to establish a contact group. They said that the considerable time that had been spent on HFCs was preventing proper consideration of many other important issues. Other representatives, however, argued that it would be counterproductive to discuss other issues while ignoring the real threats created by the adoption of HFCs.

119. Some representatives argued that to pretend that the proposed amendments raised no legal issues was simply not correct. It was clear that HFCs were not ozone-depleting substances and that it was not logical to include them in the Montreal Protocol. It was also clear that the Framework Convention on Climate Change and its Kyoto Protocol dealt only with gases that were not controlled by the Montreal Protocol; thus, if HFCs were included in the Montreal Protocol they would automatically drop out of the Framework Convention. Furthermore, Article 2 of the Vienna Convention was not sufficient to allow the Montreal Protocol to take on HFCs. That had been clearly stated during the HFC management workshop. Other representatives expressed agreement, arguing that since HFCs did not deplete the ozone layer, the Vienna Convention for the Protection of the Ozone Layer was not relevant.

120. Some representatives said that the mere fact that the Montreal Protocol had been successful did not mean that it should be applied to matters that should rightfully be addressed under other conventions. In a similar vein, other representatives wondered why the amendments only dealt with HFCs and not also, for example, carbon dioxide, since that substance was also a potential alternative to HCFCs in refrigeration.

121. Other representatives disagreed with that analysis, however, stating that they saw no legal obstacle to addressing HFCs under the Montreal Protocol; the question, rather, was one of political will, as the discussions during the HFC management workshop had made clear. There was no reason why the Framework Convention and Kyoto Protocol could not continue to control emissions of HFCs while their production and consumption were regulated under the Montreal Protocol. Other multilateral environmental agreements managed to work well together, and there was no reason why the ozone and climate regimes could not do so.

122. Some representatives noted that, while they were not ozone-depleting substances, HFCs were used as alternatives to substances being phased out under the Montreal Protocol. The Montreal Protocol had therefore created the problem of HFCs and needed to accept responsibility for tackling it.

123. Some representatives asked why the proponents of the amendments were not seeking to control HFCs under the Framework Convention and Kyoto Protocol, which already covered them. They said that some parties were making their choice of international agreement on the basis of political considerations rather than environmental ones. Another representative observed that his party, a developing country, had already made strong progress in climate mitigation through domestic voluntary actions, but that the same kind of ambition and engagement had not been observed in the case of several developed countries.

124. One representative pointed out that for some time his delegation had been proposing an informal dialogue between the Montreal Protocol and the Framework Convention on Climate Change, and he did not understand why it had not yet taken place. Another representative argued that parties to the Montreal Protocol could not proceed with discussing the amendments until they had received the endorsement of the Framework Convention on Climate Change.

125. Some representatives argued that if the parties to the Montreal Protocol were really concerned about HFCs, there was no reason that they could not donate money and expertise to the Framework Convention and Kyoto Protocol to address the problem under those agreements.

126. Some representatives pointed out that the Montreal Protocol had already contributed significantly to tackling climate change; the total of greenhouse gas emissions phased out under it was considerably higher than that under the Kyoto Protocol. Many parties were in practice already addressing HFCs when they put forward HCFC replacement projects for consideration by the Multilateral Fund.

127. Another representative pointed out that since the accelerated phase-out of HCFCs had been agreed in 2007 parties had taken several decisions relevant to HFCs, including with regard to alternatives to HCFCs. A reduction in HFC use in her country would contribute significantly to national efforts to reduce greenhouse gas emissions, and her country was eager to pursue such a reduction under the Montreal Protocol.

128. The representative of the European Union pointed to the action that his party had taken to regulate HFCs since the Twenty-Fifth Meeting of the Parties. New European Union regulations had been introduced to ensure the adoption of cost-effective mitigation options, reducing HFC use by almost 80 per cent by 2030, equivalent to 1.5 Gt CO₂eq of emissions avoided.

129. One representative said that the principle of common but differentiated responsibilities and respective capabilities was not reflected in the Montreal Protocol. It was clear that under the Framework Convention on Climate Change developed countries possessed the responsibility for mitigation, and developing countries were encouraged to take action only under certain conditions, including the availability of financial assistance and technology transfer. To take on HFCs under the Montreal Protocol would represent an effective transfer of the burden from developed to developing countries.

130. Other representatives argued that the Montreal Protocol was clearly best suited to address HFCs. It possessed the right institutional architecture and technical expertise, it featured special treatment for Article 5 parties and it established the certainty that all parties would meet their obligations. It had a proven, flexible and responsive funding mechanism that was the envy of other multilateral environmental agreements, and it had 25 years' worth of experience in dealing with the sectors in which HFCs were used.

131. Some representatives maintained that financial matters were the most crucial for ensuring that whatever actions were taken delivered the expected results; stronger signals were needed with regard to the provision of new and additional financial resources. The Multilateral Fund already needed additional support for the funding of stage II HCFC phase-out management plans, which would themselves deliver important climate benefits much faster than any amendment, which would take several years to negotiate and bring into force. The fact that some parties had resisted an increase in the level of Multilateral Fund financing for low-GWP alternatives to HCFCs cast into doubt their willingness to provide the new and additional financial resources that would be needed for HFC phase-out.

132. Another representative queried the argument that amending the Montreal Protocol would send a clear signal to industry, pointing out that some parties were still asking for essential-use exemptions for substances that should have been phased out in the 1990s. Another representative argued that in practice industry was already developing many alternatives and did not need further regulation.

133. Some representatives said that the proposals in the amendments failed to deal adequately with the circumstances faced by high-ambient-temperature countries, including concerns over the safety of alternatives. There were many applications for which commercially available, economically viable, environmentally friendly and safe alternatives were not yet available, even in non-Article 5 parties, and the amendments rested on promises that might never be kept.

134. Other representatives demurred, arguing that many technical assessments had shown that acceptable alternatives already existed for many HFC uses. There were still some applications for which there were no substitutes, but many new alternatives were being developed. It was clear that a global signal was needed to stimulate investment and direct more resources to developing and commercializing alternatives in sectors that lacked them, including in high-ambient-temperature countries.

135. Another representative said that the parties to the Montreal Protocol had pressed ahead with the phase-out of CFCs and HCFCs before being certain that alternatives existed for all uses of those substances, and the exemption for essential uses had been introduced to help deal with that problem. The lack of alternatives for all HFC uses was therefore not a reason for refusing to discuss the amendments.

136. Some representatives expressed strong support for the proposals, recalling that they had consistently supported earlier proposed amendments on HFCs over the previous five years, and they praised the proponents for their commitment. The discussions at the current meeting and the HFC management workshop had proved extremely valuable, but it was now time to address the issues in more detail in an open dialogue in the setting of a contact group. Ideally, both the ozone and climate regimes would be able to reach a conclusion on the issue by 2015.

137. Other representatives drew attention to the very high GWP of many HFCs and the serious impact that they had on the climate. The Montreal Protocol possessed the capacity and expertise to act, and it should seize the opportunity. Another representative recalled the recent report of the Intergovernmental Panel on Climate Change, which had confirmed the need for urgent action over the next few years if the chance of preventing catastrophic climate change were not to be missed. The actions required were entirely technically and economically feasible, but only if parties increased their level of ambition. Other representatives pointed to the deleterious impacts of climate change that were already visible in their own countries.

138. Some representatives of small island developing States argued that the issue was a matter of grave concern, as climate change posed a threat to their very existence. They supported the amendments as a practical way of tackling the issue; the proposals warranted careful examination, with the aim of maximizing environmental protection without jeopardizing economic development.

139. One representative said that it would be better to control the use of HFCs without delay, when consumption was still relatively low, than to wait until it had grown substantially.

140. Some representatives said that many issues needed to be discussed further, including legal questions, the principle of common but differentiated responsibilities, the need for financial assistance, greater flexibility in the Multilateral Fund, technology transfer and the position of low-volume-consuming countries. Equally, many aspects of the proposed amendments needed further elaboration. The best way to do that, however, would be through the establishment of a contact group.

141. Some representatives added that they were indeed concerned about many aspects of the amendments and did not agree with all aspects of the proposals. They wished to enter into a full exchange of views on the issues and to resolve them, and therefore supported the establishment of a contact group.

142. One representative called for flexibility in the amendments, allowing countries experiencing high ambient temperatures to continue to use HFCs until safer alternatives could be found.

143. Other representatives called on parties to be realistic. Article 5 parties faced many challenges, including the phase-out of HCFCs, the costs of conversion and the lack of availability of alternatives for some uses of HFCs. More time was needed for the phase-out of HCFCs, and more time was needed for new alternatives to emerge before any amendments to the Montreal Protocol could be considered. An amendment to the Protocol could be agreed some point in the future, but not yet.

144. Another representative observed that despite lengthy discussions, including a series of workshops and informal working groups, over the past five years, many issues remained unresolved. Further consideration and study were needed, including, he hoped, discussions between the Ozone Secretariat and the secretariat of the Framework Convention on Climate Change and further studies of alternatives by the Technology and Economic Assessment Panel. The replacement of CFCs and HCFCs by HFCs had already caused negative environmental impacts, and it was important not to rush into alternatives to HFCs that might also have negative consequences.

145. Another representative agreed with the idea that the two secretariats should enter into dialogue, saying that it was a waste of time to continue to discuss the proposed amendments as it was clear that there was no consensus in favour of their adoption. Another representative agreed that it was important to resolve questions over legal issues and the division of responsibilities between the two regimes.

146. Some representatives argued that all parties needed to possess a certain level of comfort before they could move forward on any new proposal. The underlying concerns that had been expressed needed to be addressed before any kind of formal negotiation could begin. Contact groups could resolve matters of detail, but not major issues of principle, which had to be settled before any contact group could begin.

147. Other representatives said that simply entering into discussions in a contact group did not prejudice any outcome. The very wide range of questions that had been raised needed answers, and new ideas to resolve them, all of which could be achieved through discussions in a contact group. The best way to resolve disagreements was to discuss them. Another representative added that it was counterproductive to raise problems and questions and then refuse to discuss them. Her own party had concerns over some of the proposals in the amendments, but it wanted the chance to discuss them.

148. The representative of an environmental non-governmental organization said that it was a matter of great concern that formal discussion of the amendments was yet again being blocked by some parties at a time when the impacts of climate change were being felt more and more severely around the world. It was clear that many of the parties that were blocking discussion of HFCs on the basis that they were greenhouse gases were doing nothing to promote action on HFCs under the climate regime. Since the Montreal Protocol had sparked the use of HFCs it had the responsibility to address them. The HFC management workshop had made it clear that further work needed to be done, including a more detailed discussion of available alternatives, the barriers to the adoption of low-GWP alternatives, including international standards, an examination of the sectors that were moving more quickly, the costs involved and the financial and technology transfer mechanisms needed.

149. The representative of another environmental non-governmental organization said that the parties to the Montreal Protocol had achieved great things and should continue to find solutions to avoid global disaster. He urged them to use all the tools at their disposal in finding solutions, including financial assistance, grace periods for Article 5 parties and exemptions; in particular, it could be made clear that countries with high ambient temperatures should not have to take action before alternatives became available.

150. In response to the statements by representatives of non-governmental organizations, some representatives raised points of order, asking whether the rules of procedure allowed observers to criticize parties.

151. The Secretariat's Senior Legal Officer said that the rules of procedure permitted non-governmental organizations to participate and make statements; as long as individual parties were not attacked by name, he suggested, there should be no objection under the rules. Similar statements had been made at previous meetings, and the parties had not sought to block them.

152. Some representatives said that non-governmental organizations were within their rights under the applicable rule to make statements, however critical. One representative said that over the years non-governmental organizations had probably criticized his country more than any other, but his country supported their right to do so.

153. The Co-Chair recalled that the parties had a strong tradition of mutual respect on the part of all meeting participants; they might not always agree with one another's positions, but they should always treat them with respect. He urged all participants to maintain that approach.

154. Responding to the discussion of the North American amendment proposal, the representative of the United States said that it would be difficult to do justice to all the comments and questions in a short space of time. On the legal question, he said that Article 2 of the Vienna Convention provided the mandate for parties to the Montreal Protocol to address HFCs, given that they were substitutes for ozone-depleting substances and had a clear adverse environmental impact. He agreed that the division

of responsibilities between the ozone and climate regimes was an important question that needed to be discussed; the amendment provided a solution in stating that the obligation to phase down the production and consumption of HFCs under the Montreal Protocol would not affect any obligations under the Framework Convention or the Kyoto Protocol.

155. The workshop on HFC management had shown that the availability of alternatives was a complex issue that required careful consideration sector by sector. Nevertheless, for the majority of sectors it was clear that climate-friendly alternatives did exist. The lack of alternatives in some sectors was recognized in the amendment's proposal to phase down only 85 per cent of HFC use in Article 5 parties by 2045. That would allow another thirty years for progress to be made, and parties could decide which uses to phase out and which to maintain.

156. On financing, the amendment made it clear that measures to meet all obligations under the Montreal Protocol with regard to HFCs would be eligible for financial assistance from the Multilateral Fund. Additional resources would be needed to meet those obligations, and the report of the replenishment task force indicated the magnitude of sums that might be needed.

157. He called for a robust discussion on all issues, saying that that could best be achieved in a contact group. He stressed that agreement to form such a contact group did not imply any commitment to reach any conclusion.

158. The representative of Mexico said that he fully understood the reservations that had been expressed; the proponents of the amendments were not fixed in their positions and were open to discussion. The amendments did not aim to impair any obligation under other agreements, but it was clear that the Montreal Protocol possessed the right expertise and the responsibility to address HFC use. The representative of Canada expressed agreement, observing that the parties possessed a significant amount of collective knowledge and wisdom that could be put to use in addressing all the questions that had been raised.

159. The representative of the Federated States of Micronesia expressed his thanks to all those who had supported his country's proposed amendment, as well as to those who had opposed it, as they helped to sharpen his thinking and test his resolve. Many issues had been raised that should be debated at length and resolved through discussions in a contact group.

160. Other representatives, however, reiterated their opposition to the formation of a contact group, saying that there was no consensus to do so and that hours of meeting time had been wasted discussing the issue.

161. One representative said that the principle of multilateralism encompassed the obligation to listen to one another and to respond in a spirit of compromise. Although many countries had wanted to establish a contact group, some had not; in the spirit of compromise and flexibility, therefore, she suggested the establishment of an informal discussion group rather than a formal contact group. Some representatives said that while they would have preferred a formal contact group, they were prepared to discuss the issues raised by the proposed amendments in an informal discussion group.

162. Some representatives who had opposed the establishment of a contact group said that they would be prepared to agree to an informal discussion group, as long as it was not set up specifically to discuss the amendments; rather, its remit should be an informal discussion on HFC management. Other representatives felt that this was an unnecessarily narrow approach and that the texts of the amendments should be open for discussion as well.

163. In the light of the discussion above, the Working Group agreed that interested parties would hold an informal discussion, facilitated by Ms. Gudi Alkemade (Netherlands) and Mr. Obed Meringo Baloyi (South Africa), on the management of HFCs, including the legal and technical issues raised at previous meetings and during the HFC management workshop, and develop options for addressing the issues raised, including the relationship between the Montreal Protocol and the Framework Convention on Climate Change and its Kyoto Protocol. The discussion participants would not develop a draft decision, and the discussion would be reported to the Working Group in plenary.

164. Following the informal discussion the co-facilitator read a summary of it, which is set out in annex IV to the present report.

165. One representative, thanking the facilitators for their work, objected to the inclusion in the summary of options and recommendations that had been suggested during the informal discussion, with most of which his country disagreed, arguing that their inclusion was inconsistent with the Working Group's agreement that the informal discussion would not result in the preparation of a draft decision.

166. In response, the Co-Chair confirmed that the discussion had indeed been informal and had not been meant to result in any draft decisions. Consistent with that understanding the summary, to be annexed to the present report, was intended solely to contribute to further discussion of HFCs by the Twenty-Sixth Meeting of the Parties and as such merely provided information regarding what had been said during the informal discussion.

X. Update on liaison by the Secretariat with the organizers of the Third International Conference on Small Island Developing States regarding implementation of the Montreal Protocol by those States (decision XXV/9)

167. Introducing item 10 of the agenda, the Co-Chair recalled that by decision XXV/9 the parties had requested the Ozone Secretariat to liaise with the organizers of the Third International Conference on Small Island Developing States, to be held in Samoa from 1 to 4 September 2014, with a view to promoting discussions on the challenges faced by small island developing States in implementing the Montreal Protocol, and to report on the outcomes of that liaison to the Open-ended Working Group at the current meeting. Information on the matter was contained in documents UNEP/OzL.Pro.WG.1/34/2 and Add.1. The Executive Secretary said that decision XXV/9 had been communicated in December 2013 to the Department of Economic and Social Affairs of the United Nations Secretariat, which was organizing the aforementioned conference in cooperation with the Government of Samoa. The Ozone Secretariat had participated in the first meeting of the preparatory committee for the conference, held in February 2014, and had brought decision XXV/9 to the attention of the participants through a note on the challenges faced by small island developing States in implementing the Montreal Protocol. The Secretariat had sent the draft outcome document for the Conference to the ozone focal points of small island developing States along with a letter encouraging them to liaise with their Government counterparts participating in the meetings leading up to the Conference to ensure that Montreal Protocol issues of concern to them, such as environmental programmes that supported the protection of both the ozone layer and the climate, were reflected in future versions of the outcome document.

168. One representative thanked the proponents of decision XXV/9 and expressed the appreciation of small island developing States for the efforts made by the Secretariat, saying that she looked forward to full discussion of the issues at the conference in Samoa.

169. The Executive Secretary subsequently announced that the Preparatory Committee had finalized the negotiations on the draft outcome document on small-island developing States on 11 July. The document, entitled “Small Island Developing States Accelerated Modalities of Action (Samoa Pathway)”, had been agreed subject to further consideration and adoption at the Samoa conference.

XI. Other matters

A. Halon recovery, banks and disposal

170. The representative of the United States introduced a conference room paper containing a draft decision on halon recovery, banks and availability, submitted by Australia, Norway and the United States, saying that it was designed to respond to the concerns raised in the report of the Technology and Economic Assessment Panel and its Halons Technical Options Committee on the rate of progress with the phase-out of halons. The United States was eager to work with other parties during the current meeting to improve the text.

171. Another representative said that he had concerns about the draft decision, suggesting that its proposal to reassess import and export restrictions could be in conflict with the Montreal Protocol’s requirement that parties maintain licensing systems for ozone-depleting substances. He sought the Secretariat’s legal opinion on the matter and said that in the meantime it would be appropriate to postpone informal discussions. The Secretariat undertook to provide appropriate advice on the issue.

172. Subsequently, the representative of the Secretariat said that he had reviewed the text in the draft decision on national import and export restrictions and did not consider it to be in conflict with Article 4B of the Protocol on licensing. On that basis, the Open-ended Working Group decided that a small group of interested parties should discuss the matter further.

173. Following those discussions the Working Group agreed to forward a revised version of the draft decision, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.

B. Newly detected ozone-depleting substances in the atmosphere

174. Introducing the sub-item, the Co-Chair said that the matter arose from an article published in March 2014 in *Nature Geoscience* about three CFCs and one HCFC that had been newly detected in the atmosphere. The article had attracted considerable interest in the media.

175. The representative of the Scientific Assessment Panel gave a presentation on four newly detected ozone-depleting substances in the atmosphere – CFC-112, CFC-112a, CFC-113a, and HCFC-133a. All were listed in the annexes to the Montreal Protocol and were regulated under Article 2F. All were strong greenhouse gases, although HCFC-133a had a very short lifetime. Emissions of CFC-112 and CFC-112a had been declining since the late 1990s, but emissions of CFC-113a and HCFC-133a were increasing rapidly. The quantities of the substances in the atmosphere were small compared to other ozone-depleting substances. He stressed that the gases were not new compounds but had only recently been detected in the atmosphere, including through analysis of historical air samples and air trapped in snow. Regarding the sources, he said that CFC-112 and CFC-112a might have been used as feedstock chemicals for fluorovinyl ether production and as solvents for cleaning electronics; CFC-113a might have been used as an intermediate for HFC-134a production and as a feedstock for insecticide production; and HCFC-133a was used in the production of pharmaceutical products and was an intermediate product in the production of HFC-134a. A summary of the presentation prepared by the presenter is set out in section F of annex III to the present report.

176. In the ensuing discussion, several representatives expressed appreciation to the Scientific Assessment Panel for the information presented. One representative, speaking on behalf of a group of countries, inquired about another gas, HFO-1233zd. The representative of the Panel said that the ozone-depletion potential of the gas was very small but was very difficult to calculate because the substance had a short lifetime (about 40 days) and was lifted more quickly into the atmosphere in the tropics than in mid-latitudes, giving it higher ozone-depletion potential in the former instance. In response to another query about the recovery of the ozone layer, the representative of the Panel said that globally ozone levels should be back to 1980 values by around the middle of the current century, with the hole above the Antarctic returning to 1980 levels by around 2060 or 2070.

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

C. Releases, breakdown products and opportunities to reduce releases

178. The representative of the European Union introduced a conference room paper containing a draft decision on releases, breakdown products and opportunities to reduce releases. He said that given the issues concerning the use of ozone-depleting substances outlined in volume 1 of the report of the Technology and Economic Assessment Panel, and the debate on newly recorded emissions, it was timely to consider the production sector more widely. The draft decision accordingly requested parties with any production of ozone-depleting substances or any production in which ozone-depleting substances were used as feedstock to provide information on quantities and sources of releases and expected breakdown products to the assessment panels for their review and assessment.

179. A number of representatives welcomed the draft decision, saying that it raised timely issues that required further discussion. A number of representatives said that the issues involved were complex and that they wanted to have informal discussions with the purpose of understanding the issues behind the draft decision. The Working Group decided that interested parties should consult informally on the matter at the current meeting.

180. Following the informal consultations the representative of the European Union reported that interested parties had had a wide-ranging discussion of the draft decision but had not reached agreement. In particular it was felt that the draft decision might require revision in the light of a synthesis report to be released by the Environmental Effects Assessment Panel and the Scientific Assessment Panel as part of their four-year environmental effects and scientific assessment work prior to the Twenty-Sixth Meeting of the Parties.

181. The Working Group agreed to forward the draft decision, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.

D. Measures to facilitate the monitoring of trade in hydrochlorofluorocarbons and substituting substances

182. The representative of the European Union introduced a conference room paper containing a draft decision on measures to facilitate the monitoring of trade in HCFCs and substituting substances. He said that while the phase-down of HCFCs was continuing, large quantities of the chemicals were

still being traded, often illegally, and the lack of available customs codes for HCFC alternatives was making it difficult to monitor and control illegal trade. The draft decision sought to address the situation in collaboration with the World Customs Organization and the International Convention on the Harmonized Commodity Description and Coding System.

183. Many representatives said that they saw merit in the actions proposed in the draft decision and presented examples from their own countries of problems with illegal trade and mislabelling of ozone-depleting substances and their alternatives. Some representatives, however, said that to the extent that it concerned HFCs the draft decision dealt with matters that were beyond the purview of the Montreal Protocol.

184. The Working Group decided to establish a contact group, chaired by Ms. Vika Rogers (Fiji) and Mr. Blaise Horisberger (Switzerland), to discuss the matter further.

185. Subsequently, the co-chair of the contact group reported that the group had made progress but had not been able to achieve consensus on certain issues.

186. Following discussion, the Working Group agreed to forward the draft decision, as set out in annex I to the present report, to the Twenty-Sixth Meeting of the Parties for further consideration.

XII. Adoption of the report

187. The present report was adopted on the afternoon of Friday, 18 July 2014, on the basis of the draft report contained in documents UNEP/OzL.Pro.WG.1/34/L.1 and Add.1. The Ozone Secretariat was entrusted with the finalization of the report following the closure of the meeting.

XIII. Closure of the meeting

188. Following the customary exchange of courtesies, the thirty-fourth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol was declared closed at 6 p.m. on Friday, 18 July 2014.

Annex I

Draft decisions

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

The Twenty-Sixth Meeting of the Parties decides:

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

Submission by the Russian Federation

Noting the evaluation and recommendation of the Technology and Economic Assessment Panel and its Chemicals Technical Options Committee on the essential-use nomination for chlorofluorocarbon-113 for aerospace applications in the Russian Federation,

Noting also that the Russian Federation is successfully continuing efforts to introduce alternative solvents in its aerospace industry,

Noting further that the Russian Federation has been successful in reducing use and emissions in line with the technical adaptation timetable developed in collaboration with the Chemicals Technical Options Committee,

1. To authorize production and consumption of chlorofluorocarbon-113 in the Russian Federation for essential-uses in its aerospace industry in the amount of 75 metric tonnes in 2015;
2. To request the Russian Federation to explore further the possibility of importing chlorofluorocarbon-113 for its aerospace industry needs from available global stocks;
3. To encourage the Russian Federation to continue its efforts to introduce alternative solvents, adopt newly designed equipment and complete the phase-out of chlorofluorocarbon-113 by 2016;

B. **Draft decision on essential-use exemption for laboratory and analytical uses for 2015**

Submission by China

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Chemicals Technical Options Committee,

Recalling decision XI/15, by which the parties, among other things, eliminated the use of ozone-depleting substances for the testing of oil, grease and total petroleum hydrocarbons in water from the global exemption for laboratory and analytical uses,

Recalling also decision XXIII/6, by which parties operating under paragraph 1 of Article 5 of the Montreal Protocol were allowed until 31 December 2014 to deviate from the existing ban on the use of carbon tetrachloride for the testing of oil, grease and total petroleum hydrocarbons in water in individual cases where such parties considered doing so to be justified and in which it was clarified that any deviation beyond that should take place only in accordance with an essential-use exemption in respect of the use of carbon tetrachloride for the testing of oil, grease and total petroleum hydrocarbons in water beyond 2014,

Noting that a party has reported difficulty in implementing existing alternatives to the use of carbon tetrachloride for the testing of oil, grease and total petroleum hydrocarbons in water and claims to need more time for the revision and promotion of national standards,

To authorize the level of consumption for 2015 necessary to satisfy essential uses of carbon tetrachloride for the testing of oil, grease and total petroleum hydrocarbons in water, as specified in the annex to the present decision;

Annex to decision XXVI/[...]**Essential-use authorizations for 2015 for carbon tetrachloride for testing of oil, grease and total petroleum hydrocarbons in water**

(Metric tonnes)

<i>Party</i>	<i>2015</i>
China	[90]

C. Draft decision on essential-use nominations for controlled substances for 2015**Submission by China**

Noting with appreciation the work done by the Technology and Economic Assessment Panel and its Medical Technical Options Committee,

Mindful that, according to decision IV/25, the use of chlorofluorocarbons for metered-dose inhalers does not qualify as an essential use if technically and economically feasible alternatives or substitutes are available that are acceptable from the standpoint of environment and health,

Noting the Panel's conclusion that technically satisfactory alternatives to chlorofluorocarbon-based metered-dose inhalers are available for some therapeutic formulations for treating asthma and chronic obstructive pulmonary disease,

Taking into account the Panel's analysis and recommendations for essential-use exemptions for controlled substances for the manufacture of metered-dose inhalers used for asthma and chronic obstructive pulmonary disease,

Welcoming the continued progress of several parties operating under paragraph 1 of Article 5 in reducing their reliance on chlorofluorocarbon-based metered-dose inhalers as alternatives are developed, receive regulatory approval and are marketed for sale,

1. To authorize the levels of production and consumption for 2015 necessary to satisfy essential uses of chlorofluorocarbons for metered-dose inhalers for asthma and chronic obstructive pulmonary disease, as specified in the annex to the present decision;
2. To request nominating parties to provide the Medical Technical Options Committee with information to enable the assessment of essential-use nominations, in accordance with the criteria contained in decision IV/25 and subsequent relevant decisions, as set out in the handbook on essential-use nominations;
3. To encourage parties with essential-use exemptions in 2015 to consider initially sourcing required pharmaceutical-grade chlorofluorocarbons from stockpiles where they are available and accessible, provided that such stockpiles are used subject to the conditions established by the Meeting of the Parties in paragraph 2 of its decision VII/28;
4. To encourage parties with stockpiles of pharmaceutical-grade chlorofluorocarbons potentially available for export to parties with essential-use exemptions in 2015 to notify the Ozone Secretariat of those quantities and to provide it with the details of a contact point by 31 December 2014;
5. To request the Secretariat to post on its website details of the potentially available stocks referred to in paragraph 4 of the present decision;
6. That the party listed in the annex to the present decision shall have full flexibility in sourcing the quantity of pharmaceutical-grade chlorofluorocarbons to the extent required for manufacturing metered-dose inhalers, as authorized in paragraph 1 of the present decision, from imports, from domestic producers or from existing stockpiles;
7. To request that parties consider domestic regulations to ban the launch or sale of new chlorofluorocarbon-based metered-dose inhaler products, even if such products have been approved;
8. To encourage parties to fast-track their administrative processes for the registration of metered-dose inhaler products in order to speed up the transition to chlorofluorocarbon-free alternatives;

Annex to decision XXVI/...**Essential-use authorizations for 2015 of chlorofluorocarbons for metered-dose inhalers**

(Metric tonnes)

<i>Party</i>	<i>2015</i>
China	182.61

D. Draft decision on laboratory and analytical uses**Submission by the United States of America**

Recalling decisions VII/11 and XXI/6, in which the Meeting of the Parties requested all parties to urge their national standards-setting organizations to identify and review their standards for laboratory and analytical procedures that mandate the use of Montreal Protocol controlled substances with a view to adopting, where possible, laboratory and analytical products and processes that do not use controlled substances,

Recalling also decisions VII/11, XI/15, XVIII/15 and XIX/18, by which the Meeting of the Parties eliminated specific uses from the global exemption for laboratory and analytical uses,

1. To extend the global laboratory and analytical-use exemption until 31 December 2021, under the conditions set out in annex II to the report of the Sixth Meeting of the Parties and decisions XV/8, XVI/16 and XVIII/15, for the controlled substances under the Montreal Protocol in all annexes and groups except Annex C, group 1;

2. To request the Technology and Economic Assessment Panel to report no later than 2018 on the development and availability of laboratory and analytical procedures that can be performed without using controlled substances under the Montreal Protocol;

E. Draft decision on availability of recovered, recycled or reclaimed halons**Submission by Australia, Norway and the United States of America**

Recognizing that the global production of halons for controlled uses was eliminated in 2009 but that some remaining uses, in particular for civil aviation, continue to rely on stocks of recovered, recycled or reclaimed halons for fire safety,

Noting that, despite efforts to evaluate the extent of accessible stocks of recovered, recycled or reclaimed halons, there is still uncertainty about the quantity of recovered, recycled or reclaimed halons that is accessible for continuing uses, such as in civil aviation,

Recalling the 1992 International Maritime Organization ban on the use of halons in new ships and noting that ships containing halons are now being decommissioned,

Recalling also the adoption by the Assembly of the International Civil Aviation Organization of resolutions A37-9 and A38-9, in which the Assembly expressed an urgent need to continue developing and implementing halon alternatives for civil aviation and called on manufacturers to use alternatives in lavatory fire extinguishing systems in newly designed and new production aircraft after 2011, in hand-held fire extinguishers in such aircraft after 2016, in engine and auxiliary power unit fire-extinguishing systems used in newly designed aircrafts after 2014 and in the cargo compartments of new aircraft by a date to be determined by the Assembly in 2016,

Noting that the import and export of recovered, recycled or reclaimed halons is allowed under the Montreal Protocol and that the Technology and Economic Assessment Panel has found that the current distribution of recovered, recycled or reclaimed halon stocks potentially may not align with anticipated needs for such stocks,

Recalling paragraph 3 of decision XXI/7, concerning the import and export of recovered, recycled or reclaimed halons,

Taking note of the progress report of the Technology and Economic Assessment Panel provided to the parties before the thirty-fourth meeting of the Open-ended Working Group, including information on alternatives,

1. To encourage parties to liaise, through their national ozone officers, with their national civil aviation authorities to gain an understanding of how halons are being recovered, recycled or reclaimed to meet purity standards for aviation use and supplied to air carriers to meet ongoing civil aviation needs and on any national actions being taken to expedite the replacement of halons in civil aviation uses as called for by the Assembly of the International Civil Aviation Organization in its resolutions A37-9 and A38-9;
2. To also encourage parties to submit information provided in accordance with paragraph 1 of the present decision to the Ozone Secretariat by 1 September 2015;
3. To invite parties to reassess any national import and export restrictions other than licensing requirements with a view to facilitating the import and export of recovered, recycled or reclaimed halons and the management of stocks of such halons with the aim of enabling all parties to meet remaining needs in accordance with domestic regulations even as they transition to halon alternatives;
4. To request the Technology and Economic Assessment Panel, through its Halons Technical Options Committee:
 - (a) To continue to liaise with the International Civil Aviation Organization to facilitate the transition to halon alternatives, to approach the International Maritime Organization to estimate the amount and purity of halon 1211 and 1301 available from the breaking of ships and to report information on global stocks of recovered halons to the parties in its 2015 progress report;
 - (b) To report on existing and emerging alternatives for halons, including information on their characteristics and their rate of adoption, in particular for aviation uses;
5. To request the Ozone Secretariat to report to the parties, prior to the thirty-sixth meeting of the Open-ended Working Group, any information provided by parties in accordance with paragraph 1;

F. Draft decision on releases, breakdown products and opportunities for the reduction of releases

Submission by the European Union

Mindful of obligations to ensure control measures under Article 2D of the Montreal Protocol regarding the production and consumption of ozone-depleting substances,

Reiterating its concern regarding the large discrepancy between reported emissions and observed atmospheric concentrations, which suggests that ozone-depleting substance emissions from the production of ozone-depleting substances and from production of other chemicals are significantly underreported and underestimated,

Recalling decision XVIII/10, on sources of carbon tetrachloride emissions and opportunities for reduction,

Encouraging reports from the Technology and Economic Assessment Panel, the Scientific Assessment Panel and the Environmental Effects Assessment Panel that provide consistent and coherent information and advice on technology, science and environmental effects and safety associated with ozone-depleting substances and alternatives to such substances,

Desirous of reducing emissions and releases to background concentration levels,

1. To request parties having any production of ozone-depleting substances, including co-production or by-production:
 - (a) To review quantities and sources of releases and expected breakdown products;
 - (b) To provide the assessment panels by [1 January 2016], through the Ozone Secretariat, with the information referred to in paragraph 1 (a) of the present decision, which should include information on production capacity, the technology used for controlling releases and the measuring and monitoring methods employed and management practices in place;
2. To request parties having any production of non-ozone-depleting substances in which ozone-depleting substances are used as feedstock:
 - (a) To review the relevant production pathways and the quantity and sources of releases of halogenated substances and expected breakdown products;

(b) To provide the assessment panels by [1 January 2016], through the Ozone Secretariat, with the information referred to in paragraph 2 (a) of the present decision and information on the best available techniques used to reduce releases, as well as the measuring and monitoring methods employed and the management practices in place;

3. To request the Technology and Economic Assessment Panel to investigate, in conjunction with its [2016] assessment, alternatives to ozone-depleting substances in exempted uses such as process agents and feedstocks and to investigate alternatives, including not-in-kind alternatives, to products made employing ozone-depleting substance process agents and feedstocks and to provide an assessment of the technical and economic feasibility of reducing or eliminating such uses and related releases;

4. To request the three assessment panels to jointly reconcile information on releases and breakdown products and suggest good methods and practices for monitoring, noting that the panels should review the large discrepancy between emissions reported and those inferred from atmospheric measurements and, taking into account amounts emitted from banked quantities, provide a mutually consistent clarification of the effect of emissions and releases and degradation products on human health and ecosystems;

5. To request the three assessment panels to coordinate and report their findings in a synthesis report that takes into account the information received from parties in accordance with paragraphs 1 and 2 of the present decision and the results of the study carried out in accordance with paragraph 3 of the present decision and report thereon to the [Twenty-Eighth] Meeting of the Parties in [2016];

G. Draft decision on measures to facilitate the monitoring of trade in hydrochlorofluorocarbons and substituting substances

Submission by the European Union

Recalling decisions IX/22, X/18 and XI/26 concerning customs codes for ozone-depleting substances and collaboration between the Ozone Secretariat and the World Customs Organization in that regard,

Recalling also decisions of the Meeting of the Parties aimed at the prevention of illegal trade in ozone-depleting substances, in particular decisions XIV/7, XVI/33, XVII/16, XVIII/18 and XIX/12,

Noting that, despite limitations on hydrochlorofluorocarbon (HCFC) consumption resulting from the provisions of the Montreal Protocol, more than 1 million tonnes of HCFCs are still traded globally and the illegal trade in HCFCs may disturb the process of phasing out those substances,

Noting also that in international trade HCFCs are replaced by alternative substances, which include hydrofluorocarbons (HFCs), and that the quantity of HFCs traded globally is expected to grow,

Recognizing that the main method used by smugglers to disguise internationally traded HCFCs is to declare and label them as one of the HFC substances that are HCFC alternatives but are not controlled by the Montreal Protocol, [in particular HFC-134a,] using the existing Harmonized Commodity Description and Coding System (HS) code for HFCs, which is not HFC-specific and covers other non-ozone-depleting chemicals and makes it difficult for customs authorities to recognize the illegal nature of the relevant import or export,

Mindful of the importance of a dedicated customs classification of goods for the prevention of illegal trade and of the positive impact in that regard of the new HS classification for HCFCs approved by the World Customs Organization, which entered into force in January 2012, and the new HS classification for mixtures containing, inter alia, HCFCs and HFCs or perfluorocarbons, which became effective at an earlier date,

Mindful also that World Customs Organization rules require that any application for amending an HS classification must be made several years in advance,

1. To request the Ozone Secretariat to liaise with the World Customs Organization on the possibility of designating individual HS codes for the most commonly traded fluorinated substitutes for HCFCs and CFCs [except HFCs], classified under HS code 2903.39, explaining thereby the importance of a dedicated customs classification for those substances for the sole purpose of preventing the illegal trade in HCFCs and CFCs, and to communicate to the parties the results of those consultations as soon as possible, but not later than at the thirty-fifth meeting of the Open-ended Working Group, to be held in 2015;

2. To encourage the parties that are contracting parties to the International Convention on the Harmonized Commodity Description and Coding System to consider applying to the World Customs Organization at their earliest convenience for the establishment of dedicated customs classifications for those substitutes referred to in paragraph 1 of the present decision;

[3. To encourage [request] the parties that are contracting parties to the International Convention on the Harmonized Commodity Description and Coding System [, and are in a position to do so,] to consider establishing [national] [eight-digit] customs codes for those substitutes referred to in paragraph 1 of the present decision in their own customs classification systems as a transitional measure [until the new HS classifications referred to in paragraph 1 are introduced].]

Explanatory note

At present, all HFCs are classified under the Harmonized Commodity Description and Coding System (HS) under the code 2903.39, which also covers other halogenated compounds. Therefore, customs officers cannot identify on the basis of the customs code whether the traded substance is a particular HFC and they cannot judge whether or not the substance is an HFC or another halogenated compound classified under the same HS code. This facilitates the illegal trade in HCFCs, which is proceeding at present mostly through falsely declaring HCFC as HFC (usually HFC-134a, but the names of some other HFCs, e.g., HFC-152a or HFC-32, are also used). Introducing individual HS codes for the most commonly traded HFCs (e.g., HFC-134a, HFC-32, HFC-23, HFC-152a and HFC-227ea) would allow customs authorities to carry out more targeted checks on the declarations and to detect possible fraud and mislabelling.

Furthermore, a clearer distinction between HFCs, PFCs and other fluorinated substances would facilitate the monitoring of the transition from HCFC to alternative substances, enabling the use of customs statistics for that purpose.

The following possible new HS classification of HFCs may be suggested (the structure of the part of HS where HFCs are presently classified is also included for comparison), although obviously the final decision in that matter will have to be made by the HS Review Committee.

Present structure of the section entitled “Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons” of HS subdivision 2903

<i>HS code</i>	<i>Compound name</i>	<i>Comments</i>
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons		
2903.31	-- Ethylene dibromide (ISO) (1-2-dibromoethane)	–
2903.39	-- Other	Includes, inter alia, all HFCs and PFCs

Proposed structure of the section entitled “Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons” of HS subdivision 2903

<i>HS code</i>	<i>Compound (name)</i>	<i>Compound (common abbreviation or description)</i>
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons		
2903.31	-- Ethylene dibromide (ISO) (1-2-dibromoethane)	
2903.32	-- Difluoromethane	HFC-32
2903.33	-- Trifluoromethane, pentafluoroethane and 1,1,1-trifluoroethane	HFC-23, HFC-125 and HFC-143a
2903.34	-- 1,1-difluoroethane	HFC-152a
2903.35	-- 1,1,1,2-tetrafluoroethane	HFC-134a
2903.36	-- pentafluoropropanes, hexafluoropropanes and heptafluoropropanes	Includes HFC-227ea, 236cb, 236ea, 236fa, 245ca, 245fa
2903.37	-- Other fluorinated derivatives of acyclic hydrocarbons	Other HFCs
2903.38	-- Perfluorinated derivatives of acyclic hydrocarbons	All PFCs
2903.39	-- Other	Other fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons

Taking into account the fact that the HS Review Committee meets only twice a year and usually takes several sessions to agree on the final shape of a proposed amendment, and that the procedure for the approval of an amendment by the contracting parties to the International Convention on the Harmonized Commodity Description and Coding System and the World Customs Organization (WCO) is complex, in particular requiring that any amendment that has been approved by the WCO Council be notified to the HS contracting parties before 1 April in a given year, an amendment can only become effective starting from 1 January the second year after the date of notification. If notification is made after 1 April, the amendment may only be effective on 1 January the third year after the date of notification. Although it is too late for an amendment to become effective on 1 January 2017, preparations for the next round should start as early as possible.

As a transitional measure, before an amendment to the HS code becomes effective, parties should make use of the eight-digit codes under their own customs classification systems to identify the most relevant HFCs, preferably using the same categories to facilitate the cross-checking of collected data between parties.

Annex II

Summary of suggestions for elaboration in the supplementary Technology and Economic Assessment Panel task force report^a

The Open-ended Working Group at its thirty-fourth meeting agrees:

1. To request the Technology and Economic Assessment Panel, in presenting its supplementary report to the Twenty-Sixth Meeting of the Parties, to:
 - (a) Add more narrative parts and explanations to chapters in the replenishment study which refer to consumption and case 1 and 2 scenarios;
 - (b) Highlight more clearly the scenario that divides funding related to the 2020 target applicable to HCFC consumption equally between the 2015-2017 and 2018-2020 replenishments as specified in paragraph 2(d) of Decision XXV/8.
2. To also request the Panel to update all of the funding requirements as presented in its May 2014 report taking into account:
 - (a) The differences between Case 1 and Case 2 scenarios in environmental terms considering the overall quantity of ODS (and corresponding ODP) phase-out to be achieved by Cases 1 and 2 with respect to 10% and 35% commitments taking into consideration the achieved phase out during the replenishment period 2012-2014;
 - (b) Based on the experience with CFCs and HCFCs to date, that a certain proportion of the phase-out to meet the 2020 target might occur in non-eligible enterprises, including multinationals and enterprises established after the 2007 cut-off date;
 - (c) The HPMP agreements between the Executive Committee and Article 5 parties and calculate the total value of tranches of phase I HPMPs that would be funded out of the 2015 - 2017 and 2018 – 2020 triennia and its related ODS reduction;
 - (d) Distribution between the RAC and foam sector activities at a 40:60 ratio compared with that of 50:50, taking into account national circumstances of Article 5 countries and bearing in mind specific needs for the conversion of SMEs including different cost effectiveness of alternatives.
 - (e) Disaggregate the cost-effectiveness values provided for refrigeration and air conditioning sector into: (i) AC manufacturing; (ii) commercial refrigeration manufacturing and (iii) refrigeration servicing and provide the quantities of each HCFC to be phased out in each sector under each case;
 - (f) To further elaborate on the special needs for the servicing sector and capacity building activities in stage II HPMP in accordance with paragraph 2f) of decision XXV/8, in particular for LVC and VLVC countries, considering the importance of the servicing sector for achieving the 2020 target and phase-in of the environmental friendly technologies in the RAC sectors for those Article 5 countries, in particular activities referred to in decision 72/41;
 - (g) Additional assumptions for the disbursement scenarios that reflect less frontloading. In doing so the impact on LVC and VLVC projects should be taken into consideration;
 - (h) Further analysis of the situation in the Case 1 and case 2 scenarios, in particular, of data submitted by Article 5 parties that have requested phase-II funding, and estimate the average phase-down level achieved and the level of funding already disbursed;
 - (i) Projects where low-GWP technologies have been applied having resulted in increased project costs and estimate the average increase of funding needs reflecting the eligible project costs for those conversions;
 - (j) Costs associated with the conversion of small- and medium-size enterprises (SMEs) in stage II of HPMPs, taking into account lessons learned in all approved projects with new technologies, including from system-house projects, as well as conversion of large-size enterprises;
 - (k) Changes in cost effectiveness figures and their consequent impact on the next three replenishments.

^a The text of the summary is presented as submitted, without formal editing.

-
3. As a separate element, in accordance with Para 3 of decision XXV/8, to request TEAP to:
- (a) Include an estimate of the funding needed to conduct surveys of high GWP alternatives to ODS and project preparation funding, taking into account the availability of safe, environmentally friendly, technically proven and economically viable technologies ;
 - (b) Consider allocating the funding needed for this separate element according to a variety of schedules;
 - (c) Calculate the amounts of high-GWP alternatives to ODS avoided (in CO₂ equivalent) for the relevant upcoming replenishment periods in Cases 1 and 2, assuming a certain threshold for high-GWP alternatives to ODS and calculate the cost-effectiveness in USD per tonne CO₂;
 - (d) Estimate the amounts to phase-down in the production sector and associated funds for that sector;
 - (e) Estimate the improvements in cost effectiveness over time including an estimate of the market penetration of not in kind technologies.
4. As a separate element, for the TEAP to estimate the funding for the production sector with and without swing plants.

Annex III

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

A. Presentation on the 2014 progress report of the Technology and Economic Assessment Panel (agenda item 3)

1. Mr. Keiichi Ohnishi, Co-Chair of the Chemicals Technical Options Committee (CTOC), reported on the continuing feedstock use of ozone-depleting substances in 2012, which totalled 1.1 megatonnes, a 4 per cent increase from 2011, providing a brief overview on the status of process agent uses and updated information on n-propyl bromide, indicating that the threshold limit value had been lowered by the American Conference of Governmental Industrial Hygienists from 10 ppm to 0.1 ppm in 2014.
2. Mr. Miguel Quintero, Co-Chair of the Flexible and Rigid Foams Technical Options Committee (FTOC), reported that in stage I of most of the HCFC phase-out management plans for parties operating under paragraph 1 of Article 5 (Article 5 parties), the worst-first focus had put much emphasis on HCFC-141b in a number of foam sectors. Rapid growth in extruded polystyrene foam production capacity had been observed in several parts of the Asian regions. Since many extruded polystyrene transitions were scheduled in later phases of HCFC phase-out management plans, there was a concern that the foam contribution to decision XIX/6 targets may be compromised. An additional factor was that a number of investment decisions would be in the hands of multinational companies. Positive developments were taking place with new zero-ozone-depletion potential low-global-warming-potential (GWP) alternatives: the gaseous blowing agent HFO-1234ze (E) was available globally; two producers were now focused on the HFO-1233zd (E) molecule, with one producer having it already on stream; and HFO-1336mzz (Z), a further liquid blowing agent, was available in small quantities with larger commercial supplies anticipated by 2016.
3. Mr. Daniel Verdonik, Co-Chair of the Halons Technical Options Committee (HTOC), reported that the civil aviation industry had formed a consortium to determine a single halon replacement for engine nacelles. The consortium was in the early stages of development. For cargo compartments, the International Coordinating Council of Aerospace Industries Associations had formed a working group to determine a date on which halon alternatives could begin to be used in cargo compartments in new aircraft designs. This working group was formed in response to the request by the International Civil Aviation Organization (ICAO) during its General Assembly meeting in September 2013 to provide such a date at the following ICAO General Assembly meeting in September 2016.
4. The Halons Technical Options Committee was seeing evidence that halon availability was diminishing, which should not be surprising as halon production and consumption was stopped in non-Article 5 parties at the end of 1993 and in Article 5 parties at the end of 2009. HTOC had a serious concern that many users were relying on halon imports for most of their important uses, such as civil and military aviation. Many of these users were now encountering difficulties in obtaining sufficient quantities of halon, with potentially serious consequences. For example, international civil aviation rules required fully operating fire protection systems in order for aircraft to leave the ground. If halons were not available for these systems, the aircraft must be grounded. A significant supply disruption could have significant impacts on civil aviation. Parties might wish to revisit the global strategic approach to halon bank management, which could include the development of updated training and awareness-raising materials and programmes to address import and export requirements, purity issues and other halon bank management matters.
5. Mr. Roberto Peixoto, Co-Chair of the Refrigeration, Air-Conditioning and Heat Pumps Technical Options Committee (RTOC), reported that several new low-GWP refrigerants or blends continued to be developed and evaluated, and some of them had a disclosed composition, were close to commercialization and had received R-number designations. The use of refrigerant HC-600a (isobutane) in domestic refrigeration and small-based appliances had started in the United States of America, and was further increasing in use in Article 5 countries. R-744 (carbon dioxide) had become an important alternative option for centralized systems in supermarkets. HFC-32-based split air-conditioning products had been commercialized in several countries. HC-290 (propane)-based split air-conditioning conversion of HCFC-22 production lines was continuing in China, and was available in India, and to some extent in Europe.
6. Ms. Helen Tope, Co-Chair of the Medical Technical Options Committee (MTOC), reported that, with recent developments, global chlorofluorocarbon (CFC) metered-dose inhaler (MDI)

manufacturing phase-out was approaching. She presented the Committee's assessment of an essential-use nomination from China for CFCs for the manufacture of MDIs for 2015, which was expected to be its final nomination assuming a smooth transition and could be the last essential-use nomination for CFCs for MDIs. The Committee recommended 182.61 tonnes of CFCs for MDIs for 2015 and was unable to recommend 34.73 tonnes. She commented that China might have an adequate stockpile available to supply its CFC requirements in 2015, although this was not yet clear, and that the Committee was recommending an exemption in the expectation that China would produce new CFCs only if absolutely necessary. She summarized some of the Committee's recommendations regarding specific active ingredients included in the nomination.

7. Mr. Keiichi Ohnishi, Co-Chair of the Chemicals Technical Options Committee (CTOC), reported two essential-use nominations for uses in 2015. The first was for the use of CFC-113 for the aerospace industry, submitted by the Russian Federation. CTOC recommended 75 tonnes of CFC-113 for aerospace industry use for 2015. CTOC noted that the Russian Federation had developed new equipment which could be cleaned by HCFC-141b or methylene chloride and this would therefore be their final nomination. The second essential-use nomination was submitted by China for 90 tonnes of carbon tetrachloride (CTC) for laboratory and analytical use to check the content of oil, grease and total petroleum hydrocarbons in water. It was nominated as a consequence of decision XXIII/6. Although CTOC acknowledged China's efforts to date in its phase-out of CTC, CTOC requested further clarification on the need for the 90 tonnes of CTC for water quality monitoring, the significant delay in phasing out CTC in this application, and how the nomination may relate to the CTC phase-out agreement between the Multilateral Fund for the Implementation of the Montreal Protocol and China. At the current stage, CTOC was unable to recommend the nomination without further clarification.

8. In presenting the progress report of the Methyl Bromide Technical Options Committee (MBTOC), its co-chair, Ms. Marta Pizano, indicated that methyl bromide consumption for controlled uses was about 7 per cent of the global baseline at the end of 2012. Article 5 parties had then phased out over 85 per cent of such consumption – ahead of the 2015 deadline – and non-Article 5 parties had phased out over 98 per cent, the remaining 2 per cent comprising critical uses. The co-chair went on to report that when comparing production versus consumption of methyl bromide for controlled uses, an aggregate surplus of about 5,970 tonnes of the methyl bromide produced seemed to have accumulated since 2005. This could be due to stocks or to lack of reporting of consumption in some countries.

9. When referring to progress in the adoption of alternatives, Ms. Pizano reported that non-chemical options and integrated pest management were increasing worldwide and that, while chemical alternatives were still very important for some sectors, negative health and environmental impacts were often leading to regulatory restrictions and even deregistration of these alternatives in some countries. She further reported that resistance to phosphine, the most widely adopted alternative for structures and commodities applications was being increasingly reported, which could pose a challenge to the future use of that fumigant.

10. When considering methyl bromide for quarantine and pre-shipment uses or exempted uses, the co-chair noted that while global consumption had remained generally stable in the past decade, consumption in non-Article 5 parties had decreased while that of Article 5 parties showed an increasing trend. She further noted that reporting under decision XXIII/5 showed that many countries had good records for the major quarantine and pre-shipment uses and that amounts of methyl bromide were consistent from year to year, providing scope for more in-depth analysis of where alternatives for quarantine and pre-shipment uses could be implemented.

11. In closing, Ms. Pizano referred to decision XV/12, exempting uses of methyl bromide for high-moisture dates. She said that MBTOC had reported on feasible alternatives for that use, both chemical and non-chemical, and that with this in mind, parties might now wish to take action as set out in that decision.

12. Mr Ian Porter, MBTOC co-chair, provided a summary of the interim recommendations made by that body on critical use nominations for methyl bromide. He indicated that three non-Article 5 parties had submitted nominations for methyl bromide use in 2016 and that the uses for which the nominations were submitted continued to decline. In addition, four Article 5 parties had submitted their first nominations for methyl bromide use in 2015, but one (Malaysia) had withdrawn its nomination before the MBTOC meeting in March 2014. He then presented information on stocks of methyl bromide as submitted by non-Article 5 parties in accordance with decision IX/6, explaining that MBTOC did not adjust its critical-use recommendations to account for stocks.

13. He then provided details regarding the recommendations issued by the committee for each of the ten critical use nominations received in the current round: For 2016 use, two nominations had been received from the United States, for dry cure pork and strawberry fruit; and one each from Australia

and Canada for strawberry runners. For 2015 use, Argentina had submitted two nominations, one for tomato and pepper and one for strawberry fruit, China had submitted one, for protected and open field ginger production, and Mexico, one, for strawberry and raspberry runners. Referring to the United States strawberry fruit nomination, he noted that the party had indicated that the nomination would be the final nomination for the sector, which had been one of the most difficult with regard to the uptake of alternatives, due to regulatory constraints.

14. In closing his presentation, he some important issues related to the current round of critical use nominations. He said that requests from Article 5 Parties were for pre-plant soil sectors where target pathogens and the effectiveness of alternatives were similar to those in non-Article 5 parties, with the exception of China, where a very specific bacterial wilt was affecting ginger. He explained that difficult sectors in Article 5 parties were similar to those found in non-Article 5 parties, for example nursery sectors. Finally, he recalled that Article 5 parties seeking methyl bromide exemptions would need to submit accounting frameworks as set out in paragraph 9 (f) of decision Ex. 1/4.

B. Report by the Technology and Economic Assessment Panel on alternatives to ozone-depleting substances (decision XXV/5, subparagraphs 1 (a)–(c)) (agenda item 5 (a))

15. Mr. Paul Ashford, co-chair of the task force on decision XXV/5, introduced the presentation on the task force's interim report and drew attention to similarities and differences between the current report and the response to decision XXIV/7. Information was then given on the composition of the task force and the rationale behind the structure of the report. He then summarized foam-blowing agent alternatives to ozone-depleting substances. The basis for the business-as-usual demand scenario to 2030 was presented as well as graphs showing the business-as-usual projections for both Article 5 and non-Article 5 regions. The baseline included the projected impact of the F-gas regulation in the European Union but did not yet include other measures that were foreseen, but not yet implemented, in other non-Article 5 regions.

16. Mr. Roberto Peixoto, co-chair of the task force, provided information on the alternatives available to ozone-depleting substances in the refrigeration and air-conditioning sectors. He highlighted in particular those that would be effective, as well as those that would have limitations, at high ambient temperatures. As before, the assumptions for the business-as-usual scenario in the refrigeration and air-conditioning sector were presented and led to a comparison of refrigeration and air-conditioning and foam baselines for both Article 5 and non-Article 5 parties. The comparison revealed the dominance of the refrigeration and air-conditioning sector and the rapid growth anticipated in Article 5 regions.

17. Mr. Lambert Kuijpers, co-chair of the task force, gave an explanation of the assumptions behind two mitigation scenarios for the refrigeration and air-conditioning sector, which indicated the extent to which low-GWP alternatives could be expected to penetrate their respective markets. The resulting comparative curves showed that the growth of high-GWP alternatives in Article 5 parties could be stemmed by 2026 under the more aggressive of the two mitigation scenarios. Information was given on the potential range of costs for the implementation of the more aggressive scenario in both non-Article 5 and Article 5 parties and indicated a similar range of between \$1.08 billion and \$3.3 billion.

18. He then provided information on the assumptions behind the mitigation scenarios in the foams sector. He explained that the assessment of costs was more difficult in both Article 5 and non-Article 5 parties because of the wide range of enterprise sizes involved. In summarizing the findings, he noted that the cumulative climate savings to 2030 for the more moderate of the two mitigation scenarios would be approximately 3 billion tonnes CO₂-equivalent and 11 billion tonnes CO₂-equivalent for the more aggressive scenario.

19. Finally, he presented information on three further use sectors: medical, solvents and fire protection. The anticipated cumulative use of HFCs in metered-dose inhalers was expected to be 173,000 kilotonnes CO₂-equivalent through 2030 under a business-as-usual scenario. It was noted that there were economic impediments to switching to non-HFC alternatives, particularly for inhalers with the active ingredient salbutamol. By contrast, there was little use of HFCs in the sterilants sector.

20. Apart from a fluoroketone, the principal alternatives to ozone-depleting substances in the fire protection sector were HFCs. Their use pattern depended on the threat being managed as well as local regulations. There were particular challenges for installations at low ambient temperatures. In some instances inert gas systems could compete economically, which was an unexpected finding. However,

information on overall demand patterns and costs remained difficult to obtain because most such information was proprietary.

21. In the solvent sector, the difficulties in collecting data on use patterns were also explained, particularly with regard to the use of HCFC-141b as a solvent in Article 5 parties. Nonetheless, it was noted that hydrofluorolefin (HFO) and hydrochlorofluorolefin (HCFO) were emerging as alternatives to HCFCs and HFCs in their respective applications.

22. He concluded by noting the interim nature of the Panel's report and the opportunities that still existed to refine the Panel's assessments during the period leading up to the Twenty-Sixth Meeting of the Parties.

C. Report by the Scientific Assessment Panel on the main climate metrics (decision XXV/5, subparagraph 1 (d))

23. The Co-Chairs of the Scientific Assessment Panel (SAP), (Mr. Ayite-Lo Ajavon, Mr. John Pyle, Mr. Paul Newman and Mr. Ravishankara) gave a presentation on metrics for quantifying the influence of gases on the Earth's climate.

24. The presentation focused mainly on lifetime GWP and global temperature potential (GTP), providing background on those metrics. The presentation concluded with four summary points. First, there are a number of metrics for measuring climate change due to emissions of a substance; they include radiative forcing, GWP and global temperature (change) potential. Second, the GWP time horizon is not determined by science, and the 100-year horizon is the most commonly used. Third, the most commonly used metric to date is GWP based on the 100-year horizon. Fourth, there is a rough correspondence between GWP and GTP. A higher GWP implies a higher GTP. It was also noted that CO₂-equivalent emissions were calculated by using GWP or GTP and the quantity emitted. GWP and GTP values would be reported in the SAP 2014 assessment report, along with additional explanatory text on the basic foundations of radiative forcing, GWPs and GTPs.

D. Report of the Technology and Economic Assessment Panel on the 2015–2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol (decision XXV/8)

25. Ms. Shiqiu Zhang, co-chair of the replenishment task force, started the presentation. She elaborated on the mandate in decision XXV/8, which requested the Technology and Economic Assessment Panel to prepare a report on the appropriate level of the replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the triennium 2015–2017. She mentioned that the Panel had established a replenishment task force, that prior to the preparation of the report all Parties had been invited to provide their views to the task force via interviews and written submissions, and that, after thorough review, the report had been adopted by the Panel on 30 May 2014. Providing the names of the members of the task force, she highlighted paragraphs 2 (c), 2 (d) and 2 (f) of the decision, as well as paragraph 3 on additional resources needed to gradually avoid high-GWP alternatives, and paragraph 6 of decision XXV/8. She showed a slide with the total funding requirement for three trienniums in two cases. For the next triennium, the total funding requirement would be \$610 million for case 1 and \$490 million for case 2. The total funding requirement had been obtained by adding funding for HCFC consumption phase-out activities, including, first, existing commitments for stage I HCFC phase-out management plans obtained from Multilateral Fund secretariat data, second, estimated costs for new activities for stage II and later HCFC phase-out management plans developed by the task force, third, funding for production phase-out, and, fourth, funding for supporting activities. She also mentioned that costs were based on historical data from the Multilateral Fund secretariat and the assumption that current activity levels would be continued and that new commitments for all countries would be needed to achieve a 67.5 per cent reduction by 2025. She said that the funding required for low-volume consuming countries for the next stage of their HCFC phase-out management plans had been calculated on the same basis as their stage I management plans and had been calculated in such a manner that a first tranche for the next stage management plans for such countries would be disbursed in 2020. Many stage I HCFC phase-out management plans were foreseen for completion in 2015, although some countries that had committed to reductions greater than 10 per cent would complete theirs in later years. She concluded her part of the presentation by saying that a stage II HCFC phase-out management plan would enable countries to meet the 35 per cent HCFC phase-out obligation by 2020 and that funding was required for the difference between the 35 per cent reduction level and the phase-out already provided for in each stage I management plan.

26. Mr. Lambert Kuijpers, co-chair of the task force, elaborated on the two cases described in the task force report. He said that the phase-out to be addressed in a stage II HCFC phase-out management plan could be defined in two ways. One was via case 1, which was based on a “commitment-based” phase-out, where the agreement for each HCFC phase-out management plan included a table defining the level of HCFC phase-out to which the country had committed. Case 1 funding for stage II HCFC phase-out management plans addressed the difference between the phase-down or reduction committed to in the stage I management plan (expressed as a percentage) and the 35 per cent reduction level. The stage II HCFC phase-out management plan could also be defined via case 2, which was based on an “unfunded” phase-out. Case 2 funding for stage II HCFC phase-out management plans addressed the difference between the total of the phase-out in each subsector on which stage I funding was based and the 35 per cent reduction level. He said that for many non-low-volume-consuming Article 5 Parties the stage II HCFC phase-out management plans consumption to be addressed in case 2 was significantly lower than that to be addressed in case 1 because additional phase-out had been or was being funded in the stage I management plans. He said that all other funding components, including existing funding obligations, low-volume-consuming country requirements, production and supporting activities remained the same for both case 1 and case 2. In order to facilitate the analysis of consumption and the determination of cost effectiveness, countries were divided into four groups. Using Article 7 data, the baseline consumption of each country was determined in metric tonnes for each HCFC chemical consumed. For each non-low-volume-consuming country with a manufacturing sector, that is, countries in groups 1 and 2, the remaining amounts of each chemical, in tonnes, for which additional funding would be eligible in stage II HCFC phase-out management plans to meet the 35 per cent Protocol aggregate reduction target was calculated for funding case 1 and funding case 2. A spreadsheet analysis was conducted addressing each of the 57 countries in groups 1, 2 and 3, using key assumptions including eligible consumption as determined above and a sectoral combination of 50 per cent foam and 50 per cent refrigeration/air-conditioning (RAC), in metric tonnes, where there was sufficient consumption in each sector. Funding had been included for phase-out of reported consumption in pre-blended polyols in the first two trienniums (although not part of baseline consumption) and the HCFC phase-out management plans disbursement schedules applied were 45 per cent – 25 per cent – 25 per cent – 10 per cent over four years based on disbursement experience from approved stage I HCFC phase-out management plans. Cost effectiveness factors had been applied in the calculations for all countries in groups 1, 2 and 3 and for foam and RAC, cost effectiveness had been derived from the large number of approved projects; RAC had been further divided into manufacturing versus servicing (on-site installation) based on data obtained from the Multilateral Fund secretariat, resulting in three typical scenarios of consumption ratios for manufacturing and servicing, respectively: 60 per cent versus 40 per cent; 40 per cent versus 60 per cent; and 20 per cent versus 80 per cent. For the funding for production phase-out, production sector funding had been derived directly from subparagraph (e) (ii) of decision 69/28 and paragraph (b) of decision 70/26 of the Executive Committee regarding HCFC production facilities in China, and funding in the first triennium had been assessed according to the 2014 business plan of the Multilateral Fund. Amounts for subsequent triennia corresponded to equal amounts of \$ 21.874 million, including support costs, over a 14-year period starting in 2016. New guidelines had not yet been addressed and there had been no decision to date to include funding for swing plant projects or project preparation in business plans. Accordingly, no provision for funding for cessation of production in such plants had been incorporated in the estimates. He then showed the funding requirement for non-investment and supporting activities and the estimated total funding requirement for the triennium 2015–2017 and subsequent trienniums. For 2015–2017 the total funding requirement would be \$610 million for case 1 and \$490 million for case 2 and for the second triennium it would be \$551 million and \$486 million for case 1 and case 2, respectively.

27. He then elaborated on the funding profile. If funding for HCFC consumption in the first and second trienniums addressed the 2020 reduction target only (as referenced in paragraph 2 (d) of the task force terms of reference), if the first two trienniums were apportioned equally and if initial funding for stage III HCFC phase-out management plans were deferred until 2021, the funding required for 2015–2017 and 2018–2020 would each decrease by around \$90 million and the funding for the third triennium would exceed the funding for the second triennium by \$319 and \$ 408 million for cases 1 and 2, respectively.

28. Mr. Marco Gonzalez, member of the task force, elaborated on additional resources for gradually phasing out high-GWP alternatives. He said that, in order to determine an indicative amount for a gradual conversion to low-GWP alternatives to ozone-depleting substances, three elements had been considered. The first was funding for a second conversion to hydrocarbons for domestic and commercial refrigeration units and mobile air-conditioning equipment, which had already been converted to HFC-134a under the Multilateral Fund. For the refrigeration units, costs could be around \$40 million at \$6.4 per Kg. Production capacity of nearly 1 million mobile air-conditioning units had

also been converted. Using the same cost-efficiency value, the cost of second conversions for mobile air-conditioning equipment could be \$6.4 million. The total cost estimate for second conversions in refrigeration could therefore be around \$46.4 million, which was equivalent to some \$8 million per year (during two trienniums). The second element was increasing the funding available for the servicing sector from \$4.5/Kg to \$6.5/Kg, which, it had been thought, would assist with the management of refrigerants with varying levels of flammability and the requisite lubricants. Applying this increase to non-low-volume-consuming countries and low-volume-consuming countries would imply additional funding of about \$7 million per year. As a third element, the additional costs of HCFC phase-out management plans had been estimated for countries with air-conditioning manufacturing based on an assumption that all conversions would be to low-GWP refrigerants. Depending on the percentages of servicing and manufacturing in a given country, the average cost effectiveness could increase by about 25 per cent, to some \$9.81/Kg. The total cost to the Multilateral Fund would then be around \$8 million per year. In summarizing, he said that, in total, the additional funding for the three activities mentioned above would be about \$23 million per year over at least two trienniums, equivalent to some \$138 million. This would be a first indicative amount for gradually phasing out high-GWP alternatives to ozone-depleting substances. With this level of funding, consumption of about 10,000 tonnes of high-GWP alternatives could be avoided. In concluding, he noted that the task force had given careful consideration to the funding required for a gradual phase-down of all high-GWP alternatives, taking into account the report prepared by the Panel pursuant to decision XXV/5 and the following assumptions: first, the consumption of high-GWP substances for manufacturing products might be in excess of 180,000 tonnes per year (2014); second, cost effectiveness of \$6–18 per Kg. In addition, no consideration was given to multinational operations. He said that conversion of this manufacturing sector to low-GWP alternatives (over the time frame concerned) would require funding in the range of \$1.08 billion–3.24 billion.

E. Presentation on operational and organizational issues of the Technology and Economic Assessment Panel (decision XXV/6) (agenda item 8 (a))

29. Ms. Bella Marañon, Co-Chair of the Technology and Economic Assessment Panel, reported on the response to decision XXV/6, requesting the Panel to provide an update on its processes for the nomination of members to its technical options committees, its proposed configuration of the committees from 1 January 2015 (i.e., the combination or division of the existing committees, or maintaining the status quo thereof), and options, if considered appropriate, to streamline the Panel's annual technology updates to the parties. She noted that in the history of the Protocol the parties had changed little in the framework of the Protocol's assessment panels, including in particular the configuration of the Technology and Economic Assessment Panel and its technical options committees. That framework had served the parties well for over 25 years in the implementation of the Protocol. The technical options committees had inherent flexibility to adapt to parties' changing needs through the configuration of their memberships to achieve the expertise and balance required. She outlined the nomination process for technical options committee membership and the views of the various committees regarding their future configurations. For certain committees (CTOC, HTOC, MTOC and MBTOC), a reduced membership was likely from 1 January 2015, while the membership of FTOC and RTOC would probably remain constant over that period. Ms. Pizano, Co-Chair of the Technology and Economic Assessment Panel and MBTOC, then discussed the specific considerations relating to the future configuration of each committee. She also presented options for streamlining the Technology and Economic Assessment Panel annual technology updates to parties and provided information on the status of the reappointments of technical options committee members, which were to be completed in 2014 in accordance with decision XXIII/10.

F. Report by the Scientific Assessment Panel on newly observed ozone-depleting substances in the atmosphere (agenda item 11)

30. The Scientific Assessment Panel co-chairs gave a presentation on newly detected ozone-depleting substances in the atmosphere. A recent paper by Dr. Johannes Laube and colleagues discussed observations of four ozone-depleting substances that were controlled under Article 2F of the Montreal Protocol: CFC-112 (CFC12CFC12) – listed under Annex B; CFC-112a (CF2CICCC13) – listed under Annex B; CFC-113a (CF3CC13) – listed under Annex A; and HCFC-133a (CF3CH2C1) – listed under Annex C. CFC-112, CFC-112a, CFC-113a and HCFC-133a had been detected by an analysis of archived air flask samples and from air trapped in snow that had not yet become ice. All were ozone-depleting substances and greenhouse gases. Concentrations were currently quite small in comparison to levels of other ozone-depleting substances in the atmosphere. The compounds were not currently significant for ozone depletion or climate forcing and would probably not have an impact on ozone layer recovery, assuming that they did not increase to significant levels. CFC-112 and CFC-112a were

decreasing, while CFC-113a and HCFC-133a were increasing. The ozone-depletion potential and GWP of the chemicals were also described. Details on these gases would be found in the SAP 2014 scientific assessment report.

Annex IV

Report of the facilitators of the informal discussion on management of hydrofluorocarbons

Before starting the discussions the co-chairs clarified that the mandate provided by the Open-ended Working Group under agenda item 9 was to discuss the management of hydrofluorocarbons (HFCs) considering legal and technical aspects raised during previous discussions and the HFC management workshop with a view to developing options to address those aspects, including on clarity on the scope of the Montreal Protocol and the United Nations Framework Convention on Climate Change.

The results of the discussions would not be reflected in a conference room paper, but a summary of the discussions would be reported to the Working Group in plenary on the understanding that no decision would be taken at the current meeting.

In order to facilitate a structured discussion, the facilitators suggested the discussion of key questions identified by the facilitators, based on the outcomes of previous discussions and the workshop on HFC management held immediately prior to the current meeting.

Following discussion of one of the suggested questions, on possible steps for raising political will on a global agreement to manage HFCs by a global phase-down, it was suggested that this question be deleted from the list in order to prevent the impression that parties were divided along that line – which the facilitators had not intended to suggest – and that it would not be a good basis for starting the discussion.

It was agreed to remove the question from the list on the understanding that the issue might arise during the discussion. It was furthermore suggested that issues related to liability and finance could also be considered in the discussions on the various questions.

The group agreed to start the discussions based on the following questions, which were clearly divisive issues related to legal and technical aspects of HFC management:

- (a) How should concerns with regard to the mandate of the Montreal Protocol to manage HFCs be addressed in view of the provisions of the Vienna Convention?
- (b) What are steps that parties could take to clarify the linkages between the Montreal Protocol/Vienna Convention and the Kyoto Protocol/Framework Convention on Climate Change related to the management of HFCs?
- (c) How can issues related to the cost and availability of alternatives to HFCs be addressed, in particular in the air-conditioning sector and in regions with high ambient temperatures?
- (d) What can the parties do to address issues related to energy efficiency?
- (e) How can safety issues related to alternatives to HFCs, including in the servicing sector, be addressed?
- (f) How can issues related to international standards for the introduction of alternatives to HFCs be addressed?
- (g) How can issues related to technology transfer be addressed?
- (h) What scientific methods are available to assess climate impact when choosing alternatives?

In the discussion of the concerns raised with regard to the mandate of the Montreal Protocol to manage HFCs in view of the provisions of the Vienna Convention the following legal aspects and options were discussed:

- (a) One option suggested was to establish a list of party concerns with regard to whether the scope of the Montreal Protocol and the Vienna Convention would allow for the establishment of control measures for HFCs under the Montreal Protocol and to use that list as a basis for suggestions on how to address those concerns. Regarding this option, it was suggested that the creation of a list might limit the opportunity for parties to address all concerns that might need to be addressed;
- (b) Another option suggested was to request the Ozone Secretariat to compile the relevant provisions of the Montreal Protocol and the Vienna Convention as the basis for a text-based discussion

with a view to better understanding the legal texts relevant to the management of HFCs. Parties could also identify provisions that might prevent the management of HFCs to be addressed under the Montreal Protocol. It was also suggested that sufficient time be taken to better understand the legal implications;

(c) One view expressed was that in order to address HFCs under the Montreal Protocol, the Montreal Protocol and the Vienna Convention, including its title and its scope, should be amended to provide a legal basis for the management of HFCs under the Montreal Protocol. Another view expressed was that the legal basis and the rationale were provided in Article 2 of the Vienna Convention, since the management of HFCs would address environmental problems related to specific substances developed to replace ozone-depleting substances;

(d) Another option mentioned was the development of a new protocol on the management of HFCs;

On the question of what steps parties might wish to consider to clarify the linkages between the Montreal Protocol/Vienna Convention and the Kyoto Protocol/Framework Convention on Climate Change related to the management of HFCs, the following views and options were discussed:

(a) It was suggested that the proposals to phase down HFCs under the Montreal Protocol clarified the linkages between the ozone and climate treaty regimes and that HFCs would not be excluded from the scope of the climate regime. Furthermore it was suggested that parties might wish to consider the frequently-asked-question information documents provided on those issues;

(b) It was also suggested that the management of HFCs under the Montreal Protocol might not take advantage of principles applicable under the climate change regime, including on the principle of “common but differentiated responsibilities” and the principle of “respective capabilities”, or the flexibility provided under the climate regime, which allows for addressing a basket of gases;

(c) One suggestion made was that parties were committed to the requirements of both the climate and ozone regimes and that it would therefore be desirable to have confirmation from the climate regime. It was also suggested that it might be more challenging to have a robust discussion on the management of HFCs under the climate regime considering the complexity of the issues addressed under that regime;

(d) Another suggestion was that parties could consider options for increasing synergies and strengthening complementarity of the climate and ozone regimes. Options suggested were to organize a joint meeting between the two regimes to address the legal issues related to the management of HFCs, as well as to request the Ozone Secretariat and the climate change secretariat to provide a legal opinion on the legal aspects of phasing down HFCs under the Montreal Protocol, as well as on issues related to funding mechanisms and flexibility;

(e) It was also suggested that complementary measures aimed at the phase-down of HFCs could be taken under the ozone regime by using low-GWP alternatives to replace HCFCs. A study could be undertaken to assess HFCs being phased in as alternatives to ozone-depleting substances, and HFC uses not related to implementation of the Montreal Protocol could be considered separately;

On the technical aspects of the whole range of questions related to the availability, cost, energy efficiency and safety of alternatives to HFCs, the following was discussed:

(a) Specific challenges for countries, especially those in regions with high ambient temperatures, with regard to a lack of alternatives to HFCs that were commercially available and had been tested under relevant circumstances, in particular in the air-conditioning sector. It was suggested that it was necessary to define what was to be understood by the “commercial availability” of alternatives to HFCs;

(b) One suggestion was to consider whether to continue to work with the Technology and Economic Assessment Panel to regularly update information on the cost and availability of alternatives and to address specific questions related to the full range of types of fluorinated and non-fluorinated alternatives, including on cost, suitability and energy efficiency;

(c) Another suggestion was that challenges with regard to the availability of alternatives could be met by designing a phase-down schedule with comprehensive baselines and timelines that could be adjusted taking into account technical possibilities, and different schedules for Article 5 parties and non-Article 5 parties with the aim of providing enough time for parties to find suitable alternatives;

(d) It was suggested that the parties should consider how the right signal could be provided to industry to prompt it to develop and commercialize alternatives that were suitable to address the

specific needs in different sectors, including in regions with high ambient temperatures, and to provide sufficient time for the development of suitable and sustainable alternatives;

(e) It was also suggested that the parties should consider providing a signal to industry on what alternatives were to be understood to be low-GWP alternatives or how to provide flexibility to industry to enable the development of appropriate alternatives for each sector or application using an overall phase-down approach;

(f) Another suggestion was that the parties should consider options for how the Executive Committee of the Multilateral Fund could address sectors in which alternatives were available under the existing regime of the Montreal Protocol;

(g) It was also suggested that the parties should consider options for resolving issues related to investment costs and energy efficiency;

(h) Another suggestion was for the development of a road map to assist the parties in finding concrete solutions to issues related to the availability of suitable alternatives to HFCs.

Related to the question of how issues related to international standards for the introduction of alternatives to HFCs might be addressed, it was suggested that parties as well as industry stakeholders might wish to consider using the compendium of rules and regulations that had been compiled by UNEP to address some of the issues.

In view of the time allotted for the discussion at the current meeting, time did not allow the parties to address some questions on matters such as options for addressing technology transfer and the scientific methods available for assessing climate impact when choosing alternatives.

In concluding, the facilitators mentioned that the parties might wish to consider continuing discussions during the next meetings based on the options proposed and discussed during the current meeting, such as:

(a) Requesting the Secretariat to compile information related to the scope of the Vienna Convention and the Montreal Protocol relevant to the management of HFCs under the Protocol;

(b) Discussing appropriate steps for addressing the linkages between the Framework Convention on Climate Change/Kyoto Protocol and the Vienna Convention/Montreal Protocol;

(c) Requesting the Technology and Economic Assessment Panel to update the information on the cost and availability of alternatives, addressing all relevant elements such as commercial availability, performance and environmental impact in a comprehensive manner;

(d) Discussing the options identified for providing the right signals to the industry to prompt the development of alternatives that suit the needs of different sectors and different countries;

(e) Discussing options for how sectors in which alternatives are already available might be addressed first.

It was understood that the above suggestions of areas for further discussion would not preempt any way forward that the parties might wish to consider at future meetings.
