

**Montreal Protocol
on Substances that
Deplete the Ozone Layer**

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**Thirty-Fifth Meeting of the Parties to
the Montreal Protocol on Substances
that Deplete the Ozone Layer**
Nairobi, 23–27 October 2023

**Report of the Thirty-Fifth Meeting of the Parties to the
Montreal Protocol on Substances that Deplete the Ozone Layer****Introduction**

1. The Thirty-Fifth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer was held at the headquarters of the United Nations Environment Programme in Nairobi from 23 to 27 October 2023.

Part one: preparatory segment (23–25 October 2023)**I. Opening of the preparatory segment**

2. The preparatory segment was opened by its Co-Chairs, Ralph Brieskorn (Kingdom of the Netherlands) and Vidémé Amèh Djossou (Togo), at 10.10 a.m. on Monday, 23 October 2023.

**Statement by a representative of the United Nations Environment
Programme**

3. Megumi Seki, Executive Secretary of the Ozone Secretariat, welcomed participants to the first meeting of the parties in over 20 years to take place at the home of the United Nations Environment Programme. She began by congratulating all participants for making the workshop on energy efficiency, held on the previous day, such a great success. A crowded but rich agenda lay before the participants at the current meeting, reflecting the hard work of the assessment panels, which had presented their quadrennial assessment to the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer at its forty-fifth meeting in Bangkok, in July 2023. The robust nature of the assessments, and the identification of new and emerging issues, were the epitome of science-based policymaking and contributed to the work of many forums that helped to formulate policy on environmental issues. Important items on the agenda included the replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the triennium 2024–2026, the terms of reference for the 2026 quadrennial assessment, the adjustment proposal on the hydrofluorocarbon (HFC) baselines of certain parties operating under paragraph 1 of Article 5 of the Montreal Protocol (Article 5 parties) affected by the coronavirus disease (COVID-19) pandemic, combating the dumping of inefficient cooling equipment, minimizing emissions of ozone-depleting substances from feedstock uses, abating the emissions of carbon tetrachloride, and energy efficiency. Dealing with the heavy workload would require the spirit of collaboration that characterized the Montreal Protocol, as well as a willingness to compromise and prioritize issues of particular urgency.

4. Looking beyond the present meeting, she said that the work of the Montreal Protocol was evolving. The climate mitigation contribution of the Protocol, including through the implementation of the Kigali Amendment, was increasingly recognized, and was reflected in the Protocol's work on improving energy efficiency, phasing down HFCs, and increasing access to sustainable cooling. As part of those initiatives, the Ozone Secretariat, along with 14 partners, was hosting a pavilion at the twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change to be held in the United Arab Emirates from 30 November to 12 December 2023. In closing, Ms. Seki paid tribute to Paul Newman and John Pyle, who were retiring as co-chairs of the Scientific Assessment Panel, for their long-standing contribution to the scientific work of the Montreal Protocol.

5. Mr. Newman and Mr. Pyle made brief valedictory statements, and the representatives of the United States of America and the United Kingdom of Great Britain and Northern Ireland delivered statements of appreciation for their work.

II. Organizational matters

A. Attendance

6. The following parties to the Montreal Protocol were represented: Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Barbados, Belarus, Belgium, Belize, Benin, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, Czechia, Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Eswatini, Ethiopia, European Union, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Holy See, Honduras, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Jordan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Montenegro, Mozambique, Myanmar, Namibia, Netherlands (Kingdom of the), New Zealand, Nigeria, North Macedonia, Norway, Oman, Palau, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Russian Federation, Rwanda, Saint Lucia, Samoa, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Solomon Islands, Somalia, South Africa, South Sudan, Spain, Sri Lanka, State of Palestine, Sudan, Sweden, Switzerland, Syrian Arab Republic, Thailand, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Türkiye, Tuvalu, Uganda, Ukraine, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Venezuela (Bolivarian Republic of), Viet Nam, Yemen, Zambia, Zimbabwe.

7. The following United Nations bodies and specialized agencies were represented: secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol, United Nations Development Programme, UNEP, United Nations Industrial Development Organization, World Bank. The Montreal Protocol assessment panels were also represented.

8. The following intergovernmental, non-governmental, industry, academic and other bodies were also represented: A-Gas Americas; A-Gas (Australia) Pty Limited; AGC Chemicals; Air-Conditioning Heating and Refrigeration Institute; Alliance for an Energy Efficient Economy (AEEE); Alliance for Responsible Atmospheric Policy; Association des Distributeurs, Conditionneurs, Récupérateurs & Retraiteurs de Réfrigérants (ADC3R); ATMosphere; Brazilian Association of Refrigeration, Air Conditioning, Ventilation and Heating; Centre for Environment Planning and Technology (CEPT) University; Clean Cooling Collaborative; Children and Youth Major Group (CYMG); Cold Chain Innovation Hub; Collaborative Labeling and Appliance Standards Programme (CLASP); Colombian Association of Air Conditioning and Refrigeration; Council on Energy, Environment and Water; Daikin; Danfoss A/S (Denmark); Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.; Energy Saving Trust; Environmental and Industrial Solutions Co.; Environmental Investigation Agency (EIA); European Industry Association (EUROVENT); Glencoe Strategies, LLC.; Global Policy Associates; Guidehouse Germany GmbH.; Gujarat Fluorochemicals Limited; Haier (Shanghai) Home Appliance R&D Centre Co. Ltd.; Hudson Technologies; iFOREST; Industrial Technology Research Institute; Institute for Energy and Climate Strategies (IECS); Institute for Governance and Sustainable Development (IGSD); International Energy Agency; International Institute of Refrigeration (IIR); LAB University of Applied Sciences; Lawrence Berkeley National Laboratory; Manitoba Ozone Protection Industry Association (MOPIA); MEBROM Corporation; Natural Resources Defense Council; NewClimate Institute; Ökorecherche; Overseas Environmental

Cooperation Centre; Pórtan/Nuova Service; Refrigerant Reclaim Australia; Refrigerants Australia; SilverLining; SRF Ltd.; The Aerospace Corporation; The Energy and Resources Institute (TERI); The Japan Refrigeration and Air Conditioning Industry Association; Tradewater; Trane Technologies; Union of Associations of African Actors in Refrigeration and Air Conditioning (U-3ARC); Wageningen University; Yale Carbon Containment Lab.

B. Adoption of the agenda of the preparatory segment

9. The following agenda for the preparatory segment was adopted on the basis of the provisional agenda set out in document UNEP/OzL.Pro.35/1, as orally amended:

1. Opening of the preparatory segment:
Statement by a representative of the United Nations Environment Programme.
2. Organizational matters:
 - (a) Adoption of the agenda of the preparatory segment;
 - (b) Organization of work.
3. Administrative matters:
 - (a) Budget of the Trust Fund for the Montreal Protocol and financial reports;
 - (b) Consideration of the membership of Montreal Protocol bodies for 2024:
 - (i) Members of the Implementation Committee;
 - (ii) Members of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol;
 - (iii) Co-chairs of the Open-ended Working Group.
4. Replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the triennium 2024–2026:
 - (a) Supplementary report of the Technology and Economic Assessment Panel replenishment task force;
 - (b) Extension of the fixed-exchange-rate mechanism for the triennium 2024–2026.
5. Potential areas of focus for the 2026 quadrennial reports, including the issue of synchronization with reports on alternatives to hydrofluorocarbons under decision XXVIII/2.
6. Stratospheric aerosol injection and protection of the ozone layer.
7. Destruction technologies.
8. Very short-lived substances, including dichloromethane.
9. Hydrofluorocarbon-23 (HFC-23) issues:
 - (a) Strengthening institutional processes with respect to information on HFC-23 by-product emissions: report by the Technology and Economic Assessment Panel (decision XXXIV/7);
 - (b) Emissions of HFC-23.
10. Potential impacts of the coronavirus disease (COVID-19) pandemic on hydrofluorocarbon consumption for Group 1 parties operating under paragraph 1 of Article 5: proposed adjustments to the Montreal Protocol (UNEP/OzL.Pro.35/7).
11. Energy-efficient and low- or zero-global-warming-potential technologies: outcomes of the workshop on energy efficiency (decision XXXIV/3, para. 4 (a)).
12. Shared responsibility to stop dumping of inefficient equipment containing obsolete refrigerants (decision XXXIV/4).
13. Abating emissions of carbon tetrachloride (decision XXXIV/6).
14. Issues related to “exempted” uses under the Montreal Protocol:
 - (a) Nomination for critical-use exemptions for methyl bromide for 2024;

- (b) Feedstock uses;
 - (c) Quarantine and pre-shipment uses of methyl bromide for which alternatives are available (decision XXXIV/10, para. 4).
15. Future availability of halons and their alternatives.
 16. Refrigerant life cycle management.
 17. Strengthening Montreal Protocol institutions, including for combating illegal trade (decision XXXIV/8).
 18. Identification of gaps in the global coverage of atmospheric monitoring of controlled substances and options for enhancing such monitoring (decisions XXXIII/4 and XXXIV/5).
 19. Existing challenges and potential options for the future configuration and function of the Technology and Economic Assessment Panel's technical options committees (decision XXXIV/11, para. 1).
 20. Consideration of nominations by parties of experts to the Scientific Assessment Panel, the Technology and Economic Assessment Panel and the Environmental Effects Assessment Panel.
 21. Compliance and data reporting issues: the work and recommendations of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol.
 22. [Reclassification of developing countries.]¹
 23. Status of ratification of the Kigali Amendment to the Montreal Protocol.
 24. Other matters.
10. For agenda item 20, the parties agreed to amend the item to include consideration of the nominations of experts to the Environmental Effects Assessment Panel as well as the Scientific Assessment Panel and the Technology and Economic Assessment Panel.
11. Under agenda item 24, "Other matters", the parties agreed to consider the issue of the length of meetings of the parties, particularly whether the usual allocation of five days to a meeting was sufficient to cover the current heavy workload of the Montreal Protocol.
12. There was considerable discussion on the inclusion on the agenda of item 22, "Reclassification of developing countries", which would include consideration of a draft decision proposed by the United States on the reclassification of developing-country status for China.
13. The representative of China, opposing the inclusion of the item in the agenda, said that adjusting the status of parties to the Montreal Protocol was a major policy issue, and submission for inclusion in the agenda of the present meeting of a proposal to reclassify a party without consultation with other parties was procedurally incorrect. A list of developing countries, including China, had been identified at the First Meeting of the Parties to the Montreal Protocol, and in decision IV/7, the Fourth Meeting of the Parties had noted that the Open-ended Working Group had recommended that "no criteria for future classification as a developing country for the purpose of the Montreal Protocol be adopted by the Meeting of the Parties and that the Parties should consider individually applications by Parties for classification as developing countries as and when such applications are made". In accordance with that decision, subsequent proposed changes in developing-country status under the Protocol had all been submitted by the parties concerned, and there was no precedent for one party seeking to change the status of another under the Protocol. The proposal by the United States was therefore inconsistent with previous practice and violated the principle of State sovereignty. Further, it undermined the usual practice of cooperation and mutual trust that characterized the Meeting of the Parties to the Montreal Protocol, and was not conducive to the future development of the Protocol and the common interests of all parties. At a time when developing countries were facing multiple challenging tasks, including phasing out hydrochlorofluorocarbons (HCFCs) and phasing down HFCs, any disruption to the pace and arrangements for implementing the Protocol could have serious implications for the efforts of those countries to comply with their obligations under the Protocol.

¹ The inclusion of item 22 on the present agenda is a pending issue, and is bracketed for further informal consultation on the margins of the Meeting of the Parties.

14. The representative of the United States said that agenda item 22 had been included in a manner consistent with the rules of procedure for meetings of the Conference of the Parties to the Vienna Convention and meetings of the parties to the Montreal Protocol. Specifically, the procedure followed had been consistent with rule 9, which stated that “[t]he provisional agenda of each ordinary meeting shall include ... [a]ny item proposed by a Party before the agenda is circulated”, and rule 10, which stated that “[t]he provisional agenda ... for each ordinary meeting shall be distributed by the Secretariat to the Parties at least two months before the opening of the meeting”. Removing an item from the agenda because one or more parties disagreed with its substantive content, while all the requirements of the rules of procedure had been satisfied, would set an unfortunate precedent. He noted that parties had normally found a way to discuss issues put forward in accordance with the rules of procedure, even when those issues had been controversial, and the current attempts to prevent such a discussion were inconsistent with that practice.

15. With regard to decision IV/7, he said that the proposal under agenda item 22 was consistent with the requirement of that decision that classification applications should be considered on a case-by-case basis, and indeed precedents existed whereby meetings of the parties had taken decisions that had altered the classification of parties. He stressed that the present proposal was not political, but reflected the significant changes in the economic status of China since the classification of the parties at the First Meeting of the Parties, including that China had become the second largest economy in the world, was currently the largest producer and consumer of controlled substances, and had world-leading companies in relevant sectors that used controlled substances. The matter merited consideration and discussion, and warranted inclusion on the agenda without any prejudice to outcome.

16. During further discussion, multiple parties supported the removal of item 22 from the agenda. They noted that the consideration of such a proposal would set an unfortunate precedent; would have a negative impact on the proper execution of the important tasks that the Montreal Protocol had ahead of it; would compromise the trust and mutual understanding on which the effective functioning of the Protocol was based; violated State sovereignty; and fell outside the remit of the Meeting of the Parties. One representative noted that the proposal was not targeted solely at China, but at the developing countries as a whole, many other developing countries would be faced with the challenge of being removed from the list of developing countries in the future. One representative, citing examples from previous meetings of the parties, noted that no precedent existed for the reclassification of a State arising from the initiative of another State. In addition, while decision IV/7 of the Fourth Meeting of the Parties established the procedure for granting the status of a developing country, it did not provide a procedure for reclassifying developing countries to developed countries.

17. Several parties supported the retention of item 22, on the reclassification of developing countries, in the agenda. Those parties noted that the submission had been made in accordance with the rules of procedure, and reflected the historical readiness of parties to the Montreal Protocol to discuss difficult issues in a bid to reach consensus, which was one of the reasons why the Protocol was often considered the most successful environmental treaty. One representative said that the agenda for meetings of the parties should, in principle, include all the issues that parties wished to discuss that fell within the mandate of the Protocol, whether individual parties agreed or not with the substance of what was being proposed. In addition, the lack of precedent was not in itself a valid rationale for blocking the inclusion of the present item; rather, blocking the consideration of an item that other parties wanted to discuss would set a poor precedent. Another representative noted that economic standings had changed significantly in the 30 years since the establishment of the Multilateral Fund, and said that the parties should be open to such a discussion.

18. The representative of China responded to issues raised. She said that while the United States had a right to propose the inclusion of the item on the agenda, China had the right to oppose its inclusion. Given its destructive impact on the long tradition of mutual trust and respect under the Protocol and on the future development of the instrument, the proposal of the United States constituted an abuse of its procedural right. The identification of developing countries under the Montreal Protocol was based on historical responsibility. When the Montreal Protocol was concluded, the rights and obligations of developed and developing countries were reasonably determined in accordance with the principle of common but differentiated responsibilities. In practical terms, historical data indicated that the emissions of developing countries, including China, whether measured in total or per capita, were far smaller than those of developed countries, and developed countries should therefore bear the main historical responsibility for the depletion of the ozone layer. It was not proper to define the status of a developing country solely on the basis of a few economic indicators, but rather it should be on the basis of a wide range of realities. In summary, a range of data indicated that a large gap still existed between China and the developed countries, and China remained a developing country. The proposal by the United States therefore held no merit and should not be included in the agenda.

19. Following the exchange of views, the Co-Chair proposed that the agenda be adopted with item 22 in square brackets and with a footnote stating “the inclusion of item 22 on this agenda is a pending issue, and bracketed for further informal consultation on the margins of MOP”. The Executive Secretary clarified that any future recurrence of the current situation should be considered on a case-by-case basis.

20. The parties agreed to the proposal of the Co-Chair.

C. Organization of work

21. The parties agreed to follow their customary procedure and to establish contact groups as necessary.

III. Administrative matters

A. Budget of the Trust Fund for the Montreal Protocol and financial reports

22. Introducing the item, the Co-Chair drew attention to the background information set out in paragraphs 10 to 16 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2), notes by the Secretariat on the proposed budgets for 2024 and 2025 of the Trust Fund for the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.35/4 and UNEP/OzL.Pro.35/4/Corr.1) and on the financial report for the trust funds for the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer for the fiscal year 2022 (UNEP/OzL.Pro.35/5), and notes by the Secretariat entitled “Approved budget for 2024 of the trust fund for the Vienna Convention for the Protection of Ozone Layer and proposed budgets for 2024 of the trust fund for the Montreal Protocol on Substances that Deplete the Ozone Layer: fact sheets” (UNEP/OzL.Pro.35/INF/1) and “Trust funds for the Vienna Convention for the Protection of the Ozone Layer and for the Montreal Protocol on Substances that Deplete the Ozone Layer: updated indicative financial report for the fiscal year 2023 as at 30 September 2023” (UNEP/OzL.Pro.35/INF/2). A draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[AA]).

23. In addition, the presentation made by the Secretariat during an online briefing on the budget and the financial reports held on 10 October 2023 was available on the meeting portal.

24. The parties agreed to follow their standard practice and establish a budget committee to review the proposed budget for the Montreal Protocol trust fund and the financial reports for the Vienna Convention and Montreal Protocol trust funds and to prepare a draft decision on financial matters for the Protocol. It was decided that the committee’s work would be facilitated by Sebastian Schnatz (Germany).

25. Subsequently, Mr. Schnatz reported that the budget committee had been able to complete its work and had produced a draft decision and budget for consideration by the parties. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

B. Consideration of the membership of Montreal Protocol bodies for 2024

1. Members of the Implementation Committee

26. Introducing the sub-item, the Co-Chair said that the parties needed to decide on the membership of the Implementation Committee for 2024. Information on the positions to be filled was presented in paragraphs 17 to 20 of document UNEP/OzL.Pro.35/2 and a draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[DD]).

27. Subsequently, the representative of the Secretariat reported that, upon receipt of the nominations from the regional groups, a draft decision on the matter had been included in the compilation of decisions for the parties’ consideration and possible adoption during the high-level segment.

2. Members of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

28. Introducing the sub-item, the Co-Chair said that the parties needed to decide on the membership of the Executive Committee of the Multilateral Fund for 2024. Information on the

positions to be filled was presented in paragraphs 21 to 24 of document UNEP/OzL.Pro.35/2 and a draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[EE]).

29. Subsequently, the representative of the Secretariat reported that, upon receipt of the nominations from the regional groups, a draft decision on the matter had been included in the compilation of decisions for the parties' consideration and possible adoption during the high-level segment.

3. Co-chairs of the Open-ended Working Group

30. Introducing the sub-item, the Co-Chair said that the parties needed to decide on the co-chairs of the Open-ended Working Group for 2024. Information on the positions to be filled was presented in paragraphs 25 and 26 of document UNEP/OzL.Pro.35/2 and a draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[FF]).

31. Subsequently, the representative of the Secretariat reported that, upon receipt of the names of the nominations from the groups of Article 5 and parties not operating under paragraph 1 of Article 5 (non-Article 5 parties), a draft decision on the matter had been included in the compilation of decisions for the parties' consideration and possible adoption during the high-level segment.

4. Discussion

32. Subsequently, one representative, supported by another, voiced concern that his delegation, representing a party from Central Asia, had been excluded from participating in the work of the Bureau as a representative for Central Europe. He stressed that Central Asia had always been part of the work carried out by the group of countries of Central Europe and the Caucasus, and requested an explanation from the Secretariat on the matter.

33. The representative of the Secretariat explained that with respect to nominations for the various Montreal Protocol bodies, the regions referred to were the five regions recognized by the United Nations. In the case of the Executive Committee of the Multilateral Fund, there was a rotating seat for Article 5 parties that every few years was assigned to Eastern Europe and Central Asia. She also offered to provide additional clarifications on a bilateral basis as needed.

34. Following consultations with the Secretariat, the Co-Chair informed the parties that the question was a legal and procedural one, that the matter could not be decided at the preparatory segment, and should be further considered during the high-level segment.

IV. Replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the triennium 2024–2026

A. Supplementary report of the Technology and Economic Assessment Panel replenishment task force

35. Introducing the sub-item, the Co-Chair recalled that at the forty-fifth meeting of the Open-ended Working Group, the Technology and Economic Assessment Panel's replenishment task force had presented its report of May 2023 on the funding requirement for the replenishment of the Multilateral Fund for the triennium 2024–2026, and a contact group had agreed on a list of issues for the replenishment task force to consider in a supplementary report to be prepared for consideration by the Thirty-Fifth Meeting of the Parties. Volume 7 of the 2023 report of the Technology and Economic Assessment Panel, issued in September, containing the supplementary report prepared by the replenishment task force, was available on the meeting website. The Co-Chair also drew attention to the relevant information set out in paragraphs 27 and 28 of, and annex I to, the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2), and to paragraphs 4 to 10 of, and annex I to, the addendum of that note (UNEP/OzL.Pro.35/2/Add.1). Further information was set out in paragraphs 142 to 164 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (UNEP/OzL.Pro.WG.1/45/8), and a draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[BB]).

36. The main findings of the supplementary report were presented by Suely Carvalho and Shiqiu Zhang, co-chairs of the replenishment task force of the Technology and Economic Assessment Panel, as well as by task force members Omar Abdelaziz and Bassam Elassaad. A summary of the presentation is set out in section A of annex I to the present report.

37. During the brief discussion that ensued, representatives thanked the replenishment task force for its work, including in preparing the supplementary report. Many of those who spoke highlighted the importance of the triennium 2024–2026, which would span the start of the HFC phase-down and the deadline for a 67.5 per cent reduction in baseline HCFC consumption.

38. Several representatives, including one speaking on behalf of a group of countries, expressed confidence that the replenishment would provide sufficient funding to enable Article 5 parties to comply with their commitments. A number of representatives were of the view that the higher end of the task force's estimate of funding needs represented the most appropriate level of funding. The representative speaking on behalf of a group of countries highlighted the importance of ensuring efficient use of contributions during the coming triennium, and some called for a focus on activities that maximized climate benefit, with one encouraging parties to take early action and invest in energy efficiency improvements when making the needed transitions.

39. A number of representatives, one speaking on behalf of a group of countries, while expressing appreciation for the task force's work, voiced a number of concerns. The representative speaking on behalf of a group of countries said that the task force did not appear to have explored all the options proposed by parties to enable compliance by Article 5 parties while ensuring the cost-effective use of funds, and he sought an opportunity to gain a better understanding of the assessment. The other representative said that the financial solutions agreed in decision XXVIII/2 should be considered when discussing the replenishment. Noting the task force's inconsistent approach to discounting, she called for a more realistic assessment that took into consideration the challenges faced by parties in the wake of the COVID-19 pandemic, and a broader approach to compliance based on long-term impact and avoidance of dependence on HFC-based technologies. Her other concerns included the significant change in estimations related to HFC activities between the May and September 2023 reports, the assumptions used in assessing funding needs related to energy efficiency and the way that funding needs for installation and assembly in various applications had been addressed, particularly for small and medium-sized enterprises.

40. One representative highlighted the need for careful estimation of the cost of managing end-of-life equipment and banks of ozone-depleting substances, which he flagged as a particularly difficult issue for Article 5 parties. Another recommended creating additional funding windows for pilot projects to enable a better understanding of Article 5 parties' needs, as well as a fast track for countries wishing to accelerate progress.

41. The parties agreed to establish a contact group, co-chaired by Alain Wilmart (Belgium) and Sergio Merino (Mexico), to discuss the level of replenishment for the triennium 2024–2026.

42. Subsequently, the co-chair of the contact group reported that the group had been able to reach agreement on replenishment of the Multilateral Fund for the period 2024–2026 and noted that, in that regard, a draft decision had been prepared, as set out in a conference paper.

43. The representative of the Russian Federation recalled that his country, also on behalf of Belarus, Kazakhstan, Tajikistan and Uzbekistan, had delivered a statement at the Twenty-Eighth Meeting of the Parties, in relation to the Kigali Amendment, to the effect that those parties, all of which had economies in transition, considered contributions to the Multilateral Fund for the management of HFCs to be voluntary in nature. Furthermore, he drew attention to the fact that difficulties faced by his country in terms of transferring contributions to the Multilateral Fund were a result of constraints imposed by the United States and other countries on international transfers of dollars from his country and were therefore beyond its control. Although the Russian Federation had paid its contributions to the Multilateral Fund in 2021, that had not proved possible in 2022 or 2023 owing to the sanctions in place. He therefore could not agree with the inclusion in the decision of a paragraph that included a reference to outstanding contributions from parties with economies in transition, as the voluntary nature of the contributions meant that any amounts could not be said to be "outstanding". In addition, he expressed the view that the deletion of the paragraph would have no impact on the other provisions of the draft decision. He underlined the fact that his country intended to pay its contributions for the period 2024–2026 as long as the contributions were considered voluntary.

44. The representative of the United States noted with concern the request to delete from the draft decision the reference to outstanding contributions from parties with economies in transition. He drew attention to the report on the status of contributions and disbursements presented to the Executive Committee at its ninety-second meeting (UNEP/OzL.Pro/ExCom/92/3), in which it was stated that, since the establishment of the Multilateral Fund, the Russian Federation had pledged \$170 million but underfunded that pledge by \$125 million. Although the difficulties faced by countries with economies in transition in relation to making contributions were understood, it was important for parties operating under Article 2 of the Protocol to provide sufficient support under the Multilateral Fund to Article 5

parties. It was also vital to ensure that all non-Article 5 parties contributed the amounts they had pledged so that no party was in a position of having to make up any shortfall from another party. Furthermore, in relation to the statement of the Russian Federation regarding the voluntary nature of contributions for the management of HFCs, he noted that only a negligible portion of the Multilateral Fund had been allocated to HFC management projects during the period 2021–2023.

45. In response to the statement of the representative of the United States, the representative of the Russian Federation recalled that, at the time of the establishment of the Multilateral Fund, the Soviet Union had stated its intention to contribute to the Fund in kind and not in cash. Furthermore, he recalled that his country had concluded an agreement in 2013, under which it had pledged to start paying its assessed contribution to the Fund in full, and had paid \$42.93 million during the period 2013–2020. The statement that his country was in arrears by \$125 million was therefore inaccurate.

46. A number of representatives, expressing their gratitude to the co-chairs of the contact group for their skilful guidance of the complex negotiations, said that it was particularly pleasing that the highest replenishment budget to date of the Multilateral Fund had been agreed, subject to the adoption of the draft decision. They would, therefore, request further time for discussion and consideration of the proposed deletion of the paragraph referring to outstanding contributions from parties with economies in transition.

47. One representative, welcoming the draft decision, noted that her country's budget for the Multilateral Fund was less than the amount agreed by parties but, noting that her country remained committed to the Fund, she stated her Government's intention to work with domestic budget processes to close the gap.

48. The parties agreed that informal discussions should be held between interested parties regarding the draft decision.

49. Subsequently, reporting back on the informal discussions, the co-chair of the contact group said that, thanks to a spirit of great compromise shown by several participants in the discussions, an amended version of the draft decision was proposed that did not include the paragraph on outstanding contributions from parties with economies in transition.

50. Many representatives, including one speaking on behalf of a group of countries, stating that they would not object to the draft decision being forwarded to the high-level segment as amended, nevertheless expressed significant disappointment that the paragraph on outstanding contributions from parties with economies in transition had been removed. Furthermore, they expressed deep disappointment that the Russian Federation had not raised its concerns regarding the wording on outstanding contributions from parties with economies in transition until the final plenary session, despite many earlier opportunities to do so and despite the wording having been used in previous such decisions. In addition, several representatives noted that the content of the paragraph had been purely factual. A number of representatives also drew attention to the fact that the issue of the arrears of the Russian Federation was a long-standing one.

51. The representative of the Russian Federation noted that, during the discussions, he had proposed that the paragraph be amended to reflect the total amount of outstanding contributions for all parties, rather than only for parties with economies in transition, as such information would be useful. In addition, he reiterated the inconsistency inherent in a party imposing illegal sanctions that prevented another party from paying its contributions and then proposing that a draft document draw attention to the contribution that the other party had not been able to pay.

52. Many representatives, including one speaking on behalf of a group of countries, expressed the view that the actions of the delegation of the Russian Federation had placed at risk the adoption of the decision on the replenishment of the Multilateral Fund, which was the most important decision taken by the Thirty-Fifth Meeting of the Parties and critical to the continued effective functioning of the Montreal Protocol and its Multilateral Fund. Furthermore, one representative said that it was important that the current situation did not set a precedent for any other multilateral environmental agreement.

53. The parties agreed to forward the draft decision, as orally amended, for further consideration and possible adoption during the high-level segment.

B. Extension of the fixed-exchange-rate mechanism for the triennium 2024–2026

54. The Co-Chair recalled that since the third replenishment of the Multilateral Fund, in 2002, the parties had provided for the use of a fixed-exchange-rate mechanism – or FERM – to help to facilitate the payment of contributions. He drew attention to a draft decision on the matter set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[CC]).

55. The parties agreed that the contact group established to discuss the replenishment would also consider the draft decision on the fixed-exchange-rate mechanism.

56. Subsequently, the Co-Chair reported that the contact group had reached agreement on a draft decision on extension of the fixed-exchange-rate mechanism to the 2024–2026 replenishment of the Multilateral Fund, for consideration by the parties. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

V. Potential areas of focus for the 2026 quadrennial reports, including the issue of synchronization with reports on alternatives to hydrofluorocarbons under decision XXVIII/2

57. In considering the item, the parties had before them paragraphs 32 to 38 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); section II of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[A] (UNEP/OzL.Pro.35/3); paragraphs 80 to 89 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8); and a note by the Secretariat on a synthesis of the 2022 assessment reports of the Scientific Assessment Panel, the Environmental Effects Assessment Panel and the Technology and Economic Assessment Panel (UNEP/OzL.Pro.35/8), as well as the assessment reports.

58. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the Scientific Assessment Panel, the Environmental Effects Assessment Panel, and the Technology and Economic Assessment Panel and its technical options committees had presented their quadrennial assessment reports. At the same meeting, parties had begun discussions on the terms of reference for the 2026 quadrennial assessment, including the identification of potential areas of focus for the panels, and had considered the possible alignment of future quadrennial reports with the reports of the Technology and Economic Assessment Panel decision XXVIII/2 working group on information on alternatives to HFCs. A contact group had been established to discuss a draft decision, set out in a conference room paper introduced by the representative of the European Union, on the potential areas of focus for the 2026 quadrennial reports of the panels and the issue of the synchronization of the quadrennial assessment reports of the panels with the report on alternatives to HFCs. As the contact group had been unable to complete its work owing to insufficient time, the Open-ended Working Group had decided to forward the draft decision, as set out in section II of document UNEP/OzL.Pro.35/3, to the present meeting, with the expectation that there would be a full discussion of the ideas and issues raised at the meeting of the Open-ended Working Group.

59. The parties agreed to establish a contact group, to be co-chaired by Leslie Smith (Grenada) and Cindy Newberg (United States), to discuss, on the basis of draft decision XXXV/[A], the potential areas of focus for the 2026 quadrennial reports of the assessment panels and the issue of the synchronization of the reports of the panels with the report on alternatives to HFCs.

60. Subsequently, the co-chair of the contact group reported that the group had reached agreement on a draft decision on potential areas of focus for the 2026 quadrennial reports of the Environmental Effects Assessment Panel, the Scientific Assessment Panel and the Technology and Economic Assessment Panel, for consideration by the parties. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

VI. Stratospheric aerosol injection and protection of the ozone layer

61. In considering the item, the parties had before them paragraphs 39 to 41 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); section II of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[B] (UNEP/OzL.Pro.35/3); and paragraphs 48 and 58 to 60 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

62. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had discussed stratospheric aerosol injection in relation to solar radiation management on the basis of the findings in the 2022 quadrennial assessment report of the Scientific Assessment Panel, which included the conclusion that the injection of stratospheric aerosols into the atmosphere to reduce

global warming would affect stratospheric ozone. Subsequently, the representative of Australia had introduced a conference room paper, co-sponsored by Canada, containing a draft decision on stratospheric aerosol injection and the protection of the ozone layer that the Open-ended Working Group had agreed to forward to the present meeting for further consideration. The draft decision was set out in section II of document UNEP/OzL.Pro.35/3.

63. In the ensuing discussion, one representative, supported by another representative, expressed the view that the focus of the Thirty-Fifth Meeting of the Parties should be on taking informed policy decisions to enable parties, in particular Group 1 Article 5 parties, to meet their compliance obligations in relation to the phase-out of HCFCs and phase-down of HFCs, and should not be introducing new elements that would place an additional burden on parties. Noting that concern, the representative of Australia recalled that the draft decision was directed at the global scientific community, including the Scientific Assessment Panel, thus the burden on parties was intended to be minimal. Another representative underlined the importance of ensuring that any decision on the matter focused exclusively on the elements of the topic that were within the mandate of the Montreal Protocol.

64. Some representatives said that more quantifiable scientific information was needed before stratospheric aerosol injection was considered further, in particular as it had been noted that there were substantial uncertainties regarding the effects of the process on stratospheric ozone and on the environment more broadly. The representative of Australia noted that the draft decision was, in fact, intended to enable the provision of such information from the scientific community and she therefore expressed a willingness to engage in informal discussions with the representatives concerned regarding the draft decision. A number of representatives, including one speaking on behalf of a group of parties, underlining the importance of science-based information being provided to parties on the topic of stratospheric aerosol injection, also expressed an interest in engaging in informal discussions on the matter. The parties therefore agreed to establish an informal group to discuss the draft decision further.

65. Subsequently, the representative of Australia reported that the informal group had reached agreement on a draft decision on stratospheric aerosol injection and protection of the ozone layer, for consideration by the parties.

66. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

VII. Destruction technologies

67. In considering the item, the parties had before them paragraphs 42 to 46 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); section II of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[C] (UNEP/OzL.Pro.35/3); and paragraphs 121 to 125 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

68. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had considered the recommendations of the Technology and Economic Assessment Panel and its Medical and Chemicals Technical Options Committee, contained in their 2022 quadrennial assessment reports, on possible updates to the current list, adopted by decision XXX/6, of approved destruction technologies. The discussion had been based on a draft decision on the issue, set out in a conference room paper and introduced by the representative of the European Union. After the discussion in plenary, informal discussions had been held in the margins of the meeting and the European Union had revised the text. The Open-ended Working Group had agreed to forward the revised draft decision to the present meeting for further consideration. The draft decision was set out in section II of document UNEP/OzL.Pro.35/3 (draft decision XXXV/[C]).

69. In the ensuing discussion, the representative of the European Union recalled that the draft decision was intended to be a technical document, clarifying the definition of destruction technologies and thereby assisting parties in their implementation of the Kigali Amendment. Several representatives supported the adoption of the draft decision in its current form, but, as one representative expressed the view that the impact of the destruction of aromatic hydrocarbons should be considered in relation to the draft decision, all the representatives who spoke expressed a willingness to engage in further informal discussions. The parties therefore agreed to establish an informal working group to discuss the draft decision.

70. Subsequently, the representative of the European Union reported that clarifications had been provided and there were no outstanding issues to be addressed in connection with the draft decision.
71. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

VIII. Very short-lived substances, including dichloromethane

72. In considering the item, the parties had before them paragraphs 47 to 51 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); section II of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[D] (UNEP/OzL.Pro.35/3); and paragraphs 105 to 120 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).
73. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the representative of Canada, speaking also on behalf of Australia, Switzerland and the United States, had introduced a draft decision on very short-lived substances, including dichloromethane, in the light of the finding of the Scientific Assessment Panel that very short-lived substances had a significant impact on ozone depletion. The issues and the proposal had been discussed in plenary and subsequently informally in the margins of the meeting and in an informal group. The informal group had discussed the issue in general rather than focusing on the text of the proposal. The Open-ended Working Group had agreed to forward the draft decision to the present meeting for further consideration. The draft decision was set out in section II of document UNEP/OzL.Pro.35/3 (draft decision XXXV/[D]).
74. Several representatives expressed concern regarding the draft decision on very short-lived substances, as the substances did not fall within the mandate of the Montreal Protocol. Some representatives noted that the very short life of the substances in fact made the calculation of their ozone-depleting potential particularly challenging and it was therefore more appropriate for a group of experts to consider the matter, with one representative suggesting that the Medical and Chemicals Technical Options Committee should be tasked with presenting information on any proven alternatives to dichloromethane and proposing measures for strengthening national systems and processes for minimizing emissions in its progress report. Another representative said that it was important to manage carefully the tasks assigned to the Technology and Economic Assessment Panel to ensure that the focus of its work remained the phase-out of HCFCs and phasedown of HFCs. Furthermore, she noted that some parties, such as her country, were choosing to introduce regulations to control certain very short-lived substances but she reiterated that the substances did not fall under the mandate of ozone units.
75. Several representatives, including one speaking on behalf of a group of parties, said that, although they agreed that the focus of work under the Montreal Protocol should be the phase-out of HCFCs and phasedown of HFCs, it was important that other issues that had an impact on the ozone layer were also considered by parties and noted that many such issues had already been considered by past meetings of the parties. Although the ozone-depleting potential (ODP) of very short-lived substances was small, the significant estimated annual consumption of those substances of 1.4 million ODP tonnes meant that it was important to gather information on them. It would therefore be useful for the Technology and Economic Assessment Panel to provide information on suitable alternatives. Furthermore, one representative, speaking on behalf of a group of parties, said that it was important to take measures to the extent possible to reduce the levels of emissions of the substances. Some representatives also reiterated that the draft decision was not intended to control very short-lived substances in any way but to encourage parties to reduce their use and emissions and to consider using alternatives to the extent possible.
76. All the representatives who spoke expressed willingness to discuss the matter further informally.
77. The parties therefore agreed to establish an informal group, to be co-facilitated by Liana Ghahramanyan (Armenia) and Jana Mašíčková (Czechia), to discuss the matter further.
78. Subsequently, the co-facilitator reported that the informal group had reached agreement on a draft decision on updated information on very short-lived substances, for consideration by the parties.
79. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

IX. Hydrofluorocarbon-23 (HFC-23) issues

A. Strengthening institutional processes with respect to information on HFC-23 by-product emissions: report by the Technology and Economic Assessment Panel (decision XXXIV/7)

80. Introducing the sub-item, the Co-Chair recalled that, in decision XXXIV/7, the parties had requested the Technology and Economic Assessment Panel to prepare a report for consideration by the Thirty-Fifth Meeting of the Parties that included information on the possible chemical pathways that might generate HFC-23 as a by-product; information on the amount of HFC-23 generation and emissions from relevant facilities; and best practices available to control those emissions. That report was contained in volume 6 of the 2023 report of the Technology and Economic Assessment Panel. The executive summary was set out in annex II to document UNEP/OzL.Pro.35/2/Add.1.

81. Jianjun Zhang, co-chair of the Medical and Chemicals Technical Options Committee, introduced Nick Campbell, also a member of the Technical Options Committee, who gave a presentation on the report by the Technology and Economic Assessment Panel in response to decision XXXIV/7 on strengthening institutional processes with respect to information on HFC-23 by-product emissions. A summary of the presentation is set out in section B of annex I to the present report.

82. In the ensuing discussion, all the representatives who took the floor expressed appreciation for the Panel's report and for the presentation. The report contained very useful information, particularly in terms of quantifying the HFC-23 by-product generated from various processes and in identifying gaps in the information available and where confidence in the estimates was low.

83. Following his presentation, Mr. Campbell responded to questions and comments by representatives. In response to a question about the uses of HFC-23, he said that the main uses were as a fire suppressant, a low-temperature refrigerant and in the electronic and electrical industry where it was used as an etchant and in chamber cleaning in the manufacture of semiconductors and electronics. He stressed that industrial processes were very well controlled by the operators, with detailed measurements and reporting being undertaken and the residues incinerated at the end of the process. That meant that emission levels were very low.

84. When asked what the issue of concern relating to emissions of HFC-23 by-product was, given that 90 per cent of HFC-23 by-product was destroyed by incineration, Mr. Campbell said that the concern was not the percentage of HFC-23 that was emitted but rather the overall quantities in relation to estimates. The Panel had calculated that HFC-23 generation was about 25,000 tonnes per year and reported emissions of HFC-23 were about 2,500 tonnes. The current measurements of HFC-23 in the atmosphere, however, which had been taken by the Scientific Assessment Panel were about 16,000 tonnes.

85. In response to a question about the percentage of HFC-23 left behind in the HCFC-22 products, Mr. Campbell said that producers of HCFC-22 had an interest in minimizing the content of any remaining by-product before sale for reasons of profit. Depending on the operation of the facility, the percentage of HFC-23 in the HCFC-22 at the end of the manufacturing process could be 1.5 to 4 per cent, but, after incineration of the HFC-23, the final HCFC-22 product would contain HFC-23 in quantities as small as parts per billion.

86. One representative raised several issues about which she requested further information or clarification. The issues related to the definition of emissions as the total HFC-23 emitted from a facility that generated HFC-23 as a by-product, after any abatement, with the dominant emission pathway being direct emissions to the atmosphere; what substances were being referred to in the figure of 3 to 4 per cent of estimated total global HFC-23 by-product generation that was attributed to the chemical pathways producing substances other than HFCs and HCFCs; HFC-23 by-product generation from HCFC-22 production, which had been stated to be in the range of 15,000 to 30,000 tonnes per year; the issue of formation and loss of HFC-23 during the production of tetrafluoroethylene and its implication for emissions of HFC-23; and the impact of the entry into force of the Kigali Amendment on the availability of data on HFC-23 by-product emissions. Mr. Campbell proposed that those questions be addressed bilaterally by himself and his colleagues. He thanked the Ozone Secretariat and the secretariat of the Multilateral Fund and the Executive Committee for the timely provision of information, including since the entry into force of the Kigali Amendment, which had been invaluable in producing the report. Responding to some of the issues raised by the same representative, Mr. Campbell clarified that the methodology used to estimate the global quantity of HFC-23 by-product generated per year as being 25,000 tonnes was included in the Panel's report and that, in

his view, it was a sound estimate as it was based on factory data relating to 1 million tonnes of HCFC-22 production.

87. Another representative asked Mr. Campbell about the Panel's general level of confidence in its estimates, including in relation to emissions of HFC-23 from the production of Annex F substances and of tetrafluoroethylene and hexafluoropropylene. He queried whether they could, in reality, be much greater than the higher end of the estimate and asked what was needed to improve the data. In response, Mr. Campbell said that Panel always provided emission estimates that were on the higher side to err on the side of caution. More information on tetrafluoroethylene and hexafluoropropylene production would certainly be welcome, as the estimates provided were based only on facilities that were willing to provide data. That was the reason for the uncertainty and hence a very wide range of 100 and 1,000 tonnes for the estimate of annual emissions of tetrafluoroethylene/hexafluoropropylene. Mr. Campbell also said that, in the report, the numbers in table 2.1, the reference table for the matrix of chemical pathways, for which the generation of HFC-23 by-product was estimated in figure 2.1, could give an idea of how to prioritize further work to provide data to fill some of the known gaps.

88. One representative called for a review of the current manufacturing processes that resulted in atmospheric emissions and the promotion of the use of catalysts and alternative substances. Mr. Campbell said that there were examples of best practices in the report, and the information could be refined in the Panel's progress report if parties were able to provide more detailed information on factory emissions.

89. Another representative drew attention to the discrepancy between estimated emissions and top-down measurements, which was estimated to be 15,000 tonnes. Presenting his calculation, he said that, when the global-warming potential of HFC-23 was applied to that amount, it resulted in around 220 million tonnes of carbon dioxide-equivalent. That represented about 40 per cent of the HFC baseline of non-Article 5 parties. It was important to ascertain the reasons for the huge discrepancy and to address it. The same representative highlighted the lack of data on HFC-23 by-product generation and expressed support for the recommendation made by Mr. Campbell in his presentation that parties consider measures to improve the data reported in relation to HFC-23 generation and emissions, including their accuracy and scope. He proposed that it be discussed for inclusion in the proposal that had been put forward by the United States and co-sponsored by Australia, Canada and Norway at the forty-fifth meeting of the Open-ended Working Group and was due to be discussed at the present meeting under sub-item 9 (b) on emissions of HFC-23.

B. Emissions of HFC-23

90. Introducing the sub-item, the Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had discussed the issue of unexplained emissions of HFC-23. The discussion had been based on the findings of the Scientific Assessment Panel in its 2022 quadrennial assessment report. According to the Panel, the global emissions of HFC-23 were as much as eight times larger than expected. The representative of the United States, speaking also on behalf of Australia, Canada and Norway, had introduced a draft decision to address unexplained emissions of HFC-23. The proposal had been discussed by the Working Group in plenary and in a contact group and had subsequently been forwarded to the present meeting for further consideration. The revised draft decision is set out in section II of document UNEP/OzL.Pro.35/3 as draft decision XXXV/[E].

91. In the ensuing discussion, several representatives, including one speaking on behalf of a group of countries proposed that the draft decision be reviewed on the light of the new information provided in the report by the Technology and Economic Assessment Panel in response to decision XXXIV/7 on strengthening institutional processes with respect to information on HFC-23 by-product emissions that had been presented under sub-item 9 (a).

92. Noting the proposed inclusion in the draft decision of an additional paragraph, at present in square brackets, referring to an emission limit for HFC-23, one representative recalled that no such limit had been set during the negotiation of the Kigali Amendment as it had not been possible to reach consensus. She underlined that different parties used different types of technology and equipment and had different levels of knowledge and reporting practices. It would take time for industry in Article 5 parties to upgrade its overall level of technical capacity. Setting a uniform HFC-23 emission limit for all parties was thus neither reasonable nor feasible.

93. The parties agreed to establish a contact group, to be co-chaired by Shontelle Wellington (Barbados) and Heidi Stockhaus (Germany), to further discuss the matter and produce a revised version of the draft decision for consideration by the parties.

94. Subsequently, the co-chair of the contact group reported that the contact group had reached agreement on a draft decision on emissions of HFC-23, for consideration by the parties.

95. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

X. Potential impacts of the coronavirus disease (COVID-19) pandemic on hydrofluorocarbon consumption for Group 1 parties operating under paragraph 1 of Article 5: proposed adjustments to the Montreal Protocol (UNEP/OzL.Pro.35/7)

96. In considering the item, the parties had before them paragraphs 59 to 61 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); a note by the Secretariat entitled "Proposed adjustment to the Montreal Protocol submitted by Cuba" (UNEP/OzL.Pro.35/7); paragraphs 291 to 298 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8); and a report by the Secretariat entitled "Potential impacts of the coronavirus disease (COVID-19) pandemic on hydrofluorocarbon consumption for Group 1 parties operating under paragraph 1 of Article 5: hydrofluorocarbons consumption data reported by relevant Group 1 parties operating under paragraph 1 of Article 5 (decision XXXIV/13, paras. 1 and 2)" (UNEP/OzL.Pro.WG.1/45/4/Rev.1).

97. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, parties had considered the proposed adjustment to the Montreal Protocol submitted by Cuba (UNEP/OzL.Pro.WG.1/45/7), and the report prepared by the Secretariat (UNEP/OzL.Pro.WG.1/45/4/Rev.1). Subsequently, a contact group had been established to consider the proposal by Cuba and other possible ways of addressing the impact of the COVID-19 pandemic on the HFC baselines of certain Article 5 parties. The contact group had made good progress, in particular in exchanging information, and the Open-ended Working Group had agreed to resume discussions on the matter at the present meeting.

98. In the ensuing discussion, the representative of Cuba, supported by several other representatives, expressed the hope that discussions on the draft decision could continue and a solution found at the present meeting that would allow the affected countries to re-align their baselines. The representative of Cuba further noted that financial support would be required for that solution and another representative underlined the importance of parties adopting a flexible approach to the issue to reach a swift conclusion to support the affected parties while also ensuring that the relevant policymaking bodies, such as the Executive Committee, assessed fully the special circumstances of the affected parties and the effects of the COVID-19 pandemic. One representative expressed the view that all developing countries should have the opportunity to adjust their baselines.

99. One representative noted that the information provided by parties before the forty-fifth meeting of the Open-ended Working Group had been extremely useful in identifying that the issue had only affected certain parties but was a significant concern for those parties, and she therefore welcomed the opportunity to continue consultations to provide relief for those parties on the basis of the data provided.

100. The parties therefore agreed to establish a contact group, to be co-chaired by Juan José Galeano (Argentina) and Patrick McInerney (Australia), with the mandate to continue consideration of the proposal by Cuba and other possible ways of addressing the impact of the COVID-19 pandemic on the HFC baselines of certain Article 5 parties.

101. Subsequently, the co-chair of the contact group reported that the group had reached agreement on a draft decision on addressing the impact of the COVID-19 pandemic on HFC baseline consumption for certain parties, for consideration by the parties. He explained that the group had considered a list of some 20 countries which had indicated that they might have problems meeting the 2024 HFC-related compliance target under the Protocol and had asked that flexibility be shown towards them. The contact group had looked at data related to those countries, using it to develop a solution. Having agreed on criteria, data relating to the listed parties were then assessed against those criteria. Eight parties had met the criteria.

102. The contact group had reached a simple decision, but the discussions had been complex. The group had agreed that, for the eight parties listed in the annex to the draft decision, the compliance obligation would be deferred until 2026 data becomes available. Those parties, however, retained the

possibility of seeking an extension of the deferral, by one or two years, from the Meeting of Parties in 2026, should the relevant data show that they were still having difficulties reaching the compliance targets. He explained that four parties, namely Barbados, Belize, Ethiopia and Grenada, which had expressed concern about their ability to meet their compliance targets but could not present data that met the contact group's criteria, might seek a deferral from the Meeting of the Parties in 2024 if the relevant data became available to demonstrate their pandemic-related compliance difficulties. The co-chair of the contact group said that a few of the four aforementioned parties had been unable to participate in the contact group to present their data personally.

103. A representative of one of those parties appealed to the Secretariat not to schedule contact group meetings in parallel. Parties with small delegations were greatly disadvantaged as they were unable to participate fully, which was the reason that his delegation had been unable to present its case within the contact group.

104. The representative of Barbados said that she wished to record her country's disagreement with the years used by the contact group to assess her country's situation, namely 2018 and 2019.

105. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XI. Energy-efficient and low- or zero-global-warming-potential technologies: outcomes of the workshop on energy efficiency (decision XXXIV/3, para. 4 (a))

106. Introducing the sub-item, the Co-Chair drew attention to the information contained in paragraphs 62 to 66 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2), and the notes by the Secretariat relevant to the workshop on energy efficiency held in Nairobi on Sunday, 22 October 2023: outcomes of the 2023 workshop on energy efficiency (UNEP/OzL.Pro/Workshop.12/3–UNEP/OzL.Pro.35/11); concept note and provisional programme (UNEP/OzL.Pro/Workshop.12/1); existing policies addressing interlinkages between phasing down hydrofluorocarbons and enhancing energy efficiency (UNEP/OzL.Pro/Workshop.12/2–UNEP/OzL.Pro.35/10); and a note by the Secretariat entitled “Existing policies addressing interlinkages between phasing down hydrofluorocarbons and enhancing energy efficiency: case studies” (UNEP/OzL.Pro/Workshop.12/INF/1–UNEP/OzL.Pro.35/INF/9).

107. During the ensuing discussion, many representatives thanked the Secretariat for organizing the workshop on energy efficiency that had been held the day before the opening of the present meeting. One representative said that greater representation of industry in the workshop would have assisted in providing information on market trends and on-the-ground challenges. Another representative said that future workshops would benefit from the inclusion of more national-level energy officials, while another representative urged that more workshops be organized at the regional level.

108. A consistent theme running through the discussion was the important relationship between energy efficiency and the phasedown of HFCs under the Kigali Amendment. That relationship was highlighted in decisions XXVIII/2 and XXVIII/3 adopted by the Twenty-Eighth Meeting of the Parties and had since been extensively discussed at meetings of the parties, the Executive Committee of the Multilateral Fund, and the Open-ended Working Group.

109. One representative, supported by several other representatives, itemized a number of challenges that needed to be overcome in addressing energy efficiency in the context of the HFC phase-down, including in the areas of inclusion of energy efficiency in national development plans and regulatory frameworks; availability and accessibility of energy-efficient technologies; awareness of consumers regarding energy-efficient appliances, particularly for cooling; and funding to assist in the implementation of projects linking energy efficiency with the implementation of the Kigali Amendment, which was an important issue for consideration by the replenishment task force of the Technology and Economic Assessment Panel. Concurring with those comments, one representative highlighted a sustainable and adequate financial mechanism to enable the achievement of targets and goals for energy efficiency, and market accessibility of the available technologies for all applications of refrigeration, air-conditioning and heat pumps, particularly in the case of low-volume-consuming countries, as issues of primary importance. Another representative said that a significant challenge lay in identifying and targeting those areas where the greatest impact could be achieved. A systems approach would help in gaining insight into the complex relationships involved in integrating action on energy efficiency and HFC phase-down. Some representatives said that the aforementioned challenges particularly affected developing countries, which needed technical and financial support, as

well as capacity-building and training, in order to access affordable alternative technologies. Another representative said that many developing countries found it difficult to achieve energy efficiency when inadequate controls were in place or enforced to regulate trade in substandard equipment. Another representative said that many countries still faced challenges putting in place minimum energy performance standards and establishing effective communication between the energy and ozone branches of government.

110. Some representatives highlighted areas that offered potential for effective action on energy efficiency and HFC phasedown. Methodologies for estimating climate benefits associated with reducing direct and indirect emissions of refrigerants, as described in a report of the Technology and Economic Assessment Panel, offered a promising way forward, and more information on the incentive-based approach to assessing the cost of enhancing energy efficiency, specifically in the refrigeration, air-conditioning and heat pump sectors, would be instructive. One representative said that a greater understanding was needed of market behaviour, including such aspects as the supply of components, assembly and installation. Another representative suggested that, in addition to the continued action by the Ozone Secretariat, implementing agencies adopt a regional approach to further address the issue of energy efficiency and enhance the integration of energy officials and national ozone officers. Another representative said that good progress had been made in the implementation of the Kigali Amendment through the development of Kigali HFC implementation plans and pilot projects, supported by financing from the Multilateral Fund, but more could be done to accelerate action on the climate benefits of projects, of which energy efficiency was a vital component.

111. Regarding the way forward under the Montreal Protocol, some representatives said that reporting by the energy efficiency task force established by the Technology and Economic Assessment Panel had provided useful information, and it should continue its work of addressing energy efficiency in the context of refrigerant transition during the HFC phasedown. Some representatives noted that since the adoption of the Kigali Amendment, the Technology and Economic Assessment Panel had produced a number of reports on energy efficiency, providing parties with valuable updates on energy-efficient and low-global-warming-potential (GWP) technologies. Several representatives said that there was no need at the present meeting for a draft decision on the matter, particularly considering the already crowded agenda. One representative noted that the Thirty-Fourth Meeting of the Parties, in its decision XXXIV/3, had already requested the Technology and Economic Assessment Panel to include information on energy efficiency in its progress report. One representative said that, despite time constraints, it was important to adopt a draft decision on the matter, given its urgency and priority. Another representative suggested instituting a submission process whereby parties could, before the next meeting of the Open-ended Working Group, share ideas and proposals for further cooperative work on the matter.

112. One representative said that the workshop on energy efficiency had been very successful. He recalled that session 5 had been dedicated to closing remarks and to a wrap-up, but suggested that a series of recommendations might be a more appropriate outcome. Such recommendations could pertain to issues raised by participants, like the request to hold regional workshops or the need for increased financial support for efforts to improve energy efficiency. He did not want to lose the momentum that the workshop had created as energy efficiency was a huge challenge for many Article 5 parties. Another representative agreed that the topic was extremely important and reiterated the need to find time in the very full meeting to discuss the matter in an informal group.

113. The parties agreed to hold informal discussions during the present meeting, with a view to discussing the matter further at the forty-sixth meeting of the Open-ended Working Group and the Thirty-Sixth Meeting of the Parties.

114. Subsequently, the representative of Norway reported that the informal group had reached agreement on a draft decision on energy efficiency for consideration by the parties.

115. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XII. Shared responsibility to stop dumping of inefficient equipment containing obsolete refrigerants (decision XXXIV/4)

116. In considering the item, the parties had before them paragraphs 67 to 69 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); section II of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[F] (UNEP/OzL.Pro.35/3); and paragraphs 197 to 206 of the report of

the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

117. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, during the discussion on progress in the implementation of decision XXXIV/4 on the illegal import of certain refrigeration, air-conditioning and heat pump products and equipment, several parties had expressed the views that the focus should be on illegal export rather than import, and that the dumping of non-waste, used and new equipment that did not meet the standards of the exporting countries was of particular concern. After extensive discussion in plenary, an informal group had been established to prepare a draft decision on the matter. Subsequently, Ghana, on behalf of the group of African States, had introduced a draft decision on shared responsibility to stop the dumping of inefficient cooling equipment containing obsolete refrigerants and the Open-ended Working Group had agreed to forward the draft decision to the present meeting for further consideration, and had encouraged further consultations during the intersessional period. The draft decision was set out in section II of document UNEP/OzL.Pro.35/3 (draft decision XXXV/[F]).

118. The representative of Ghana, introducing the draft decision, recalled that it was important to recognize that the continent of Africa was warming faster than the global average and was thus at risk of multiple climate disasters. It was therefore vital to address the issue of the dumping of inefficient cooling equipment containing obsolete refrigerants, which disproportionately affected countries in Africa, as such equipment used obsolete refrigerants, was being phased down or phased out in other countries, and hampered the efforts of Article 5 parties to comply with the Kigali Amendment, as well as raising the level of replenishment requested from non-Article 5 parties for the Multilateral Fund. Ghana, as an importing country, had strengthened its laws and standards and increased its environmental inspection and enforcement capacity, but, in common with other importing countries, required additional support to tackle smuggling in particular, including through the provision of increased numbers of personnel, relevant training and inter-agency cooperation, as well as through the acknowledgement of the need for exporting countries to share responsibility on the issue, including through commitments by exporting countries to prohibit in their domestic regulations the export of cooling equipment that did not satisfy their own national standards. Members of the group of African States had met in August 2023 to discuss the issue in detail and stood ready to identify collaborative solutions with other parties, including through the preparation of a glossary of terms, by means of constructive discussion in a contact group.

119. The parties agreed to establish a contact group, to be co-chaired by Tuma Neru (Samoa) and Karen Bianco (United States), to discuss further the proposal by the group of African States.

120. Subsequently, the co-chair of the contact group reported that the group had reached agreement on a draft decision on the import and export of prohibited cooling equipment for consideration by the parties.

121. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XIII. Abating emissions of carbon tetrachloride (decision XXXIV/6)

122. Introducing the item, the Co-Chair recalled that the Open-ended Working Group, at its forty-fifth meeting, had discussed the implementation of decision XXXIV/6 on ongoing emissions of carbon tetrachloride. The representative of Switzerland had introduced a draft decision on abating emissions of carbon tetrachloride, which the Open-ended Working Group had agreed to forward to the Meeting of the Parties for further consideration. The draft decision was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[G]). Additional information was available in paragraphs 70 to 74 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 255 to 263 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (UNEP/OzL.Pro.WG.1/45/8), as well as in volume 1, section 5.4, of the May 2023 report of the Technology and Economic Assessment Panel.

123. The representative of Switzerland made a brief presentation on the draft decision, which had been prepared in the light of new information in the Panel's May 2023 report that had been provided by parties in response to the invitation in decision XXXIV/6 to provide information on their national procedures and frameworks in place for management of production, by-production, feedstock use or process-agent use of carbon tetrachloride. As the new information indicated significant emissions from processes using carbon tetrachloride, it was time to focus on possible means of abating those emissions. Thus, the draft decision contained a request to the Technology and Economic Assessment Panel to compile a list of best practices and technologies for minimizing carbon tetrachloride

emissions and emission rates and to indicate the minimum carbon tetrachloride emission rates achieved. It further provided for the information be broken down by process and geographical region in order to account for potential differences in regional circumstances and challenges.

124. During the ensuing discussion, several representatives, one speaking on behalf of a group of countries, indicated that they were interested in discussing the draft decision. A number of representatives noted the significant persistent discrepancy between expected and observed concentrations of carbon tetrachloride, with one adding that the additional information requested would enable the relevant parties to put in place systems and practices, and technologies, to reduce their emissions of carbon tetrachloride, although he also expressed doubt that the Technology and Economic Assessment Panel would be able to provide the additional information without more information from parties themselves.

125. Some representatives, noting that the information in question was often confidential, questioned whether the requests were realistic. One suggested that the draft decision be reviewed with caution, while the other said that the draft decision was unnecessary, as most countries had effective processes for managing the production of carbon tetrachloride for use as feedstock. She suggested that the Medical and Chemicals Technical Options Committee propose ways to strengthen parties' capacity for such processes, and provide updates on the strengthening of national processes for minimizing carbon tetrachloride emissions.

126. Responding to some of the comments, a member of the Medical and Chemicals Technical Options Committee said that the Committee would be unable to advise individual parties on how to strengthen their national regulatory processes. Furthermore, the Committee relied on the parties to provide information on technologies and processes and would only be able to provide a summary of the information provided.

127. Following the discussion on feedstock uses under agenda item 14 (b), the parties agreed to hold further discussions on carbon tetrachloride in the same informal group that would consider feedstock uses, to be co-facilitated by Michel Gauvin (Canada) and Ana Maria Kleymeyer (Federated States of Micronesia).

128. Subsequently, the co-facilitator of the informal group reported that the informal group had reached agreement on a draft decision on abating emissions of carbon tetrachloride for consideration by the parties.

129. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XIV. Issues related to “exempted” uses under the Montreal Protocol

A. Nomination for critical-use exemptions for methyl bromide for 2024

130. Introducing the item, the Co-Chair drew attention to the information contained in paragraphs 75 to 77 of a note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 22 to 30 of its addendum (UNEP/OzL.Pro.35/2/Add.1); the information contained in paragraphs 251 to 254 of section VIII of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8); and the final report of the Technology and Economic Assessment Panel on the evaluation of 2023 critical-use nominations for methyl bromide and related issues.

131. The co-chairs of the Methyl Bromide Technical Options Committee, Marta Pizano and Ian Porter, gave a presentation on the Committee's final assessment of critical-use nominations for methyl bromide for 2023. A summary of the presentation is set out in section C of annex I to the present report.

132. The representative of Canada submitted, for the consideration of the parties, a draft decision set out in a conference room paper presenting the proposed critical-use nomination for Canada for methyl bromide. He commended the efforts of parties that in recent years had been able to end their critical-use nominations for methyl bromide, and reported that Canada had identified a clear path to fully phase out the use of methyl bromide as a preplant soil fumigant for strawberry runners on Prince Edward Island. Following years of research, a suitable technical alternative had been identified but would require time to scale up. For 2024, Canada had nominated a quantity of 3.857 tonnes of methyl bromide for the critical use, and was committed to nominate no more than 2.850 tonnes for 2025 and to not submit a nomination for 2026.

133. One representative, speaking on behalf of a group of countries, commended Canada's intent and commitment to submit no further critical-use nominations for methyl bromide after 2026.

134. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

B. Feedstock uses

135. Introducing the sub-item, the Co-Chair recalled that, at its forty-fifth meeting, the Open-ended Working Group had discussed the finding, in the 2022 quadrennial assessment reports of the Technology and Economic Assessment Panel and the Scientific Assessment Panel, that feedstock uses had increased by 75 per cent over the last 10 years. The representative of Australia had introduced a draft decision on feedstocks uses on the matter, which the Open-ended Working Group had agreed to forward to the Thirty-Fifth Meeting of the Parties for further consideration. The draft decision was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[H]), and additional information was available in paragraphs 78 to 81 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 126 to 136 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (UNEP/OzL.Pro.WG.1/45/8).

136. The representative of Australia, the proponent of the draft decision, reported that her delegation had already held brief discussions with some parties in the margins of the present meeting and was willing to hold discussions with any other interested parties in order to find a way forward for the draft decision.

137. Several representatives, one speaking on behalf of a group of countries, welcomed the draft decision and indicated their interest in discussing it further. Some of them, including the one speaking on behalf of a group of countries, noted with concern the growing trend in volumes of controlled substances produced for feedstock uses, and one welcomed the draft decision's aim of gathering more information on the topic, which would benefit the parties.

138. A number of representatives asserted that feedstock uses fell outside of the purview of the Montreal Protocol, with one citing decision IV/12 as evidence. Another representative took issue with that conclusion, however, pointing out that decision IV/12 stated only that insignificant quantities of controlled substances originating from inadvertent or coincidental production during a manufacturing process or from their use as process agents present in chemical substances as trace impurities or emitted during product manufacture or handling were considered not to be covered by the definition of a controlled substance. While feedstocks were not included in calculations of production and consumption, they remained controlled substances, as evidenced by decision I/12B, in which feedstocks were directly referred to as being controlled substances.

139. The same representatives expressed concern regarding the potential additional burden that the request for information could create for parties already facing the heavy task of reducing their use of controlled substances. They further pointed out that feedstock uses involved almost negligible emissions and should therefore not divert the attention of the parties and the assessment panels away from the larger issues at hand. One added that the increase in feedstock use in recent years could be attributed to the manufacture of hydrofluoroolefins (HFOs) and electric vehicles, which were environmentally friendly and thus benefited society, easily outweighing any issues associated with the small quantity of emissions.

140. One representative requested a number of clarifications from the Medical and Chemicals Technical Options Committee. A Committee member responded to one query, saying that the Committee had used Article 7 reporting from the parties and the expert knowledge of its members, as well as the 2019 updated guidelines from the Intergovernmental Panel on Climate Change, to calculate the estimated emissions for the various ozone-depleting substances. He added that he would be pleased to address additional queries directly with individual parties as needed.

141. Following a brief discussion on the appropriate setting for a discussion on feedstock uses, the parties agreed to further discuss them in an informal group, to be co-facilitated by Michel Gauvin (Canada) and Ana Maria Kleymeyer (Federated States of Micronesia), which the parties agreed would also consider the matter of carbon tetrachloride under agenda item 13.

142. Subsequently, the co-facilitator of the informal group reported that the group had reached agreement on a draft decision on feedstock uses for consideration by the parties.

143. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

C. Quarantine and pre-shipment uses of methyl bromide for which alternatives are available (decision XXXIV/10, para. 4)

144. Introducing the sub-item, the Co-Chair recalled that in decision XXXIV/10, parties had been invited to submit to the Secretariat, on a voluntary basis, by 1 June 2023, a list of the pest and commodity combinations in which methyl bromide was needed or used in their respective countries, and that only three parties had responded to that invitation. In addition, the Methyl Bromide Technical Options Committee, in consultation with the secretariat of the International Plant Protection Convention, had provided updated information on current quarantine and pre-shipment uses for which alternatives were available, in response to requests in the same decision. The Open-ended Working Group had discussed the matter at its forty-fifth meeting and had agreed to refer it to the Thirty-Fifth Meeting of the Parties for further consideration. Additional information was available in paragraphs 82 to 84 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 264 to 270 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (UNEP/OzL.Pro.WG.1/45/8), as well as in volume 1, section 4.2, of the May 2023 report of the Technology and Economic Assessment Panel.

145. The representative of the European Union introduced a draft decision on the matter, submitted by Bosnia and Herzegovina, the European Union, Montenegro, North Macedonia, Norway and Switzerland. She began by underscoring that methyl bromide was a controlled substance under the Protocol and had a higher ozone-depleting potential than most HCFCs that had already been phased out. The proponents considered that, three decades after quarantine and pre-shipment uses of methyl bromide had been exempted from the Protocol's phase-out schedule, it was time for parties to address how emissions could be avoided and alternatives could be embraced. They were therefore proposing a first step in that direction. Thus, the first operative paragraph of the draft decision encouraged parties to avoid ad hoc use of methyl bromide until a quarantine pest was confirmed, to accelerate the adoption of available alternatives and to use recapture technologies and other emission prevention strategies. The next three paragraphs reflected ways for parties to collectively improve their understanding of how and in what quantities methyl bromide was being used in quarantine and pre-shipment applications. The last paragraphs were a request to the Technology and Economic Assessment Panel to report back on the extended invitation to parties and to the Secretariat to summarize the result of decision XX/6, in which parties had been encouraged to put in place a national strategy describing actions to reduce methyl bromide use and or emissions in the quarantine and pre-shipment sector. The overall aim of the proposal, which the proponents hoped to discuss in a contact group, was to find sensible solutions that would help parties to reduce emissions.

146. In the ensuing discussion, several representatives stated that they were not convinced that a new decision on the matter was necessary. One of them said that, while there might be some small benefits in reducing emissions from quarantine and pre-shipment uses of methyl bromide, the overall benefits to the ozone layer and the climate system were relatively small. In addition, many countries were already making significant contributions to the reduction of methyl bromide emissions on a voluntary basis. Another representative emphasized that Parties had successfully met their obligations related to controlled uses of methyl bromide, leading to a significant decline in atmospheric emissions; scientific analysis showed that most anthropogenic production had been phased out, leaving natural emissions as a main source of the substance. She also pointed out that voluntary submissions were already covered in previous decisions; Parties should instead focus on other issues related to the Protocol.

147. Another representative, however, noting that one of the strengths of the Montreal Protocol was the ability of parties to react to scientific information provided by the assessment panels, recalled that the Technology and Economic Assessment Panel had stated that the elimination of emissions from quarantine and pre-shipment uses represented the single largest short-term gain that could be made to reduce further stratospheric chlorine and improve the ozone layer. He said that it was time to look at how emissions of methyl bromide could be avoided and how the transition to environmentally sound alternatives could be assisted. Acknowledging that quarantine and pre-shipment uses were not controlled by the Protocol, he nevertheless recalled that in decision VII/5 parties had been urged to refrain from the use of methyl bromide and to use non-ozone-depleting technologies wherever possible; where methyl bromide was used, the decision urged parties to minimize emissions and the use of methyl bromide through containment and recovery and recycling methodologies, to the extent possible.

148. One representative recalled that the Methyl Bromide Technical Options Committee had provided information on the alternatives for both controlled and exempt uses in section 4.1.3 of volume 1 of the 2023 progress report of the Technology and Economic Assessment Panel issued in May 2023. She also said, regarding the uncertainty surrounding the definition of quarantine and

pre-shipment uses, that the Methyl Bromide Technical Options Committee had offered detailed analysis to assist in determining whether methyl bromide treatment met quarantine and pre-shipment criteria. It was important to understand the market penetration of alternatives in various countries. Given that the issue involved customs and agriculture authorities, she proposed that the Ozone Secretariat organize a workshop on the matter for all stakeholders to provide a basis for the Technical Options Committee to propose a way forward.

149. Another representative said that there were still concerns related to key alternatives to methyl bromide owing to their high global-warming potential and their suitability in relation to phytosanitary requirements for international trade.

150. One representative said that he saw value in some elements in the draft decision and that the extension of the invitation to provide information under decision XXXIV/10 might result in data that was of benefit to the parties.

151. A number of representatives said that, if parties chose to undertake further discussion of the proposal, there were a number of sections where the text needed to be amended, both for reason of accuracy of the terms used and alignment with past decisions and guidance.

152. Several representatives spoke of methyl bromide issues specific to their own countries. One representative reported a significant decrease in her country's net consumption of methyl bromide for quarantine and pre-shipment uses between 2021 and 2022, while another said that his country wished to increase its quota for methyl bromide, which it used for quarantine and pre-shipment applications for the export of agricultural crops. A detailed submission for the Ozone Secretariat was in preparation. A third representative sought guidance in handling stocks of methyl bromide, which was banned completely in his country. The Co-Chair proposed that the guidance sought by that particular representative be addressed on a bilateral basis with the Ozone Secretariat.

153. In the interests of efficiency, given time constraints, the parties agreed to expand the mandate of the informal group established to consider the issue of very short-lived substances, including dichloromethane, under agenda item 8, and also to discuss the draft decision on quarantine and pre-shipment uses of methyl bromide introduced under the current agenda item. One representative noted, however, that the two issues required different expertise, and thus the participants in the discussions on the two subjects might be different.

154. Subsequently, the co-facilitator of the informal group reported that the group had been unable to reach agreement on a draft decision.

XV. Future availability of halons and their alternatives

155. In considering the item, the parties had before them paragraphs 85 to 88 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); paragraphs 90 to 96 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1.45/8); section 3 of volume 1 of the May 2022 progress report of the Technology and Economic Assessment Panel; and the 2022 assessment report of the Technology and Economic Assessment Panel.

156. Introducing the item, the Co-Chair recalled that at the forty-fifth meeting of the Open-ended Working Group, the parties had considered the report and updates prepared by the Fire Suppression Technical Options Committee of the Technology and Economic Assessment Panel in response to decision XXX/7 on the future availability of halons and their alternatives. The most recent update by the Technical Options Committee was contained in the 2022 assessment report. A summary of that information was provided in the addendum to the note by the Secretariat on issues for discussion by and information for the attention of the Open-ended Working Group of the Parties to the Montreal Protocol at its forty-fifth meeting (UNEP/OzL.Pro.WG.1.45/2/Add.1). After considering the issue in plenary and holding informal discussions in the margins of the meeting, the Working Group had agreed to resume discussions on the matter at the present meeting.

157. A number of representatives expressed concern about the information provided in the report by the Fire Suppression Technical Options Committee on the long-term availability of halons and the revisions to the predicted timelines for running out of halons. One of them drew attention to the fact that, in every scenario, the potential estimated date for running out of halon 1301 had moved closer and the worst-case scenario saw halons running out by 2030. He also noted that there were some data gaps on emissions, including from possible use of halon 1301 as a feedstock. The representatives were of the view that those issues deserved careful consideration, but, because of the time constraints at the

present meeting, they proposed that they be placed on the agenda of the forty-sixth meeting of the Open-ended Working Group to allow for more substantive discussions to take place.

158. Another representative requested information and advice on the procurement of recycled and recovered halon for his country's domestic aviation industry.

159. The parties agreed to include the item on the agenda of the forty-sixth meeting of the Open-ended Working Group.

XVI. Refrigerant life cycle management

160. In considering the item, the parties had before them paragraphs 89 to 92 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 137 to 141 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1.45/8).

161. Introducing the item, the Co-Chair recalled that the issue had been introduced at the forty-fifth meeting of the Open-ended Working Group by the representative of the Federated States of Micronesia, who had stressed that leakage and the venting of controlled substances were factors that contributed significantly to climate change, but they could be managed using a holistic approach. During the discussion in plenary, parties had agreed to hold informal discussions in the margins of meeting and had subsequently agreed to resume discussions on the topic at the present meeting.

162. The representative of the Federated States of Micronesia, speaking also on behalf of Samoa, introduced a proposal for a draft decision set out in a conference room paper. She recalled that information in the 2022 assessment report of the Technology and Economic Assessment Panel had been the trigger for her country to raise the issue at the meeting of the Open-ended Working Group. The report had identified the rapid growth of banks of controlled substances available for recovery, owing to a variety of factors, including increasing global temperatures and the rapidly expanding global market for cooling; it had stated that timely efforts to support the improved management of HFCs and HCFCs would be beneficial to both the ozone layer and the climate system.

163. Acknowledging that end-of-life destruction was not a compliance obligation, she clarified that the proposed draft decision did not aim to create one. Instead, it intended to improve understanding of and capacity in relation to the sustainable management of refrigerants from their initial formulation to the end of their viable use, in a way that could support compliance with the Montreal Protocol and maximize atmospheric benefits. The consultations on the matter at the forty-fifth meeting of the Open-ended Working Group and during the intersessional period had contributed to the formulation of the draft decision submitted at the present meeting. The proposal requested the Technology and Economic Assessment Panel to prepare a report for the parties, to be presented at the forty-sixth meeting of the Open-ended Working Group, on a variety of issues related to life cycle refrigerant management. Recognizing that additional requests to the Panel might create a heavy burden, the proponents hoped that sufficient information existed such that the report would involve mostly the compilation of that information.

164. The draft decision also aimed to build upon the experience and information gained in the preparation of national inventories of banks of ozone-depleting substances by requesting the Executive Committee to consider allocating additional resources and expand the window established under its decision 91/66. All parties were encouraged to become more engaged at the national and regional levels by developing or strengthening national policies or other activities that would enable improved life-cycle refrigerant management at all stages; the Executive Committee was invited to consider further supporting relevant institutional strengthening activities to bolster those national and regional activities; and the Secretariat was requested to organize a workshop at which parties could benefit from experience within and outside the Montreal Protocol system.

165. In the ensuing discussion, many representatives underscored the importance of life cycle refrigerant management, including for compliance with obligations under the Kigali Amendment and for obtaining other environmental and economic benefits. Proper management throughout a refrigerant's life cycle could lead to reduced equipment leakage and refrigerant loss; increased availability of recycled and reused refrigerants, thereby decreasing the need for newly produced refrigerant; and the mitigation of direct emissions from end-of-life equipment. One representative said that such an approach was vital in his region, where the demand for refrigeration and air conditioning was rising owing to economic development. Another representative said that effective life cycle management was important for his country's domestic mobile air-conditioning sector, where the consumption of HFC-134a was high and where there were presently no feasible alternatives to that

refrigerant. It would also be useful for the overall refrigeration and air-conditioning servicing sector, considering the challenges faced in relation to the management of the country's banks of ozone-depleting substances. A third representative said that some of the elements within the proposal were critical for the work of national ozone officers who often felt that they were ill-equipped to deal with end-of-life refrigerants.

166. Several representatives, including one speaking on behalf of group of countries, stressed the need to focus on recovery, reclamation and recycling. Some representatives recalled that life cycle management was a vast and complex topic and encompassed the management of a great many stages, including the production of the refrigerant, its transport, export and import, the manufacture and assembly of related equipment, the installation and operation of that equipment and finally the disposal of the equipment and the refrigerants. One of the representatives, noting the emphasis in the discussion on recovery, reclamation and recycling, proposed that the draft decision focus more clearly on recycling and reclamation aspects and perhaps also touch on destruction when recycling and reclamation were no longer an option. Another representative pointed out, although at times reclamation would prove beneficial to the environment, particularly to the climate in reducing emissions, at other times reclamation would increase emissions. There were many issues that needed further consideration.

167. Several representatives acknowledged the funding window established by the Executive Committee in its decision 91/66, for the preparation of national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction. Some of them pointed out, however, that although the funding was welcome, it was insufficient to face the upcoming challenges. One representative explained that his country had launched the initiative on fluorocarbon life cycle management, in which 31 countries and organizations were now participating. In addition to inviting parties to make full use of all existing funding and support mechanisms and initiatives, he said that his country was willing to share its experience of life cycle refrigerant management with other parties, including in relation to reclamation and destruction facilities.

168. Several representatives stressed the need for countries to have access to adequate and sustained finance and the right resource provisions to support the life cycle management of refrigerants and to decrease refrigerant emissions. Some of them said that the life cycle management of refrigerants would greatly assist parties in meeting their upcoming HFC phase-down obligations. Others emphasized the importance of training technicians on proper handling, recovery and disposal of refrigerants to prevent emissions and ensure safety.

169. The parties agreed to establish a contact group to consider further the proposal submitted by the Federated States of Micronesia and Samoa, to be co-chaired by Idris Abdullahi Ishaka (Nigeria) and Martijn Hildebrand (Kingdom of the Netherlands).

170. Subsequently, the co-chair of the contact group reported that the group had reached agreement on a draft decision on refrigerant life cycle management for consideration by the parties.

171. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XVII. Strengthening Montreal Protocol institutions, including for combating illegal trade (decision XXXIV/8)

172. In considering the item, the parties had before them paragraphs 93 to 96 of, and annex II to, the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); a note by the Secretariat containing a summary of the workshop on strengthening the effective implementation and enforcement of the Montreal Protocol (UNEP/OzL.Workshop.11/3–UNEP/OzL.Pro.WG.1/45/6); and paragraphs 165 to 175 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

173. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had discussed the outcomes of the workshop on strengthening the effective implementation and enforcement of the Montreal Protocol, held immediately before that meeting, and the discussions at the workshop had provided useful insights. The Open-ended Working Group had subsequently established an informal group, which had developed a list of elements that could be included in draft decisions and had agreed that informal discussions would continue during the intersessional period

with a view to one or more draft decisions being submitted for consideration at the present meeting. The list of suggested elements was set out in annex II to document UNEP/OzL.Pro.35/2.

174. One representative said that her party intended to submit a conference room paper on preventing illegal trade based on the discussions during the workshop and the forty-fifth meeting of the Open-ended Working Group, and on consultations with other parties during the intersessional period.

175. Several representatives, including one speaking on behalf of a group of parties, recalled the importance of the issue, in particular for countries at high risk of being transit countries for illegal trade, underlined the need for dedicated cooperation between parties in order to tackle effectively the global problems of smuggling and illegal trade and looked forward to further discussions on the matter. One representative, speaking on behalf of a group of parties, suggested that a road map be developed on the matter in consultation with parties to ensure that all outstanding issues were addressed in the longer term and that input from observers and additional background information be reported by the Secretariat.

176. One representative provided an update on measures implemented at the national level in his country to help combat the illegal trade of refrigerants in particular, in line with decision XXXIV/8, and noted that the introduction of a licensing system had proved particularly useful. Furthermore, he noted that there was no regulation prohibiting the export of disposable cylinders from his country, and expressed the view that inspections in that regard should be carried out by the importing country, with the exporting country not being reported as an illegal source of such cylinders. Another representative, speaking on behalf of a group of parties, underlined the importance of preventive action and good risk-based management rather than blaming importing or exporting countries for illegal trade.

177. Subsequently, the representative of the United States introduced a draft decision set out in a conference room paper. The draft decision built on the decision XXXIV/8, in which all controlled substances had been included under the encouragement to parties to provide information to the Secretariat that could be shared with other parties on instances where potentially illegal shipments had been prevented or detained. In the draft decision, parties were encouraged to facilitate the exchange of information to prevent the illegal trade of controlled substances by informing the Secretariat of practices observed to be used by entities seeking to illegally import controlled substances, including the mislabelling of containers of controlled substances or misreporting of controlled substances on customs declarations; exchanging information with other parties about controlled substances that had been detained or rejected; and providing the Secretariat with information on the disposition of controlled substances that had been detained or rejected. In addition, the Secretariat was requested to provide a compilation of information to the parties in advance of the forty-sixth meeting of the Open-ended Working Group and thereafter on an annual basis, and to develop and maintain a list of countries that might be willing to receive HFCs or other controlled substances that had been detained or rejected.

178. One representative indicated that his delegation intended to submit a separate conference room paper aimed at initiating a process of developing a road map for further work on the topic.

179. A short discussion ensued regarding the possibility of combining the text of that conference room paper with the text submitted by the United States, with one representative suggesting that it might facilitate consideration of the matter. The two proponents, while indicating their willingness to discuss the possibility of combining the proposals, both expressed the view that the two draft decisions addressed different aspects of the issue and would be better considered individually.

180. The parties agreed to establish a contact group, to be co-chaired by Martin Alex Bjørnholst (Denmark) and Miruza Mohamed (Maldives), to discuss the draft decision introduced by the representative of the United States.

181. Subsequently, the representative of the European Union introduced a draft decision set out in a conference room paper. He said that it was intended to complement the proposal submitted by the United States and lead to the definition and adoption of a road map to address issues relevant to the strengthening of Montreal Protocol institutions, including for combating illegal trade, that had not yet been dealt with. The draft decision therefore proposed that parties and observers be invited to share their views, experiences, potential needs and priorities in relation to a series of topics contained in the annex to the draft decision and to submit that information to the Ozone Secretariat by 30 March 2024. The Ozone Secretariat would then be requested to compile the information and to prepare, for consideration by the Open-ended Working Group at its forty-sixth meeting, a synthesis report that also provided information on the topics identified in order to facilitate the development of a comprehensive

road map to deal with issues that had not yet been addressed, for adoption by the Thirty-Sixth Meeting of the Parties.

182. Several representatives, noting that the list of topics in the annex to the draft decision was extensive, said that they would need time to consider it in detail. One of them said that, as some of the topics listed were not clearly defined, it might be difficult for parties to provide their views thereon.

183. The parties agreed to hold informal consultations on the proposal among interested parties.

184. Later in the meeting, the co-chair of the contact group introduced a revised draft decision, set out in a conference room paper, on further strengthening Montreal Protocol institutions, including for combating illegal trade. The draft decision encouraged parties to facilitate the exchange of information on best practices for preventing illegal trade of controlled substances, and also requested the Secretariat to provide a compilation of the information provided by parties.

185. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

186. Subsequently, the representative of the European Union introduced a revised draft decision on strengthening Montreal Protocol institutions, set out in a conference room paper submitted by the European Union and orally amended to remove references to a road map. The draft decision invited Parties to submit to the Secretariat their views, experiences, potential needs and priorities regarding strengthening Montreal Protocol institutions, including for combating illegal trade, in particular on issues identified during the forty-fifth meeting of the Open-ended Working Group. In addition, the draft decision requested the Secretariat to compile the information submitted and provide background information thereto in a synthesis report to be considered at the forty-sixth meeting of the Open-ended Working Group.

187. A number of representatives, thanking the representative of the European Union for the submission of the conference room paper, said that there had been insufficient time to consider the text and they could therefore not support forwarding the draft decision for adoption in its current form. One representative, recalling the fruitful discussions on the topic at the forty-fourth meeting of the Open-ended Working Group in particular, underlined the importance of continuing discussions on the issue at future meetings. The representative of the European Union therefore withdrew the proposed draft decision and requested that consideration of the issue be included on the agenda of the forty-sixth meeting of the Open-ended Working Group, in order to allow for targeted preparation on the issue for the Thirty-Sixth Meeting of the Parties.

188. The parties agreed to include the matter of strengthening Montreal Protocol institutions on the agenda of the forty-sixth meeting of the Open-ended Working Group.

XVIII. Identification of gaps in the global coverage of atmospheric monitoring of controlled substances and options for enhancing such monitoring (decisions XXXIII/4 and XXXIV/5)

189. In considering the item, the parties had before them paragraphs 97 to 100 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2) and paragraphs 207 to 233 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

190. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had considered the report of the Secretariat in response to decision XXXIII/4 on enhancing the global and regional atmospheric monitoring of substances controlled by the Montreal Protocol. The report had been prepared in consultation with experts in atmospheric monitoring of controlled substances and included updated information on the implementation of a pilot project on the regional quantification of emissions of controlled substances, funded by the European Union. The parties had also considered the report of the Technology and Economic Assessment Panel prepared in response to decision XXXIV/5, which was available on the meeting portal of the present meeting. Summaries of both reports were available in an addendum to the note by the Secretariat on issues for discussion by and information for the attention of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer at its forty-fifth meeting (UNEP/OzL.Pro.WG.1/45/2/Add.2). Following initial discussion at the forty-fifth meeting of the Open-ended Working Group, an informal group had been established and, taking into consideration the willingness of several parties to continue exchanging views on the matter, the Open-ended Working Group had agreed that discussions would be resumed at the present meeting.

191. Two representatives announced their intention to submit conference room papers containing draft decisions on the matter. One representative, speaking on behalf of a group of countries, suggested that the Secretariat be asked to provide an update of the information provided under decision XXX/4 and an analysis of the various options for long-term funding for the maintenance and enhancement of monitoring capacities in order to allow the parties to make an informed decision on the matter at the thirteenth meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer, in 2024. Another representative stressed the importance of considering the potential for robust atmospheric monitoring at the regional level and suggested that the Secretariat be asked to prepare a paper for the Thirty-Sixth Meeting of the Parties, in consultation with the co-chairs of the Scientific Assessment Panel, on the possible funding mechanisms for an expansion of atmospheric monitoring. A third representative expressed strong support for consideration of such monitoring, especially in view of the fact that the need for such monitoring had been raised during the discussions on many other issues at the present meeting.

192. A number of representatives expressed interest in taking part in further discussions on the matter, with some looking forward to further updates, in particular on the pilot project funded by the European Union, with one stating the need to consider innovative approaches to the issues under consideration, and another recalling that the many challenging issues relating to regional atmospheric monitoring would need to be addressed, including the need for financial resources and the exchange of information between parties.

193. Subsequently, the representative of the European Union introduced a conference room paper containing a draft decision on enhancing the global and regional atmospheric monitoring of substances controlled by the Montreal Protocol on Substances that Deplete the Ozone Layer. The draft decision was intended to follow on from decision XXXIV/5 on the identification of gaps in the global coverage of atmospheric monitoring of controlled substances and options for enhancing such monitoring, which had led to a rich flow of information and useful discussions. It would also allow for consideration of the results of the pilot project funded by the European Union. The draft decision requested the Secretariat, in consultation with relevant experts, to provide an update of the information provided under decision XXXIII/4, including elements needed for a costing model to estimate the resources needed for new monitoring capacities for enhanced monitoring. Furthermore, it requested the Secretariat to provide options for sustainable funding to maintain current regional monitoring capacities and to establish new regional monitoring capacities, including an assessment of their advantages and disadvantages regarding potential implementation and a description of the administrative processes required to operationalize any potential funding options considered.

194. Several representatives thanked the European Union for preparing the draft decision, with the representative of Canada noting with appreciation that his delegation had been consulted on the text, as requested, and another representative expressing particular appreciation for the inclusion of updated information on the pilot project. One representative, supported by several others, noted that the report provided under decision XXXIII/4 had not included a costing model and therefore it would be more appropriate to include instead a reference to refining the estimates to the extent possible. Several representatives expressed support for the request for the provision of information on options for sustainable funding. One representative, supported by another, suggested that such options could include collaboration with atmospheric monitoring stations within existing global monitoring and measurement networks and programmes, such as the Global Atmosphere Watch Programme of the World Meteorological Organization; a portion of the cash balance of the Montreal Protocol trust fund; and a funding window within the Multilateral Fund. A number of representatives sought clarification as to the intended meaning in the draft decision of “funding to maintain current regional monitoring capacities”, with one representative expressing the view that the focus of the draft decision should be narrowed to closing, and keeping closed, the gaps that had been identified in the monitoring network.

195. The parties agreed to hold informal consultations on the draft decision in the margins of the present meeting.

196. Subsequently, the representative of the European Union introduced a revised version of the draft decision. He said that the changes related to the institutions that were to be consulted by the Secretariat in its provision of the requested information, with a new reference to the Multilateral Fund secretariat; the task of updating the information provided under decision XXXIII/4, which now referred to refining the cost estimates associated with enhancing atmospheric monitoring and providing a list of potential monitoring stations; and the addition of a request that the Secretariat take into account the discussions at the present meeting in providing options for sustainable funding to establish new regional monitoring capacities.

197. Later in the meeting, after further consultations, the representative of the European Union introduced a further revised version of the draft decision.

198. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XIX. Existing challenges and potential options for the future configuration and function of the Technology and Economic Assessment Panel's technical options committees (decision XXXIV/11, para. 1)

199. In considering the item, the parties had before them paragraphs 101 to 105 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); chapter 8 of volume 1 of the report of the Technology and Economic Assessment Panel, May 2023; and paragraphs 271 to 277 of the report of the forty-fifth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.WG.1/45/8).

200. The Co-Chair recalled that, at the forty-fifth meeting of the Open-ended Working Group, the parties had considered the report of the Technology and Economic Assessment Panel on the composition, balance and workload of the Panel and its technical options committees. In the report, the Technology and Economic Assessment Panel had proposed that the current structure of the committees be maintained, except in the case of the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee, within which two subgroups could be established, one on cold chains for the conservation of food and vaccines, and one on space heating and cooling via heat pumps and air conditioning equipment and systems. Cross-cutting issues, such as refrigerants and energy efficiency, would be managed across the two subgroups, and four co-chairs would be appointed for the committee as a whole. The recommendations were set out in chapter 8 of the 2023 progress report of the Technology and Economic Assessment Panel and a summary of those recommendations was included in an addendum to the note by the Secretariat on issues for discussion by and information for the attention of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer at its forty-fifth meeting (UNEP/OzL.Pro.WG.1/45/2/Add.2). Informal discussions had been held in the margins of the forty-fifth meeting of the Open-ended Working Group and the Working Group had agreed that discussions on the matter should be resumed at the present meeting.

201. In the ensuing discussion, several representatives, including one speaking on behalf of a group of parties, expressed interest in continuing to engage in consultations on the matter. One representative noted that certain elements of the recommendations were inconsistent with the terms of reference of the Technology and Economic Assessment Panel. Another representative expressed concerns regarding the recommendation that two subgroups be established within the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee, as it could negatively affect the capacity of the Committee by not adequately allowing for the consideration of cross-cutting issues and for members of one subgroup to provide their expertise on the area of focus of the other subgroup. One representative, speaking on behalf of a group of parties, noted that, on the basis of the current terms of reference of the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee, the larger part of the workload of that Committee would require work across the two subgroups. He therefore suggested that the Committee start its current work and then report back as to how the two subgroups would have worked in practice in that regard.

202. Subsequently, the representative of the United States of America, speaking also on behalf of the European Union and Norway, introduced a draft decision set out in a conference room paper, in which it was proposed that the Technology and Economic Assessment Panel, in its progress report to be prepared for the forty-seventh meeting of the Open-ended Working Group, provide options for the organization of the Panel and its technical options committees. In doing so, the Panel should consider its terms of reference; consult with the co-chairs and members of the technical options committees; and use the experience gained in operating, on a trial basis, in accordance with the path forward that it had outlined in section 8 of the progress report.

203. Later in the meeting, after further consultations, the representative of the United States, speaking also on behalf of the European Union and Norway, introduced a revised version of the draft decision.

204. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XX. Consideration of nominations by parties of experts to the Scientific Assessment Panel, the Technology and Economic Assessment Panel and the Environmental Effects Assessment Panel

205. In considering the item, the parties had before them paragraphs 106 to 113 of, and annex III to, the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); annex 4 to volume 1 of the report of the Technology and Economic Assessment Panel, May 2023; the matrix of needed expertise for the Technology and Economic Assessment Panel and its technical options committees; and the primer on the operation of the Technology and Economic Assessment Panel.

206. The Co-Chair recalled that, as agreed during the adoption of the agenda for the present meeting, the parties would consider nominations by parties of experts to the Environmental Effects Assessment Panel in addition to nominations to the Scientific Assessment Panel and the Technology and Economic Assessment Panel. Furthermore, he noted that the curricula vitae of all nominees were available on the online portal of the present meeting.

207. On behalf of the parties, the Co-Chair expressed his thanks to Paul Newman and John Pyle, both of whom had recently resigned after many years of service as co-chairs of the Scientific Assessment Panel, for their dedication and outstanding work in explaining complex scientific processes to the parties in a clear manner. Two nominations had been received to date for the vacant seats on the Scientific Assessment Panel, from the United States and the United Kingdom.

208. At the forty-fifth meeting of the Open-ended Working Group, the nomination by the parties of experts to the Technology and Economic Assessment Panel had been discussed briefly and parties wishing to nominate experts had been encouraged to conduct consultations with the Technology and Economic Assessment Panel and other interested parties in the margins of that meeting.

209. The Co-Chair drew the attention of the parties to the list of those members of the Technology and Economic Assessment Panel whose membership would expire at the end of 2023, which was contained in table 2 of document UNEP/OzL.Pro.35/2. He recalled that, in accordance with the relevant procedures contained in the terms of reference of the Technology and Economic Assessment Panel, appointments of co-chairs to the Panel and its technical options committees, and of senior expert members to the Technology and Economic Assessment Panel, were made in a decision by a Meeting of the Parties. The relevant matrix of needed expertise and nomination forms were available to parties on the online portal of the present meeting. A total of nine nominations had been received and he urged any parties still intending to submit a nomination to do so as soon as possible.

210. The Co-Chair recalled that two of the three co-chairs of the Environmental Effects Assessment Panel had been appointed in 2019, under decision XXXI/12, to serve for a term of four years, and their term of office was therefore due to expire at the end of 2023. The parties were invited to consider the renomination of Paul Barnes, who had been nominated by the Government of the United States to serve as co-chair for an additional term of four years.

211. In the ensuing discussion, one representative emphasized the importance of nominating parties consulting with members of the Technology and Economic Assessment Panel and using the matrix of needed expertise in order to ensure that experts being nominated had the relevant expertise required by the Panel. She also noted that several nominations to the Scientific Assessment Panel and the Environmental Effects Assessment Panel were for a period of four years and looked forward to further discussion of the reasons for that within an informal group.

212. The parties agreed to establish an informal group of nominating and interested parties, to be co-facilitated by Osvaldo Patricio Álvarez-Perez (Chile) and Mariska Wouters (New Zealand), to discuss and agree on the nominations.

213. Subsequently, the co-facilitator of the informal group reported that the informal group had been able to complete its work and had produced a draft decision for consideration by the parties, which included the nomination of an additional co-chair of the Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee.

214. The parties agreed to forward the draft decision for further consideration and possible adoption during the high-level segment.

XXI. Compliance and data reporting issues: the work and recommendations of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol

215. In considering the item, the parties had before them paragraphs 114 and 115 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2).

216. The President of the Implementation Committee, Gene Smilansky (United States), presented a report on the outcomes of the seventieth and seventy-first meetings of the Committee, including an overview of the draft decisions approved by the Committee for consideration by the Thirty-Fifth Meeting of the Parties.

217. The Committee, with the excellent support provided by the Secretariat, had considered a variety of issues during 2023, including compliance with data reporting obligations under Article 7 of the Protocol; compliance with control measures on production and consumption; and adherence to plans of action to return to compliance that had been approved by meetings of the parties. It had also considered information on excess production or consumption that was stockpiled for uses recognized in decision XXII/20, process-agent uses, critical-use exemptions, emissions of HFC-23, and the establishment and operation of licensing systems for HFCs. The Committee had also received reports from the secretariat of the Multilateral Fund on relevant decisions of the Executive Committee of the Fund and on activities carried out by the implementing agencies to facilitate compliance by parties. The President drew attention to a conference room paper setting out the three draft decisions which the Committee had forwarded for the consideration of the Thirty-Fifth Meeting of the Parties.

218. The first draft decision related to data reporting under Article 7 of the Montreal Protocol. In the draft decision, it was noted that, as at 23 October 2023, 194 of 198 parties to the Protocol had reported their data for 2022 and that 175 of those parties had reported their data by the deadline of 30 September, and 109 had reported by 30 June 2023, in accordance with the encouragement in decision XV/15. Four cases of non-compliance with data-reporting obligations were also noted with concern. Furthermore, it was noted with concern that one Article 5 party that had ratified the Kigali Amendment had not submitted its baseline data for HFCs for 2020, 2021 and 2022 and one non-Article 5 party that had ratified the Kigali Amendment had not submitted 2021 data for HFCs, which placed both of those parties in non-compliance. The draft decision urged those parties to report their outstanding data to the Secretariat as soon as possible, and requested the Committee to review the situation of those parties at its seventy-second meeting. Finally, the draft decision encouraged parties to continue reporting their annual production and consumption data as soon as those figures were available, and preferably by 30 June of the reporting year. The Committee had approved the draft decision on the understanding that the Secretariat would continue to update the draft by removing the name of any party that returned to compliance by providing its outstanding data between the time of the Committee meeting and the adoption of the draft decision by the Thirty-Fifth Meeting of the Parties, in line with past practice.

219. In the second draft decision, it was noted with concern that the Democratic People's Republic of Korea had not adhered strictly to its commitments for HCFC production and consumption for 2021, as set out in its plan of action to return to compliance contained in decision XXXII/6, and was in non-compliance with control measures for that substance for 2021 under the Montreal Protocol. Great concern was also expressed that the party had not yet provided an explanation for those deviations from its plan of action, despite repeated requests by the Committee and reminders from the Secretariat, and had not submitted a revised plan of action, a progress report on the establishment of additional national policies facilitating HCFC phase-out or its data for 2022, as required under Article 7, paragraph 3 of the Protocol. In the draft decision, the party was urged to provide an explanation for the deviation, together with its 2022 data and, if appropriate, to submit a revised plan of action for consideration by the Committee at its seventy-second meeting. Furthermore, the party was requested to submit its progress report on the establishment of additional national policies facilitating HCFC phase-out, invited, if necessary, to send a representative to the seventy-second meeting of the Committee, and cautioned, in accordance with item B of the indicative list of measures that may be taken by the Meeting of the Parties in respect of non-compliance.

220. The third draft decision related to the establishment of licensing systems for HFCs under Article 4B, paragraph 2 bis, of the Protocol by parties that had ratified the Kigali Amendment. In the draft decision, it was noted with appreciation that 136 of the 155 parties that had ratified the Kigali Amendment, and 5 parties that had not yet ratified it, had reported the establishment of a licensing system for HFCs. It urged the 12 parties that ought to have reported on the establishment of their

licensing systems but had not yet done so to provide the required information to the Secretariat for consideration by the Committee at its seventy-second meeting. All remaining parties that had ratified the Kigali Amendment were also urged to establish and implement their licensing systems, if they had not already done so, and to report that information to the Secretariat within three months of doing so, as required under Article 4B, paragraph 3. The Committee had approved the draft decision on the understanding that the Secretariat would continue to update the figures in the draft decision in line with any additional information received from parties up until the point of adoption of the draft decision by the Thirty-Fifth Meeting of the Parties.

221. The President concluded by thanking his dedicated colleagues on the Implementation Committee for their invaluable contributions to the success of the compliance mechanism of the Protocol, and thanking the Secretariat for all the support provided, and noted that it had been a privilege to serve as the President of the Committee.

222. In the ensuing discussion, the representative of Indonesia, recalling the strong commitment of his country to the implementation of the Protocol, including through the ratification of the Kigali Amendment, which had entered into force for the country on 14 March 2023, explained that Indonesia had not yet been able to establish its licensing system, owing to the nature of administrative processes of its national legislation. The country had informed the Secretariat of the unavoidable delay by letter on 16 October 2023 and of its intention to have an operational system by January 2024.

223. The parties agreed to forward the set of draft decisions for further consideration and possible adoption during the high-level segment.

XXII. [Reclassification of developing countries]

224. Discussions on the inclusion of this item on the agenda for the preparatory segment are reflected in paragraphs 12 to 19 of the present report. No further discussion was held on the matter in plenary meeting by the Thirty-Fifth Meeting of the Parties.

XXIII. Status of ratification of the Kigali Amendment to the Montreal Protocol

225. In considering the item, the parties had before them paragraphs 118 and 119 of the note by the Secretariat on issues for discussion by and information for the attention of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (UNEP/OzL.Pro.35/2); a note by the Secretariat on the status of ratification, approval or acceptance of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP/OzL.Pro.35/INF/4); and section III of the note by the Secretariat on draft decisions for consideration by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol, containing draft decision XXXV/[GG] (UNEP/OzL.Pro.35/3).

226. The Co-Chair informed the parties that, as at 20 October 2023, a total of 155 parties had ratified the Kigali Amendment. That information was to be included in the draft decision to be forwarded to the high-level segment. The decision also urged parties that had not yet ratified the Amendment to do so. The Secretariat would be entrusted with updating the total number of ratifications, if required, in the draft decision before it was considered further during the high-level segment of the present meeting.

227. In the ensuing discussion, the representative of Myanmar noted that his party was preparing to endorse the Kigali Agreement.

228. The parties agreed to forward the decision for further consideration and possible adoption during the high-level segment.

XXIV. Other matters

Length of meetings of the parties to the Montreal Protocol

229. The Co-Chair recalled that, during the adoption of the agenda, it had been agreed to consider the matter of the length of the meetings of the parties to the Montreal Protocol.

230. One representative, supported by a number of others, recalled that the initial meetings of the parties had considered only ozone-depleting substances but that, since then, the agenda of the meetings had grown to include other issues but there had been no corresponding increase in the length of the meetings. The heavy agenda of recent meetings had led to little time being available for discussions at

side events, for example, and was a particular challenge for developing countries, as they received funding for only two representatives to attend meetings. Such small delegations were often unable to attend every event that was relevant to their party given that events often ran concurrently, neither did they have all of the necessary expertise between them to contribute fully to all aspects of the meeting. An increase in the length of the meeting and an increase from two to three funded representatives from each developing country would both help to ensure that there were fewer gaps in the information presented by developing countries to their Governments and would allow for more active participation of those countries in the meetings of the parties. One representative also noted that longer meetings of the parties and of the Open-Ended Working Group would allow time for more in-depth discussion and broader and more comprehensive coverage of the agenda.

231. The Committee, agreeing to continue to exchange views on the matter at future meetings, concluded its consideration of the matter.

Part two: high-level segment (26 and 27 October 2023)

I. Opening of the high-level segment

232. The high-level segment of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol was opened at 10.10 a.m. on Thursday, 26 October 2023, by Hassan Mubarak (Bahrain), President of the Thirty-Fourth Meeting of the Parties. The meeting began with a cultural dance performance.

A. Statement by the President of the Thirty-Fourth Meeting of the Parties to the Montreal Protocol

233. In his opening remarks, Mr. Mubarak said that the past few days had been extremely busy for parties, with the holding of the seventy-first meeting of the Implementation Committee, a meeting of the Bureau of the Thirty-Fourth Meeting of the Parties, a workshop on energy efficiency and the preparatory segment of the Thirty-Fifth Meeting of the Parties, for which there had been a very full agenda. He thanked all the parties for their dedication to the Montreal Protocol and for the demonstrated spirit of compromise.

234. On behalf of all the parties, he thanked the assessment panels for their valuable support to the Montreal Protocol process. Giving recent examples, he mentioned the supplement to the May 2023 report by the task force of the Technology and Economic Assessment Panel on assessing the funding requirement for the replenishment of the Multilateral Fund for the period 2024–2026, which had addressed all 27 suggestions made by the Open-ended Working Group at its forty-fifth meeting; and the four issues arising from the panels' 2022 quadrennial assessment reports that had been raised under the item on other matters at the same meeting, namely feedstocks, emissions of HFC-23, changes to the list of approved destruction technologies and management of the life cycle of refrigerants, which had been elevated to full-fledged agenda items at the present meeting.

235. He drew attention to the various efforts under way to improve the implementation and enforcement of the Montreal Protocol, which related to addressing gaps in the global coverage of atmospheric monitoring; alternatives to HFCs; "exempted" uses under the Protocol; and ways of addressing the impact of the COVID-19 pandemic on the HFC baselines of certain Article 5 parties. Mr. Mubarak urged parties that had not yet ratified the Kigali Amendment to do so as soon as possible, and called on all parties to support the efforts under way to implement the provisions of the Amendment.

236. In closing, he thanked the parties, his fellow Bureau members and the members of the Secretariat for their unwavering support during his time as President of the Thirty-Fourth Meeting of the Parties.

B. Statement by a representative of the United Nations Environment Programme

237. In her remarks, Inger Andersen, Executive Director of UNEP, welcomed participants to Nairobi, the home of UNEP and a hub that united action to address the three planetary crises of climate change, nature and biodiversity loss, and pollution and waste. The Montreal Protocol was a hugely important part of that united action, both in protecting human health and ecosystems by phasing out harmful ozone-depleting substances and in delivering climate benefits through the reduction of greenhouse gas emissions.

238. Thanking parties and members of the assessment panels for their hard work, she paid tribute in particular to the contributions of Paul Newman and John Pyle, co-chairs of the Scientific Assessment Panel, and Keiichi Ohnishi, co-chair of the Medical and Chemicals Technical Options Committee, who were attending their final meeting of the Montreal Protocol. The 2022 quadrennial assessment reports of the panels had raised important emerging issues to be addressed under the Protocol, such as increasing levels of HFC-23, very short-lived substances and some chlorofluorocarbons (CFCs) in the atmosphere and feedstock uses of controlled substances that were exempted from controls. The work of the panels demonstrated the importance of science and showed how the Montreal Protocol delivered impact beyond its mandate. A great deal had been achieved, but there was still much to do. In that respect, Ms. Andersen asked parties to make robust decisions at the present meeting. She called, in particular, for a decisive replenishment of the Multilateral Fund, which was estimated to be the highest in history owing to the need for Article 5 parties to meet obligations related to the phase-out of HCFCs and the phasedown of HFCs in the triennium 2024–2026. She also called for the full ratification of the Kigali Amendment, urging the 43 parties that had not yet ratified the Amendment to do so as soon as possible. She noted that a strong decision on funding would increase confidence in and bolster ratification of the Kigali Agreement. She urged the parties to take decisive steps related to energy efficiency. Climate impacts were becoming more frequent and more deadly, and the parties had an opportunity to double the climate benefits of the Kigali Amendment stemming from the reduction HFC emissions by taking advantage of the shift to new gases in order to design cooling equipment that was more energy efficient. In addition to slowing climate change, it was necessary to increase the availability of, and access to, affordable and sustainable cooling in order to protect vulnerable communities against intense heat and reduce food losses across value chains. She urged parties to join the Global Cooling Pledge that was being championed by the United Arab Emirates and would feature at the twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change. The Pledge was intended to set targets for the reduction of cooling-related emissions, improve energy efficiency during HFC phasedown and increase access to sustainable cooling.

239. She urged parties at the present meeting to continue to show the world the benefits of effective multilateralism and to ensure that the Montreal Protocol continued to protect people and planet for decades to come.

C. Statement by a representative of the Government of Kenya

240. In her remarks, Roselinda Soipan Tuya, Minister of Environment, Climate Change and Forestry of Kenya, said that Kenya was very proud to host the United Nations Office at Nairobi, UNEP and the Ozone Secretariat. She expressed the strong commitment of her country to meeting its obligations under international law, including to protect the global environment for intergenerational equity and sustainable development. Kenya had made considerable progress in phasing out ozone-depleting substances in most applications and in awareness-raising and capacity-building in relation to alternatives to such substances, particularly HCFCs. Ms. Tuya announced that Kenya, which had suffered directly from natural disasters linked to climate change, had ratified the Kigali Amendment, becoming the 153rd party to do so. She encouraged those parties that had yet to ratify the Kigali Amendment to do so as soon as possible. As part of its strategies related to the phase-down of HFCs, with the support of UNEP and bilateral partners, Kenya had trained some 200 customs officers in control measures relating to imports and exports and over 1,000 refrigeration and air-conditioning technicians on the safe use of hydrocarbons and other natural refrigerants as substitutes for HFCs. It had also reviewed its Environmental Management and Coordination (Controlled Substances) Regulations to ensure that they covered HFCs and had launched a national cooling action plan to enhance access to sustainable cooling for all Kenyans. Nevertheless, Kenya and other developing countries remained concerned about access to and availability of reliable, energy-saving, affordable alternatives and technologies that were both ozone- and climate-friendly.

241. Ms. Tuya emphasized her country's belief in multilateralism, and said that building on synergies with other relevant multilateral environmental agreements would strengthen the Montreal Protocol. She also stressed the importance of financial assistance to Article 5 parties and appealed to the Multilateral Fund to continue assisting those parties in fulfilling their obligations under the Protocol.

242. Recognizing that the COVID-19 pandemic had slowed down action to protect the ozone layer, she underscored the importance of making progress at the present meeting. She expressed the hope that the parties could reach decisions, in particular, on the level of replenishment of the Multilateral Fund for the period 2024–2026; on destruction technologies for controlled substances; on

energy-efficient technologies; and on the cessation of the dumping of inefficient equipment containing obsolete refrigerants.

II. Organizational matters

A. Election of officers for the Thirty-Fifth Meeting of the Parties to the Montreal Protocol

243. At the opening session of the high-level segment of the meeting, in accordance with paragraph 1 of rule 21 of the rules of procedure, the following officers were elected, by acclamation, to the Bureau of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol:

President:	Azra Rogović-Grubić (Bosnia and Herzegovina) (Eastern European States)
Vice-Presidents:	Ndiaye Cheikh Sylla (Senegal) (African States)
	Adrian Forde (Barbados) (Latin American and Caribbean States)
	Philippe Chemouny (Canada) (Western European and other States)
Rapporteur:	Mohammad Al Dosari (Saudi Arabia) (Asia-Pacific States)

B. Adoption of the agenda of the high-level segment

244. The following agenda for the high-level segment was adopted on the basis of the provisional agenda set out in section II of document UNEP/OzL.Pro.35/1:

1. Opening of the high-level segment:
 - (a) Statement by the President of the Thirty-Fourth Meeting of the Parties to the Montreal Protocol;
 - (b) Statement by a representative of the United Nations Environment Programme;
 - (c) Statement by a representative of the Government of Kenya.
2. Organizational matters:
 - (a) Election of officers for the Thirty-Fifth Meeting of the Parties to the Montreal Protocol;
 - (b) Adoption of the agenda of the high-level segment;
 - (c) Organization of work;
 - (d) Credentials of representatives.
3. Presentations by the assessment panels on their synthesis report on the 2022 quadrennial assessment.
4. Presentation by the Chair of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol on the work of the Executive Committee, the Multilateral Fund secretariat and the Fund's implementing agencies.
5. Statements by heads of delegation and discussion on key topics.
6. Report by the co-chairs of the preparatory segment and consideration of the decisions recommended for adoption by the Thirty-Fifth Meeting of the Parties.
7. Dates and venue for the Thirty-Sixth Meeting of the Parties to the Montreal Protocol.
8. Other matters.
9. Adoption of decisions by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol.
10. Adoption of the report of the meeting.
11. Closure of the meeting.

C. Organization of work

245. The parties agreed to follow their customary procedures.

D. Credentials of representatives

246. The Bureau of the Thirty-Fifth Meeting of the Parties to the Montreal Protocol approved the credentials of the representatives of 110 of the 148 parties represented at the meeting. The Bureau noted that credentials of 85 of those 110 parties were originals, while 25 were copies that were accepted on the understanding that originals would be submitted as soon as possible. The Bureau provisionally approved the participation of 38 parties on the understanding that they would forward their credentials to the Secretariat as soon as possible. The Bureau urged all parties attending future meetings of the parties to make their best efforts to submit credentials to the Secretariat as required under rule 18 of the rules of procedure. The Bureau further recalled that the rules of procedure required that credentials be issued either by a head of State or Government or by a minister for foreign affairs or, in the case of a regional economic integration organization, by the competent authority of that organization. The Bureau recalled that representatives of parties not presenting credentials in the correct form could be precluded from participating fully in the meetings of the parties, including with regard to the right to vote.

III. Presentations by the assessment panels on their synthesis report on the 2022 quadrennial assessment

247. On behalf of the Montreal Protocol's three assessment panels, Paul Newman, co-chair of the Scientific Assessment Panel, Paul Barnes, co-chair of the Environmental Effects Assessment Panel, and Marta Pizano, co-chair of the Technology and Economic Assessment Panel, delivered a presentation on their synthesis report on the 2022 quadrennial assessment. Summaries of the presentations are set out in section D of annex I to the present report.

248. All the representatives who spoke expressed their appreciation for the highly informative presentations and reports of the panels.

249. In response to a question on surface emissions of chlorine and bromine compounds, Mr. Newman said that the emissions of natural compounds from soils and from biological processes in the ocean, in particular of chloride, bromoform and dibromomethane, had been considered in detail by the Scientific Assessment Panel. The Panel had also reported in the assessment its measurements of levels in the atmosphere of methyl chloride, the major natural compound for the ozone layer and for chlorine. Furthermore, the Panel had looked at other potential sources of chlorine and bromine compounds, as well as volcanic eruptions, for any possible ozone-depleting effects.

250. Responding to a question regarding the inclusion of the study of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in the terms of reference for the 2026 quadrennial assessment, Mr. Barnes recalled that there were a large number of PFAS and that the substances were hugely diverse, in terms of chemical structure, size, mode of actions and potential toxicity. It would therefore be more beneficial to carry out assessments on specific compounds of interest than attempt assessment of the group of substances as a whole.

251. One representative requested that the issue of the use of alternative substances in metered-dose inhalers be added to the agenda of the forty-sixth meeting of the Open-Ended Working Group and noted the intention of his party to submit a conference room paper on the topic at that meeting. In response to the observations on metered-dose inhalers, Ashley Woodcock, co-chair of the Technology and Economic Assessment Panel, said that, in the United Kingdom, metered-dose inhalers accounted for approximately 14 per cent of the total carbon footprint for direct patient care of the National Health Service, with each of the most commonly used inhalers having the same carbon footprint as a 300 km car journey. Although powder inhalers were currently available, such inhalers were not suitable for all patients, and therefore many companies producing propellant-based metered-dose inhalers were considering converting from the use of HFC-134a to HFO-152a, which had a carbon footprint 10 times lower than that of HFC-134a. There were, however, potential supply-chain issues, as nearly all manufacturers worldwide of metered-dose inhalers were supplied with HFC-134a by the same company, so full conversion would need to be managed carefully to ensure, for example, that the cost of inhalers did not increase significantly. There was cause for some optimism as two manufacturers had already stated their aim to achieve regulation, production and sale of metered-dose inhalers using alternatives by 2025.

252. Responding to a question as to whether the Scientific Assessment Panel intended to carry out an assessment on the issue of HFOs with regard to PFAS, which was an issue of particular interest to countries in Latin America, given the challenges faced in terms of the supply of alternatives to HFCs, Mr. Newman said that the Panel would be keen to work on the issue and encouraged parties to put forward the issue for inclusion in the terms of reference for the panel for 2026.

253. Responding to a question regarding information exchange for the modelling of ozone-depleting substances, Mr. Newman said that the panels did indeed work closely with the Intergovernmental Panel on Climate Change, providing it with ozone-depletion estimates, as well as chlorofluorocarbon CFC, HCFC and HFC estimates. The panels of the Montreal Protocol, in turn, used the shared socioeconomic pathways and carbon dioxide, methane and nitrous oxide projections of the Intergovernmental Panel on Climate Change, and all the panels coordinated the focus of their respective reporting and shared models.

254. In the light of the presentations of the panels, one representative expressed concern that the success of the Montreal Protocol could be undermined by the huge challenges posed by the use of ozone-depleting substances under exemptions. She urged all parties and stakeholders to make responsible choices in that regard and always to use alternatives to the extent possible. Furthermore, she encouraged parties to strengthen the regime for monitoring, reporting and verifying productions, emissions and consumption data under the Montreal Protocol.

255. In response to the concerns expressed by one representative regarding trifluoroacetic acid and the need to ensure that alternatives to ozone-depleting substances did not create new environmental problems, Mr. Barnes agreed that it was important to continue monitoring trifluoroacetic acid, in particular because of its persistence in the environment. He noted, however, that the concentration of trifluoroacetic acid detected in the environment had been significantly below the levels of concentration known to have toxicological effects.

256. In response to a question regarding the role of the youth and higher education in minimizing knowledge gaps and strengthening leadership under the Montreal Protocol, Mr. Newman said that it was indeed vital to support young people to become both leaders and scientific experts, in particular in relation to the task of repairing the ozone layer. He noted the many efforts being made to support young people in academia and in the early stages of their careers and underlined the need for those efforts to continue so that the work of monitoring the atmosphere and the policy-based work of the Montreal Protocol could continue for many decades.

257. The President thanked the co-chairs of the assessment panels for their presentation and all the panel members for their excellent work. She said that the co-chairs and members of the panels would be present at the meeting until its conclusion, and she therefore encouraged participants to take advantage of their presence to follow up on any questions directly with them.

258. The parties took note of the information presented.

IV. Presentation by the Chair of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol on the work of the Executive Committee, the Multilateral Fund secretariat and the Fund's implementing agencies

259. Annie Gabriel, Chair of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, reported on the work of the Executive Committee, the Multilateral Fund secretariat and the implementing agencies of the Fund since the Thirty-Fourth Meeting of the Parties, summarizing the information set out in document UNEP/OzL.Pro.35/9. Her statement is set out in annex II to the present report.

260. The parties took note of the information presented.

V. Statements by heads of delegation and discussion of key topics

261. During the high-level segment, statements were made by the heads of delegation or their representatives of the following parties: Angola, Barbados, Brazil, Burundi, Cambodia, China, Cuba, Ecuador, Egypt, European Union, Gambia, Indonesia, Islamic Republic of Iran, Jordan, Kenya, Kyrgyzstan, Malawi, Malaysia, Mauritius, Mozambique, Myanmar, Peru, Philippines, Saudi Arabia, Sierra Leone, Solomon Islands, Somalia, State of Palestine, Tunisia, Türkiye, Venezuela (Bolivarian Republic of), Viet Nam, Yemen and Zambia. Statements were also delivered by the representatives of the International Institute of Refrigeration and the Children and Youth Major Group.

262. Representatives of many parties who spoke expressed gratitude to the Government and people of Kenya for their hospitality. Appreciation was also extended to the Ozone Secretariat and the Bureau, the Secretariat and the Executive Committee of the Multilateral Fund, UNEP, the implementing agencies, donor partners, the assessment panels, international organizations and other stakeholders for their role in ensuring the success of the meeting in particular and of the Montreal

Protocol in general. In response, the representative of Kenya welcomed all the participants to the headquarters of UNEP in Nairobi, underscoring the commitment of Kenya to environmental stewardship and sustainable development.

263. The representative of Mozambique expressed the desire of his Government to host the Thirty-Sixth Meeting of the Parties to the Montreal Protocol.

264. Many representatives paid tribute to the success of the Montreal Protocol and its parties in controlling and phasing out ozone-depleting substances and assisting the recovery of the ozone layer, thereby contributing enormously to the safety and well-being of humanity, and asserted their continued commitment to supporting the goals of the Protocol. The agreement continued to act as an example for other multilateral environmental agreements, demonstrating how global cooperation and joint international action could protect life on Earth.

265. A number of factors contributing to the success of the Protocol were alluded to, including the collaborative participation and commitment of all parties within the “ozone family”, its strong support for developing countries in meeting their obligations under the Protocol, the honesty and transparency of its operations, the adaptability and flexibility it had shown in realigning its mandate to include the phase-down of HFCs, its focus on sustainable development, the scientific basis of decision-making and the expertise of the assessment panels in that regard.

266. Many representatives described the continuing actions being taken in their own countries, with assistance from the Multilateral Fund and the implementing agencies, to phase out ozone-depleting substances, implement the various stages of their HCFC phase-out management plans, and achieve compliance with the provisions of the Protocol, including through legislative, policy, institutional and programmatic measures. A wide range of activities were outlined, including the promotion of alternative “green” and low-carbon technologies; legislative and regulatory action to control ozone-depleting substances within the wider environmental framework; the development of national programmes to eliminate ozone-depleting substances and convert existing technologies to more environment-friendly and climate-friendly alternatives; training (including training of trainers), capacity-building and certification of service technicians in the refrigeration and air-conditioning sectors; the application of new technology to enable customs officials and ozone officers to identify ozone-depleting substances, including gases; awareness-raising and capacity-building programmes for large, medium- and small-scale enterprises on alternatives to ozone-depleting substances; the establishment of monitoring and enforcement mechanisms to ensure compliance with legal and regulatory requirements; the introduction of import controls and quota and licensing systems to combat illegal trade; the establishment of a database for trade in refrigerants; sensitization campaigns for stakeholders, including importers, technicians, users of refrigerants and the general public; the creation of recovery and recycling centres for chemical substances used in the refrigeration and air-conditioning sectors; public consultations to encourage the involvement of all stakeholders; training of career professionals in environmental diplomacy; and national recognition of global initiatives such as World Refrigeration Day and World Ozone Day.

267. With regard to the Kigali Amendment, many representatives said that their parties had now ratified the Amendment, recognizing its significance for the future direction of the Montreal Protocol and its critical role in global efforts to combat climate change through reduced greenhouse gas emissions. One representative said that the successful implementation of the Kigali Amendment could prevent a temperature increase of 0.5 degrees Celsius and associated energy efficiency improvements could greatly enhance climate benefits, making a substantial contribution to attaining the goals of the Paris Agreement. Some representatives described preparatory activities they were undertaking in readiness to ratify the Amendment, including a survey of consumption and production of HFCs and the current regulatory environment. Several representatives described the progress their parties were making in developing their Kigali implementation plans or putting in place pilot projects. There was widespread acknowledgement by parties of the urgent need to undertake action to phase down the consumption and production of HFCs, and the importance of 2024 as the “freeze year” for HFCs for group 1 Article 5 parties was noted.

268. There was recognition too of the need to integrate HFC phase-down within overall national planning processes, thereby reaping social, economic and environmental co-benefits. One representative said that the strategic vision of his country in that regard was to attain a balance between achieving national climate commitments and Montreal Protocol obligations through actions that supported sustainable economic growth, while another said that the phase-down of HFCs under the Kigali Amendment was integral to his country’s sustainable growth objectives, as embracing low-GWP technologies could help drive economic development, encourage innovation, help create

“green” employment, and promote equity. In such a scenario, environmental stewardship and economic efficiency could go hand in hand.

269. A number of representatives described the national actions already being carried out to implement the Kigali Amendment and to introduce climate-friendly technologies, including creating a licensing system and supportive legal framework to control greenhouse gases with a high global warming potential, including HFCs; assigning customs classifications for such substances, aiding the establishment of an information bank to assist control; developing national plans for HFC phase-down with the assistance of implementing agencies and the Multilateral Fund, including investment and non-investment activities; establishing a quota allocation system to regulate the import and export of HFCs; building the capacity of and training refrigeration and air-conditioning technicians in the safe use of hydrocarbons and other natural refrigerants; preparing technical specifications and regulations for flammable or toxic refrigerants, and the devices that contained them; making budgetary provision for energy efficiency projects; supporting national ozone units to undertake their expanded responsibilities, including with regard to sustaining projects, disseminating scientific information, enhancing participatory action and spreading awareness of the importance of protecting the ozone layer and combating global warming; and including Kigali Amendment-related actions within wider environment and climate protection programmes, plans and strategies.

270. There were, however, a number of challenges to the successful implementation of the Kigali Amendment. The transition to more energy-efficient equipment associated with the adoption of low-GWP technologies entailed adjustments to the energy sector and the overall economy that could prove testing for low-income countries. The high cost of several alternative technologies currently available, especially in the refrigeration sector, heightened that challenge. Uncertainties remained regarding other matters, including safety standards pertaining to the flammability, toxicity and pressure of new and emerging alternative substances. An additional challenge lay in the dumping in developing countries of inefficient equipment using obsolete refrigerants emanating from developed countries, adding to the difficulties faced by developing countries in attaining their energy efficiency aspirations.

271. It was important, therefore, for developing countries to have access to financing, capacity-building, technology transfer and technical assistance to help them achieve the “energy transition”. The benefits of achieving that transition were considerable: one representative, speaking on behalf of a group of countries, said that switching from high-GWP to low-GWP refrigerants, with concomitant improvements in energy efficiency, would bring both environmental and cost benefits. One representative proposed a three-pronged approach comprising the rapid advancement of measures to develop and implement alternative energy sources for cooling equipment; promotion of the production and consumption of ozone-friendly, climate-friendly and energy-efficient cooling systems; and ensuring the market availability of and access to those systems. One representative of an observer said that the refrigeration sector, including the cold chain, was now recognized as a development priority for its benefits to human life and an environmental priority for its impact on climate change.

272. Recognizing those priorities, several representatives urged donor countries to increase financing to assist Article 5 parties to transition to the new technologies required to fulfil their obligations under the Kigali Amendment. One representative said that international solidarity and financial cooperation were essential for developing countries to meet their HFC phase-down commitments and move towards low-carbon economies. A number of representatives stressed the critical importance of the replenishment of the Multilateral Fund for the triennium 2024–2026 in ensuring the availability of adequate, predictable and reliable funding for HFC-related activities and helping Article 5 parties to meet their compliance targets.

273. More generally, burgeoning global challenges continued to have an impact on the work of the Montreal Protocol. The triple planetary crisis of climate change, biodiversity loss and pollution was testing the resources and ingenuity of all the multilateral environmental agreements. Low-income countries were particularly vulnerable to the effects of climate change, including intensified droughts, more frequent flooding, greater intensity of tropical storms and debilitating heatwaves. Sea-level rise threatened the very existence of small island developing States. Countries with high mountains were faced with glacial melt and water resource instability. The COVID-19 pandemic had resulted in human, social and economic setbacks in many countries, slowing economic growth and jeopardizing the ability of countries to fund projects. Conflict also continued to have severe negative impacts on human and environmental health. Such events exacerbated existing vulnerabilities and jeopardized livelihoods, and stood in the way of progress on environmental and other issues, including those under the purview of the Montreal Protocol.

274. Challenges of particular relevance to the Montreal Protocol included the continued use of methyl bromide for quarantine and pre-shipment applications, which had been the subject of discussion at the present meeting. In that regard, one representative, speaking on behalf of a group of countries, said it was essential to continue sharing information on the uses of ozone-depleting substances as feedstock and to better understand quarantine and pre-shipment uses of methyl bromide with a view to identifying and adopting alternatives. It was essential also to properly manage existing banks of ozone-depleting substances and HFCs, to study and control HFC-23 emissions, and to monitor the deployment of new substances that could create future environmental concerns, such as PFAS and related chemicals. Increasing recognition of the need for regional monitoring of atmospheric concentrations of controlled substances had drawn attention to gaps in the global coverage of monitoring stations. On that matter, the representative of Kyrgyzstan proposed that the existing capacity of the Issyk-Kul national ozone research station be utilized for stratospheric studies, taking into account its suitable location in an ecologically clean area remote from industrial centres. Some representatives said that the prevailing atmosphere of cooperation within the framework of the Montreal Protocol was being threatened by an increasing tendency to include political issues on the agendas of its meetings and in discussions.

275. Taking action to protect the ozone layer in the context of those burgeoning challenges required an agile, responsive and flexible approach, with the collaboration and involvement of all parties. One representative, speaking on behalf of a group of countries, said that to prevent the repetition of undesirable events, it was necessary to review and improve the mechanisms for the implementation and enforcement of the Protocol, such as licensing systems, customs controls on substances and equipment, and the procedures and mandate of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol.

276. There was general acknowledgement of the role of partnership and collaboration in achieving environmental and human well-being objectives, including those of the Montreal Protocol, supported by political will and commitment. One representative said that multilateral action on environmental threats and challenges positively impacted the health, social welfare and economic well-being of countries and citizens. Another representative said that true multilateralism upheld the principle of common but differentiated responsibilities and the principle of consensus in addressing global sustainable development. Another representative highlighted the role of science, technology and innovation as facilitators of sustained, inclusive and sustainable growth, while underscoring the importance of traditional, local and indigenous skills and knowledge. Another representative said that an essential component of technical and scientific cooperation was information sharing, and ensuring a smoother flow of information on technologies and best practices for the management of ozone-depleting substances.

277. Other suggestions to aid cooperation included twinning networks between countries to foster mutual learning and the exchange of experiences; ensuring the involvement of all national stakeholders, including government, civil society and industry; the adoption of a trade and investment lens, whereby the need for investment in the world's renewable resources, especially those in developing countries, was matched by requisite capital from the developed countries; and further promotion of regional initiatives, for example in capacity-building activities.

278. The representative of the children and youth major group drew attention to the particular plight of young people faced with the climate crisis and other environmental issues as they attempted to thrive, seeking employment while safeguarding the Earth. He called for greater engagement of the youth voice in decision-making forums, recognizing that young people were a dynamic and innovative population that could assist in devising solutions to environmental challenges, including the protection of the ozone layer.

279. Several representatives offered their thoughts on the way forward for the Montreal Protocol. Many parties reiterated their unwavering support for the Protocol as it sought to achieve its ozone-related and wider environmental goals, included with regard to climate change and global warming. The spirit of collaboration that had characterized efforts to protect the ozone layer augured well for the future. One representative urged parties to promote new leadership within the Montreal Protocol family, welcoming new ideas, voices and solutions and a diversity of approaches to meet the challenges ahead. One representative, speaking on behalf of a group of countries, said that an essential element for continued success was the implementation of new scientific findings and industrial standards that enabled the safe uptake of environmentally friendly, innovative and natural refrigerants and the continued development of new ones where needed. It was the responsibility of all parties to take advantage of the experience gained and apply it wisely for the future.

280. In conclusion, there was general optimism that the significant work undertaken thus far under the Montreal Protocol constituted a powerful foundation for continuing efforts to protect the ozone layer, combat climate change, and ultimately protect the environment of planet Earth for the benefit of present and future generations.

VI. Report by the co-chairs of the preparatory segment and consideration of the decisions recommended for adoption by the Thirty-Fifth Meeting of the Parties

281. The Co-Chair of the preparatory segment reported that the work of the segment had concluded successfully and draft decisions had been approved for consideration and possible adoption during the high-level segment. He expressed gratitude to all concerned for their hard work and for the spirit of cooperation and compromise that had enabled them to reach agreement on such a large number of draft decisions, including many on new and emerging issues.

VII. Dates and venue of the Thirty-Sixth Meeting of the Parties to the Montreal Protocol

282. Introducing the item, the Executive Secretary recalled that the thirteenth meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer and the Thirty-Sixth Meeting of the Parties to the Montreal Protocol were to be held in 2024. As no offers to host the meetings had been received, the Secretariat had made a booking in Bangkok from 28 October to 1 November 2024. A draft decision on the matter was set out in document UNEP/OzL.Pro.35/3 (draft decision XXXV/[HH]) and would be updated accordingly.

283. The Executive Secretary also informed the parties that the forty-sixth meeting of the Open-Ended Working Group was scheduled to be held in Montreal, Canada, from 8 to 12 July 2024. One representative requested the Secretariat's support in ensuring that all delegates received their entry visas for that meeting.

284. Subsequently, the parties adopted a decision on the matter.

VIII. Other matters

285. No other matters were considered during the high-level segment.

IX. Adoption of decisions by the Thirty-Fifth Meeting of the Parties to the Montreal Protocol

286. The Thirty-Fifth Meeting of the Parties adopted the decisions approved during the preparatory segment. The decisions are available in document UNEP/OzL.Pro.35/12/Add.1.

X. Adoption of the report of the meeting

287. The parties adopted the present report on Friday, 27 October on the basis of the draft report that had been circulated. The President, with the assistance of the Ozone Secretariat, was entrusted with the finalization of the report.

288. At the time of the adoption of the report, two representatives requested that their proposed amendments to the draft report be reflected in the report. One representative, speaking on behalf of the representative of Kyrgyzstan at the request of that representative, requested that paragraph 34 of the report be amended to state that interested parties, with the participation of the Secretariat, had conducted consultations and decided to retain the current composition of the regional group of Eastern European and Central Asian States. Another representative stated that the result of the meeting between interested parties and the Secretariat on the matter had in fact been that consideration of the issue would continue in the future and that the standard definition of the region of Eastern European States within the United Nations system would continue to be applied, on the understanding that the views of Kyrgyzstan had been noted by the parties.

XI. Closure of the meeting

289. Ms. Seki, Executive Secretary of the Ozone Secretariat, expressed her appreciation for the contributions to the Montreal Protocol made by Jürgen Usinger of Germany and Keiichi Ohnishi of

Japan, co-chair of the Medical and Chemicals Technical Options Committee, over the course of their careers; they were both retiring. She said that Mr. Usinger, who had spent almost 30 years supporting the Montreal Protocol, was highly respected by colleagues from both Article 5 and non-Article 5 parties and was known for his visionary approaches, calculations and budgets. One of the highlights of his career had been the successful negotiation of the Kigali Amendment.

290. Ms. Seki expressed the gratitude of the parties and the secretariat to Mr. Ohnishi for the invaluable contributions that he had made to the work of the Technology and Economic Assessment Panel. It had been an honour to work with him and his in-depth expert knowledge and kindness were highly appreciated.

291. One representative, speaking on behalf of a group of countries, paid tribute to the professionalism and competence of Cecilia Tan-Mercado, Senior Programme Management Officer of the Multilateral Fund secretariat, who was also retiring after years of valuable service.

292. Following the customary exchange of courtesies, the meeting was declared closed at 12.40 a.m. on Saturday, 28 October 2023.

ADVANCE

Annex I

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

A. Report of the Technology and Economic Assessment Panel replenishment task force on decision XXXIV/2

1. The co-chair of the Replenishment Task Force, RTF, Ms. Shiqiu Zhang, started the presentation on behalf of her Task Force co-chairs Ms. Suely Carvalho and Ms. Bella Marañon, and expressed appreciation to the support provided by the Ozone Secretariat and the Multilateral Fund secretariat. She also thanked the 19 volunteer members of the TEAP Replenishment Task Force and its consulting experts for their support and effort. Ms. Zhang clarified that the presentation would cover an overview of the RTF Supplement to the May report which updates the estimated funding requirement for the Multilateral Fund for the 2024-2026 triennium and would respond to the suggestions from parties at the OEWG-45.
2. She mentioned the considerable challenges the RTF had due to the tight timeline.
3. Ms. Zhang highlighted that for the first time, the Replenishment Report is covering both HCFC and HFCs control measures for the next and future triennia. She noted that the 100-page long RTF Supplement Report could not be fully addressed in the presentation due to time limitations and that the RTF presentation would focus on slides that have large funding impact or need additional clarification. The remaining slides are available under back up slides in the presentation posted in the meeting portal.
4. Ms. Zhang then detailed the RTF approach to updating the report and responding to the 27 items requested by the parties at the OEWG. She explained that in Chapter 2, the RTF updated the estimated funding presented at OEWG by: considering relevant decisions taken at 92nd meeting of the ExCom; incorporating HFC baselines from 70 new parties that reported A7 data by 7 August 2023; assuming all parties ratify the Kigali Amendment by 2026; using the “Updated Estimated Funding” as the basis to consider the 27 items suggested by parties at OEWG-45.
5. Ms. Zhang then noted that when estimating updated funding for HFC phasedown RTF applied the Cost Effectiveness (CE) factors for non-LVC countries agreed at the 92nd ExCom. She explained that for sectors for which no agreement has been reached yet, RTF applied the same CE factor as in its May 2023 report.
6. She also noted that for LVCs or Bracket E countries, RTF applied ExCom Decision 92/37 and estimated funding for a 10% reduction from the HFC baseline, spanning over five years of implementation.
7. Ms. Zhang highlighted that the HFC baseline was updated, based on the additional A7 data reported by 70 parties and to fill any data gaps, the RTF applied the methodology described in its May 2023 report, concluding that the increase in total HFC baseline from 1,643 million metric tonnes of CO₂ equivalent in the RTF May report to 1,840 in the RTF September Supplementary Report.
8. Ms. Zhang introduced her co-chair Ms. Suely Carvalho, who explained that the funding estimates for the RTF May Report and the Updates in the September Supplementary Report were compared for both HCFC consumption and production and that increases or reductions when compared to the May Report were highlighted. She concluded that the updated estimated funding for HCFCs for the 2024-2026 triennium is US\$ 362 million, a reduction of US\$ 1.6 million.
9. Ms. Carvalho described the estimates for HFC activities highlighting the assumption that all parties ratify Kigali by 2026 and RTF presented the funding estimates comparison between the May and September reports. She then summarized the key changes for HFC consumption sector including an increase of \$3.6 million for project preparation; an increase of \$120 million for estimated KIPs due to new CE agreed at 92nd ExCom and to new data reported and increased overall HFC baseline; and no changes for HFC production sector.
10. She summarized that for all HFC activities, the updated estimated funding is US\$ 644 million, an increase of US \$125 million. She clarified that the summary table does not consider the more than 30 HFC new baselines reported after August 7th and prior to the Meeting of the Parties (MOP),

* The summaries are presented as received, without formal editing.

including for China. She noted that for End of Life, Institutional Strengthening and Standard Activities the estimates did not change.

11. Ms. Carvalho then concluded that the total updated funding requirement for 2024-2026 triennium is \$ 1.14 billion US dollars, an increase of US\$ 123 million when compared to the May report estimates. She also noted that RTF made no change to its estimated funding for future triennia (2027-2029 and 2030-2032).

12. Ms. Carvalho went on to review the list of 27 items suggested by parties at OEWG-45 highlighting that the September report updated funding estimates that had just been presented were used as the basis for the scenarios, when appropriate. She described the RTF approach to respond to parties' suggestions noting that, where methodology was the same as used in RTF May Report, the updated funding estimate presented in the September Supplementary Report was used as the basis, when appropriate. But where parties suggested new methodologies, RTF addressed them item-by-item. She also noted that when data were insufficient, a qualitative assessment was provided.

13. Ms. Carvalho emphasized that a range of funding for this triennium depends on which scenarios parties may wish to use, combine, or discard. She explained that while all 27 items suggested by parties were considered and assessed by RTF in the Supplementary Report.

14. For the presentation, RTF would only go into detail for items that needed clarification and those where the impact is over \$100 million US dollars. She shared that parties could find details related to other items at the end of the presentation, in "back up slides". She then highlighted the 10 items addressed by RTF qualitatively, most of them related to energy efficiency, with some cost examples for different selected sectors.

15. Ms. Carvalho clarified that for item 1 that the 24% discount based on historical approvals of ExCom does not include Institutional strengthening (IS) and Standard activities such as Implementing Agencies core unit, UNEP CAP, MLF Secretariat and Treasurer budgets. She noted that the discount was only applied to activities drawn from the Business Plan, as requested by the parties, which reduced the estimate by \$3.7 Million US dollars.

16. Ms. Carvalho presented Item 2, on a scenario estimating costs based on actual consumption. She noted that for HCFCs, RTF used latest consumption reported for 2021 or 2022, resulting in an estimated funding for HCFCs of US\$ 192 million. For HFCs, this approach would bring significant reduction to the estimated funding because only HFC consumption was used, and RTF deducted the 65% of HCFC portion of the Kigali HFC baseline. Ms. Carvalho concluded that RTF estimated the funding needed by Group 1 countries needing KIPs to reach the 10% compliance target by 1 January 2029 to be around US\$ 405 million including support costs and that Item 2 scenario reduced the updated 2024-2026 triennium estimated funding by US\$168.5 million.

17. Ms. Carvalho summarized the RTF analysis for Item 3, where the RTF was asked to provide parties with very preliminary estimates of impact of future 93rd ExCom approvals. She explained RTF did not have credible information on future submissions as they will happen after RTF posted the Report on the Ozone Secretariat website, and while presenting an example on how to calculate impact RTF did not adjust its final estimates. She also noted that RTF considered the total US\$ 20 million for the energy efficiency funding window as part of the 2024-2026 triennium. Ms. Carvalho then clarified that the MLF Secretariat recently informed RTF that there were about 13 pilot projects submitted to the 93rd meeting, totaling about US\$14 million, and that the \$20 million RTF allocated to the 2024-2026 triennium would need to be revised to deduct the funding for pilots submitted to the 93rd ExCom.

18. Ms. Carvalho presented Item 6, where RTF considered eligible remaining consumption based on approved agreements as of the 92nd ExCom, by substance and by country. For this item, RTF allocated the consumption in sectors likely to use those chemicals with 6 Scenarios developed and analyzed by RTF following methodology instructed by OEWG-45 to the extent possible. She provided an example for HCFC-22 noting that the RTF assumed that out of 34 non-LVCs with remaining eligible HCFC-22 consumption, 25% had remaining consumption in manufacturing sectors (mainly CR and AC, with CE 11 \$/kg used), and 75% had consumption in the servicing sector, with 4.8 \$/kg CE used. CE used is based on document ExCom 89/10 revision. She stated that the total apportioned to the 2024-2026 triennium for non-LVCs is estimated at US\$ 336 million. She noted that for LVCs, RTF estimated funding for 24 countries with eligible remaining consumption based on ExCom decision 74/50, assuming all HCFC-22 is in servicing sector. The estimate is US\$ 14 million to be approved in the triennium. She concluded that considering all scenarios, the total estimated funding for the 2024-2026 triennium for the new HPMPs is US\$ 420 million dollars, with support costs. She also noted that assumptions for other sectors could be found in the report.

19. Ms. Carvalho gave the floor to RTF member Mr. Bassam Elassaad. He noted that for item 5, on some A5 parties submitting proposals to phase down HFCs in advance of applicable targets, RTF analysed the HFC baseline and average 2020-2022 HFC consumption for each country and by country brackets based on best available current consumption data; estimated the amount of room for growth that countries may have before reaching the 10% reduction compliance target at the end of 2028, meaning by 1 January 2029; explained that RTF estimated 2028 consumption using a 3% growth rate compounded for 7 years (i.e., 2021-2028), which equals 23% growth; and that this value, representing 2028 consumption, was compared to an accelerated Jan 1st, 2029 compliance target of 80% of the baseline (20% reduction), which advances the phase down by 10%. RTF assumed that Group 1 countries for which the projected 2028 consumption was 50% lower than the accelerated 2028 compliance target of 80% of baseline, or 20% reduction from the baseline, might pursue a KIP in support of advanced phase-down. She mentioned that fourteen (14) countries fit under this scenario, mainly LVCs (12 of them). Group 2 countries were excluded based on these criteria. He concluded that for this scenario, with an estimated shift forward KIP funding from future triennia for these 14 countries, the increase in the 2024–2026 triennium is approximately US\$ 4.9 million.

20. Mr. Elassaad noted that for item 9, RTF considered 90% of countries' consumption in Group 1 instead of 90% of countries requesting funding, as RTF could not select individual countries. He noted that the RTF based the calculations on the RTF September 2023 updated figures resulting in a total of US\$ 488.5 million, including 9.6% support costs which is a reduction of US\$124 million compared with the September 2023 updated estimates.

21. For Item 13, Mr. Elassaad explained that RTF considered the historical experience of economies of scale for Brackets A and B countries with manufacturing sectors and the average CE factors for Stage I and Stage II HPMPs. RTF applied a 25% CE factor adjustment across manufacturing sectors for Brackets A and B countries (except for servicing) to derive an estimated funding for KIPs to be US\$ 464 including support costs. He concluded that this scenario reduces the updated estimated funding for the 2024–2026 triennium by US\$ 105.6 million.

22. On Item 16, he explained that it addressed challenges in two sectors: manufacturing and assembly & Installation (A&I), a subsector of servicing. He noted that the RTF considered lack and cost of R&D, lack of testing facilities, limited access to financing; factors affecting SMEs include level of custom duties, the level of MEPS, market conditions allowing growth. He explained that because of insufficient data on SMEs in A&I and no clear definition of SMEs in manufacturing yet, RTF used for their calculations a range for the percentage of SMEs in the sector. Mr. Elassaad provided an example for the manufacturing sector explaining that RTF assumed the SMEs are between 20% and 40% of the total manufacturing consumption. The range is \$285 million to US\$399 million, an additional cost of US\$114 million. RTF calculated between US\$114 million and US\$228 million the additional cost, representing between 8% and 16% of the sector funding calculated by this report. For the assembly and installation sector, RTF assumed that SMEs represented between 10 to 30% of the servicing sector and need 50% additional funding for an additional cost of between US\$67M to US\$203 million, representing 5 to 16% of the sector.

23. Mr. Elassaad introduced RTF member Omar Abdelaziz, to provide information related to energy efficiency.

24. Mr. Abdelaziz introduced section 6.3 of the report which provides examples of an energy efficiency incentive approach for different types of equipment and levels of efficiency improvement for estimating the additional cost for energy efficiency improvement as part of manufacturing conversion projects. He mentioned that this approach provides larger incentive to conversions of enterprises with equipment starting from lower efficiency levels and going to higher efficiency levels and that the incentive index is a function of energy efficiency improvement.

25. Mr. Abdelaziz then presented item 20 saying that the RTF suggests that supporting small and medium enterprises in improving the energy efficiency of the equipment and system design and development would benefit from either the establishment of regional centres of excellence related to energy efficiency or adding the scope of energy efficiency to existing regional centres of excellence. The presentation showed some relevant cost elements. He said that software, information technology, and training related items will cost the same whether the centre is new or existing; however, adding new facilities to an existing centre is typically more costly. Mr. Abdelaziz said that the RTF didn't provide a sum or identify how many centres would be needed, mentioning that not all centres would require the same level of equipment or capacity.

26. Regarding Item 24, on additional costs for including EE in leapfrogging in KIPs, Mr Abdelaziz mentioned that the RTF used a case study of the conversion of a room air conditioner from HCFC-22 to propane, using efficiency improvement brackets and an energy efficiency improvement

incentive-linked approach, similar to the approach presented in item 19 in the report. The presented table showed in the top row how an enterprise starting with low energy efficiency capability, in this case cooling seasonal performance factor (CSPF) of 2.8, would get a larger incentive for improving the efficiency level to 4.5 CSPF than a higher capability enterprise starting at a higher CSPF. The brackets also allow consideration for different levels of improvement for low capability enterprises. The energy efficiency incentive cost is presented as a cost per kilogram of refrigerant in addition to the typical conversion cost at the enterprise level. Mr. Abdelaziz mentioned that the RTF provided an illustrative market distribution with the resulting weighted average additional cost.

27. Finally, Mr. Abdelaziz illustrated several key concepts that inform the energy efficiency improvement incentive linked approach: in Panel A, he described the enterprises with lower energy efficiency capability – that is generally small and medium enterprises with limited budgets for research and development or knowledge and facilities for designing, sourcing, integrating and testing energy efficiency components – produce for the most part lower efficiency equipment. Larger enterprises shown in orange also produce low efficiency products but have the capability to also produce high efficiency products.

28. In Panel B, he described that additional capital costs presented such as those associated with building testing laboratories or R&D capacity, tend to be similar across energy efficiency levels, while additional operating costs in dark blue tend to increase with higher efficiency levels.

29. In Panel C, he described that the energy efficiency improvement incentive linked approach could be designed to provide the greatest incentive to those lower energy efficiency capability enterprises to move from the lowest energy efficiency level to higher energy efficiency levels.

30. RTF co-chair Ms. Suely Carvalho continued the presentation discussing Item 26, in RTF Supplementary Report Section 7.2, which provides scoping framework with indicative costs that could be applied to estimating funding in future triennia for implementation of end-of-life management plans under ExCom decision 91/66.

31. In item 27, she explained the scenario where about 30% of countries request funding, using allocated funding per country consumption bracket, as per ExCom Decision 91/66, a reduction of US\$ 9.2 million.

32. Ms. Suely Carvalho concluded the discussion and thanked the parties for their attention.

B. Presentation report by the Medical and Chemicals Technical Options Committee on the response to decision XXXIV/7

33. The report was presented on behalf of the Medical and Chemicals Technical Options Committee (MCTOC) Co-chairs Keiichi Ohnishi, Helen Tope, Jianjun Zhang, and on behalf of the TEAP. Mr Ohnishi introduced Mr Nicholas Campbell who made the presentation.

34. Mr Campbell described the Decision, which requested the TEAP to prepare a report for the 35th Meeting of the Parties to include:

- a) Information on the possible chemical pathways that could be used in the production of Annex C, Group I, or Annex F substances that may generate HFC-23 as a by-product;
- b) Compilation of information on the amount of HFC-23 generation and emissions from facilities that manufacture Annex C, Group I, or Annex F substances, the reporting of which is required under Article 7 of the Montreal Protocol;
- c) Best practices available to control these emissions

35. He stated that the MCTOC, with its relevant chemical production expertise had led the preparation of this report on behalf of the TEAP. The Report responds to decision, which focuses on chemical pathways used in the production of Annex C, Group I, and Annex F substances that may generate HFC-23 as a by-product. It includes contextual information on other HFC-23 generation and emissions as follows:

- Chemical pathways used in the production of substances that are not Annex C, Group I, or Annex F substances
- Feedstock uses
- Consumptive uses, in consultation with TEAP experts
- To help broader understanding of the relative importance of the chemical pathways that are focus of the decision.

36. First Mr Campbell defined some key terms:
- **Generation** is defined as the total HFC-23 produced as a by-product, without taking into account abatement of emissions.
 - **Emissions** are defined as the total HFC-23 emitted from a facility that generates HFC-23 as a by-product, after any abatement.
 - A **by-product** is considered a secondary product of a primary process to create an intended product. A by-product may be secondary, but it is not necessarily unwanted if it is commercially valuable.
37. Then he described some chemical pathways that may generate HFC-23 as a by product:
- Chemical pathways used to produce Annex C HCFC-22: Estimated at **95% of total global HFC-23 by-product generation**, the main source of HFC-23 by-product generation.
 - Chemical pathways used to produce other Annex C HCFCs (other than HCFC-22) or Annex F HFCs: Estimated at **up to 1% of total global HFC-23 by-product generation**.
 - Chemical pathways used to produce substances other than Annex C HCFCs or Annex F HFCs: Estimated at **around 3–4% of total global HFC-23 by-product generation**.
38. Mr Campbell then described the mechanisms of generation on HFC-23:
- *Over- or under-reaction of chemicals* present in the reaction vessel enroute to the intended product, e.g., HFC-23 is an over-fluorination of HCFC-22.
 - *Presence of impurities in the feedstocks that are being reacted*, e.g., chloroform impurity in dichloromethane feedstock, used to produce HFC-32, is hydro-fluorinated to HFC-23.
 - *Unintended side reactions*, where the feedstock follows a different reaction path than the one that is desired to make the product, e.g., cleavage of carbon–carbon bond in the production of HFC-125 from perchloroethylene, with subsequent hydro-fluorination of the resulting mono-carbon molecule to form HFC-23.
39. He then described the key factors that impact the HFC-23 generation rates from the reactions:
- For economic reasons, the design intent of most plants is to minimise generation of unwanted by-products to the extent possible to maximise desired feedstock to product conversion ratios, within the limits of chemistry and available engineering.
 - In some cases, it may be economically attractive to increase the production rate of the desired product at the expense of a higher by-product generation rate.
 - HFC-23 generated as a by-product will only be emitted if it is not captured, used as feedstock, or destroyed before it leaves the process.
 - With an effectively operated HFC-23 mitigation step, e.g., thermal oxidation, HFC-23 emission rates can be significantly lower than the HFC-23 by-product generation rates because destruction efficiencies can exceed 99%. The incinerator at the end of the production line to prevent emissions of the generated HFC-23 has an annual running cost of ~\$500,000/year.
40. Mr Campbell stated that the MCTOC expert report estimated the global generation of HFC-23 as a by-product to be around 25,000 tonnes per year for the range of chemical pathways considered in this report. This accords with the SAP “top-down” estimates of atmospheric measurements. However, emissions should be much lower than generated amounts, if the best practice mitigation measures are being applied.
41. He then described the level of evidence behind these conclusions. He pointed out that some chemical pathways used to produce Annex C HCFCs and Annex F HFCs have good evidence of HFC-23 generation and associated rates (e.g., HCFC-22 from chloroform). However, other chemical pathways have more limited evidence of HFC-23 generation due to insufficient data, with a lack of emissions reporting and a lack of reference to HFC-23 generation in patents. Nevertheless, HFC-23 generation is theoretically feasible for many processes producing fluorinated substances and potentially present in trace amounts. For some chemical pathways, the rate of HFC-23 generation may

be so low (practically zero) that HFC-23 would remain undetected in routine analysis. With these data qualifications in mind, chemical pathways that could be used to produce Annex C HCFCs and Annex F HFCs that may generate HFC-23 as a by-product include: HCFC-22 from chloroform, including co-production of HCFC-21; HFC-32 from dichloromethane; HFC-125 from perchloroethylene, including co-production of HCFC-124 and HCFC-123; HFC-134a from trichloroethylene, including co-production of HCFC-133a; HCFC-142b from vinylidene chloride or trichloroethane; HFC-152a from vinyl chloride; HFC-143a from trichloroethane; HFC-227ea from hexafluoropropylene (HFP); and HFC-245fa from pentachloropropane.

42. He listed the sources of information as UNFCCC submissions by Annex I countries, the Intergovernmental Panel on Climate Change (IPCC), Article 7 data reported under the Montreal Protocol, data reported to the Executive Committee (ExCom), and the Scientific Assessment Panel (SAP). HFC-23 by-product generation are mostly available for HCFC-22 production, and based on IPCC default factors, HFC-23 by-product generation from HCFC-22 production is expected to be in the range of about 15,000 to 30,000 tonnes per year.

43. Mr. Campbell then went on to describe the other chemical pathways that may generate HFC-23 by-product (other than Annex C HCFCs or Annex F HFCs). Of these *other* chemical pathways, the largest contributor to global HFC-23 by-product generation is likely to be the pyrolysis of HCFC-22 to make tetrafluoroethylene (TFE) and hexafluoropropylene (HFP), which can be used to produce fluoropolymers. Other chemical pathways where HFC-23 by-product generation is theoretically feasible include those used to produce CFCs, namely CFC-113 from perchloroethylene and CFC-114 from perchloroethylene. These other chemical pathways are currently estimated to only account for around 3–4% of total global HFC-23 by-product generation.

44. The Decision asked TEAP to describe the best practices to minimize HFC-23 emissions. Those described in the report include:

- Optimising plant design, equipment, operation, maintenance
- Instrumentation and monitoring of process and emissions
- Training and instruction for plant operators
- Periodic mass balancing
- Technologies for destruction (i.e., thermal oxidation) or for separation and chemical transformation to treat unwanted co-products or by-products and abate their emissions
- Regulatory controls to provide the framework to ensure emissions mitigation measures are implemented by operators, and to require emissions and other reporting.

45. Mr. Campbell summarised by stating that uncertainties and data discrepancies have been identified in this report that impact the accurate estimation of global HFC-23 generation and emissions based on currently available data. With improved data, more refined estimates and conclusions could be drawn, and parties may wish to consider measures to improve the reported data for HFC-23 generation and emissions, including their accuracy and their scope.

C. Presentation of the Methyl Bromide Technical Options Committee of the Technology and Economic Assessment Panel on the 2023 critical-use nominations for methyl bromide

46. On behalf of TEAP, the Methyl Bromide Technical Options Committee co-chairs, Ian Porter and Marta Pizano presented the final recommendations for the 2023 critical use nomination requests for methyl bromide.

47. Mr. Porter indicated that MBTOC received only one application for critical use of 3.857 tonnes of methyl bromide for preplant soil fumigation at a strawberry nursery at Prince Edward Island, Canada in 2024. This single application compared to 141 applications for methyl bromide use in 2005 for over 18,700 tonnes.

48. He explained that MBTOC had made no change to the interim recommendation reported to the 45th OEWG and made a final recommendation of the full amount requested as the Canadian strawberry runners. The reasons were that the nominated amount represented a 17% reduction from the approved amount at the 34th MOP and that the party had stated that much of the nominated reduction would result from fumigating a smaller total acreage across all stages of production, while the grower continues work to rapidly increase their capacity for indoor soilless production.

49. He also noted that the party indicated its intent to nominate approximately 2.85 tonnes for 2025 and not to submit a nomination for 2026.

50. He then explained that Canada had reported under decision XVI/6 that it had no stocks of methyl bromide. He reminded parties that CUE recommendations were not adjusted by MBTOC to account for stocks and even though Canada had none, he emphasized that other parties may have stocks, however the Decision only requires a party seeking a CUN to report stocks. There is no mechanism under the Montreal Protocol to report on other stocks held by parties.

51. A summary was then presented of an Emergency Use Application (Decision IX/7) for 2 kg of MB sent to the Ozone Secretariat on 29 May 2023. The application was for controlling furniture beetles (*Anobium punctatum*) infesting valuable furniture and antiques. A similar emergency use was reported previously by Israel (2018).

52. MBTOC considered that although alternatives, like phosphine and sulfuryl fluoride, can control this pest in other commodities they were not suitable or not registered for this specific use in Israel. MBTOC, however, is aware of relevant research conducted in Israel with inert gases (e.g. nitrogen, CO₂) which provide the required control under the circumstances of this use.

53. In finalizing the presentation, the timelines for submission of CUNs in 2024 was presented.

D. Presentations by the assessment panels on progress in their work and key issues

1. Presentation by the Scientific Assessment Panel

54. The Montreal Protocol's Assessment Panel co-chairs provided a summary of their "Synthesis of the 2022 assessment reports of the Scientific Assessment Panel (SAP), the Environmental Effects Assessment Panel (EEAP) and the Technology and Economic Assessment Panel (TEAP)." This Synthesis Report was derived with information from the SAP's "Scientific Assessment of Ozone Depletion: 2022", the EEAP's "Environmental Effects of Stratospheric Ozone Depletion, UV Radiation, and Interactions with Climate Change", and the TEAP's "2022 Assessment Report." The presentation summarized a few key points from the Synthesis Report.

55. The Synthesis Report was authored by EEAP's co-chairs: Paul Barnes, Janet F. Bornman, and Krishna Pandey; the SAP's David W. Fahey, Paul A. Newman, John A. Pyle, and Bonfils Safari; and the TEAP's Bella A. Maranion, Marta Pizano, and Ashley A. Woodcock. The Report was also completed with support from the report coordinator and editor, Sarah Doherty (SAP), and from Meg Seki and Sophia Mylona of the Ozone Secretariat. In addition, the various authors of the SAP, EEAP, TEAP and its Technical Option Committee (TOC) reports provided essential help for the Synthesis Report.

56. The SAP portion of the presentation, given by Paul Newman, initially touched on compounds controlled by the Montreal Protocol. Specifically, actions taken under the protocol have continued to decrease atmospheric abundances of controlled ozone-depleting substances (ODSs) and advance the recovery of the stratospheric ozone layer. Further, there is continued progress in consumer, commercial, industrial, agricultural, medical, and military sectors, with ODSs no longer used in many applications worldwide.

- Successful actions by the Parties have reversed the increase of unexpected CFC-11 emissions observed between 2013 and 2017. Global CFC-11 emissions declined after 2018, dropping to 45 ± 10 Gg in both 2019 and 2020. This decline into 2019 and 2020 suggests the elimination of most of the unexpected emissions that began occurring in the years after 2012.
- Atmospheric levels of carbon tetrachloride (CCl₄ or CTC) have been declining at 1 to 2% per year, which is slower than the expected 3% per year decline that would result from zero emissions of this controlled compound.
- Atmospheric levels of methyl bromide (CH₃Br) have not declined since 2016. A majority of anthropogenically produced CH₃Br has been phased out except for quarantine and pre-shipment (QPS) fumigation, leaving natural emissions as the dominant source. Reported QPS consumption (10,000 tonnes) has been relatively stable for more than two decades. Around 40% of QPS could be phased out by non-MB alternatives.

57. The significant decreases in projected HFC emissions from the provisions of the Kigali Amendment will substantially protect future climate. While HFC atmospheric concentrations and emissions continue to increase, the emissions should peak in the 2030s if parties implement the Kigali Amendment. Approximately 95% of future HFC use will be for the refrigeration cold chain and space cooling, demand for which is increasing. Planned HFC phase-down under the Kigali Amendment, as well as national and regional regulations, are driving industry towards lower-GWP HFC alternatives or not-in-kind technologies, particularly in RACHP and foam applications. If the Kigali Amendment is fully implemented, it will almost completely mitigate the HFC climate impact projected without the Kigali Amendment.

58. The recovery date of global ozone is dependent on how levels of nitrous oxide, methane, and CO₂ change in coming decades. There are heightened scientific concerns about how climate change will impact levels of tropical total column ozone. Ozone recovery is dependent on compliance with the MP. Ozone observations (2000-2020) show increases in the upper stratosphere (30-50 km), with excellent agreement with model simulations of this period. The models reveal that this upward trend is due to both decreasing ODS and stratospheric cooling (0.6 K per decade) due to CO₂ increases. Observations suggest small decreases in lower stratospheric ozone in the mid-latitudes of both hemispheres, while models suggest small increases. Ozone in mid-latitudes has large year-to-year variability; thus, these lower stratospheric trends have large uncertainties, and they are not robust across all datasets and models.

59. Montreal Protocol controls are causing radiative forcing by ODSs (CFCs, HCFCs, halons, CCl₄ and CH₃CCl₃) to decrease. Since 2016, the forcing has declined by 0.006 W m⁻² (0.337 W m⁻² in 2020). This forcing is approximately 16% of the CO₂ radiative forcing in 2020.

60. Stratospheric ozone depletion and climate change are linked together. Ongoing ozone recovery and increases in atmospheric greenhouse gas (GHG) concentrations will be key to future Southern Hemisphere climate changes. The relative importance of ozone recovery for future Southern climate will depend on changes of atmospheric GHG concentrations. In the future, increasing GHGs and ozone recovery will have opposing effects on stratospheric temperatures and circulation.

61. Declining ODS emissions due to the Protocol avoids additional warming of 0.5-1.0 K by mid-century compared to uncontrolled ODS increases of 3–3.5% per year (an extreme scenario) with the resulting ozone changes.

2. Presentation by the Environmental Effects Assessment Panel

62. The EEAP summarised findings from the 2023 Synthesis Report of the three assessment Panels, highlighting findings that show how the Montreal Protocol continues to contribute to environmental sustainability, human health and well-being, in line with many UN Sustainable Development Goals (SDGs). By protecting the stratospheric ozone layer and mitigating some of the effects of climate, the Montreal Protocol including the Kigali Amendment, are contributing to a number of SDG targets related to climate change, human health, air and water quality, contaminants and pollution, biodiversity and ecosystems, sustainable production and consumption, and food security.

63. With respect to human health, updated modelling studies by the US Environmental Protection Agency and collaborating scientists indicate that in the United States millions of cases of skin cancer (melanoma and keratinocyte cancers) and cataract have been avoided because of the Montreal Protocol. The Montreal Protocol has also allowed individuals to realise some of the beneficial effects of moderate exposure to solar UV radiation (e.g., Vitamin D production and improved immune system function).

64. Modelling studies have also shown that the Montreal Protocol has prevented world-wide increases in surface UV-B radiation with effects being most pronounced over Antarctica, where projected UV Indices would have increased more than 10-fold by 2065 relative to 1975. Further, other modeling studies indicate that the extreme surface UV-B irradiances in the absence of the Montreal Protocol would have caused large-scale reductions in photosynthetic carbon uptake by the world's vegetation. In turn, this would have resulted in increases in atmospheric carbon dioxide and the additional rise in average global surface temperature of 0.5–1.0° C by 2100.

65. Climate change, including extreme weather and climate events, are increasingly changing the exposure of organisms and ecosystems to UV radiation. However, the environmental effects of these changes are not entirely clear. Solar UV radiation is a primary driver of plastic degradation in the environment and contributes to the production of microplastics. The Montreal Protocol has likely

prevented large increases in the generation of microplastics, although the biological risk factors of these microplastics are uncertain at present.

66. Trifluoroacetic acid (TFA) is a breakdown product of CFC replacements (e.g., HFCs, HCFCs, and HFOs) and is very persistent in the environment. TFA is produced in the atmosphere and deposited on soil and surface waters where it forms salts with alkali metals (sodium, potassium, calcium). While these TFA salts have long environmental lifetimes, they are unreactive and readily excreted by animals; therefore, TFA salts do not bioaccumulate in the food chain. Formation of TFA in the atmosphere is expected to increase due to increased use of HFOs and HCFOs for cooling purposes. At the present time, concentrations of TFA in the environment are very low and therefore unlikely to have adverse toxicological effects for humans, other organisms, or ecosystems. However, continued monitoring and assessment are advised due to uncertainties in potential future effects of TFA and its biological consequences.

67. While there are clear benefits of the Montreal Protocol for the biosphere, many challenges remain in quantifying the interactive effects of future changes in surface solar UV radiation and climate on human health, food security, ecosystem health and biodiversity. These challenges result from substantial uncertainty about how climate change, including extreme events, will modify the UV irradiation, and how UV radiation interacts with other climate change factors (e.g., high temperature, drought) to affect organisms and ecosystem services. Additional experimental and modelling studies are needed to address these challenges.

3. Presentation by the Technology and Economic Assessment Panel

68. Ms. Marta Pizano introduced information from the Technology and Economic Assessment Panel in several Sectors.

69. In Foams, she reported that transitions to zero ozone depletion potential and low global warming potential Foam Blowing Agent alternatives to HCFCs has continued to progress.

70. In Fire Protection, halons continue to be needed for enduring uses (e.g., oil & gas, nuclear power plants, military, civil aviation), the last of which is growing. She warned that halon supply beyond 2030 is potentially compromised with halon emissions higher than previously predicted.

71. Ms. Pizano then reported that CFCs have been phased out worldwide, and that HCFC-22 phase out is complete in non-Article 5 parties and progressing in A5 parties.

72. However, in Feedstocks, she noted that HCFC feedstock use is increasing, and CTC feedstock is increasing due to HFO production. She reported that manufacture of HCFC-22 generates high GWP HFC-23 as a by-product. Emissions are greater than the 0.1% that would be expected with implemented abatement measures.

73. She highlighted two specific topics. First the manufacture of Semi-conductors, Electronics, Magnesium all use high GWP HFCs but controls reduce HFC emissions. Second, inhalers for asthma and chronic obstructive pulmonary disease (COPD) are beginning a transition from high GWP HFCs. This is a major undertaking with serious potential public health risks unless managed appropriately.

74. Ms. Pizano then moved on to discuss Refrigeration, Air Conditioning and Heat Pumps (RACHP), in which 95% of future HFC use will be used. She indicated that Ultralow-, low-, and/or medium-GWP alternative refrigerants are now available for all RACHP sectors. However, there are challenges in finding the optimal solution for each application, considering especially the cost of the refrigerant, energy efficiency rating, safety, and ease of use. Accessibility is a major hindrance for the widescale adoption and progress toward the HFC phasedown. Revisions of safety standards have enabled increased use of flammable refrigerants in many applications, but the expanding use of flammable refrigerants in A5 parties requires support for training and capacity building.

75. She cautioned that proposed broad PFAS regulations could limit the use of HFOs, which could impact HFC phasedown.

76. Ms. Pizano then turned to energy efficiency. While the HFC phasedown focuses on direct greenhouse gas (GHG) emissions from the RACHP sector, indirect GHG emissions, due to energy consumption, are much more impactful to climate change. RACHP indirect GHG emissions can be reduced significantly through improved equipment energy efficiency, reduced demand using high-performance buildings and cold-chain, and reduced carbon intensity of the electricity network.

77. She commented on the importance of good servicing practices. In most A5 parties, but especially in low- and very low-volume consuming countries, the majority of ODS and HFC refrigerants are used for RACHP servicing. Restricting the growth of products containing high-GWP

and energy-inefficient RACHP equipment would reduce the servicing tail of unwanted high GWP refrigerants. Ensuring support for proper training for servicing and recovery would reduce direct emissions of ODS and HFC refrigerants, and also reduce indirect emissions from the loss in energy efficiency through proper maintenance of RACHP equipment.

78. Ms. Pizano noted that effective management of banks can minimise their environmental impacts. This comprises recovery, reuse, recycling, reclamation, and destruction of banks, mainly in RACHP and foams. ODS banks have been more concentrated in non-A5 parties, whereas HFC banks are currently evenly distributed between non-A5 and A5 parties. Banks in non-A5 parties will rapidly reach the end-of-life in the next decade. Banks are declining in non-A5 parties and rapidly increasing with HFCs in equipment in A5 parties.

79. Ms Pizano summarised by noting that the Montreal Protocol is working for both the ozone layer and climate. ODS emissions have declined substantially. There remains the issue of accessibility and implementation of HFC alternatives in A5 parties that will be critical for further progress.

ADVANCE

Annex II

Statement by the Chair of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol on the work of the Executive Committee, the Multilateral Fund secretariat and the Fund's implementing agencies*

Mr. President, distinguished parties,

On behalf of the Executive Committee of the Multilateral Fund, it is my honour to report to the parties the major strides made by the Executive Committee since the Thirty-Fourth Meeting of the Parties in 2022.

First, I am pleased to report that the Executive Committee has made considerable progress towards implementing the Kigali Amendment this year, especially in the refrigeration servicing sector responding to the mandate provided to the Executive Committee when Parties adopted the Kigali Amendment in 2016.

Second, the Committee has established two funding windows on energy efficiency and disposal and is developing an operational plan to consider energy efficiency while phasing down HFCs. This is again in response to the mandate provided to the ExCom when the Kigali Amendment was adopted.

Third, the Committee reiterated the importance we place on institutional strengthening by increasing its funding level – consistent with expectations from Parties arising from adoption of the Kigali Amendment

Fourth, we have adopted specific project requirements and indicators to ensure that gender mainstreaming is an important focus in implementation of multiyear projects.

Mr. President, distinguished parties,

Document 35/9 provides a comprehensive yet brief description of the deliberations and the outcomes of the Committee's work in the last year, the projects approved, the status of implementation of ongoing projects, as well as business planning, financial and administrative matters.

In my presentation, I will give you a snapshot of a few decisions and I will conclude with the achievements of the Fund since its inception, achievements that we all are proud of.

As I mentioned, the Executive Committee agreed on the eligible incremental costs for the refrigeration servicing sector for stage I of the KIPs. This is an excellent step towards supporting developing countries to implement their Kigali HFC Implementation Plans and will assist more than XX number of parties with only servicing sector activities to proceed with development of their plans.

Implementing the first stage of KIPs will enable Article 5 parties to comply with the control targets of the Kigali Amendment until 2029, while the countries also implement the last stage of HPMPs to phase out HCFCs.

These funding levels will be reviewed for activities submitted under future stages of KIPs once activities under HPMPs are completed.

In the 92nd meeting, we have also approved the first KIP for Cameroon and many more KIPs are expected to be approved in the 93rd meeting a month before the first compliance target of the Kigali Amendment kicks in – a very exciting period for the Executive Committee.

The Committee will continue to discuss the remaining issues related to the HFC cost guidelines which include cost-effectiveness thresholds and incremental operating costs for other sectors, and the starting point for sustained aggregate reductions of HFC consumption at our next meeting in December.

* The statement is reproduced as received, without formal editing.

The Committee has also advanced its approach on dealing with energy efficiency while phasing down HFCs, an issue that is core in the deliberations of the parties in the recent years. We all participated in the recently concluded workshop on energy efficiency that the Ozone Secretariat organised a few days ago. The Committee has agreed to open a funding window of \$20 million USD where countries that have ratified the Kigali Amendment can submit pilot projects on energy efficiency.

The first pilot projects will be reviewed in the upcoming meeting while at the same time the Committee members will discuss the operational framework to deal with energy efficiency issues while phasing down HFCs in a more systematic way and with policy guidance.

The Committee also agreed on a set of criteria and a funding window for national inventories for banks and a plan for the collection, transport and disposal of unwanted controlled substances. The national inventories and plans will allow countries to look for environmentally sound and sustainable ways of managing their disposal.

One of the unique aspects of the Multilateral Fund is the support for institutional strengthening projects, providing Article 5 countries financial support to implement the Protocol and its Amendments.

With the adoption of the Kigali Amendment, the workload for National Ozone Units increased simultaneously as they reached the peak of their work towards HCFC phase-out.

Recognizing this increased burden, the Executive Committee decided to streamline and standardize reporting requirements and increase funding to support the additional work at a level 38 per cent higher than that which had been agreed before with a minimum level of institutional strengthening funding of US \$60,000 per year. In the same decision, the duration of those projects was extended to three years to reduce the administrative burden on the National Ozone Officers.

The Committee also delivered on its promise to ensure that from planning till implementation on the ground, gender issues are considered and included in every single stage. Bilateral and implementing agencies will include mandatory requirements and performance indicators for gender when submitting stages of multi-year agreement projects from the 94th meeting onwards.

Mr President, distinguished parties,

The delivery on the ground is possible thanks to the amazing work of the Implementing and bilateral agencies. This is the time where all parties can thank the contributions of UNEP, UNDP, UNIDO and the World Bank.

UNEP supported 103 countries with institutional strengthening projects and assisted them to meet their HCFC phase-out commitments through HPMPs, Information Clearinghouse products, and compliance assistance services. UNEP is supporting 51 countries with the preparation of their KIPs and has begun implementing a twinning project for NOUs and energy efficiency officials.

UNDP is providing technical support to 47 countries to meet their HCFC targets. The HFC demonstration projects in Bangladesh, China, Dominican Republic, and Mexico were completed and led to development of highly efficient refrigeration equipment. UNDP has received approvals for HFC preparation in 30 countries and supported 13 countries to prepare and submit KIPs to the 92nd and 93rd meetings. Gender was an important priority in 2022 and UNDP implemented several strategies which increased women's participation in courses, and awareness activities.

UNIDO is currently implementing HPMPs in 63 countries, institutional strengthening projects in 12 countries, projects on HFC-23 by-product emission destruction in 2 countries. Three HFC investment projects in Argentina, Lebanon and Mexico have been completed and two more in Ecuador and Jordan are ongoing. At the 91st meeting, UNIDO submitted the first KIP for Niger and the Executive Committee approved initial funding. At the 92nd meeting, UNIDO submitted the KIP for Cameroon which is the first ever approved KIP. More KIPs will be coming in the upcoming meeting. UNIDO continues to submit energy efficiency projects for LVCs and non-LVCs and funding for preparation of national inventories of banks of waste-controlled substances.

The World Bank continues to assist its partner countries in delivering stage II of their HPMPs to achieve HCFC consumption and production reductions in accordance with their obligations and to

sustain and even further reduce consumption and production towards the 2025 compliance target. The Bank is also supporting its partner countries in meeting their first commitments under the Kigali Amendment while maximising climate mitigation co-benefits across key economic sectors through sustainable cooling. This past year, the Bank fully resumed on the ground country support after the COVID disruption.

I would like to end my remarks by drawing your attention to the communication tool on the achievements of the Multilateral Fund that was prepared by the MLF Secretariat. These achievements pay tribute to the dedication, passion, and commitment of all parties since 1991. There is a lot of information in the pages of the communication tool. In close collaboration with its partners, the Multilateral Fund has invested \$4 billion USD in more than 9,000 targeted ozone-recovery projects over the past thirty years.

The work of the Multilateral Fund has been transforming economies and empowering people. The Fund has been investing in technology transfer, training, and capacity building. New business opportunities are created, and technological innovation is spurred in countries across the globe, creating new jobs and improving livelihoods.

The Montreal Protocol has kept the climate cooler by nearly eliminating all ozone depleting substances that were also greenhouse gases. Our future activities to phase down HFCs will have a bigger impact on global climate. Our work continues to be vital to the health of the planet and its people. We are at the halfway point in the implementation of the Sustainable Development Goals. The work of the Fund contributes greatly to the achievement of several of these goals.

I encourage you to share this communication tool so that we can all be proud of our achievements.

Mr. President, distinguished delegates,

Finally, I would like to take this opportunity to express my sincere appreciation to the members of the Executive Committee, the Fund Secretariat, and the bilateral and implementing agencies, for their continued hard work and dedication to our common goals. I would like to thank my colleague Mr. Hassan Ali Mubarak from Bahrain as he was the Chair in one of the meetings of the Executive Committee since the last Meeting of the Parties. I would also like to thank the Executive Director of UNEP, Ms. Inger Andersen, for addressing the 91st meeting of the Executive Committee, for praising the work well done by the Fund and for also reminding us of the importance of a strong funding mechanism to deliver on the protection of the ozone layer and the climate change mitigation.

I would also like to thank the parties for their strong commitment to the implementation of the Montreal Protocol and the guidance you provide to the Executive Committee.

Thank you.
