

## Summary of the 44th Meeting of the Open-ended Working Group and Fifth Extraordinary Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer: 11-16 July 2022

At this first in-person meeting in over two years, the 44th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (OEWG 44) took up discussion of many important issues that were postponed due to the COVID-19 pandemic. While the Protocol is widely lauded for its success in healing the Earth’s protective ozone layer, delegates did note that strengthening monitoring arrangements to address discrepancies between atmospheric monitoring and on-the-ground observations are necessary to ensure that parties have the information they need going forward. Therefore, the meeting also addressed questions of gaps in global monitoring of ozone depleting substances (ODS) and specific usage and production of some substances, namely methyl bromide and carbon tetrachloride (CTC).

Throughout the week, deliberations focused on:

- replenishment of the Montreal Protocol’s Multilateral Fund (MLF) for the current 2021-2023 triennium;
- terms of reference for a study of replenishment needs in the next 2024-2026 triennium;
- energy efficiency and dumping;
- ongoing emissions of CTC; and
- restructuring of the technical options committees (TOCs) that are linked to the Protocol’s Technology and Economic Assessment Panel (TEAP).

Energy efficiency and phasedown of hydrofluorocarbons (HFCs) are key areas of implementation for parties since the adoption of the Kigali Amendment, especially in view of the January 2024 deadline, when Article 5 countries (developing countries) will freeze HFC use. The energy efficiency contact group also discussed the concerns of African countries that introduction of tighter efficiency standards in wealthy countries are already resulting in the transport of unwanted appliances to their shores.

Parties also discussed options for a possible restructuring of the TEAP and its TOCs, which could reflect a move away from focusing on specific substances (such as halons) to a more systemic approach of addressing activity areas (such as fire protection). There is no consensus yet on whether such a restructuring will substantially strengthen the range and availability of expertise for Protocol implementation.

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Parties forwarded four conference room papers to the thirty-fourth Meeting of the Parties (MOP 34) for further deliberation on: stocks and quarantine and pre-shipment uses of methyl bromide; CTC; a European Union proposal on identifying sources of emissions originating from industrial processes; and recognition of the achievements of the three Nobel prize-winning scientists—Paul Jozef Crutzen, Mario José Molina and Frank Sherwood Rowland—whose work on the ozone layer laid the foundation for multilateral cooperation, to mark the 35th anniversary of the Montreal Protocol in 2022.

OEWG 44 also concluded the delayed negotiations toward replenishment of the MLF, finally agreeing on a budget of USD 540 million, of which USD 475 million is expected in new contributions. Significant remaining carryover funds from the 2018-2020 triennium will be held as investments for future implementation of the Protocol.

OEWG 44 convened in Bangkok, Thailand, from 11-16 July 2022, with more than 350 registered participants. An Extraordinary Meeting of Parties (Ex-MOP 5) convened at the close of OEWG 44, on 16 July to adopt the MLF decisions.

### **A Brief History of the Ozone Regime**

Concerns that the Earth's stratospheric ozone layer could be at risk from chlorofluorocarbons (CFCs) and other anthropogenic substances first arose in the early 1970s. At that time, scientists warned that releasing these substances into the atmosphere could deplete the ozone layer, hindering its ability to prevent harmful ultraviolet (UV) rays from reaching the Earth. This would adversely affect ocean ecosystems, agricultural productivity, and animal populations, and harm humans through higher rates of skin cancers, cataracts, and weakened immune systems. In response, a UN Environment Programme (UNEP) conference held in March 1977 adopted a World Plan of Action on the Ozone Layer and established a Coordinating Committee to guide future international action.

**Vienna Convention:** Negotiations on an international agreement to protect the ozone layer were launched in 1981 under the auspices of UNEP. In March 1985, the Vienna Convention for the Protection of the Ozone Layer was adopted. It calls for cooperation on monitoring, research, and data exchange, but does not impose obligations to reduce ODS use. The Convention now has 198 parties, which represents universal ratification.

**Montreal Protocol:** In September 1987, efforts to negotiate binding obligations to reduce ODS usage led to the adoption of the Montreal Protocol, which entered into force in January 1989. The Montreal Protocol introduced control measures for some CFCs and halons for developed countries (non-Article 5 parties). Developing countries (Article 5 parties) were granted a grace period, allowing them to increase their ODS use before taking on commitments. The Protocol has been ratified by 198 parties.

Since 1987, several amendments and adjustments have been adopted, adding new obligations and additional ODS and adjusting existing control schedules. Amendments require ratification by a certain number of parties before they enter into force; adjustments enter into force automatically. All amendments except its newest, the Kigali Amendment, have been ratified by 197 parties.

### **Key Turning Points**

**London Amendment and Adjustments:** At the second MOP, held in London, UK, in 1990, delegates tightened control schedules and added ten more CFCs to the list of ODS, as well as CTC and

methyl chloroform. MOP 2 also established the MLF, which meets the incremental costs incurred by Article 5 parties in implementing the Protocol's control measures and finances clearinghouse functions. The Fund is replenished every three years.

**Copenhagen Amendment and Adjustments:** At MOP 4, held in Copenhagen, Denmark, in 1992, delegates tightened existing control schedules and added controls on methyl bromide, hydrobromofluorocarbons, and hydrochlorofluorocarbons (HCFCs). MOP 4 also agreed to enact non-compliance procedures. It established an Implementation Committee to examine possible non-compliance and make recommendations to the MOP aimed at securing full compliance.

**Montreal Amendment and Adjustments:** At MOP 9, held in Montreal, Canada, in 1997, delegates agreed to: a new licensing system for importing and exporting ODS, in addition to tightening existing control schedules; and banning trade in methyl bromide with non-parties to the Copenhagen Amendment.

**Beijing Amendment and Adjustments:** At MOP 11, held in Beijing, China, in 1999, delegates agreed to controls on bromochloromethane, additional controls on HCFCs, and reporting on methyl bromide for quarantine and pre-shipment applications.

**Kigali Amendment:** At MOP 28, held in Kigali, Rwanda, in 2016, delegates agreed to amend the Protocol to include HFCs as part of its ambit and to set phasedown schedules for HFCs. HFCs are produced as replacements for HCFCs and thus a result of ODS phase-out. HFCs are not a threat to the ozone layer but have a high global warming potential. To date, 136 parties to the Montreal Protocol have ratified the Kigali Amendment, which entered into force on 1 January 2019.

### **Recent Meetings**

**COP 11/MOP 29:** The eleventh meeting of the Conference of the Parties to the Vienna Convention (COP) and MOP 29 met in November 2017, in Montreal, Canada. COP 11/MOP 29 adopted decisions including on future availability of halons and energy efficiency. They also agreed on a USD 540 million replenishment of the MLF for the triennium 2018-2020.

**MOP 30:** Convening in November 2018 in Quito, Ecuador, MOP 30 adopted decisions on: issues important to the January 2019 entry into force of the Kigali Amendment; approved destruction technologies to be used for HFCs; the MLF Executive Committee's (ExCom) progress in developing guidelines for the financing of the HFC phase-down; Article 5 parties' access to energy-efficient technologies in the refrigeration, air conditioning, and heat pump sectors; a proposal to permit essential use exemptions for HCFCs for specific uses by certain parties; and unexpected increases in CFC-11 emissions.

**MOP 31:** MOP 31 met in November 2019 in Rome, Italy. The MOP adopted several decisions, the most significant of which were on the terms of reference for the study on the 2021-2023 MLF replenishment, unexpected CFC-11 emissions, and the areas of focus for the 2022 quadrennial assessment reports. MOP 31 also addressed: ongoing reported emissions of CTC; critical use exemptions (CUEs); and issues of non-compliance. Parties were invited to sign the Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Management.

**COP 12/MOP 32:** Due to the COVID-19 pandemic, the first part of COP 12 and MOP 32 convened online from 23-27 November 2020. Delegates addressed only those issues deemed essential,

including the replenishment of the MLF for 2021-2023. Parties authorized the Secretariat to arrange an extraordinary MOP in 2021 to take a decision on the final programme budget for 2021-23. MOP 32 also addressed: methyl bromide CUEs for 2021-2022; compliance and data reporting issues; and membership of the Montreal Protocol bodies and assessment panels.

**ExMOP 4 and OEWG 43:** The Fourth Extraordinary MOP to the Montreal Protocol (ExMOP 4) and OEWG 43 convened online on 21, 22 and 24 May 2021 due to the COVID-19 pandemic. ExMOP 4 agreed to facilitate payments to the MLF to ensure its continued functioning during 2021. Parties agreed that any contributions made in advance of the 2021-2023 replenishment decision should count toward future contributions and should not affect the overall level of the replenishment or the agreed level of contributions by parties. OEWG 43 discussed the scope and content of guidance to the TEAP Replenishment Task Force on further work on its replenishment report. Parties agreed on an updated report, rather than a more comprehensive supplemental report.

**COP 12/MOP 33:** This combined meeting convened virtually from 23-29 October 2021, with a high-level segment on the last day. The meeting took key decisions related to monitoring controlled substances and energy efficiency, as delegates requested the assessment panels to work out what would be needed to increase the monitoring capacities in regions where capacity is limited or altogether absent.

Delegates also continued work on what is becoming an increasing focus of the Montreal Protocol: low global-warming-potential (GWP) and energy-efficient technologies. The meeting considered two draft decisions, which addressed: trading of soon-to-be obsolete technologies, which could be a threat to the future implementation of the Kigali Amendment, and broadening the list of sectors required to implement more energy-efficient technologies. The meeting also adopted 18 decisions on administrative and technical matters, including: replenishment of the MLF; financial reports and budgets of the trust funds for the Vienna Convention and Montreal Protocol; compliance and reporting; membership of Montreal Protocol bodies; and recommendations of the Ozone Research Managers of the Vienna Convention.

### **OEWG 44 Report**

On Monday, 11 July, OEWG Co-Chairs Martin Sirois (Canada) and Osvaldo Alvarez (Chile) welcomed the return to in-person meetings to enthusiastic applause from delegates at the UN Conference Centre in Bangkok.

Megumi Seki, Executive Secretary, Ozone Secretariat, introduced the main issues for parties' attention, noting there had been "lower and slower" activities during the global pandemic, and a large fund carryover from this period. She urged delegates to make as much progress as possible on negotiations before the MOP convenes in Montreal, Canada, from 31 October to 4 November 2022. She also highlighted that 2022 marks the 35th anniversary of the Montreal Protocol.

Co-Chairs Sirois and Alvarez briefed delegates on the tasks ahead, noting that ExMOP 5 will convene on Saturday afternoon to consider a draft decision on the MLF replenishment for the current 2021-2023 triennium.

**Organization of Work:** Delegates adopted the provisional agenda (UNEP/OzL.Pro.WG.1/44/1) put forward by Co-Chair Alvarez. The EU and US, on behalf of Australia, New Zealand,

Norway and others, condemned the Russian Federation's invasion of Ukraine and noted their condemnation could be reflected under Agenda Item 14 on "Other Matters." The RUSSIAN FEDERATION opposed this proposal. Delegates then agreed to the organization of work as outlined by Co-Chair Sirois.

### **Replenishment of the MLF for the Period 2021-2023**

On Monday morning, Co-Chair Sirois noted that at MOP 32 and MOP 33 parties had adopted interim budgets of USD 268 million and USD 400 million, respectively. He invited parties to negotiate the final replenishment decisions. He drew attention to documents, including the September 2021 TEAP report on assessment of the funding requirement for the replenishment of the MLF for the 2021-2023 period (UNEP/OzL.Conv.12(II)/2/Add.1-UNEP/OzL.Pro.33/2/Add.1, annex I) and information on the scale of assessments, rates of exchange and average inflation rates for contributions by parties (UNEP/OzL.Pro.WG.1/44/INF/3). Many countries noted the exceptional circumstances in which delegations needed to finalize the replenishment of the MLF, given that the meeting was taking place more than halfway through the three-year replenishment period, due to the impact of COVID-19.

CANADA said replenishment decisions should consider the funding implications of previous decisions regarding funding windows for energy efficiency and preparation of an inventory and plan for disposal of substances. Additionally, he highlighted the need to consider the implications of commitments for: phaseout of HCFCs by 2025; the freeze on HFC production and consumption from 2024; and Article 5 countries' Kigali Amendment implementation plans.

CHINA noted developing countries face "huge challenges" in meeting targets for the HCFC phaseout and HFC phasedown. He noted that about 70 countries have begun HFC phasedown plans, in line with the Kigali Amendment. He stressed that previous decisions on low GWP technologies will require consistent, sufficient and reliable funding from the MLF.

The US noted that parties had adopted decisions in 2020-21 to allow payments by parties on an interim basis. The UNITED KINGDOM stressed the unique circumstances should not be seen as setting a precedent for future approaches to MLF replenishment and JAPAN supported keeping long-term funding levels stable.

NIGERIA welcomed the TEAP's recognition of the cost of phasing down HFCs that the Kigali Amendment imposed. EGYPT agreed that the replenishment should recognize additional activities Article 5 countries now have to undertake. MALAYSIA supported the report's high funding scenario, which assumes all 144 Article 5 countries will ratify the Kigali Amendment by the end of 2023.

Several parties, including SAUDI ARABIA, ARMENIA, INDONESIA, SENEGAL, JORDAN, and BAHRAIN, expressed interest in participating in contact group discussions. Parties also highlighted the impending deadlines for both phasedown and phaseout.

TRINIDAD AND TOBAGO expressed concern over pressure to adopt flammable refrigeration technologies.

Parties agreed to establish a contact group on replenishment.

Co-Chair Sirois put forward a proposal for the contact group to first draft a decision on the 2021-23 replenishment period, using draft decision 34a in Annex 1 of document UNEP/OzL.Pro.WG.1/44/2, and secondly a decision on the fixed-exchange-rate mechanism for the 2024-26 period, using draft decision 34b in Annex 1 of document UNEP/OzL.Pro.WG.1/44/2. He noted that

the first meeting of the contact group will be open to all parties, the TEAP, the MLF and Secretariat. He further noted that, following the usual practice in deliberations on replenishment, participation in the contact group would then be limited to 10 or 12 Member States from Article 5 countries and the same number from non-Article 5 countries.

On Monday evening, the contact group on MLF replenishment began its work, co-chaired by Daniel López Vicuña (Mexico) and Ralph Brieskorn (Netherlands).

On Thursday, López reported back, saying the group had focused on clarifying the activities to be financed during 2021-23 to assess how much funding is needed. Article 5 and non-Article 5 countries held several rounds of consultations among themselves on the replenishment.

On Saturday, López announced the agreed amount of USD 540 million for the current triennium but requested more time to complete negotiation of the decision text.

During the closing plenary, Brieskorn reported agreement on the replenishment. He explained that, of the USD 540 million in the MLF budget, USD 65 million will come from resources already due to the MLF from the triennium 2018-2020 and USD 475 million from new donations. He added that USD 246 million in remaining funds that were due to the MLF during the triennium 2018-2020 will be used after 2023 to support the implementation of the Montreal Protocol.

OEWG 44 agreed to forward the two decisions, on the MLF replenishment and on the fixed-exchange-rate mechanism, to the ExMOP for adoption.

### ***Identification of Gaps in the Global Coverage of Atmospheric Monitoring of Controlled Substances and Options for Enhancing Such Monitoring (Decision XXXIII/4)***

On Monday, Co-Chair Alvarez outlined that the 2021 Meeting of the Parties (decision XXXIII/4) asked the Secretariat to provide a progress report to OEWG 44 (with a final report to OEWG 45) on options for:

- regional monitoring of atmospheric concentrations of controlled substances and the challenges for operationalizing;
- identifying suitable locations for possible high frequency measurements and flask sampling for regions with insufficient atmospheric monitoring coverage; and
- options for establishing new monitoring capacity and related costs.

The Secretariat, drawing on the pilot phase funded by the EU, outlined key findings including that assessing the likely location of future emissions is key to where to add new measurement sites, notably in: southern Asia, the Middle East, Mexico and nearby locations, eastern Europe, and eastern Asia.

INDIA, supported by BAHRAIN, advocated a cautious approach to introducing new monitoring stations, taking into account the need for compatibility with countries' national legislation and standards. Many countries expressed support for the pilot project and expressed appreciation for the virtual discussion held in March 2022. ARGENTINA, SENEGAL, NIGERIA, BENIN, and BURKINA FASO questioned the pilot project's focus on Northern Hemisphere sites, particularly not proposing new measurement sites for Africa. The EU and the US noted that the pilot project had focused on regions with higher usage and production and the choice

of monitoring station locations anticipated where potential emissions are likely to be concentrated. The UK recommended sharing information about the pilot project with the global atmospheric community.

CHINA stated countries should continue to roll out the monitoring network and urged consideration of challenges for Article 5 countries, including requirements for site infrastructure construction and data calibration standards.

The NETHERLANDS announced its contribution of EUR 30,000 to the Vienna Trust Fund to improve monitoring.

The EU said they would submit a conference room paper (CRP) to the OEWG to request parties' further advice and guidance on potential sources of emissions, so as to help target future monitoring activities and also to help parties take containment measures.

AUSTRALIA requested an interim report on outcomes, rather than waiting until OEWG 45.

On Monday afternoon, the OEWG suspended discussion of this item, pending availability of the EU's CRP in all languages.

On Thursday morning, the EU introduced its proposal on identifying sources of emissions originating from industrial processes (UNEP/OzL.Pro.WG.1/44/CRP.4). He noted that the experience of unexpected CFC-11 emissions has shown how important it is to compare atmospheric monitoring with ground-level monitoring. He also noted the need to understand the production processes that lead to such emissions. He outlined that the proposal requests the TEAP to prepare a report on potential emission sources of controlled substances, such as dichloromethane, and that the purpose is "purely to better understand" the underlying processes that lead to their production.

The EU noted the difficulty of obtaining detailed data on production processes, and the limitations that parties experience with regard to legal and practical constraints, and the related administrative burden and costs. He acknowledged the concern of some parties regarding the additional monitoring burden and stressed the proposal is only an invitation they may respond to as they wish. He explained the CRP addresses industrial processes from a different angle than Switzerland's proposal to address ongoing emissions of CTCs (UNEP/OzL.Pro.WG.1/44/CRP.2), and that any potential overlaps would be resolved between the EU and Swiss proposals.

INDIA raised concern about the difficulty of gathering such data and the burden on parties, arguing that existing national processes are already adequate.

SWITZERLAND supported the EU proposal.

The US, supported by CANADA, expressed appreciation and proposed taking up further discussion in the contact group on CTCs. CANADA stated that the decision taken at the last meeting already provides a mandate for the Ozone Secretariat to consult the TEAP on a report about where the chemical processes in question are taking place, and therefore no new decision will be required. He sought to clarify whether the proposal relates to identifying locations for atmospheric monitoring and the identification of gaps.

Co-Chair Alvarez stated there was no strong opposition to the proposal and moved to consider the CRP under the contact group already established under the agenda item on CTC emissions.

INDIA argued that the EU proposal on industrial processes and Switzerland's proposal on CTC emissions were "completely different things."

NORWAY preferred to keep discussion of the EU proposal under the current agenda item on gaps in monitoring.

The EU and Co-Chair Alvarez clarified the CRPs on gaps and on CTCs will not be merged, but rather the mandate of the CTC contact group will be to consider both proposals, as they concern the same sector and issue.

CANADA expressed reluctance, citing a need to prepare further, and the differences between the two proposals.

The plenary agreed to proceed with considering both proposals under the CTC contact group, which then met on Saturday, co-facilitated by Liana Ghahramanyan (Armenia) and Michel Gauvin (Canada).

During the final plenary, Ghahramanyan reported the group had discussed the Swiss CTC proposal, but due to time constraints had not taken up the EU proposal on identifying sources of emissions originating from industrial processes. Both proposals were forwarded to the MOP for further discussion.

### ***Institutional Processes to Strengthen the Effective Implementation and Enforcement of the Montreal Protocol***

On Monday afternoon, Co-Chair Sirois introduced the report of the sixty-third meeting of the Implementation Committee (UNEP/OzLPro/ImpCom/63/6), which contains an annex on possible ways of dealing with illegal production of and illegal trade in controlled substances under the Montreal Protocol. He noted the Implementation Committee's recommendation that this matter be included on the OEWG agenda, and invited members' views.

Several parties welcomed further discussion of this matter, but differed on the format of the discussion. NIGERIA said the issue requires further deliberation and indicated willingness to undertake such deliberation. The UK, PAKISTAN, COLOMBIA, PALESTINE, ARGENTINA, and BRAZIL supported establishing a contact group to consider the matter, while the EU preferred further discussion in an informal setting that does not prejudge the outcome, stating these would be "fact-finding" discussions ahead of the MOP in November 2022. The US, NORWAY, CHILE, BAHRAIN, EGYPT, OMAN, MEXICO, CAMBODIA, and TIMOR-LESTE supported holding discussions in an informal group, rather than in a contact group, to refine the objectives being pursued under this agenda item.

CANADA, supported by AUSTRALIA, suggested that rather than focus specifically on the Implementation Committee's report, the OEWG should undertake a "brainstorming discussion" on how institutions can be strengthened to, among others, avoid illegal trade and achieve the Protocol's objectives. He said, however, that specific topics from the report can be considered, including a definition of illegal trade.

Some parties, including SAUDI ARABIA and SENEGAL, were not in favor of further discussing the issue. INDIA opposed additional reporting burdens. BAHRAIN stated that the existing monitoring system is effective and there is no need to change it. CHINA noted that the Protocol works based on mutual trust and cooperation and that the existing implementation mechanism has contributed to the success of the Protocol. BAHRAIN added that if there are specific questions relating to specific countries, these can be addressed on a case-by-case basis.

AUSTRALIA suggested that defining "illegal" trade, production and consumption, and broadening the scope of the Secretariat to prepare information on "systemic non-compliance" may be of

interest. She highlighted possibilities to review implementation of licensing systems or providing guidance on this topic, stressing that these would not replace but rather "augment" existing arrangements.

The US argued that implementation of the Protocol should reflect the changing situation, noting there had been "significant deviations" in excess of 10,000 tons of CFC-11 emissions in one year, and that the goal should be how to sustain the control measures that were agreed under the Protocol.

Co-Chair Sirois noted that many interventions supported informal discussions, and highlighted that OEWG 44 does not aim to conclude discussions on this topic. Establishing an informal group to discuss this agenda item, he asked the co-facilitators, Andrew Clark (US) and Miruza Mohamed (Maldives), to seek to identify any convergence on key issues outlined in the Secretariat's paper and to outline those in a report to be incorporated in the report of OEWG 44 proceedings. He also clarified that the issues under discussion relate to all parties, not just Article 5 parties.

On Thursday, Clark reported back that the group had discussed sharing existing best practices and ways to improve reporting, and had noted both Article 5 and non-Article 5 parties should have responsibility for any new, additional actions. He further noted the benefits of developing clear definitions for illegal trade and production as guidance for parties and the potential costs for parties from differences between domestic legal frameworks and the Montreal Protocol's requirements.

During the Saturday morning plenary, Mohamed informed delegates that ideas put forward by parties had been compiled and the group will continue discussions at the MOP.

### ***Energy-Efficient and Low-Global-Warming-Potential Technologies***

**Report by the TEAP (decision XXXIII/5):** Co-Chair Alvarez opened the discussion, outlining that MOP 33 requested the Secretariat to look at large scale air-conditioning, refrigeration and heat pumps and to report on other sectors where gains can be made, such as installation and repairs. MOP 33 also asked the Secretariat to investigate the benefits of integrating objectives around HFC phasedown and energy efficiency uptake.

The TEAP Energy Efficiency Task Force outlined high-level findings from the [report](#): more energy-efficient and low or medium GWP refrigeration, air-conditioning, and heat pump (RACHP) equipment is available but not necessarily accessible and there are short-term actions that can be taken while phasing down HFCs, as technologies are improving rapidly in all RACHP sectors. He noted concerns that low-efficiency, high-GWP equipment continues to be available and could extend high emissions levels. He also highlighted the TEAP's finding that energy-efficient equipment requires a higher level of training for safe and effective installation and servicing. He cited a key conclusion that investment in equipment that is coordinated for energy efficiency and refrigeration transition outcomes is more cost-effective over time.

The Task Force provided examples of cost-benefit analyses of these technologies, noting parties are increasingly using such analyses. They also provided examples of policies that affect the accessibility of these technologies, for instance, domestic energy efficiency standards resulting in a rapid drop in domestic sales of fixed speed, low energy efficient, high-GWP air-conditioners. The Task Force concluded that in all RACHP sectors covered in the

report, equipment using low- to medium-GWP refrigerants with comparable or enhanced energy efficiency is now available, but not yet always accessible.

In the subsequent discussion, Task Force members responded to questions about the availability of technologies for high-ambient temperature countries, noting that the medium GWP refrigerant R32 is suitable for such countries. They also clarified that the size of the energy savings that can be achieved from the various technologies discussed is country-dependent. They pointed to studied countries' domestic financial support programmes as being successful in overcoming "sticker shock" (upfront costs as a barrier), but noted that in some cases, payback times are very short and additional "sweeteners" are unnecessary. The Task Force also pointed to work needing to be done to seek to harmonize international and other standards to make them broadly applicable, which could potentially reduce the number of testing centers needed. The Task Force also indicated that the applicability of analyses of performance of some equipment in high ambient temperature countries was beyond the scope of their report.

On Tuesday, delegates continued discussions in plenary on increasing technologies' energy efficiency while phasing down HFCs, and whether a contact group should be established for more detailed discussions.

FEDERATED STATES OF MICRONESIA stated that, while climate action in many forums is lacking, the Montreal Protocol is trusted and has avenues for action. He supported further discussions on how to strengthen cold chain management.

BAHRAIN stated that the TEAP report had gaps regarding air-conditioning systems in high ambient temperature countries, and called for urgent attention to studying technology availability and access.

The UK and NIGERIA supported establishing a contact group. NIGERIA noted that minimum energy efficiency standards and labelling will help consumers, but noted the high cost of efficient and low-GWP appliances remain a disincentive. He called for action to avoid the African region becoming "a dumping ground for obsolete equipment."

The EU drew attention to its project for Fair Renewable Heating and Cooling Options and Trade (FRonT) project, which, he said has produced information that has been used to update efficiency and low-GWP standards. He supported further discussion.

The US, CHINA, INDIA, and AUSTRALIA welcomed the MLF Executive Committee's efforts to prepare criteria for pilot projects on integrated action to address these related challenges, with the US noting socio-economic co-benefits, as a more energy-efficient cold chain avoids food and vaccine wastage whereas sequential action increases costs. SAMOA noted technology accessibility issues in the Pacific and called for support to explore procurement of hydrocarbon equipment. SENEGAL, supported by CHINA, SAUDI ARABIA, and INDIA, highlighted the importance of training to manage safety issues around such technologies. ZIMBABWE, supported by CHINA, noted challenges posed for developing countries by disparities between international and national standards and the consequent need for funding and technical support.

AUSTRALIA called for a contact group to identify new, concrete actions the Montreal Protocol can take to advance integrated efforts in this area.

MALAYSIA expressed concern about flammable and toxic refrigerants. The MALDIVES drew attention to the lack of access to

high energy efficiency and low-GWP appliances for many countries, including issues of equipment servicing and unavailability of spare parts. She called for the Montreal Protocol to play a role in increasing technology access for HFC phasedown, including in cold chain management, which will additionally benefit food security and health. She supported forming a contact group.

VANUATU supported SAMOA's comments and expressed willingness to take part in a contact group.

LESOTHO called for establishing "cooling action plans" that will consider technology standards and market access.

GRENADA highlighted its National Ozone Unit's actions in promoting standards and fiscal incentives to adopt ozone-friendly technologies, including a 100% concession on import duties, but urged the MLF to take into account "the sad reality" that technology often does not reach countries that have low market volume.

IRAQ expressed concern about motor vehicle safety with regard to existing flammability standards.

The OEWG established a contact group, co-facilitated by Annie Gabriel (Australia) and Bitul Zulhasni (Indonesia), to discuss both energy efficiency and dumping. Noting broad support for the TEAP report's conclusions, Co-Chair Alvarez requested the contact group to identify further possible actions on the issue of energy-efficient technologies, and the objectives and scope of further work on dumping, and to report back in plenary, after which the mandate of the group could be further refined.

On Friday, Gabriel reported back, directing delegates to a "thought starter" list on energy efficiency posted on the meeting portal. She requested further time to complete discussions with the African Group on their dumping proposal.

On Saturday, Gabriel made a final report to plenary. She highlighted some of the ideas put forward in the group, namely: new standards; use of new refrigerants in high-ambient-temperature countries; and capacity building at the national and regional levels for minimum energy performance standards. She proposed that steps to integrate HFC phasedown measures with energy efficiency could be, for example, through adoption of cooling plans, and coordination between ozone and energy efficiency groups.

**Dumping of new and old inefficient refrigeration and air-conditioning appliances:** On Tuesday, GHANA, supported by JORDAN, introduced a proposal from the African Group (UNEP/OzL.Conv.12(II)/9-UNEP/OzL.Pro.33/8, para. 82).

SWITZERLAND emphasized countries should have "freedom of choice" of technology. SWITZERLAND, GRENADA, CHILE, LESOTHO, FEDERATED STATES OF MICRONESIA, ZAMBIA, TRINIDAD AND TOBAGO, the EU, AUSTRALIA, JAPAN, and the UK supported establishing a contact group, which GRENADA suggested could further refine the African Group's proposal.

SOUTH AFRICA, supported by CHILE, noted that prior informed consent procedures under the Basel Convention allow for countries to be informed about movement of waste through their borders. She called for attention to address the risk of contamination from equipment destruction facilities in Article 5 countries.

NIGERIA noted that unusable equipment is effectively waste. BANGLADESH noted market forces will not fix this problem while upfront costs of inefficient equipment are low. The US, supported by MOZAMBIQUE, praised the MLF Executive Committee's recent work to build capacity in Article 5 countries to enforce standards. FEDERATED STATES OF MICRONESIA stressed that "dumping" is widespread, not only in the African region, and said

putting pressure on Article 5 countries to ban imports is not the solution. ARMENIA noted that relying on information sharing as a main strategy would not be effective and added that it does not have knowledge of the MLF work programme the US mentioned because Eastern European and Central Asian countries are currently unable to access key Montreal Protocol policy making bodies.

CANADA, supported by AUSTRALIA, called for gathering further information on several issues, possibly through a study by the Secretariat or TEAP on: a definition of “obsolete technology”; the scale of their export; and which countries do not wish to receive such products and whether they have existing legislation to address the issue.

JAPAN echoed concern that some elements of the proposal are beyond the scope of the Montreal Protocol, and welcomed a contact group.

BURKINA FASO and MOROCCO also supported further discussions.

A contact group was established to discuss both energy efficiency and dumping, chaired by Annie Gabriel (Australia) and Bitul Zulhasni (Indonesia).

On Thursday, Gabriel reported progress, noting that Ghana had provided some additional background on the African Group’s proposal and its links to the Basel Convention, and explained that the extent of dumping was already overwhelming customs officers. The contact group held further discussions.

On Saturday, Gabriel reported the group had discussed the meaning of “obsolete,” and had clarified that the proposal did not cover waste equipment but rather relates to new and used refrigeration equipment. She noted that discussions had included capacity building and improving the information base, and invited all parties to further reflect on the issues in preparation for further discussion at the MOP.

### ***Terms of Reference for a Study on the Replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the Period 2024-2026***

Co-Chair Sirois introduced the agenda item on Tuesday, proposing that a contact group be formed to develop terms of reference (ToR) for a study of the MLF’s 2024-26 replenishment needs using, as a starting point, the ToR developed to shape the similar analysis undertaken by TEAP in relation to the 2021-23 triennium.

The EU, CANADA, the US, BAHRAIN, and NIGERIA all supported the approach outlined by Co-Chair Sirois. INDIA called for the contact group to also consider whether non-Article 5 parties are complying with obligations to provide additional financial resources, as required by decision XXVIII/2 of the Kigali Amendment. CHINA agreed the contact group should discuss whether funding for developing countries, particularly the least developed countries, is adequate. NIGERIA highlighted the need for the ToR to take account of the need to build back better after the COVID-19 pandemic.

Co-Chair Sirois took note of the interventions and established a contact group mandated to address the issues raised in addition to those included in the ToR for the triennium 2021-23. The contact group was co-facilitated by Cindy Newberg (US) and Samuel Paré (Burkina Faso).

On Friday, Paré reported the contact group had met twice in constructive discussions and requested further time to complete their work. The group held further talks on Friday afternoon.

On Saturday, Newberg reported the group would forward a revised text to the MOP for discussion, after removing “legacy” paragraphs that are no longer needed.

### ***Technology and Economic Assessment Panel 2022 Report***

On Tuesday afternoon, the TEAP presented volumes 1 and 2 of its 2022 report, as follows: TEAP 2022 progress report (volume 1); and Evaluation of 2022 critical-use nominations for methyl bromide – interim report (volume 2). The Panel gave an update of the first periodic review of HFC alternatives to be undertaken this year, saying TEAP will prepare a report on this review for submission to MOP 34.

The TEAP’s Technical Options Committees (TOCs) also gave their progress reports. The Foams TOC (FTOC) reported that, generally, transitions to non-ODS and low-GWP alternatives have been successful and continue to move forward. She highlighted some key transition challenges, including continued shortage of low-GWP foam blowing agents in both Article 5 and non-Article 5 countries.

The Halons TOC (HTOC) discussed the effects of the HFC production phase-down on the availability of HFCs for fire protection. He noted impact on the cost and availability of newly produced HFCs for fire protection, and said the market will likely need to rely on recycled HFCs.

The methyl bromide TOC (MBTOC) provided an overview of the current situation regarding controlled and exempted uses of methyl bromide, noting consumption for controlled uses has reduced since 2005, but high quantities of stocks may still be in use. Regarding exempted uses, he said consumption has remained steady, with increased consumption in some Article 5 countries offsetting reductions in non-Article 5 countries.

The MBTOC then gave an overview of interim Critical Use Nomination (CUN) assessments, submitted for use in 2023 and 2024, noting submissions by three parties: South Africa, Australia and Canada.

The Medical and Chemicals TOC (MCTOC) presented its progress report, noting that the largest controlled ODS feedstocks in 2020 were HCFC-22, CTC and HCFC-142b, and that CTC feedstock use has increased in recent years. He underlined that accurate and consistent Article 7 reporting of production, including for feedstock uses, contributes to understanding atmospheric burdens.

The Refrigeration, Air Conditioning and Heat Pumps TOC (RTOC) reported that mitigating the climate impacts of RACHP technology by reducing direct and indirect carbon dioxide equivalent emissions is gaining increasing attention during the HFC phase-down, and underlined the growing importance of the sustainable design and operation of equipment. Regarding the use of refrigerants, the Committee noted significant progress with the development of safety standards to support the transition to lower GWP alternatives, that are mostly flammable.

On organizational matters, the TEAP provided an overview of proposed changes, specifically to the RTOC and FTOC, to help meet the changes taking place in the RACHP and foams sectors. These proposed changes include to establish a building and indoor climate control TOC and a cold chain TOC, as well as to rename the HTOC as the fire protection TOC and the MBTOC as the methyl bromide, agriculture and sustainability TOC.

In response to questions from THE GAMBIA, BURKINA FASO, and MOZAMBIQUE, the TEAP indicated Article 5 countries can,

through bilateral arrangements involving safe transport, arrange with Montreal Protocol parties that have appropriate destruction technologies for refrigerants.

The TEAP also noted excess stocks of methyl bromide could be transferred to countries with quarantine and pre-shipment (QPS) use needs. JORDAN and NIGERIA asked when methyl bromide CUE requests would no longer be accepted, noting there are now credible alternatives for QPS purposes. The TEAP clarified that determining timelines for ending CUEs is beyond their mandate, but noted that CUE notifications are generally finalized only upon receipt of updated national methyl bromide management strategies.

**Nominations for critical-use exemptions for methyl bromide for 2023 and 2024:** AUSTRALIA updated parties of changes in timing that affect the country's future requirement for methyl bromide, highlighting delays in the registration process for alternatives. He expressed disappointment that the MBTOC was unable to assess his country's CUN.

CANADA underlined it has made significant efforts in identifying alternatives for use in Prince Edward Island. She questioned the MBTOC's reason for not assessing the country's CUN and said she will follow up with the Committee's Co-Chairs to ascertain what further information is required to consider the nomination.

SOUTH AFRICA highlighted it has proactively initiated the phaseout of methyl bromide in structural initiatives, with a planned 100% reduction by 2024. She accepted the interim amount proposed by the MBTOC.

**Future availability of halons and their alternatives (decision XXX/7):** Co-Chair Sirois noted that, due to the COVID-19 pandemic, parties were unable to consider these issues in 2020 and 2021. He reported that the TEAP updated its report on these issues in 2021 and again in 2022 (UNEP/OzL.Pro.WG.1/44/2/Add.2).

AUSTRALIA, CANADA, the US, and the EU welcomed the TEAP's progress report and expressed support for trade in existing stocks of halons, working with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to avoid any further production. They noted, however, that the TEAP will prepare its quadrennial assessment report by the end of 2022. They proposed parties continue to discuss this item informally at OEWG 44 and at MOP 34 in November, but defer decision-making until after this assessment report is released.

The EU also gave an update on its draft regulation, proposed in April 2022, to ban destruction of halons, so as to ensure that, where possible, the halons are recovered and re-used, thereby preventing the need for future production for critical uses.

Co-Chair Sirois suspended consideration of this item, noting parties' desire to keep it on the agenda for MOP 34 but with a view to decisions being deferred until after release of the TEAP's quadrennial assessment report.

**Panel membership changes:** Co-Chair Sirois indicated parties had not put forward any nominations for TEAP membership at OEWG 44 and noted nominations would likely be forthcoming ahead of MOP 34.

### ***Strengthening the Technology and Economic Assessment Panel and its Technical Options Committees for the Phase-down of HFCs and Other Future Challenges related to the Montreal Protocol and the Climate***

On Wednesday, Co-Chair Sirois recalled that full consideration of this proposal by Morocco (UNEP/OzL.Conv.12(I)/6–UNEP/

OzL.Pro.32/8, para. 15) to strengthen the TEAP's ability to support parties' work, originally put forward in 2020, had been delayed until it could be discussed in person.

MOROCCO emphasized the need to strengthen TEAP and its TOCs to meet the new challenge of how Montreal Protocol parties can best implement the Kigali Amendment to phase down HFCs, while promoting energy efficient and safe technologies. He proposed more detailed discussion in a contact group, given the range of issues to be considered, including the options the TEAP had outlined on Tuesday for restructuring its TOCs.

CANADA, as well as JORDAN, EGYPT, AUSTRALIA, NORWAY, the EU, CHINA, the UK, INDIA, and the US, were supportive of taking steps to restructure the TEAP, provided existing TEAP expertise is retained. They said this restructuring should draw on TEAP's proposals put forward in their 2022 progress report, and noted that the TEAP's and Morocco's proposals are complementary. CANADA noted the need to discuss the TEAP's proposals in detail, supported by NORWAY, who also wanted to understand what consultations had been conducted in relation to the proposals. The EU called for the TEAP to be involved in parties' discussions of their proposals. AUSTRALIA agreed that the proposals addressed a longstanding problem of the RTOC having too large a workload. CANADA and AUSTRALIA said they are not convinced of the need to expand the mandate for the MBTOC, as it appears to go beyond the Montreal Protocol's remit.

CHINA said parties need to consider how the TOC restructuring proposals might affect the balance of Article 5 and non-Article 5 countries, as well as regional representation and gender balance. The US noted that establishing two new committees to address "cold chain" and "building and indoor climate" issues in holistic ways makes sense and reflects many countries' approaches to minimum energy performance standards.

BAHRAIN stated that the restructuring of TOCs should increase the inclusion of experts from Article 5 countries, noting that the sustainability of the TEAP "relates to balance and renewal." He favored further discussions.

SAUDI ARABIA requested keeping the focus on HFC phasedown and energy efficiency.

Co-Chair Sirois established a contact group co-facilitated by Paul Krajnik (Austria) and Azra Rogović-Grubić (Bosnia and Herzegovina), in which the TEAP would participate, to discuss the details of Morocco's and the TEAP's proposals.

On Thursday, the co-facilitators reported back, noting that parties differed in their views as to how far the restructuring should go. They noted there was agreement that the TEAP needs to be ready to take forward work under the Kigali Amendment and energy efficiency is a cross-cutting issue, and reported the group was also looking at how to combine the TEAP's and Morocco's proposals.

On Friday, Krajnik reported the group believes the restructuring is premature and that it is currently more important to include needed expertise in the TOCs to support Kigali Amendment implementation. He noted questions about what it would mean to restructure the HTOC to become a fire protection TOC, and what benefits would result from the RTOC moving into cold chain management. He also noted concerns about whether the same experts may be needed to work across two different TOCs, in view of the pending restructuring. He proposed that intersessional work take place prior to MOP 34.

Co-Chair Sirois closed the agenda item, on the understanding that the discussion will continue during the intersessional period and at MOP 34. He expressed appreciation to the co-facilitators for advancing the discussions.

### ***Stocks of Methyl Bromide and QPS Uses***

Co-Chair Alvarez introduced the agenda item on Wednesday. He recalled the request of MOP 31 (UNEP/OzL.Pro.31/9, para. 100) to include this item for discussion at OEWG 42, explaining that, owing to the pandemic, discussion had been deferred and MOP 33 had requested the issue be taken up at OEWG 44 (UNEP/OzL.Conv.12(II)/9–UNEP/OzL.Pro.33/8, para. 56). He referred to the draft decision submitted by Ecuador, the EU, Norway and Switzerland (UNEP/OzL.Pro.WG.1/44/CRP.1).

The EU invited parties to engage in further consultation. He explained that knowledge of methyl bromide stocks is limited because reporting is limited to CUNs. He stressed there are alternatives and that the EU had already eliminated methyl bromide use in 2010. He noted that the CRP invites parties to review relevant legislation to allow phytosanitary protection. SWITZERLAND, ECUADOR, MEXICO, and NORWAY called for a speedier transition to alternatives. CHILE supported forming a contact group, and requested clarification of the distinction between exempted and controlled use.

AUSTRALIA preferred to address the issue after the TEAP's quadrennial report is issued as a basis for parties to decide where their efforts should be focused. He questioned whether the tasks outlined in the proposal would be better addressed by the Scientific Assessment Panel rather than the TEAP.

MEXICO observed that there are no mechanisms to obtain detailed information on domestic stocks.

The US supported Australia's comments and expressed concern over the reporting burden on countries. He stressed that "HFC phaseout is the priority" and parties are not in a position to take on further work. He commented that the preambular paragraphs as drafted do not precisely follow the language of the Protocol, and that the MBTOC should not be "reinterpreting" issues that are better left to parties. He suggested that the International Plant Protection Convention may have relevant expertise to offer, and emphasized that QPS exemption had been put in place because of the need to avoid the environmental and economic damage from pests. He called for more extensive bilateral discussions.

The UK supported further informal discussions, including on whether the TEAP could do more work to assess stocks and the potential for uptake of economically and technically viable alternatives.

BRAZIL, supported by CANADA, asked that the CRP be streamlined and better focused, noting that it potentially imposes considerable costs on parties. The US sought clarification from the EU on what data currently exists.

INDIA, stating existing processes for managing methyl bromide work well, opposed the proposal as it would impose additional costs on parties.

The EU indicated their understanding is that there is a high level of stocks. They indicated that if QPS uses are increasing then stocks should be falling and that is not the case, therefore more information is needed.

Parties agreed to Co-Chair Alvarez's proposal that the EU should conduct bilateral discussions with interested parties to respond to the queries raised in plenary, before reverting to the Co-Chairs with a view to establishing an informal group, potentially to become a contact group.

On Friday morning, Co-Chair Alvarez reminded parties that the EU's revised proposal on this item is available on the meeting portal (UNEP/OzL.Pro.WG.1/44/CRP.1/Rev.1). He invited the EU to report on its bilateral discussions.

The EU noted that the revised proposal contains a sharpened rationale, and noted two outstanding issues: existing data gaps, in view of discrepancies between atmospheric monitoring and bottom-up observations; and the need to provide parties with updated information on the available alternatives. He noted that parties' concerns about costs have been addressed through narrowing the focus of the CRP, adding that "you don't need to undertake huge efforts to collect such data." He stated that information on alternatives could be provided in liaison with the International Plant Protection Convention. The EU highlighted that the CRP invites parties to review legislation in the course of their ongoing domestic processes. He requested establishing a contact group for further deliberations to arrive at a decision at MOP 34.

AUSTRALIA, CANADA, and the US noted that the revised CRP had addressed many of the parties' concerns and was close to being acceptable, pending additional discussions.

The US noted improvements, but added that the language should more precisely match the language of Article 7 of the Montreal Protocol. He questioned priorities at a time when parties are already facing a very full agenda. He said the discussion on methyl bromide stocks should refer specifically to "pre-phaseout" stocks. He also expressed reluctance to include references to national processes of updating legislation, saying the language may be inconsistent with current domestic action as the US is doing "a vast amount of work" on HFC phasedown domestically. He supported forming an informal group, not a contact group, for further discussion.

INDIA opposed forming a contact group and preferred taking the revised CRP directly to the MOP, noting that time will be needed to discuss the issue with industry stakeholders.

Co-Chair Alvarez established an informal group, co-facilitated by Alain Wilmart (Belgium) and Diego Montes (Colombia), to further discussion of the revised CRP on Saturday.

On Saturday, Wilmart reported back from the methyl bromide informal group. He said delegates discussed the different aspects covered in the CRP, as well as the concerns of some countries, but had not been able to reach common understanding on the document. He suggested continuing discussions at MOP 34, and also reported that parties agreed to continue informal discussions among themselves during the intersessional period.

OEWG 44 agreed to forward the CRP to MOP 34 and continue discussions there.

### ***Ongoing Emissions of Carbon Tetrachloride***

Co-Chair Sirois opened the agenda item on Wednesday morning, outlining that CTC was discussed at OEWG 41 in 2019, following release of the TEAP 2018 quadrennial report, which found discrepancies between top-down and bottom-up assessments of CTC emissions. He explained that, while Switzerland had raised the issue at MOP 31, the COVID-19 pandemic had forestalled discussions.

SWITZERLAND noted some emissions sources may be inadvertent, for example from unreactive feedstocks, which in the past have been assumed to be insignificant but might in recent years have increased. He said the CRP (UNEP/OzL.Pro.WG.1/44/CRP.2) invites parties to provide information to the TEAP, on a voluntary basis, on their CTC use, which the TEAP would then analyze. The TEAP would then report to OEWG 45 on the situation.

BURKINA FASO supported the proposal for voluntary reporting, noting the current version of the CRP reflects previous bilateral discussions. The US, AUSTRALIA, and CANADA also supported the proposal, noting that the discrepancies in data remain too great and it is important to understand why there are ongoing high emission levels. CANADA indicated the proposal could still be improved through discussions between parties.

INDIA opposed putting additional monitoring and reporting burdens on parties.

CHINA stated that “normal usage” of CTC is allowed under the Montreal Protocol, and that dispersion will inevitably take place in the years to come. She cautioned that the next steps on CTC “should not exceed” the scope of the Montreal Protocol. She expressed concern that review of transport chains and domestic production using CTC would be beyond the scope of the Protocol, and that it would be difficult for governments to request that information from their domestic agencies “as there is no legal basis.”

The EU, supported by NORWAY, explained that the draft leaves enough flexibility for parties, and does not impose a binding obligation. He affirmed that the issue “is mature for discussion in a formal format” after years of work.

Co-Chair Sirois announced the formation of a contact group to consider the CRP, based on the plenary discussion and support to address the discrepancy between top-down and bottom-up data.

The contact group, co-facilitated by Liana Ghahramanyan (Armenia) and Michel Gauvin (Canada), met on Thursday.

On Friday, Gauvin reported back to plenary, noting the group, with participation from the MCTOC, had discussed the CRP, focusing on terminology, information availability, and timing of action in relation to the quadrennial assessment. He requested further time for the group to address the EU proposal on identifying sources of emissions originating from industrial processes (UNEP/OzL.Pro.WG.1/44/CRP.4).

On Saturday, the group met in the morning. Ghahramanyan reported in plenary that the group had addressed the Swiss CTC proposal, but due to time constraints had not taken up the EU’s proposal on identifying sources of emissions originating from industrial processes, which had been forwarded to the contact group on Thursday following plenary discussion of gaps in global monitoring. She said that discussion of both proposals will resume at the forthcoming MOP.

### ***Membership of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol***

Co-Chair Alvarez introduced the agenda item on Wednesday afternoon, which relates to a proposal by Armenia and Bosnia and Herzegovina to give Eastern Europe and Central Asia a permanent seat among Article 5 parties on the Executive Committee of the MLF, and to balance this expansion by also including another seat for a non-Article 5 party. He recalled that an informal group at OEWG 41 had forwarded a draft decision to MOP 31 (UNEP/OzL.Pro.31/9, para. 147), where the issue was last discussed, but without reaching consensus.

Armenia, speaking on behalf of EASTERN EUROPE AND CENTRAL ASIA, highlighted that the Group currently only participates in the Executive Committee once every four years, highlighting this is contrary to the fundamental principle of equality. She urged parties to support the proposal.

MOZAMBIQUE said there are other regions, such as Africa, that have the same problem the proposal attempts to address, noting for instance, participation difficulties of Arabic-speaking and Portuguese-speaking African countries. He said “if you open the window in one region, you should do the same in other regions,” stressing he is not opposed to the proposal but wants all regions to be treated equally.

BOSNIA AND HERZEGOVINA noted that Eastern Europe and Central Asia is one of the five UN groupings, but currently goes three years without the chance to participate in the ExCom, and noted that this situation differs from that highlighted by Mozambique.

CANADA opposed the proposal, saying the issue of Article 5 participation in the ExCom should be resolved among Article 5 member countries, rather than by increasing the number of seats.

The EU, supported by JAPAN, the US, the UK, AUSTRALIA, and NORWAY, indicated a preparedness to discuss the situation bilaterally but all expressed their firm support for the existing ExCom arrangements, with respect to the numbers of permanent seats allocated to Article 5 and non-Article 5 countries. The US noted Article 5 countries could revisit how their existing permanently allocated seats are distributed and also review how frequently they co-opt Eastern European and Central Asian countries. The US also highlighted many financial mechanisms have limited membership to ensure institutions can get their job done.

The RUSSIAN FEDERATION supported the proposal on the basis of fairness among different regions and respect for the equal rights of every Montreal Protocol party. He asserted that countries speaking against the proposal had not articulated cogent reasons for their opposition. BAHRAIN expressed solidarity with Armenia and called on parties to discuss the proposal more fully.

Co-Chair Alvarez recalled that MOP 16 established a rotating seat, with Eastern Europe and Central Asia having opportunities to take up that seat, and noted there was no consensus around the current proposal. He invited interested parties to continue their bilateral discussions and stated that their interventions would appear in the OEWG 44 meeting report. ARMENIA then asked that the report reflect that parties opposing the proposal had not provided reasonable arguments to support their opposition. The US refused to have its intervention characterized in that way. ARMENIA asked that her statement be included in the report as an intervention.

### ***Mario Molina Declaration on Supporting and Strengthening the Montreal Protocol***

On Wednesday, Co-Chair Sirois invited Mexico to introduce this item. MEXICO asked that the item be discussed on Thursday in plenary as he was working with interested parties to put a new proposal in the name of all three of the scientists who received the Nobel Prize in 1995 for their work. He noted that for procedural reasons this would now be a draft decision, not a declaration, for MOP 34.

Co-Chair Sirois referred parties to the proposal (UNEP/OzL.Pro.WG.1/44/CRP.3), stating this would be considered on Thursday in plenary.

On Thursday morning, Co-Chair Sirois noted that Mexico, the US and the EU were now co-sponsoring the proposal with an expanded scope to recognize the great achievements of the three scientists Mario Molina, Sherwood Rowland, and Paul Crutzen.

MEXICO said that 35 years after the signing of the Montreal Protocol it is appropriate to recognize the work of these three great scientists who were awarded the Nobel Prize in 1995.

MEXICO, the US, and the EU jointly commended the proposal, saying they all supported the revised, expanded proposal that now honored all three scientists, underlining how working together can contribute to improving human health outcomes.

Parties spoke warmly in support of the proposal, including MOZAMBIQUE, AUSTRALIA, CHILE, CANADA, ARGENTINA, BURKINA FASO, NIGERIA, BAHRAIN, GRENADA, COLOMBIA, ANGOLA, BENIN, JORDAN, ARMENIA, SAUDI ARABIA, PAKISTAN, EGYPT, SENEGAL, INDONESIA, and TRINIDAD AND TOBAGO. SWITZERLAND recalled personally meeting Dr. Molina and urged parties to emulate his committed but modest approach to his work.

Expressing gratitude for the work of all the scientists, JORDAN quoted an Arabic poem, “Stand up in honor of your teachers because these people are messengers of the Prophet.”

Co-Chair Sirois expressed his appreciation for the work of the three scientists, as having laid the foundation for much of the work being taken forward under the Montreal Protocol and noted parties had agreed to forward the draft decision document to MOP 34.

### **Closing Plenary**

During the closing plenary on Saturday, the replenishment contact group reported finalization of the agreed amounts for the 2021-2023 period and that they had agreed to extend the fixed-exchange-rate mechanism to the 2021-2023 replenishment. The NETHERLANDS affirmed that the talks had resulted in “mission accomplished” and welcomed delegates’ approach, which he said had demonstrated “pragmatism first and a flavor of creativity,” made possible by the opportunity of in-person interactions.

AUSTRALIA noted her country has a new government and their 2023 budget is unclear, and that the country therefore cannot make any firm commitment until their 2023 budget has been finalized.

CUBA urged a focus on implementing the Kigali Amendment and consideration of national circumstances. He noted that the COVID-19 pandemic and current inflation have negatively impacted the global economic situation, and that a large number of Article 5 countries are not able to meet their commitments. He suggested flexibility and proposed that countries unaffected by the pandemic can adopt the 2020 fees and those affected by the pandemic can retain the 2015-2018 fees. He called for this issue to be included on the MOP agenda. Co-Chair Alvarez said this statement will be considered at the informal meeting and a decision reached about including it on the MOP 34 agenda.

Parties then considered the report of the meeting (UNEP/OzL.Pro.WG.1/44/L.1).

The RUSSIAN FEDERATION objected to the inclusion of interventions made by the US and EU regarding his country’s military actions in Ukraine, noting that the rules of procedure preclude political interventions. Co-Chair Alvarez clarified that the meeting report simply captures interventions made by parties during the meeting. Responding to the RUSSIAN FEDERATION’s subsequent proposal to amend the references, the US and EU objected, stating one party cannot be allowed to edit other parties’

interventions. After consulting the Secretariat’s legal office, parties agreed to a proposal by the RUSSIAN FEDERATION to include their objections in the meeting report section about the adoption of the report, and to include a footnote reference to these objections in the section containing the interventions themselves.

The meeting report was adopted, as orally amended by this and other minor corrections made by parties.

Co-Chair Sirois thanked all delegates for their cooperation as part of the “ozone family,” saying their approach is unique among multilateral environmental agreements. With Co-Chair Alvarez, he thanked all delegates and support staff for their contributions to making the meeting run smoothly and successfully, and closed OEWG 44 at 4:30 pm.

### **ExMOP 5 Report**

Samuel Paré, President of the Fifth Extraordinary Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer opened the meeting at 4:31 pm, immediately following the close of OEWG 44. He invited Megumi Seki, Executive Secretary, Ozone Secretariat, to address the ExMOP.

Seki informed the meeting that the Secretariat had received a communication from Maminata Traore/Coulibaly, Minister of Environment, Energy, Water and Sanitation, Burkina Faso, to confirm that Samuel Paré would represent her at ExMOP 5.

Paré advised the meeting that his Minister conveyed her hope for constructive discussions. He advised the meeting that the only substantive item on the provisional agenda (UNEP/OzL.Pro.ExMOP.5/1) was Replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol for the period 2021-2023. The meeting agreed to his proposal that the Secretariat prepare the ExMOP 5 report, which could be reviewed on the website for one week following the meeting. He accepted advice from the Secretariat regarding meeting attendees’ credentials, with details to be included in the meeting report.

Parties then considered the two draft decisions forwarded by OEWG 44 on: replenishment of the Multilateral Fund for the implementation of the Montreal Protocol for the triennium 2021-2023 (UNEP/OzL.Pro.ExMOP.5/CRP.1); and extension of the fixed-exchange-rate mechanism to the 2021-2023 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol (UNEP/OzL.Pro.ExMOP.5/CRP.2). ExMOP 5 adopted both draft decisions without further interventions.

**Final Outcomes:** In decision ExMOP.5/1 on replenishment of the MLF (UNEP/OzL.Pro.ExMOP.5/CRP.1), ExMOP 5:

- adopted a budget for the MLF for the triennium 2021-2023 of USD 540 million on the understanding that USD 65 million of that budget will be provided from the contributions due to the MLF and from other sources for the triennium 2018-2020;
- noted that USD 246 million in remaining funds that were due to the MLF during the triennium 2018-2020 will be used after 2023 to support the implementation of the Montreal Protocol; and
- adopted the scale of contributions for the MLF for the triennium 2021-2023 based on replenishment of USD 475 million for the triennium 2021-2023 as it appears in the annex to the report of ExMOP 5.

In decision ExMOP.5/2 on the extension of the fixed-exchange-rate mechanism to the 2021-2023 MLF replenishment (UNEP/OzL.Pro.ExMOP.5/CRP.2), ExMOP 5 decided:

- to direct the Treasurer to extend the fixed-exchange-rate mechanism to the period 2021-2023; and
- parties choosing to pay their contributions to the MLF in national currencies will calculate their contributions on the basis of the average UN exchange rate for the six-month period commencing 1 January 2020.

With thanks to all participating parties and the OEWG 44 Co-Chairs, Paré closed the meeting at 5:00 pm.

### **A Brief Analysis of OEWG 44 and ExMOP 5**

*“We cannot really learn anything until we rid ourselves of complacency.” – Mao Zedong*

Often said to be the world’s most successful environmental treaty, the Montreal Protocol turns 35 this year. So, it was with some sense of celebration that the 44th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (OEWG 44) opened in Bangkok, Thailand, after two years of online meetings due to the COVID-19 pandemic.

Top of the agenda was replenishment of the Multilateral Fund (MLF) for the 2021-23 triennium, a decision delayed by the pandemic, although interim arrangements did enable work to carry on. In addition to this critical procedural matter, parties also considered key questions relating to compliance, monitoring, and the implementation of commitments under the Kigali Amendment for the phase down of hydrofluorocarbons (HFCs). On compliance, parties debated if implementation of their obligations should continue to be taken “on trust,” or should compliance be verified. Looking to the future, they addressed how parties can most effectively implement the Kigali Amendment in ways that promote beneficial climate outcomes.

Both of these issues challenge any sense of complacency about the Protocol’s achievements. This brief analysis considers these two questions in relation to their significance for ongoing successful implementation of the Montreal Protocol.

#### ***Compliance and Monitoring***

The Montreal Protocol has historically operated based on an honor system—parties agree to implement control measures and report their emissions of these controlled substances. Prior to the pandemic, an unexpected spike in CFC-11 emissions in China, detected through atmospheric monitoring, led to corrective action domestically. In the aftermath, the Implementation Committee (ImpCom), which serves as the Protocol’s compliance mechanism, began considering how to deal with illegal production and trade in controlled substances. Separately, the question of alternatives to methyl bromide, a toxic fumigant used for pest control, has been an ongoing issue as some parties have questioned why US stocks have not reduced to the levels expected, when alternatives already exist.

Both of these issues surfaced at OEWG 44 in the form of agenda items on how the Protocol’s institutional processes can be strengthened and on global stocks of methyl bromide. As it transpired, both issues proved contentious, and could be discussed only informally, for different reasons including, it was hinted, vested interests. Some observers noted that the ImpCom has few ways to address non-compliance: action could include blocking access to MLF funds or restricting exports of substances in question. For parties with large domestic or informal economies, neither approach can be effective.

Related to these issues is the question of monitoring. The CFC-11 and methyl bromide issues prompted parties at the 33rd Meeting of the Parties (MOP 33) to request the Ozone Secretariat, in consultation with the relevant scientific and technical experts from the Protocol’s advisory bodies and network, to report on progress towards regional monitoring of atmospheric concentrations of controlled substances. Establishing such additional monitoring capacity would strengthen verification of emissions data reported by parties.

However, establishing more global atmospheric monitoring of emissions or levels of ozone-depleting substances (ODS) would be expensive and there is some unease about whether this is a good use of funds that may be better spent on implementing the Kigali Amendment. Also, for several parties, this flies in the face of the Protocol’s long-standing honor system approach. For others, this step is essential for ascertaining the full extent of the ODS problem and for determining the necessary steps to take to protect the ozone layer. As one delegate put it, “What’s the harm in knowing what we’re dealing with? If we don’t know, how can we address the problem?”

OEWG 44 also raised questions of whether better ground-level monitoring is needed. Both India and China argued that existing processes under the Protocol are adequate, while the EU and Switzerland contended that it would be advantageous for all countries to gain better understanding of the industrial processes leading to emissions (in the case of carbon tetrachloride), and the available alternatives (for methyl bromide).

These issues—of global atmospheric and ground-level monitoring, and of addressing illegal production and trade—are crucial for the effective implementation of the Protocol. “With the CFC-11 emissions and this revolving question around methyl bromide stocks in the US, it is questionable whether the ImpCom is fit for purpose,” said one veteran of the process. Indeed, some suggested that a formal review of the Protocol’s compliance procedure and related issues is “well overdue.”

The OEWG did not conclude these discussions but agreed to continue consideration at the Meeting of the Parties (MOP) in Montreal later this year. Whether these discussions result in a shift more towards “verifying” and away from simply “trusting” remains to be seen.

#### ***From the Ozone Battle to the Climate War***

HFCs, initially adopted as alternatives to ODS, are also powerful greenhouse gases. The Kigali Amendment addressed this issue through parties’ commitment to phase down HFC production and use. Article 5 countries have agreed to implement a freeze beginning in 2024. Thus, the question of how to successfully move towards energy-efficient technologies with low-global warming potential (GWP) was front and center at OEWG 44.

In this shift to newer and better technologies, questions of access and equity surfaced. Developing countries made clear that while energy-efficient technologies with low-GWP are theoretically available, as indicated by a TEAP report on this topic, their higher upfront costs often make them inaccessible in practical terms. Gulf countries expressed concerns about whether new standards take into account the real-life conditions in high-ambient temperature countries, for example, with regard to flammability issues. Morocco’s proposal on restructuring the Protocol’s technology advisory bodies reflected a view that some countries’ concerns are under-represented.

The restructuring proposal did not gain traction at OEWG 44. Some parties viewed it as premature and potentially having a negative impact on the Technology and Economic Assessment Panel's range of expertise. Others, however, indicated a willingness to explore the proposals further in the lead up to and at MOP 34 in Montreal.

### From Virtual to In-Person Negotiations

OEWG 44 did have a lot on its plate, after two years of relatively "light" virtual agendas where many issues were deferred until the return to in-person meetings that allow delegates to work through issues, as Co-Chair Osvaldo Alvarez put it, not only in the meeting room, but also in the corridors and outside the meeting venue. This resulted in some achievements: an agreement on MLF replenishment, which was adopted at the brief Fifth Extraordinary Meeting of the Parties (ExMOP 5) that was convened specifically for this purpose; and agreement to continue discussions at the MOP on the terms of reference for a study of MLF replenishment in the 2024-26 period. On the replenishment, one delegate noted that discussions were "surprisingly straightforward," perhaps reflecting a unique situation where a budget has been set halfway through the triennium, with considerable funds rolled over from the last triennium (2018-2020) and virtual meetings during the pandemic resulting in lower costs.

There was an upbeat mood at the end of the meeting. Delegates were comfortable that the meeting had made significant progress in tackling some very big issues around the Protocol's future effectiveness and capacity to make synergistic contributions to addressing climate change. The OEWG accomplished its task to facilitate discussions ahead of the MOP's deliberations and decision-making, and parties made progress in this regard, by discussing some of the more challenging issues, especially around compliance and monitoring.

On the occasion of the Protocol's 35th anniversary, many welcomed agreement to honor the scientists who originally identified the chemical processes depleting the ozone layer, laying the foundation for this landmark environmental treaty. Mario Molina, Paul Jozef Crutzen and Frank Sherwood Rowland were later awarded the Nobel prize for chemistry in 1995 for their work.

Delegates also praised the Secretariat's good use of the virtual meetings in 2020 and 2021 to keep some things moving along, which enabled greater progress on some issues at OEWG-44. But they said: "Thank goodness we're back in person, and let's hope that virtual meetings are now a thing of the past."

### Upcoming Meetings

**Fourth Meeting of the SAICM Intersessional Process:** The fourth meeting of the Intersessional Process (IP4) for Considering the Strategic Approach to International Chemicals Management (SAICM) and the Sound Management of Chemicals and Waste Beyond 2020 is expected to continue the discussions on a possible post-2020 platform for chemicals and waste management.

**dates:** 29 August – 2 September 2022 **location:** Bucharest, Romania **www:** [saicm.org/Beyond2020/IntersessionalProcess/FourthIntersessionalmeeting/tabid/8226/language/en-US/Default.aspx](https://saicm.org/Beyond2020/IntersessionalProcess/FourthIntersessionalmeeting/tabid/8226/language/en-US/Default.aspx)

**CRC-18:** The eighteenth meeting of the Chemical Review Committee to the Rotterdam Convention will consider draft decision guidance documents for iprodione and terbufos. The CRC will also review notifications of final regulatory action on 10 substances.

**dates:** 19-23 September 2022 **location:** Rome, Italy **www:** [pic.int](https://pic.int)

**POPRC-18:** The eighteenth meeting of the Persistent Organic Pollutants Review Committee to the Stockholm Convention will continue its review of the industrial chemicals Dechlorane Plus, UV-328, chlorinated paraffins with carbon chain lengths in the range C14-C17 and chlorination levels at or exceeding 45% chlorine by weight, long-chain perfluorocarboxylic acids, their salts and compounds, and the pesticide chlorpyrifos. The POPRC will also consider draft reports related to exemptions for specific listed substances and alternatives to perfluorooctane sulfonic acid, as well as a draft document on long-range environmental transport. **dates:** 26-30 September 2022 **location:** Rome, Italy **www:** [pops.int](https://pops.int)

**IPCC 57:** The 57th session of the Intergovernmental Panel on Climate Change (IPCC 57) will be a usual business plenary session with agenda items considering the work of the *Ad Hoc* Group on Elections, and the IPCC Trust Fund Programme and Budget. **dates:** 27-30 September 2022 **location:** Geneva, Switzerland **www:** [ipcc.ch](https://ipcc.ch)

**34th Meeting of the Parties to the Montreal Protocol (MOP 34):** MOP 34 will convene to discuss issues related to the implementation of the Montreal Protocol. The meeting will be preceded by the 69th meeting of the Implementation Committee. **dates:** 31 October – 4 November 2022 **location:** Montreal, Canada **www:** [ozone.unep.org/meetings/thirty-fourth-meeting-parties](https://ozone.unep.org/meetings/thirty-fourth-meeting-parties)

For additional upcoming events, see [sdg.iisd.org/](https://sdg.iisd.org/)

### Glossary

CFC	Chlorofluorocarbon
CRP	Conference room paper
CTC	Carbon tetrachloride
CUE	Critical use exemption
CUN	Critical use nomination
ExCom	Executive Committee
ExMOP	Extraordinary Meeting of the Parties
FTOC	Foams Technical Options Committee
GWP	Global warming potential
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
HTOC	Halons Technical Options Committee
MBTOC	Methyl Bromide Technical Options Committee
MCTOC	Medical and Chemical Technical Options Committee
MLF	Multilateral Fund
MOP	Meeting of the Parties
ODS	Ozone-depleting substances
OEWG	Open-Ended Working Group
QPS	Quarantine and pre-shipment
RACHP	Refrigeration, air conditioning and heat pumps
RTOC	Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee
TEAP	Technology and Economic Assessment Panel
TOC	Technical Options Committee