

Summary of the Thirty-first Meeting of the Parties to the Montreal Protocol: 4-8 November 2019

The President of the thirty-first Meeting of the Parties to the Montreal Protocol (MOP 31), Martin Alvin Da Breo (Grenada), closed the meeting in the early hours of Saturday morning thanking the Montreal Protocol’s “dedicated soldiers for a job well done.” The MOP successfully completed five days of negotiations, with the most pressing agenda items—terms of reference (ToR) for the study on the 2021-2023 replenishment of the Multilateral Fund (MLF), the unexpected emissions of trichlorofluoromethane (CFC-11), and the areas of focus for the 2022 quadrennial assessment reports of the Scientific Assessment Panel (SAP), the Technology and Economic Assessment Panel (TEAP) and the Environmental Effects Assessment Panel (EEAP)—requiring careful negotiation to balance different parties’ agendas.

In particular, parties had to find a middle ground that would, in the MLF Study ToR, allow for scenarios for implementation of the Kigali Amendment and funding for alternatives to hydrofluorocarbons (HFCs), while also including language that would, in some parties’ views, increase the transparency of potential fund disbursement.

Parties tried to balance investigating and resolving the unexpected emissions of CFC-11 by analyzing institutional processes to avoid similar situations in the future. These negotiations included how to alert parties about similar issues in the future by gathering more information on the current situation and whether impugning parties was a constructive way forward.

On the areas of focus for the 2022 quadrennial assessment, parties sought to include new and emerging challenges, such as energy efficiency in light of the HFC phase-down, while also maintaining a focus on ozone layer depletion without overburdening the Assessment Panels, which already have a myriad of tasks to complete.

MOP 31 also addressed: review of the TEAP’s ToR, composition, balance, fields of expertise, and workload; ongoing reported emissions of carbon tetrachloride (CTC); critical use exemptions (CUEs); and issues of non-compliance. Parties were also invited to sign the Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Management.

MOP 31 convened from 4-8 November 2019 in Rome, Italy, at the headquarters of the Food and Agriculture Organization of the United Nations (FAO).

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.

Key Turning Points

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 called for cooperation on monitoring, research, and data exchange, but it did not impose obligations to reduce ozone depleting substances (ODS) usage. 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).

In this Issue

A Brief History of the Ozone Regime	1
MOP 31 Report	2
Preparatory Segment	2
High-Level Segment	2
MOP 31 Outcomes	3
A Brief Analysis of MOP 31	11
Upcoming Meetings	12
Glossary	13

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.

London Amendment and Adjustments: At MOP 2, 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 (ImpCom) 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 phase-down schedules for HFCs. HFCs are produced as replacements for CFCs 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, 88 parties to the Montreal Protocol have ratified the Kigali Amendment, which entered into force on 1 January 2019.

COP 11/MOP 29: The eleventh meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer (COP 11) and MOP 29 met from 20-24 November 2017, in Montreal, Canada. COP 11/MOP 29 adopted decisions including: essential-use exemptions and critical-use exemptions; future availability of halons; and energy efficiency. They also adopted a decision agreeing on a USD 540 million replenishment of the MLF for the triennium 2018-2020.

MOP 30: Convened from 5-9 November 2018 in Quito, Ecuador, MOP 30 adopted decisions on, *inter alia*: 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 Report

Preparatory Segment

Roberto Morassut, Undersecretary of State, Italian Ministry of the Environment, Land and Sea, welcomed delegates to MOP 31 on Monday, 4 November 2019. He applauded the Montreal Protocol as an extraordinary example of international cooperation that will continue to inspire global environmental policies to transition towards a sustainable world for current and future generations.

René Castro-Salazar, Assistant Director-General, Climate, Biodiversity, Land, and Water Development, FAO, stressed the urgency for countries to work together to reduce food waste, noting it would be possible for current food production to feed the entire world if waste were eliminated.

Tina Birmpili, Executive Secretary, Ozone Secretariat, underscored the importance of energy efficiency for cold chains and food security. She praised China's efforts to combat the unexpected CFC-11 emissions and, recalling the importance of monitoring and observation for detecting the unexpected CFC-11 emissions, called for more monitoring stations globally.

Organizational Matters: Alain Wilmart (Belgium), Co-Chair of the forty-first meeting of the Open-ended Working Group (OEWG 41), introduced the agenda for the preparatory segment (UNEP/OzL.Pro.31/1). Italy requested including discussion of the Rome Declaration under "Other matters," saying it will link the Montreal Protocol's contribution to reducing food waste through sustainable cold chain development. The agenda was adopted as amended.

Delegates agreed to the organization of work, as proposed (UNEP/OzL.Pro.31/1/Add.1).

High-Level Segment

MOP 30 President Liana Ghahramanyan (Armenia) opened the High-Level Segment on Thursday, 7 November 2019. Sergio Costa, Italian Minister for the Environment, Land, and Sea, underscored the Government of Italy's commitment to the 2030 Agenda for Sustainable Development and addressing environmental challenges so that "no one is left behind."

Inger Andersen, UNEP Executive Director, underscored the interconnectedness of environmental challenges and stated that "nothing short of universal ratification of the Kigali Amendment is acceptable." She encouraged parties to remain vigilant in their commitment to this Protocol.

Cardinal Pietro Parolin, Secretary of State, Holy See, on behalf of Pope Francis, cited aspects of a successful model of environmental protection and human development, such as dialogue on shared responsibilities and utilizing technology that takes interconnectedness into account.

Qu Dongyu, FAO Director-General, highlighted the impact that sustainable food chains can have on agriculture and food production. He reiterated that there are clear benefits to phasing down HFCs, and addressing these through, among others, synergies, and innovation will ensure positive results.

Organizational Matters: MOP 31 elected by acclamation: Martin Alvin Da Breo (Grenada) as President; Ezzat Lewis Agaiby (Egypt), Norlin Jaafar (Malaysia), and Patrick McInerney

(Australia) as Vice-Presidents, and Ramona Koska (Hungary) as rapporteur.

MOP 31 President Da Breo introduced the agenda (UNEP/OzL.Pro.31/1) and organization of work (UNEP/OzL.Pro.31/1/Add.1), which were adopted. He urged parties to submit their credentials as soon as possible.

High-Level Roundtable on the Contribution of the Montreal Protocol to the Development of Sustainable Cold Chains and the Reduction of Food Loss: The high-level roundtable discussion took place on Thursday, 7 November 2019. Key topics highlighted by panelists included: public-private partnerships can play a role in expanding a country's cold chain; norms and standards are key; and cold chains are vital for increasing local and global access to market.

A summary of the roundtable discussion is available at: <http://enb.iisd.org/vol19/enb19151e.html>

Presentations by the Assessment Panels on their Synthesis of the 2018 Quadrennial Assessments: The representatives from the SAP, TEAP, and EEAP presented their synthesis report on Thursday afternoon. They noted that:

- implementation of the Protocol has significantly lowered the occurrence of cataracts and skin cancer;
- 2019 marked the smallest ozone hole since 1983 due to unusual meteorological conditions not related to climate change;
- the decline of methyl bromide in the atmosphere has ceased; and
- CTC emissions are higher than expected due to unaccounted emission sources and revised CTC lifetimes.

They underscored that understanding ODS banks is key to understanding ozone recovery.

Presentation by the Chair of the MLF Executive Committee: MLF ExCom Chair Philippe Chemouny (Canada) presented on activities undertaken since MOP 30 (UNEP/OzL.Pro.31/9) on Thursday afternoon. He provided updates on three broad areas: policy matters; the status of MLF-funded projects; and business planning, and administrative and financial matters. The thematic areas addressed included HCFCs, global emissions of CFC-11, and the Kigali Amendment.

Statements by Heads of Delegation: MOP 31 President Da Breo invited heads of delegation to make statements on Thursday and Friday. Many lauded the Protocol's success as well as MLF assistance to assist with the phase-out of HCFCs and other ODS. They also underscored cold chains' role in sustainable development. The Bahamas, Brazil, Nigeria, Pakistan, Tunisia, and Venezuela outlined their steps to implement the Protocol. The Gambia, Mongolia, and the Seychelles highlighted efforts to develop national capacities.

Cuba, Guatemala, and the Russian Federation noted steps to ratify the Kigali Amendment. Côte d'Ivoire highlighted the Abidjan Appeal, which urges African Union members to ratify the Kigali Amendment.

Fiji, Niger, Sierra Leone, and Vanuatu highlighted the Kigali Amendment as a "turning point" in the Protocol's link to broader climate change efforts. Timor-Leste and Nepal underscored the challenges of implementing the Kigali Amendment in spite of the challenge it represents.

Malaysia and Uganda urged for alternatives to HFCs to be made available in Article 5 countries at reasonable and competitive prices. Cambodia, Iran, Myanmar, and Nicaragua called for more financial and technical support for ODS phase-

down. Argentina urged that the MLF complete the cost guidelines to fund the HFC phase-down. Solomon Islands said that they are strengthening their ODS control systems in anticipation of the HFC phase-down. Indonesia and Lebanon urged more support for capacity building and technological assistance in finding future feasible alternative to HFCs.

Uzbekistan emphasized their intention to focus on international cooperation to achieve a just and green economic transition. Benin praised the Protocol as a source of hope for their country, particularly because they have very low ODS consumption but will benefit disproportionately from their phase-down. Ethiopia highlighted using forestry as a vehicle for climate action.

Kenya stated that ODS phase-out has had an emphasis on low-global warming potential (GWP) and energy efficiency alternatives. India underscored that cooling is needed across different sectors of the economy, and sustainable cooling helps to ensure minimal environment impact. Sri Lanka emphasized that a well-established and efficient cold chain could address many issues in food security for his country. The International Institute of Refrigeration reiterated the cooling sector's critical role in supporting human health.

The Philippines urged parties to address the management and disposal of unwanted ODS. Bangladesh underscored its effective use of public-private partnerships to phase out ODS. Grenada said they have facilitated the introduction and use of natural refrigerants, with zero ozone depleting potential and negligible global warming potential in the domestic cooling sector.

Japan expressed concern that the unexpected emissions of CFC-11 have brought the credibility of the Protocol into question. The European Union (EU) questioned, in light of the CFC-11 emissions, how parties can achieve better enforcement of the Protocol and avoid backsliding on existing commitments and limit any delay in the recovery of the ozone layer.

Closing Session: Report by the Co-Chairs of the preparatory segment and consideration of the decisions recommended for adoption by MOP 31: Late Friday evening, OEWG 41 Co-Chair Laura Juliana Arciniegas gave the report of the Co-Chairs of the preparatory segment, noting that during the course of the negotiations, parties had reached agreement on most issues. She noted that more than 70 parties had signed the draft Rome Declaration.

Adoption of report and decisions by MOP 31: On Friday evening, MOP 31 Rapporteur Koska introduced the compilation of decisions (UNEP/OzL.Pro.31/L.2, L.2/Add.1, L.2/Add.2, and L.2/Add.3). Delegates adopted the decisions without amendment.

MOP 31 Rapporteur Koska reviewed the report of the meeting (UNEP/OzL.Pro.31/L.1, L.1/Add.1, and Annex) paragraph-by-paragraph, noting the Secretariat is entrusted with completing the report where necessary. Delegates adopted the report with minor textual amendments.

MOP 31 President Da Breo thanked all "the dedicated soldiers for a job well done." He closed MOP 31 at 12:33 am on Saturday, 9 November 2019.

MOP 31 Outcomes

All decisions were adopted without amendment late Friday evening by the HLS.

Budget of the Trust Fund for the Montreal Protocol and Financial Reports: OEWG 41 Co-Chair Alain Wilmart introduced this agenda item on Monday morning (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/3, UNEP/OzL.Pro.31/4, UNEP/

OzL.Pro.31/INF/1 and UNEP/OzL.Pro.31/INF/2). The Budget Committee met throughout the week, concluding its work on Friday. Canada introduced the draft decision (UNEP/OzL.Pro.31/CRP.13) on Friday evening. Delegates agreed to forward the decision to the HLS.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.13), the MOP decides to, *inter alia*:

- approve the budget of USD 5,322,308 for 2020, and take note of the indicative budget for 2021, as set out in an annex to the MOP 31 report;
- authorize the Executive Secretary, on an exceptional basis, to draw upon the available cash balance for 2020 for specific activities in an amount up to USD 366,346;
- reaffirm that a working capital reserve shall be maintained at a level of 15% of the annual budget to be used to meet the final expenditures under the Trust Fund;
- encourage parties and other stakeholders to assist the members of the three assessment panels and their subsidiary bodies with a view to ensuring their continued participation in Montreal Protocol assessment activities;
- request the Executive Secretary to continue to provide regular information on earmarked contributions and include that information, where relevant, in the budget proposals of the Montreal Protocol Trust Fund to enhance transparency with regard to the actual income and expenses of the Trust Fund; and
- request the Executive Secretary to prepare budgets and work programmes for the years 2021 and 2022, specifically a zero nominal growth scenario and a scenario based on further recommended adjustments to the zero nominal growth scenario based on projected needs.

Consideration of the Membership of Montreal Protocol

Bodies for 2020: On Wednesday morning, the Secretariat reported they are still expecting nominations for three members of the ImpCom, five members of the MLF ExCom and the OEWG 42 Co-Chairs. The Secretariat and OEWG 41 Co-Chair Arciniegas urged countries to submit nominations by Wednesday afternoon. On Friday morning, OEWG 41 Co-Chair Arciniegas noted that the nominations had been received and would be sent to the HLS for adoption.

Members of the ImpCom: In its decision (UNEP/OzL.Pro.31/L.2), the MOP confirms the positions of the EU, Guinea Bissau, Paraguay, Saudi Arabia, and Turkey as members of the ImpCom for one further year. It confirms Australia, China, Nicaragua, Poland, and Uganda as members of the ImpCom for a two-year period beginning 1 January 2020.

The MOP notes the selection of Maryam Al-Dabbagh (Saudi Arabia) to serve as President and Cornelius Rhein (EU) to serve as Vice President and Rapporteur of the ImpCom for one year beginning 1 January 2020.

Members of the MLF ExCom: In its decision (UNEP/OzL.Pro.31/L.2), the MOP:

- endorses the selection of Bahrain, Bangladesh, Chile, Djibouti, India, Rwanda, and Suriname as members of the ExCom representing Article 5 parties;
- endorses the selection of Australia, Belgium, Czech Republic, Japan, Switzerland, United Kingdom, and United States as members of the ExCom representing non-Article 5 parties; and
- notes the selection of Juliet Kabera (Rwanda) to serve as Chair and Alain Wilmart (Belgium) to serve as Vice-Chair of the ExCom.

Co-Chairs of the OEWG: In its decision (UNEP/OzL.Pro.31/L.2), the MOP endorsed Alain Wilmart (Belgium) and Obed Baloyi (South Africa) as OEWG 42 Co-Chairs.

Terms of Reference for the Study on the 2021-2023 MLF Replenishment: OEWG 41 Co-Chair Wilmart introduced this agenda item on Monday morning, noting the MLF replenishment is necessary for Article 5 parties to comply with their obligations under the Protocol during the 2021-2023 implementation period (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/3, and UNEP/OzL.Pro.WG.1/41/5).

Opening the floor for comments, the US flagged its intention to introduce some new concepts to the existing ToR. A contact group was established, facilitated by Ralph Brieskorn (Netherlands) and Leslie Smith (Grenada), which met throughout the week.

Parties discussed their request that the TEAP prepare a report for MOP 32 on appropriate funding levels for the 2021-2023 replenishment of the MLF. They deliberated on, *inter alia*:

- identifying scenarios to increase funding for low-volume-consuming countries and how this funding could be used;
 - limiting the TEAP's reporting burden and workload while satisfying party requests;
 - streamlining and simplifying the draft decision text;
 - addressing the Kigali Amendment in the decision text in such a way to account for the different potential scenarios with respect to ratification status; and
 - support to prepare for and implement the HFC phase-down.
- On Friday, parties continued to address bracketed text in the draft decision regarding, *inter alia*:
- funding for demonstration projects;
 - referencing the special needs of low-volume-consuming countries;
 - whether the report should treat all parties as a whole or all parties individually;
 - funding to maintain or enhance energy efficiency of low-global warming potential (low-GWP) technology in the HFC phase-down; and
 - funding for the introduction of zero- or low-GWP HFC alternatives in the servicing and end users sector.

However, on the issue of whether the report should “identify the level of funding within the estimated funding requirements associated with an individual country that exceeds 15% of the total amount of funding,” parties struggled to reach consensus. Proponents maintained that this information would enhance transparency for funders and allow them to see where their resources go, further noting that this request does not entail any extra work for the TEAP. Opposing parties argued that funding should be allocated on a task-by-task basis based on the potential results of a project. After multiple huddles, delegates arrived at a compromise position whereby the text in question was deleted in favor of new text that specified that parties may request this information from the TEAP after their report has been submitted.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.15), the MOP requests the TEAP to prepare a report for submission to OEWG 42 to enable MOP 32 to adopt a decision on the appropriate level of the 2021-2023 replenishment of the MLF.

The report should take the following into account, *inter alia*:

- all control measures and MOP and ExCom decisions, including decision XXVIII/2 and the decisions of MOP 31 and the ExCom at its meetings, that necessitate expenditure by the MLF during 2021-2023;

- the need to consider the special needs of low volume- and very-low-volume-consuming countries;
- the need to allocate resources to enable all Article 5 parties to achieve and/or maintain compliance with Protocol requirements, taking into account the reductions and commitments made by Article 5 parties under approved HCFC phase-out management plans, noting that TEAP shall provide any information/clarification as requested by any party relating to the allocation of resources;
- the need to allocate resources for Article 5 parties to comply with the Kigali Amendment, including the preparation and, if needed, the implementation of phase-down plans for HFCs;
- the need to allocate resources to low-volume consuming countries for the introduction of zero- or low-GWP HFC alternatives and to maintain energy efficiency in line with any relevant decisions of the ExCom; and
- three scenarios representing different potential levels of ratification of the Kigali Amendment when estimating the funding requirement for the phase-down of HFCs.

In addition, the report should provide indicative figures of the estimated funding required to phase out HCFCs that could enable Article 5 parties to leapfrog from HCFCs to the use of low- or zero-GWP alternatives, taking into account global warming potential, energy use, safety, and other relevant factors. The indicative figures should be provided for a range of typical scenarios, including a low-volume consuming country, a small manufacturing country and a medium-sized manufacturing country, and be provided for 2021-2023, 2024-2026, and 2027-2029, with the understanding that those figures will be updated in subsequent replenishment studies.

Potential Areas of Focus for the 2022 Quadrennial

Assessment Reports of the SAP, the EEAP, and the TEAP: OEWG 41 Co-Chair Arciniegas introduced this agenda item on Monday morning (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/3, and UNEP/OzL.Pro.31/8). The EU outlined the draft decision, saying he wanted the decision to include sufficient detail to guide the Assessment Panels. Additional areas of focus, he said, could include dichloromethane and CTC emissions, short-lived substances, and five volatile fluoroorganic compounds found in the Arctic. Japan and Nigeria expressed interest in ODS banks' elimination. India stressed the need to focus on the most recent commitments such as the HFC phase-down, and China underscored the importance of cost and availability of technologies for replacing HFCs and overall phase-out of ODS.

A contact group, co-facilitated by Cindy Newberg (US) and Samuel Paré (Burkina Faso), was established to consider the issue and met from Tuesday through Friday. Parties aimed to provide detailed recommendations for the assessment panels, ensuring the requests are within their ToRs and are reasonable under the requirements of the Montreal Protocol. Parties stressed the need to keep recommendations specific. They worked to keep focus on ozone layer depletion and incorporate HFCs and their linkage to climate in the draft decision without overburdening the TEAP.

The decision was agreed and presented to MOP on Friday evening, where it was forwarded to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.12), the MOP requests the assessment panels to:

- prepare quadrennial assessment reports and submit them to the Secretariat by 31 December 2022 for consideration by the OEWG and the MOP, and present a synthesis report by 30 April 2023; and

- notify parties of any significant developments, which, in their opinion, deserve such notice, in accordance with decision IV/13 (Data and information provided by the parties in accordance with Article 7 of the Montreal Protocol).

The MOP requests the EEAP to assess the effect of changes in the ozone layer, UV radiation, and their interaction with the climate system, on:

- the biosphere, biodiversity, and ecosystem health, including on biogeochemical processes and global cycles;
- human health; and
- ecosystem services, agriculture, and damage to materials, including for construction, transport, photovoltaic use, and microplastics.

The MOP requests the SAP to include in its report, *inter alia*:

- an assessment of the state of the ozone layer and its future evolution;
- an evaluation of global and polar stratospheric ozone, including the Antarctic ozone hole and Arctic winter/spring ozone depletion and the predicted changes in those phenomena;
- an evaluation of trends in the top-down derived emissions, abundances, and fate in the atmosphere of trace gases of relevance to the Montreal Protocol, in particular controlled substances and other substances of importance to the ozone layer;
- an evaluation of consistency with reported production and consumption of those substances and the likely implications for the state of the ozone layer, including its interaction with the climate system;
- an assessment of the interaction between changes in stratospheric ozone and the climate system, including possible future policy scenarios relating to ozone depletion and climate impacts;
- early identification and quantification, where possible, of any other issues of importance to the ozone layer and the climate system consistent with the objectives of the Vienna Convention and the Montreal Protocol; and
- relevant information on any newly detected substances that are relevant for the Montreal Protocol.

The MOP requests the TEAP to include an assessment and evaluation on:

- technical progress in production and consumption sectors in the transition to technically and economically feasible and sustainable alternatives and practices;
- status of banks and stocks of controlled substances, and the options available for managing them;
- challenges facing all Montreal Protocol parties in implementing Protocol obligations and maintaining the phase-outs already achieved, especially those on substitutes and substitution technologies;
- the impact of the phase-out of controlled ODS and the phase-down of HFCs on sustainable development; and
- technical advancements in developing alternatives to HFCs suitable for usage in countries with high ambient temperatures, particularly with regards to energy efficiency and safety.

Unexpected Emissions of CFC-11: OEWG 41 Co-Chair Arciniegas introduced this item on Monday morning (UNEP/OzL.Pro.31/CRP.4). The SAP presented its interim report, noting evidence indicating the increase in CFC-11 emissions: a slowing global decline in atmospheric concentration; an increasing North-South hemispheric concentration difference; and increased concentration in pollution plumes reaching Hawaii as well as

Jeju Island, Republic of Korea. The SAP concluded, noting that updated measurements post-2017 suggest that global CFC-11 emissions are still declining.

The TEAP Task Force on Unexpected CFC-11 Emissions presented the main findings, stating:

- the pre-2010 production and usage of CFC-11 is unlikely to account for the current emissions;
- emissions from regional foam banks are insufficient to explain atmospheric-derived emissions as its likely usage is for closed-cell foams; and
- it is likely the result of new CFC-11 production.

The Task Force cited technical and economic factors encouraging CFC-11 usage in closed-cell foams such as the reduced availability of HCFC-141b due to phase-out, and price increases in HCFC-141b and HFCs.

In the ensuing discussion, China updated the MOP on its efforts to address illegal use of CFC-11, saying progress has been achieved through measures such as:

- amending existing legislation to ensure it is effective and robust;
- implementing campaigns to strengthen capacity;
- providing teams, equipment, and laboratory facilities for testing ODS;
- deploying additional inspection units and monitoring equipment; and
- formulating a monitoring plan.

Norway and many others expressed concern about the unexpected CFC-11 emissions and queried how to ensure such a situation does not reoccur. The US and Canada noted much of the information is preliminary, requesting continued updates from the SAP. Many supported re-establishing the OEWG 41 contact group, and suggested narrowing the contact group's mandate to address institutional matters and processes only.

The US, supported by Canada, suggested a draft decision addressing two issues: first, ensuring that such an issue does not reoccur; and second, examining in more detail what has already transpired in accordance with the provisions of the Protocol. The US posed a number of questions to China, including whether their reporting has been amended to account for CFC-11 production and what has been done to address the downstream users of CFC-11. Kuwait, supported by Burkina Faso and Australia, expressed their desire to resolve this issue at MOP 31 so parties can concentrate on other potential challenges. Canada, supported by Australia, the EU, and Iraq, called for strengthening monitoring and enforcement activities. Canada and Australia also highlighted their concern that the CFC-11 experience demonstrates the risk that countries may revert to substances that have already been phased out.

The contact group was re-established with an updated mandate, and met from Tuesday through late Friday evening. It was co-facilitated by Annie Gabriel (Australia) and Osvaldo Álvarez-Pérez (Chile). OEWG 41 Co-Chair Arciniegas requested parties with concrete proposals to meet and agree on a single conference room paper (CRP) to present to plenary prior to the contact group meeting.

During contact group discussions, parties discussed how institutional processes could be enhanced and strengthened to prevent similar situations from arising. Delegates also discussed the steps needed to address the unexpected emissions. They explored the possibility of mandating the TEAP and SAP to address the aforementioned issues; however, it was noted that it

is challenging to increase parties' reporting requirements when they already face high reporting obligations and would require additional financial support from the MLF to comply.

On Wednesday, the EU presented its draft decision (UNEP/OzL.Pro.31/CRP.4), saying it attempts to deliver on the mandate of the contact group to both resolve the issue of the unexpected emissions that has "shocked the ozone family" and to look at institutional processes to prevent similar situations from occurring in the future. He noted the CRP does not address long-term measures and recommended open, intersessional discussions on these issues that should result in presentations to OEWG 42 and MOP 32.

On the final day of MOP 31, delegates deliberated over outstanding issues for most of the day in order to finalize the decision on unexpected CFC-11 emissions. Delegates deliberated at length on the language of the decision, debating the validity and rationale for explicitly mentioning a specific country party versus keeping the guidance on more general terms.

Parties endeavored to strengthen the language so that there is a clear differentiation between illegal activity and illegal trade of substances banned by the Protocol.

Other complexities encountered in the final lengthy hours of the CFC-11 contact group were how to assign responsibilities among the Ozone Secretariat, ExCom, and TEAP for parties to report on the potential discovery of illegal production of controlled substances.

Upon final agreement of the decision text, delegates returned to plenary. Co-Facilitator Álvarez-Pérez presented the draft decision (UNEP/OzL.Pro.31/CRP.4/Rev.1). The EU said, given numerous forthcoming reports related to this topic, parties agreed to consider information that will be available from these sources during the intersessional period, with discussions on this topic to resume at OEWG 42.

Delegates agreed to forward the decision to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.4/Rev.1), the MOP, *inter alia*:

- requests any party that becomes aware of information on CFC-11 emissions that indicates the party has exceeded its maximum-allowed level of production or consumption to submit to the Secretariat without undue delay a description of the specific circumstances that it considers to be the cause of the unexpected CFC-11 emissions;
- reminds parties to update their Article 7 reports if they become aware of new data;
- reminds parties to report all production of controlled substances, whether intended or not intended, to enable the calculation of production and consumption;
- encourages parties to take steps to ensure that controlled substances produced for feedstock are not directed towards non-feedstock purposes or for the illegal production of CFC-11;
- encourages parties to take action to discover and prevent the illegal production, import, export, and consumption of controlled substances;
- reminds parties to ensure that any imports and exports of controlled substances for feedstock and exempted uses are included in licensing systems;
- requests the TEAP provide a report to MOP 32 on, among others, any new compelling information that becomes available as well as an analysis of CFC-11 banks, linkages between the

level of production of anhydrous hydrogen fluoride, CTC, and unexpected CFC-11 emissions, information on the types of CFC-11 products, the disposition of any such products, and opportunities and methods to detect such products and potentially recover the associated CFC-11, and identifying possible drivers for illegal production and trade;

- requests the SAP work with Ozone Research Managers at their meeting in 2020 to identify gaps in global coverage of atmospheric monitoring of controlled substances and to provide options on ways to enhance such monitoring;
- invites parties to provide as soon as possible to the Secretariat, any available CFC-11 atmospheric monitoring data that is relevant to the unexpected CFC-11 emissions and requests the Ozone Secretariat to make this data available to the parties;
- notes that parties who become aware of information on CFC-11 emissions that indicates its maximum-allowed level of production or consumption of CFC-11 has been exceeded, should submit a description of the specific circumstances that it considers to be the cause of the unexpected CFC 11 emissions to the Secretariat without undue delay; and
- encourages all parties to take action to prevent the illegal production, import, export, and consumption of controlled substances and ensure that any imports and exports of controlled substances for feedstock and exempted uses are included in licensing systems.

Ongoing Reported Emissions of CTC: On Monday, OEWG 41 Co-Chair Wilmart introduced this agenda item (UNEP/OzL.Pro.31/2), noting the issue of CTC emissions was raised during OEWG 41, and recalled that, *inter alia*, parties requested that there be expanded atmospheric monitoring of such emissions and further mitigation options be offered by the Assessment Panels.

Switzerland emphasized that addressing these emissions is crucial to avoid a threat to the Montreal Protocol's efficacy and underscored their commitment to work with parties to make use of the synergies with other agenda items to avoid duplication of work. Supporting Switzerland's proposal, Burkina Faso, Norway, and Senegal said more information is needed on the characteristics of these emissions and possible alternative uses of CTC.

The EU and the US responded saying that the 2022 quadrennial assessment reports and unexpected emissions of CFC-11 should be fully considered before finalizing the way forward on CTC emissions.

OEWG 41 Co-Chair Wilmart proposed informal discussions take place on this agenda item and, upon completion of the agenda items on CFC-11 and the focus areas for the 2022 quadrennial assessment reports, plenary would return to this matter, to which delegates agreed.

On Friday morning, OEWG 41 Co-Chair Wilmart returned to this agenda item, requesting an update on discussions. Switzerland said that informal contact group discussions had noted the inability to determine the source of the CTC emissions, and many parties favored a concise decision that would request information from parties on their sources of CTC production. However, consensus was yet to be reached, so informal discussions continued during the day.

On Friday evening, Switzerland suggested that time be provided for intersessional consultations among parties, industry, and the TEAP. Switzerland said a revised version of the draft decision had been submitted, featuring one concise but comprehensive paragraph. He requested it not be introduced in

the plenary, but instead, included as an annex to the meeting report and included on the agenda for OEWG 42.

Co-Chair Wilmart clarified that it is not normal practice and requested the text be resubmitted as a meeting document instead. Switzerland reintroduced the decision as a document, highlighting that the data assist the TEAP in its work to understand CTC emissions more fully. When asked to agree to include this document as an annex to the report of the meeting, the US, supported by Australia and Canada, noted that it is not standard practice to attach a document that has not been extensively discussed or agreed. Parties agreed to instead capture Switzerland's draft decision as a statement in the report of the meeting. With that, this agenda item was closed.

Issues Related to Exemptions under Articles 2A–2I of the Montreal Protocol: Nominations for CUEs for methyl bromide for 2020 and 2021: OEWG 41 Co-Chair Wilmart introduced this agenda item (UNEP/OzL.Pro.31/2 and UNEP/OzL.Pro.31/2/Add.1) on Monday. Methyl Bromide Technical Options Committee (MBTOC) Co-Chairs Marta Pizano and Ian Porter presented their recommendations on the CUEs requested by Australia, Canada, Argentina, and South Africa. South Africa said it accepted the MBTOC's recommendation, but noted fumigation needs to take place twice yearly and the alternative to methyl bromide, sulfuryl fluoride, is yet to penetrate their domestic market. Australia confirmed its commitment to use methyl iodide as an alternative and said they are preparing a CRP. Canada thanked the MBTOC for acknowledging the lack of methyl bromide substrates and confirmed ongoing efforts to identify alternatives.

Australia introduced its CRP (UNEP/OzL.Pro.31/CRP.7), stating that it indicates the total tonnage requested for exemptions by Australia, Argentina, Canada, and South Africa. Parties agreed to forward the CRP to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.7), the MOP:

- permits, for each party and for the agreed critical-use categories for 2020 and 2021, the levels of production and consumption for 2020 and 2021, which are necessary to satisfy critical uses;
- decides that parties shall endeavor to license, permit, authorize, or allocate quantities of methyl bromide for the critical use categories set out in the decision's annex;
- decides that each party that has an agreed CUE shall renew its commitment to ensure that the criteria in paragraph 1 of decision IX/6 (CUEs for methyl bromide) are applied in licensing, permitting, or authorizing critical uses of methyl bromide, and to request that each party report on these to the Secretariat;
- decides that parties submitting future requests for methyl bromide CUEs shall also comply with the provisions of decision IX/6, and that non-Article 5 parties shall demonstrate that research programmes are in place to develop and deploy alternatives to and substitutes for methyl bromide; and
- calls upon Article 5 parties requesting CUEs to submit their national management strategies in accordance with paragraph 3 of decision Ex.I/4.

The annex sets out the agreed critical-use categories, as well as the permitted levels of production and consumption for each party concerned.

Stocks of methyl bromide: OEWG 41 Co-Chair Arciniegas introduced this agenda item (UNEP/OzL.Pro.31/2 and UNEP/OzL.Pro.31/2/Add.1) on Tuesday. She recalled the draft decision introduced by the EU at OEWG 41, stating it was not forwarded to MOP 31 since parties could not agree on: the definition of methyl bromide stocks, and differentiation between various types of stocks. The EU reemphasized their interest in the issue, stating that reporting on methyl bromide stocks could be incorporated into the draft decision on CUEs. He asked that the agenda item remain open for a potential CRP to be submitted later. Barbados, supported by Chile, preferred the agenda items on reporting on stocks and CUEs be discussed separately.

OEWG 41 Co-Chair Arciniegas proposed, and delegates agreed, that both agenda items remain open, with the EU participating in the CUE CRP discussion, while assessing the feasibility of a separate CRP on stocks.

On Wednesday, the EU proposed a draft decision (UNEP/OzL.Pro.31/CRP.5), calling for voluntary reporting on the volumes of all methyl bromide stocks by 1 July 2020.

The US opposed, stating it is unclear what “all stocks” would mean and how the data will benefit all parties. Chile and Ecuador stated that information on stocks will encourage the search for alternatives. Parties agreed to continue informal discussions, including with the MBTOC.

On Friday during the morning plenary, delegates agreed to forward the decision to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.5), the MOP invites parties to voluntarily submit information on the volumes of methyl bromide stocks, including mixtures, to the Secretariat by 1 July 2020. It also requests the Secretariat post the details of those methyl bromide stocks reported by parties.

Development and availability of laboratory and analytical procedures that can be performed without using controlled substances under the Protocol: OEWG 41 Co-Chair Wilmart introduced this agenda item on Tuesday morning (UNEP/OzL.Pro.31/2). Canada requested additional time to finalize a draft decision. Switzerland, the EU, and the US noted that simplifying procedures will benefit both the parties and the TEAP.

Delegates agreed to continue informally, and presented a draft decision (UNEP/OzL.Pro.31/CRP.14) on Friday night, which was forwarded to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.14), the MOP extends the global laboratory and analytical-use (LAU) exemption indefinitely beyond 2021. Additionally, MOP 31, *inter alia*:

- requests the Secretariat to include information on production and consumption trends of ODS for LAU in the annual report on Article 7 data submitted to the parties;
- requests the Secretariat make available to parties, through its web site, the consolidated indicative list of LAU of ODS that are globally exempted and the list of uses that parties agree are no longer exempted;
- encourages parties to further reduce their production and consumption of ODS for LAU and to facilitate the introduction of laboratory standards that do not require such substances; and
- requests TEAP to report within their quadrennial reports on any progress made by parties in reducing their production and consumption of ODS for LAU, any new alternatives for these uses, and laboratory standards that can be performed without such substances.

Process Agents: OEWG 41 Co-Chair Arciniegas introduced this agenda item on Tuesday morning, recalling that MOP 30 had considered recommendations from the TEAP to update tables on ODS currently used as process agents (UNEP/OzL.Pro.31/2). The EU mentioned a CRP they are developing that will propose updating the necessary tables. OEWG 41 Co-Chair Arciniegas requested the CRP be finalized and brought to plenary for further discussion.

On Wednesday afternoon, the EU introduced the draft decision (UNEP/OzL.Pro.31/CRP.3), stating it seeks to update Table A on uses of controlled substances as process agents and delete process agents that are no longer required. Regarding Table B on limits for process agent uses, the EU said it aims to adjust the makeup and maximum emissions associated with the deleted process agents. Canada and the US mentioned there had been insufficient time to review the CRP and requested time for further discussion with the EU.

Informal discussion continued until the Friday night session, when the EU introduced UNEP/OzL.Pro.31/CRP.3/Rev.1, which the delegates agreed to forward to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.3/Rev.1), the MOP decides to update Tables A and B of decision X/14. It also requests the TEAP, in its quadrennial report, to report on any progress made by parties in reducing their use and emissions of controlled substances as process agents and on any new alternatives to such uses on the understanding that should new, compelling information become available, this should be reported in their annual progress report.

Access of Article 5 Parties to Energy-Efficient Technologies in the Refrigeration, Air-Conditioning and Heat-Pump (RACHP) Sectors: OEWG 41 Co-Chair Wilmart introduced this item on Tuesday (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/2/Add.1, and UNEP/OzL.Pro.WG.1/41/5).

The TEAP Task Force on Energy Efficiency presented its report, concluding that, *inter alia*:

- technologies to enhance the energy efficiency of air-conditioning and commercial refrigeration equipment during the HFC phase-down are available;
- countries can use market policies and incentives to increase energy efficiency during the phase down of high-GWP HFCs;
- international and regional cooperation is key for market transformation; and
- Article 5 parties can benefit from capacity building and market transformation support.

The TEAP Task Force responded to questions from parties, stating that: their analysis did not consider accessibility, only availability; delaying energy efficient equipment uptake can result in additional costs over the equipment’s lifetime; and the price of energy-efficient equipment tends to be higher in countries with high ambient temperatures.

Argentina, Bahrain, Barbados, Burkina Faso, India, Kuwait, and Samoa noted that both availability of and access to efficient technologies are unevenly distributed globally. The Federated States of Micronesia requested the TEAP to continue providing updates on changing technology and market conditions. Colombia, supported by the EU and Australia, requested: international efficiency standards be developed; additional policy measures be explored; and international cooperation and knowledge-sharing be emphasized. Colombia, supported by Argentina, requested the MLF support greater cooperation and capacity building in countries facing availability limitations or

higher costs to adopt and implement high-efficiency technologies. Canada noted the ExCom has already committed to, *inter alia*: supporting countries with training programmes to introduce energy efficient technologies; and identifying best practices for energy efficiency.

Co-Chair Wilmart proposed, and delegates agreed, to continue discussions informally. Informal discussions took place throughout the week, with a contact group established on Friday to consider a draft decision (UNEP/OzL.Pro.31/CRP.9).

Parties reported that the draft decision requests the TEAP to provide additional information on the policy frameworks necessary to enhance energy efficiency in the RAHCP sector in Article 5 countries, and report on new developments with respect to availability and accessibility of energy efficient equipment, as well as the market penetration of inefficient equipment. The decision further requested the MLF ExCom to consider TEAP reports while developing the cost guidance on maintaining and/or enhancing the energy efficiency of replacement technologies and equipment with low- or zero-GWP in the process of phasing down HFCs.

Many believed that while the subject is important, the additional requests may overburden the TEAP. There was also concern that language on requests for “pertinent aspects” and “market penetration of inefficient equipment” may be too subjective for the TEAP to adequately fulfil. Some delegates voiced concern that certain aspects of the requests may be too prescriptive for parties. They suggested that the decision be “focused and achievable,” so that the information received is “comprehensive and useful.” Parties urged that the decision language reflect that the discussion on energy efficiency stems from the adoption of the Kigali Amendment.

The revised draft decision was introduced in plenary on Friday evening, where it was forwarded to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.9/Rev.2), the MOP requests that the TEAP prepare a report for MOP 32’s consideration, which addresses any new developments with respect to best practices, availability, accessibility, and cost of energy efficient technologies in the RACHP sector as regards the implementation of the Kigali Amendment.

Terms of Reference, Composition, Balance, Fields of Expertise, and Workload of the TEAP: OEWG 41 Co-Chair Arciniegas introduced this agenda item on Tuesday morning, reminding the parties that the draft decision was introduced by Saudi Arabia at OEWG 41 and forwarded to MOP 31 for further considerations (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.WG.1/41/4 and UNEP/OzL.Pro.24/10). A contact group, co-facilitated by Lara Haidar (Lebanon) and Philippe Chemouny (Canada), was established to further consider the draft decision.

The contact group met from Tuesday through Friday to consider the draft decision contained in UNEP/OzL.Pro.31/3. Parties considered language to ensure there is sound, clear, and transparent implementation of the TEAP’s ToR. They also discussed the need for the TEAP to provide a summary outlining the actions that the TEAP and its technical options committees (TOCs) undertook to ensure implementation of decision XXIV/8 (ToR, code of conduct, and disclosure and conflict of interest guidelines for the TEAPs, and its TOCs and temporary subsidiary bodies), as well as ensuring that the matrix of needed expertise is compiled in line with decision XXIV/8.

Co-Facilitator Chemouny introduced the draft decision (UNEP/OzL.Pro.31/CRP.11) on Friday evening, saying that the main aspect of the decision is the request for TEAP to provide an annual progress report summarizing steps taken to ensure adherence with the Panel’s ToR.

Delegates agreed to forward the draft decision to the HLS, where it was adopted.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.11), the MOP:

- reiterates the importance of the TEAP’s ToR and section 2.9 of the annex to decision XXIV/8 (Guidelines for nominations and matrix of expertise) and also to reiterate the importance of the annex, which defines the requirements and information to be included in the matrix of needed expertise;
- requests that the TEAP provide, as part of its annual progress report, a summary outlining the procedures that the Panel and its TOCs have undertaken to ensure adherence to the Panel’s ToR through clear and transparent procedures;
- requests parties, when nominating experts to the TEAP, TOCs, or temporary subsidiary bodies, use the Panel’s nomination form and associated guidelines so as to facilitate the submission of appropriate nominations by parties, taking into account the matrix of needed expertise, geographical and gender balance, in addition to expertise needed to address new issues related to the Kigali Amendment;
- requests the Ozone Secretariat to make the TEAP nomination form available on the Secretariat’s website and to make the forms submitted by parties nominating members to the Panel available on meeting portals so as to facilitate the review by and discussions among the parties of the proposed nominations; and
- urges the parties to follow the TEAP ToR and consult the Panel Co-Chairs and refer to the matrix of needed expertise prior to making nominations for appointments to the Panel.

Membership of the MLF ExCom: OEWG 41 Co-Chair Wilmart introduced this agenda item (UNEP/OzL.Pro.31/2 and UNEP/OzL.Pro.31/3) on Tuesday, proposing establishment of an informal contact group. Armenia called for a permanent seat on the MLF ExCom for a member of the Eastern Europe and Central Asia group, and, with the Russian Federation supporting, urged adopting the draft decision. The US and Jordan opposed the draft decision, noting that ExCom representation is currently balanced in representation. The US expressed willingness to discuss the concerns of the Eastern Europe and Central Asia group regarding MLF project approval and execution in an informal contact group. Armenia, supported by Georgia and Kyrgyzstan, requested establishing a formal contact group.

Due to the lack of consensus, an informal contact group was established. Armenia updated the plenary on the status of informal and bilateral consultations on Friday morning, stating that their original questions on this matter are still outstanding and requested, with support from Bosnia and Herzegovina, the establishment of a formal contact group to continue discussions. Reminding parties of the limited time remaining and numerous outstanding agenda items, OEWG 41 Co-Chair Wilmart requested discussion on this agenda item be suspended until OEWG 42. Parties agreed to close this agenda item and revisit the establishment of a formal contact group on the matter at OEWG 42.

Request by Azerbaijan to be included among the Parties to which the Phase-down Schedule for HFCs, as set out in paragraphs 2 and 4 of Article 2J of the Montreal Protocol, applies: OEWG 41 Co-Chair Arciniegas introduced this agenda item (UNEP/OzL.Pro.31/2 and UNEP/OzL.Pro.31/3) on Tuesday. She suggested, since the Government of Azerbaijan was not present at MOP 31, the agenda item be closed with the possibility that it be reintroduced at a future meeting. Delegates agreed.

Safety Standards: OEWG 41 Co-Chair Wilmart introduced this agenda item on Tuesday, reminding delegates about the online tool developed by the Ozone Secretariat (UNEP/OzL.Pro.31/2 and UNEP/OzL.Pro.31/2/Add.1). The EU stressed that revised safety standards are crucial for implementation of the Kigali Amendment. China called for revised standards on household appliances. Noting no further interventions, OEWG 41 Co-Chair Wilmart closed the agenda item.

Initial Assessment by the SAP and the TEAP of Five Volatile Fluoroorganic and Related Compounds found in the Arctic: Co-Chair Wilmart introduced this agenda item (UNEP/OzL.Pro.31/2) on Tuesday. The SAP and the TEAP presented their initial assessment, noting the five chemicals occur at very low concentrations. They added that although three of the gases are ODS, these substances are currently not threats to the ozone layer and their climate impact is likely negligible.

Responding to Norway, the TEAP said it used publicly available information and its own expert knowledge of the chemicals market to determine the availability and market value of these chemicals. The SAP, responding to Barbados, said that due to science limitations, the origins of the emissions are unknown, but climatological observations suggest they originated from Norway. The SAP said it would be better placed to address this in the future as measurement techniques improve.

Switzerland suggested controlled studies to better understand the impacts of these chemicals. Co-Chair Wilmart closed this agenda item.

Co-Chair Wilmart returned to this agenda item on Wednesday morning. Norway queried which sectors the ODS are being used in and requested this information be included in the next quadrennial report. Noting no other interventions, Co-Chair Wilmart closed the agenda item.

Consideration of Nominations to the Assessment Panels: OEWG 41 Co-Chair Arciniegas introduced this agenda item on Tuesday, noting two additional nominations received since OEWG 41 (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/2/Add.1, and UNEP/OzL.Pro.24/10). OEWG 41 Co-Chair Arciniegas asked parties to follow the guidelines and matrix available for nominating panelists. The US introduced the draft decision (UNEP/OzL.Pro.31/CRP.10) on Friday night, outlining the new nominees. Delegates agreed to forward the decision to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.31/CRP.10), the MOP endorses the appointment of:

- Krishna K. Pandey (India) and Paul Barnes (US) as the new Co-Chairs of the EEAP;
- Jianjun Zhang (China) as Co-Chair of the Medical and Chemicals TOC (MCTOC) for an additional four-year term;
- Omar Abdelaziz (Egypt) as a new Co-Chair of the Refrigeration TOC for a four-year term;
- Keiichi Ohnishi (Japan) as Co-Chair of the MCTOC for an additional four-year term;

- Sidi Menad Si Ahmed (Algeria) as senior expert of the TEAP for an additional one-year term; and
- Suely Carvalho (Brazil) as senior expert of the TEAP for an additional four-year term.

Compliance and Data Reporting Issues: The Work and Recommended Decisions of the ImpCom: Co-Chair Wilmart introduced this agenda item on Tuesday (UNEP/OzL.Pro.31/2). Patrick McInerney (Australia), ImpCom President, reported on the ImpCom's 62nd and 63rd meetings. He noted that the CRP contains two draft decisions that cover data reporting and HFC licensing systems, remarking that all parties are currently in compliance. He explained that the CRP also urges: periodic review of HFC licensing systems; stocktaking to ensure noncompliance mechanisms are well-suited to meet future challenges; and identifying possible gaps in compliance enforcement. McInerney added that the ImpCom had also requested the Secretariat to provide information on the possible ways of dealing with illegal production and illegal trade of controlled substances, which is appended to the Committee's report and will be made available in the coming days. Co-Chair Wilmart suggested this issue be forwarded to OEWG 42 for further discussion. After noting a request from the US to make minor amendments for clarity, delegates agreed.

On Wednesday, OEWG 41 Co-Chair Wilmart informed the plenary that Part A of the original CRP (UNEP/OzL.Pro.31/CRP.2) has been finalized and proposed it be forwarded to the HLS for adoption.

The US introduced UNEP/OzL.Pro.31/CRP.6 that clarifies language of Part B of UNEP/OzL.Pro.31/CRP.2. Parties supported the clarifications but said more time is needed to review the latter CRP. Both draft decisions remained open for further deliberations.

On Friday morning, OEWG 41 Co-Chair Wilmart returned to this agenda item, where parties agreed to forward the two CRPs to the HLS.

Final Outcome: In the decision on data and information provided by the parties in accordance with Article 7 of the Montreal Protocol (UNEP/OzL.Pro.31/CRP.2), the MOP:

- notes that all parties need to report data and that, as of 30 September 2019, 169 parties had done so;
- notes 103 of those parties had reported their data by 30 June 2019; and
- encourages parties to continue reporting consumption and production data as soon as figures are available, and preferably by 30 June each year.

In the decision on licensing systems under Article 4B, paragraph 2 *bis* of the Montreal Protocol (UNEP/OzL.Pro.31/CRP.6), the MOP:

- urges all parties to the Protocol that have ratified, approved, or accepted the Kigali Amendment and that already operate licensing systems for controlled substances under Annex F to the Montreal Protocol to ensure those licensing systems include the import and export of new, used, recycled, and reclaimed controlled substances and that they are implemented and enforced effectively;
- encourages all parties to the Protocol that have ratified, approved, or accepted the Kigali Amendment to the Protocol and that have not yet done so to establish and implement import and export licensing systems consistent for controlled substances listed in Annex F to the Protocol; and
- review periodically the status of the establishment and implementation of import and export licensing systems for

controlled substances under Annex F to the Protocol by all parties to the Protocol that have ratified, approved, or accepted the Kigali Amendment.

Risk of Non-Compliance with HCFC Reduction Targets for 2019 by the Democratic People's Republic of Korea (DPRK): OEWG 41 Co-Chair Arciniegas introduced this item (UNEP/OzL.Pro.31/2) on Tuesday, and it was addressed in the preparatory segment on Tuesday and Wednesday. The DPRK said that although the agenda item had been closed at OEWG 41, they requested its inclusion on the MOP 31 agenda. She said that DPRK has been unable to receive technical and monetary assistance to phase out HCFCs due to UN sanctions, which puts them at risk of non-compliance. She also questioned what kind of penalty the DPRK could expect if this happens. The US opposed a draft decision proposed by the DPRK, saying Protocol decisions will have to comply with Security Council sanctions. Australia, the EU, Japan, and US stated there has been no change in circumstances since OEWG 41 that would justify changing the decision to withhold funding from the DPRK. They noted their support for the ExCom's decision on this matter as it is consistent with UN Security Council resolutions.

Co-Chair Arciniegas noted a lack of consensus on this issue and proposed recording these interventions in the report of the meeting and closing the agenda item. Delegates agreed.

Status of Ratification of the Kigali Amendment to the Montreal Protocol: OEWG 41 Co-Chair Arciniegas introduced this item on Wednesday morning (UNEP/OzL.Pro.31/2, UNEP/OzL.Pro.31/3 and UNEP/OzL.Pro.31/INF/3). She said 88 parties have ratified the Kigali Amendment. Armenia, Brazil, Dominican Republic, Kenya, Sudan, Tanzania, Tunisia, and Zimbabwe reported that ratification is underway. Argentina, Guinea, Malaysia, and Mozambique emphasized their intention to deposit instruments of ratification with the UN shortly. Argentina and Malaysia urged progress on matters of funding to ensure an effective HFC phase-down. OEWG 41 Co-Chair Arciniegas urged parties that have not yet done so, to ratify. The draft decision was forwarded to the HLS for adoption.

Final Outcome: In its decision (UNEP/OzL.Pro.30/L.2), MOP 31 notes that as of 8 November 2019, 88 parties have ratified, approved, or accepted the Kigali Amendment to the Montreal Protocol. The MOP also urges all parties that have not yet done so, to consider ratifying, approving, or accepting the Kigali Amendment in order to ensure broad participation and achieve the goals of the Amendment.

Dates and Venue of MOP 32: On Friday evening, Uzbekistan offered to host MOP 32 in Tashkent, Uzbekistan, saying it would be a great honor to host the Montreal Protocol Meeting of the Parties. MOP 31 President Da Breo thanked Uzbekistan for their offer, noting that the dates will be confirmed.

Other Matters: On Wednesday morning, OEWG 41 Co-Chair Wilmart opened this agenda item, inviting Italy to speak on the Rome Declaration. Italy noted the Declaration, on the contribution of the Protocol to the sustainable cold chain to reduce food loss, is linked not only to the mandate of the Protocol but also several of the Sustainable Development Goals (SDGs). He said the Declaration, the text of which was finalized at OEWG 41, will appear as an annex to the MOP 31 meeting report. Italy reminded delegates that the topic would be discussed at the ministerial roundtable during the HLS and parties are invited to sign the

Declaration on a voluntary basis up until MOP 32. Many parties thanked Italy for this initiative, stating their intention to sign the Declaration and urging other parties to do so.

Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development: As of 8 November 2019, the Rome Declaration has been signed by 76, and is open for signature up until the start of MOP 32 in November 2020.

In the Declaration (UNEP/OzL.Pro.31/L.1/Annex), the Ministers of the 76 countries recall that approximately one-third of all food produced globally is either lost or wasted. They reaffirm the cooperation among parties in implementing the Montreal Protocol, recognize the Protocol and its Kigali Amendment have raised awareness for developing sustainable and efficient solutions in the refrigeration and air conditioning (RAC) sector, and are aware of the cold chain's key role in implementing the 2030 Agenda for Sustainable Development and the SDGs.

The Ministers:

- stress the importance of pursuing national action and international cooperation to promote cold chain development, including by using sustainable and environmentally friendly refrigeration to reduce food loss;
- underscore the multiple benefits of promoting information exchange on the contribution of the cold chain to the SDGs and encourage the ongoing work under the Montreal Protocol to this end; and
- call for strengthening cooperation and coordination between governments, the Protocol's institutions, UN specialized agencies, existing private and public initiatives, and all relevant stakeholders to exchange knowledge and promote innovation of energy-efficient solutions and technologies that reduce the use of Protocol-controlled substances in developing the cold chain, thereby contributing to the reduction of food loss and waste.

A Brief Analysis of MOP 31

UN Environment Programme Executive Director Inger Andersen, addressing the High-Level Segment (HLS), called on parties to "uphold their responsibility to the ozone layer." Considering the Protocol's 32-year legacy of success, this was foremost in the minds of many as the thirty-first Meeting of the Parties to the Montreal Protocol (MOP 31) convened in Rome. By looking back and shoring up the legacy of the Protocol, parties also looked forward and, using scientific precision and further galvanizing the institutional structures, tried to ensure that the Montreal Protocol can weather future complexities that are emerging as global challenges become increasingly interlinked.

Throughout the week, parties acknowledged the Kigali Amendment is the bridge between the ozone and climate regimes. As the week at the UN Food and Agriculture Organization headquarters demonstrated, the Amendment also connects to issues of food security and sustainable agriculture. The issue of access to energy efficient technology for developing countries (Article 5 parties) underscores the Amendment's far-reaching impacts. Parties sought to ensure these matters were addressed by including these issues in in the Terms of Reference (ToR) for the Study on the MLF replenishment by the Technology and Economic Assessment Panel (TEAP) for the 2021-2023 period and as areas of focus for the 2022 Quadrennial Assessment.

Arguably, the impetus for this elevated commitment to fortify the pillars of the Protocol was the overarching issue of the unexpected CFC-11 emissions—a matter that has been extensively deliberated by parties for the last two years and continued to confound them at MOP 31. The reemergence of issues they thought had been resolved—CFCs were phased out in 2010—has mobilized parties to confront the issues at hand in addition to ensuring that the Protocol remains fit-for-purpose.

This analysis assesses whether MOP 31, in light of the above challenges, took sufficient steps to “uphold their responsibility to the ozone layer,” and ensure the Protocol’s legacy continues as global environmental challenges converge.

Inward Reflection

Pope Francis’ letter to the MOP underscored that the Montreal Protocol has reason to be proud. He lauded it as an example of a successful international agreement that understands the interconnectedness of life and nature and does not shy away from shouldering its responsibility in the global environmental agenda.

The unexpected emissions of CFC-11 was therefore, as one delegate said, an issue that has “shocked the ozone family.” The Implementation Committee (ImpCom), in anticipation that this was the first of many such challenges, had requested a note from the Secretariat on the Protocol’s current compliance systems. Providing an update to the MOP on compliance and data reporting issues, the ImpCom suggested that this note be forwarded to the next Open-ended Working Group (OEWG) meeting. There parties will be given the opportunity to consider and assess if they are sufficient for effective implementation.

Global monitoring and observations detected that approximately 50% of the unexpected emissions have come from China. As a result, China has taken steps to address illegal CFC-11 use. Parties spent many hours deliberating if this action is sufficient in the short term. More broadly, parties discussed the need to enhance monitoring and observation in order to effectively identify sources in the event of unexpected ODS emissions in the future. As one delegate was heard saying, “How can we take sufficient action when we don’t have sufficient monitoring and observation capacity?”

After working late into the final evening of the MOP, parties decided to focus on general guidance with an emphasis on information gathering on illegal activities and illegal trade of banned substances, while encouraging intersessional discussion. Some observers said the decision provides delegates with an opportunity to reflect on the issue and have more concrete suggestions at the next OEWG meeting. Throughout MOP 31 delegates emphasized the need to rise to the challenge of resolving the CFC-11 issue, as many noted this will serve as a “litmus test” of the Protocol’s ability to effectively address and resolve compliance matters.

Sufficient Action

Delegates universally acknowledged that one of the key challenges ahead is the implementation of the Kigali Amendment. Adopted by parties in 2016, the Kigali Amendment aims to address HFC emissions, which were created to replace HCFCs. Though HFCs are not ODS, they are potent greenhouse gases. Article 5 parties repeatedly stated that access to energy efficient alternatives to HFCs is key for their ability to effectively phase down HFCs. They also stressed the need for the Multilateral Fund (MLF) to augment its funding support on this basis.

Delegates at MOP 31 were tasked with deciding on the ToR for the Study on the MLF replenishment by the TEAP for the 2021-2023 period. Article 5 parties were eager for HFC alternatives, energy efficiency, and other support for Kigali Amendment implementation to be prioritized in the replenishment study. Non-Article 5 parties, however, expressed reluctance.

The non-Article 5 parties have raised concerns on how MLF funding has been disbursed in recent years—noting fewer countries have received funding and, as a result, they receive larger shares of total funds available. One civil society observer also suggested that non-Article 5 parties are concerned some Article 5 parties do not appear to need MLF funding.

The negotiations on the ToR for the MLF Study hit a roadblock on this particular issue. Some parties suggested detailing which Article-5 parties would receive funding, with the proponents suggesting this will allow for greater buy-in from governments and potentially ease MLF funding concerns. Ultimately, however, this language was not included in the final decision as the opponents urged for funding to be allocated on a task-by-task basis, rather than a country-by-country basis. The compromise decision states that country-specific information could be requested from the TEAP as needed.

Delivering Big Time

Former Canadian Prime Minister Brian Mulroney stated at MOP 29, marking the 30th anniversary of the Montreal Protocol, that “history will judge you and all of us, not on the speeches we make, but on the results we deliver. In that the Montreal Protocol has delivered big time.” But despite the commitment of parties, science, and industry to strive for continued results, many expressed concern that the emerging complexities for this Protocol have the potential to loom over past glories if they are not addressed successfully.

As Inger Andersen stated, these emerging complexities include “the linked threats of climate change, the erosion of nature and pollution of the air, land, and sea,” emphasizing that multilateral agreements “have never been more important.” While the Kigali Amendment links the Montreal Protocol to climate action, the Rome Declaration on the Montreal Protocol’s contribution to food loss reduction underpins the link to food security, strengthening the Protocol’s wide-reaching place in the sustainable development agenda.

Delegates worked long and hard throughout the week to continue strengthening the aspects of the Protocol that have ensured its historical achievements. They reaffirmed their commitment to maintaining scientific vigilance, and ensuring that the institutional pillars of the Protocol remain dynamic and flexible in changing times. The decisions taken at MOP 31 will help the Montreal Protocol to continue “delivering big time.”

Upcoming Meetings

Global Science, Technology and Innovation Conference (G-STIC) 2019: The Conference will discuss accelerating technological transitions for the SDGs through identifying clusters of market-ready technological solutions and start building a living library of transformative technologies across sectors. **dates:** 20-22 November 2019 **location:** Brussels, Belgium **www:** <https://2019.gstic.org/>

Third Meeting of the Conference of the Parties to the Minamata Convention on Mercury: COP-3 is expected to discuss, *inter alia*, waste thresholds, releases, interim storage,

contaminated sites, open burning of waste, review of Annexes A and B, and harmonized customs codes. **dates:** 25-29 November 2019 **location:** Geneva, Switzerland **www:** <http://www.mercuryconvention.org>

UNFCCC COP 25: Formerly scheduled to be held in Santiago, Chile, the UN Climate Change Conference has relocated to Madrid. The Conference will feature the 25th session of the Conference of the Parties (COP 25) to the UNFCCC, the 15th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP 15), and the 2nd session of the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement (CMA 2), along with meetings of the UNFCCC subsidiary bodies. **dates:** 2-13 December 2019 **location:** Madrid, Spain **www:** <https://unfccc.int/cop25>

4th Meeting of the Intersessional Process (IP4) considering the Strategic Approach and the Sound Management of Chemicals and Waste beyond 2020: IP4 is expected to continue the discussions on a possible post-2020 platform for chemicals and waste and will convene ahead of the fifth session of the International Conference on Chemicals Management (ICCM-5), scheduled for 5-9 October 2020 in Bonn, Germany. **dates:** 23-26 March 2020 **location:** Bucharest, Romania **www:** <http://www.saicm.org/>

11th ORM: The 11th Ozone Research Managers (ORM) meeting is expected to provide parties with information on needs for research, observations, data stewardship, and capacity building. **dates:** 1-3 April 2020 **location:** Geneva, Switzerland **www:** <https://ozone.unep.org/meetings>

8th International Nitrogen Initiative Conference: The conference is expected to stimulate an exchange among policymakers and other relevant stakeholders of results, ideas, and visions to improve future holistic management of reactive nitrogen. **dates:** 3-7 May 2020 **location:** Berlin, Germany **www:** <https://ini2020.com/>

85th MLF ExCom: The Multilateral Fund (MLF) Executive Committee (ExCom) will continue to look at reports with specific reporting requirements and status of contributions and disbursements. **dates:** 25-29 May 2020 **location:** Montreal, Canada **www:** <http://www.multilateralfund.org/>

Sustainable Energy for All Forum 2020: Convening under the theme, "Building Speed, Reaching Scale, Closing the Gap," the Sustainable Energy for All (SEforALL) Forum will take stock of progress towards implementing SDG 7 (Affordable and Clean Energy) and provide an opportunity to develop new partnerships, launch new financial instruments to close the energy access gap, and connect with energy leaders from communities, cities, politics, business, and finance. The Forum will also seek to raise the ambition of the next round of Nationally Determined Contributions (NDCs) under the Paris Agreement on climate change. **dates:** 26-28 May 2020 **location:** Kigali, Rwanda **www:** <http://seforallforum.org/forum-2020>

12th Helsinki Chemicals Forum (HCF): HCF 2020 is organized by the Chemicals Forum Association, in cooperation with the European Chemicals Agency, the European Commission, the European Chemical Industry Council, and the Finnish Government with local partners, including the City of Helsinki, the Chemical Industry Federation of Finland, and the University of Helsinki. **dates:** 4-5 June 2020 **location:** Helsinki, Finland **www:** <https://helsinkichemicalsforum.messukeskus.com/>

64th ImpCom: The Montreal Protocol Implementation Committee meets regularly to assess parties' status of compliance with their obligations under the Protocol. **date:** 10 July 2020 **location:** Montreal, Canada **www:** <https://ozone.unep.org/>

42nd Meeting of the Open-Ended Working Group (OEWG 42) of the Parties to the Montreal Protocol: OEWG 42 will convene to prepare for the COP 12/MOP 32. **dates:** 13-17 July 2020 **location:** Montreal, Canada **www:** <https://ozone.unep.org/meetings>

ICCM5: The top decision-making body of the Strategic Approach to International Chemicals Management (SAICM) will meet at the Fifth Meeting of the International Conference on Chemicals Management (ICCM5) to, *inter alia*, consider a possible post-2020 platform for addressing chemicals and waste. **dates:** 5-9 October 2020 **location:** Bonn, Germany **www:** <http://www.saicm.org>

86th MLF ExCom: The Multilateral Fund (MLF) Executive Committee (ExCom) will continue to look at reports with specific reporting requirements and status of contributions and disbursements. **dates:** 16-20 November 2020 **location:** TBC **www:** <http://www.multilateralfund.org/>

65th ImpCom: The Implementation Committee of the Montreal Protocol meets regularly to assess parties' status of compliance with their obligations under the Protocol. **date:** 20 November 2020 **location:** TBC **www:** <https://ozone.unep.org/meetings>

COP 12/ MOP 32: The Joint 12th Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer (COP 12) and 32nd Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP 32) will review implementation of the Convention and the Protocol. **dates:** 23-27 November 2020 (TBC) **location:** TBC **www:** <https://ozone.unep.org/meetings>

For additional meetings, see <http://sdg.iisd.org>

Glossary

CFCs	Chlorofluorocarbons
CFC-11	Trichlorofluoromethane
CRP	Conference room paper
CTC	Carbon tetrachloride
CUEs	Critical Use Exemptions
EEAP	Environmental Effects Assessment Panel
ExCom	Executive Committee (MLF)
FAO	Food and Agriculture Organization of the UN
GWP	Global Warming Potential
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
HLS	High-level Segment
ImpCom	Implementation Committee
MBTOC	Methyl Bromide Technical Options Committee
MLF	Multilateral Fund
MOP	Meeting of the Parties
ODS	Ozone depleting substances
OEWG	Open-ended Working Group
SAP	Scientific Assessment Panel
TEAP	Technology and Economic Assessment Panel
TOC	Technical Options Committee
ToR	Terms of Reference
UNEP	United Nations Environment Programme
UV	Ultraviolet