



SUMMARY OF THE THIRTY-FOURTH MEETING OF THE OPEN-ENDED WORKING GROUP OF THE PARTIES TO THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER: 14-18 JULY 2014

The thirty-fourth meeting of the Open-ended Working Group (OEWG 34) of the parties to the Montreal Protocol on Substances that Deplete the Ozone Layer convened in Paris, France, from 14-18 July 2014. Over 350 delegates representing governments, UN agencies, Montreal Protocol expert panels and committees, non-governmental organizations and industry attended.

At OEWG 34, delegates considered a number of issues, including, *inter alia*: the 2014 progress report of the Technology and Economic Assessment Panel (TEAP); organizational issues related to the TEAP; the report of the TEAP on 2015-2017 Multilateral Fund (MLF) replenishment; the nominations for essential-use exemptions (EUEs) and critical-use exemptions (CUEs); alternatives to ozone depleting substances (ODS); the outcomes of the workshop on hydrofluorocarbon (HFC) management; and a proposal for the extension of an exemption for laboratory and analytical uses. OEWG 34 also considered two proposals to amend the Montreal Protocol with reference to HFCs: the first by the Federated States of Micronesia (FSM) and Morocco; and the second by the US, Canada and Mexico. Parties established an informal discussion group on the proposals.

Throughout the week, delegates focused on the amendment proposals, the 2015-2017 replenishment of the MLF, and the outcomes of the HFC management workshop held immediately before the meeting. Clear divisions among parties meant that little progress on the amendment proposals was achieved. An agreement achieved late on the final day of the meeting meant that guidance for additional analysis on the MLF replenishment could be forwarded to TEAP, with the final report to be considered by parties at the twenty-sixth Meeting of the Parties to the Montreal Protocol (MOP 26) in November 2014.

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 the release of these substances into the atmosphere could deplete the ozone layer, hindering its ability to prevent harmful ultraviolet rays from reaching the Earth. This would adversely affect ocean ecosystems, agricultural productivity and animal populations and harm

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humans through higher rates of skin cancers, cataracts and weakened immune systems. In response to this growing concern, a United Nations 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 called for cooperation on monitoring, research and data exchange, but did not impose obligations to reduce the use of ozone depleting substances (ODS). The Convention now has 197 parties, which represents universal ratification.

MONTREAL PROTOCOL: In September 1987, efforts to negotiate binding obligations to reduce the use of ODS led to the adoption of the Montreal Protocol on Substances that Deplete the Ozone Layer. The 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 currently has 197 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 defined number of parties before they enter into force, while adjustments enter into force automatically.

LONDON AMENDMENT AND ADJUSTMENTS: Delegates to the second Meeting of the Parties to the Montreal Protocol (MOP 2), held in London, UK, in 1990, tightened control schedules and added ten more CFCs to the list of ODS, as well as carbon tetrachloride (CTC) and methyl chloroform. The London Amendment has been ratified by 197 parties. MOP 2 also established the Multilateral Fund (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 that examines cases of possible non-compliance and makes recommendations to the MOP aimed at securing full compliance. The Copenhagen Amendment has been ratified by 197 parties.

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. To date, 197 parties have ratified the Montreal 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 to

reporting on methyl bromide for quarantine and pre-shipment applications. Currently 195 parties have ratified the Beijing Amendment.

MOP 15 AND FIRST EXTRAORDINARY MOP: MOP 15 was held in Nairobi, Kenya, in 2003. It resulted in decisions on issues including the implications of the entry into force of the Beijing Amendment. Delegates could not reach agreement on exemptions allowing methyl bromide usage beyond 2004 for critical uses, where no technically or economically feasible alternatives were available, and called for an "extraordinary" MOP. The first Extraordinary Meeting of the Parties to the Montreal Protocol (ExMOP 1) took place in March 2004 in Montreal, Canada. Parties agreed to critical-use exemptions (CUEs) for methyl bromide for 2005 and introduced the "double-cap" concept distinguishing between old and new production of methyl bromide as a compromise.

MOP 16 AND EX-MOP 2: MOP 16 took place in Prague, Czech Republic, in 2004. Work on methyl bromide exemptions for 2006 was not completed and parties decided to hold a second ExMOP. ExMOP 2 was held in 2005, in Montreal, Canada. Parties agreed to supplementary levels of CUEs for 2006. Parties also agreed, *inter alia*: CUEs allocated domestically that exceed levels permitted by the MOP must be drawn from existing stocks; and methyl bromide stocks must be reported.

COP 7/MOP 17: MOP 17 was held jointly with the seventh Conference of the Parties to the Vienna Convention (COP 7) in Dakar, Senegal, in 2005. Parties approved essential-use exemptions (EUEs) for 2006 and 2007, supplemental CUEs for 2006 and CUEs for 2007, and production and consumption of methyl bromide in non-Article 5 parties for laboratory and analytical critical uses. Other decisions included a US\$470.4 million replenishment of the MLF for 2006-2008, and agreement on terms of reference (TOR) for a feasibility study on developing a monitoring system for the transboundary movement of controlled ODS.

MOP 18: MOP 18 took place in New Delhi, India, in 2006. Parties adopted decisions on, *inter alia*: future work following the Ozone Secretariat's workshop on the Special Report of the Intergovernmental Panel on Climate Change (IPCC) and the Technology and Economic Assessment Panel (TEAP); difficulties faced by some Article 5 parties manufacturing CFC-based metered dose inhalers; treatment of stockpiled ODS relative to compliance; and a feasibility study on developing a system for monitoring the transboundary movement of ODS.

MOP 19: MOP 19 took place in Montreal, Canada, in 2007. Delegates adopted decisions on: an accelerated phase-out of HCFCs; critical-use nominations for methyl bromide; and monitoring transboundary movements of, and illegal trade in, ODS. Parties also adopted an adjustment accelerating the phase out of HCFCs.

COP 8/MOP 20: MOP 20 was held jointly with COP 8 of the Vienna Convention in Doha, Qatar, in 2008. Parties agreed to replenish the MLF with US\$490 million for 2009-2011 and adopted other decisions including: the environmentally-sound disposal of ODS; approval of 2009 and 2010 CUEs for methyl bromide; and compliance and reporting issues.

MOP 21: MOP 21 took place in Port Ghalib, Egypt, in 2009 and adopted decisions on: alternatives to HCFCs; institutional strengthening; essential uses; environmentally sound management of ODS banks; methyl bromide; and data and compliance issues. This was the first meeting at which delegates considered, but did not agree to, a proposal to amend the Montreal Protocol to include hydrofluorocarbons (HFCs) submitted by the Federated States of Micronesia (FSM) and Mauritius.

MOP 22: MOP 22 took place in Bangkok, Thailand, in 2010 and adopted decisions on, *inter alia*: the TOR for the TEAP study on the MLF replenishment and for the evaluation of the financial mechanism; and assessment of technologies for ODS destruction. Delegates considered, but did not agree to, two proposals to amend the Montreal Protocol to address HFCs, one submitted by the US, Mexico and Canada and another submitted by FSM.

COP 9/MOP 23: COP 9/MOP 23 took place in Bali, Indonesia, in 2011 and adopted decisions on, *inter alia*: a US\$450 million replenishment of the MLF for the 2012-2014 period; issues related to exemptions; updating the nomination process and recusal guidelines for the TEAP; the treatment of ODS to service ships; and additional information on alternatives. Delegates also discussed the two proposed amendments to the Protocol to address HFCs, but no agreement was reached.

MOP 24: MOP 24 took place in Geneva, Switzerland, in 2012 and adopted decisions on, *inter alia*, the review by the Scientific Assessment Panel of RC-316c; procedural issues related to the TEAP and its subsidiary bodies; and data and compliance issues. MOP 24 did not reach agreement on two draft decisions: the clean production of HCFC-22 through by-product emission control; and amendment of the Protocol to include HFCs.

MOP 25: MOP 25 was held in Bangkok, Thailand, in 2013. The MOP adopted 21 decisions, including on: TOR for the study of the 2015-2017 MLF replenishment; implementation of the Montreal Protocol with regard to small island developing states (SIDS); and a TEAP report on alternatives to ODS. MOP 25 did not reach agreement on: amendment proposals; additional funding for the MLF for implementing the Protocol to maximize the climate benefit of the accelerated phase-out of HCFCs; and the harmonization and validation of the climate impact fund.

CURRENT ODS CONTROL SCHEDULES: Under the amendments and adjustments to the Montreal Protocol, non-Article 5 parties were required to phase out production and consumption of: halons by 1994; CFCs, CTCs, hydrobromochlorofluorocarbons and methyl chloroform by 1996; bromochloromethane by 2002; and methyl bromide by 2005. Article 5 parties were required to phase out production and consumption of: hydrobromochlorofluorocarbons by 1996; bromochloromethane by 2002; and CFCs, halons and CTC by 2010. Article 5 parties must still phase out production and consumption of methyl chloroform and methyl bromide by 2015. Under the accelerated phase-out of HCFCs adopted at MOP 19, HCFC production and consumption by non-Article 5 parties was frozen in 2004 and is to be phased out by 2020, while in Article 5 parties, HCFC production and consumption was frozen in 2013 and phased out by 2030 (with interim targets prior to those dates,

starting in 2015 for Article 5 parties). There are exemptions to these phase-outs to allow for certain uses that lack feasible alternatives.

OEWG 34 SUMMARY

The thirty-fourth session of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer opened on Monday, 14 July 2014. Co-Chair Patrick McInerney (Australia) opened the meeting by asking for a moment of silence in memory of the late Nandan Chirmulay, Senior Technical Advisor and Region Technical Advisor for the Montreal Protocol programme, UN Development Programme. In her opening remarks, Tina Birmpili, Executive Secretary, Ozone Secretariat, said that sometimes the successes of the Montreal Protocol (MP) have created the impression that its job is done, when in fact more work remains. She highlighted that the OEWG would discuss the TEAP report on ODS alternatives and the MLF replenishment, including TEAP's estimate on the financing needs for phasing down high global warming potential (GWP) alternatives to ODS, and stressed the importance of the MLF replenishment for helping Article 5 countries to meet their MP commitments. She expressed hope that the outcome of the Workshop on HFC Management would provide a solid platform for parties to discuss the proposed amendments regarding HFCs. Birmpili said that whether or not parties decide to regulate HFCs, it is inevitable that there will be roles for the MP and MLF in tackling the issue, since it will assess alternatives to HCFCs during the HCFC phase-out. She also noted that this would be the first year that the OEWG would consider nominations for EUEs and CUEs from Article 5 countries.

ORGANIZATIONAL MATTERS

ADOPTION OF THE AGENDA: Co-Chair McInerney introduced the provisional agenda (UNEP/OzL.Pro.WG.1/34/1) on Monday morning. He noted that under the agenda item on proposed adjustments and amendments to the MP, only amendment proposals would be discussed since no adjustment proposals had been submitted. He also proposed discussing a recent scientific article concerning new ODS under the agenda item on other matters. He inquired whether there were any other proposals for changes to the agenda.

Saudi Arabia, supported by Kuwait, Iraq, Oman and Bahrain, proposed deleting the agenda items on the outcome of the workshop on HFC management and on proposed amendments and adjustments to the MP. The US, supported by Mexico, Colombia, the European Union (EU), Switzerland, FSM, Nigeria, and Togo, supported keeping both items on the agenda. Co-Chair McInerney sought legal advice from the Secretariat on the matter. The Secretariat noted that the proposed amendments had met the criteria set out in the Vienna Convention and the MP's rules of procedure, so they belonged on the agenda. He suggested that the item on the outcomes of the HFC management workshop remain on the agenda, since it involved a report on the response to a decision taken at MOP 25. McInerney suggested that issues and concerns be raised when the relevant agenda item

is discussed and be noted in the report of the OEWG meeting. He stressed that hearing the report of the workshop rapporteurs did not imply endorsement of their report.

The US proposed adding a discussion of laboratory and analytical exemptions under “other matters,” but following Co-Chair McInerney’s suggestion, he agreed to discuss this under item on issues related to exemptions. The EU proposed discussion of a conference room paper (CRP) they would submit on monitoring of trade and emissions from the production sector linked to new substances identified by the Scientific Assessment Panel (SAP).

The agenda was adopted with the proposed amendments.

ORGANIZATION OF WORK: Co-Chair McInerney suggested delegates follow the items on the agenda in the order they appeared and presented a preliminary timetable, to which delegates agreed.

2014 PROGRESS REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL

Co-Chair Richard Mwendandu (Kenya) introduced the 2014 TEAP progress report on Monday morning, stating that the TEAP would present the first three volumes of its report.

Keiichi Ohnishi (Japan), Co-Chair, Chemicals Technical Options Committee (CTOC) presented a report on feedstock use that addressed, *inter alia*, a 4% increase from 2011 to 2012 on total production of ODS for feedstock uses. On process agents, Co-Chair Ohnishi noted a decreasing rate of consumption, stating that a more detailed report will be presented in 2015.

Miguel Quintero (Colombia), Co-Chair, Flexible and Rigid Foams Technical Options Committee (FTOC), said that Hydrochlorofluorocarbon Phase-out Management Plans (HPMPs) for Article 5 parties are now quite advanced, noting that many transitions are resulting from bilateral negotiations between governments and multinational extruded polystyrene manufacturers in Article 5 countries.

Daniel Verdonik (US), Co-Chair, Halons Technical Options Committee (HTOC), reflected on the diminishing availability of halons, while mentioning that essential uses remain, notably in the aviation industry. He said the aviation industry has formed a consortium to identify a single halon replacement, determine a date when halon alternatives could be used in new designs of aviation cargo compartments, and provide that date to the 2016 International Civil Aviation Organization General Assembly.

Marta Pizano (Colombia), Co-Chair, Methyl Bromide Technical Options Committee (MTOC), reported on the controlled use of methyl bromide from 1991-2012, stating that Article 5 parties have phased out 85% and non-Article 5 parties have phased out 98% of their methyl bromide consumption, respectively.

Roberto Peixoto (Brazil), Co-Chair, Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee (RTOC), reported on progress in the refrigeration and air conditioning sectors, stating that new low-GWP alternatives are being developed and tested.

Helen Tope (Australia), Co-Chair, Medical Technical Options Committee (MTOC), presented China’s essential-use nomination (EUN) for metered-dose inhalers (MDI), noting that these have substantially decreased with a final phase-out date expected by 2015. She reported that no other nominations were received.

CTOC Co-Chair Ohnishi reported on the EUNs of CFC-113 from the Russian Federation and CTC for China, stating that this will be the Russian Federation’s final nomination of this substance. He said additional information is required from China to clarify this nomination, while noting that China’s phase-out of CTC has been supported by the MLF.

MBTOC Co-Chair Ian Porter (Australia) reported on the critical-use nominations (CUNs) for non-Article 5 and Article 5 parties, noting that both the number of nominations and the amount specified in each nomination continues to decline. He said only three non-Article 5 parties submitted nominations and noted a reduction from approximately 106,000 tons of methyl bromide in 2005 to 360 tons in 2013. He stated that the Committee has approved the request from the US dry clear pork industry to continue using methyl bromide through 2016, because no clear alternatives are available and the scale is minor. He noted the interim approval of the CUE recommendation for methyl bromide for Australian strawberry runners through 2016, as there are no economically viable alternatives. He also stated that the Committee has approved the request regarding Canadian strawberry runners, stating that methyl bromide is considered necessary for the final stages prior to export.

He said that the Committee has not approved Argentina’s request for use of methyl bromide in the fruit sector, stating that the request lacked clear data and that alternatives are available. He also said that the Committee has approved China’s request, as unique pathogens and weeds were discovered to affect the production of ginger in China, necessitating the use of methyl bromide.

Following these presentations, Co-Chair Mwendandu opened the floor for discussion. Australia and Canada offered to update the plenary on their requests, noting, however, that this update was scheduled for OEWG 36. Cuba highlighted the need for an accountability framework to justify the different CUEs. China suggested that the OEWG utilize bilateral consultations. The US called for continued discussions on the management of halon banks, suggesting TEAP liaise with the International Maritime Organization on marine applications for halons, and noted that the US, Norway and Australia would submit a draft decision regarding halon management. Switzerland and the EU asked why halons are still necessary in the aviation sector when the ban is 20 years old.

Jordan asked why non-Article 5 parties continue to submit requests for exemptions when they have the financial and technical resources to find alternatives. Kuwait and Saudi Arabia noted the need for specific air conditioning alternatives in countries with high ambient temperatures.

In its response, TEAP said, *inter alia*, that: progress in phasing out methyl bromide in non-Article 5 countries is underway, with few exemptions remaining; more research is needed to find suitable low-GWP refrigerants for high ambient temperatures; a mandate to work with the International Maritime Organization on halons would be beneficial, and that the aviation industry should prioritize finding halon alternatives.

ISSUES RELATED TO EXEMPTIONS UNDER ARTICLES 2A–2I OF THE MONTREAL PROTOCOL

Co-Chair Mwendandu introduced this item on Monday morning.

NOMINATIONS FOR ESSENTIAL-USE EXEMPTIONS FOR 2015: EUE for CFC-113 for aerospace applications in the Russian Federation:

The Russian Federation said that it is requesting 75 megatons of CFC-113 for 2015. He said that the CRP is based on Decision XXV/3 (EUE exemption for CFC-113 for aerospace applications in the Russian Federation) and leads to full phase-out in 2016. A technical expert from the Russian aerospace industry provided an update on the phase-out, saying that as of 2016, CFC-113 will no longer be needed. He said that many applications are already using alternatives and others are being introduced, noting that during the transitional period, CFC-113 will still be used while they ensure the safe and full use of substitutes in all applications. He requested parties to consider the draft decision in order to adopt it at MOP 26.

On Tuesday morning, the Russian Federation explained that its CRP (UNEP/OzL.Pro.WG.1/34/CRP.2) included a draft decision on an EUE for CFC-113 for aerospace applications. He said that the EU and US had agreed to meet with the Russian delegation in the evening to discuss the proposal, with the aim of “answering all questions and dispelling all doubts and uncertainties.”

On Wednesday, the Russian Federation reported that discussions were held with the US, the EU and other interested parties who discussed and amended the text. Stating that this will be its last request for essential-use exemptions, the Russian Federation said that a revised text (UNEP/OzL.Pro.WG.1/34/CRP.2/Rev.1), for discussion at MOP 26, had been sent to the Secretariat.

Outcome: OEWG 34 agreed to forward the draft decision to MOP 26 for its consideration.

EUE exemption for laboratory and analytical uses and EUE nomination for controlled substances for 2015: On Monday China said that its request for an EUE for 90 metric tonnes of CTC for laboratory and analytical uses is to carry out tests on water and water quality. She said that bilateral discussions on this matter were welcome.

The EU noted its concern regarding the Chinese EUN for CTC and said that although they would confer with China bilaterally, they would defer to the CTOC recommendations. The US said that they would discuss the Chinese CTC request bilaterally.

On Wednesday, China presented a draft decision on its EUE nomination for laboratory and analytical uses for 2015 (UNEP/OzL.Pro.WG.1/34/CRP.4). China said the EUE for CTC was important for enabling its authorities to test new technologies for monitoring water systems, and that it hoped to finish the work over the next two years and would no longer need the exemption. She reported fruitful consultations with the CTOC in which China had agreed to provide supplementary information to the CTOC before its next meeting. The EU and US asked to be kept informed of the CTOC-China consultations. The EU agreed to consult intersessionally with both China and the CTOC, and the US said it would consult at the MOP. The Co-Chair said that the CRP would be forwarded to the MOP.

Outcome: OEWG 34 agreed to forward draft decisions UNEP/OzL.Pro.WG.1/34/CRP.4 and UNEP/OzL.Pro.WG.1/34/CRP.7 to MOP 26 for its consideration.

Laboratory and analytical uses: On Tuesday, the US said its CRP (UNEP/OzL.Pro.WG.1/34/CRP.1) contained a draft decision to extend the laboratory and analytical uses exemption from the current expiration of 31 December 2014 to 31 December 2021. He invited interested parties to discuss the proposal on the sidelines of the meeting.

On Wednesday, the US presented the draft decision on the laboratory and analytical use exemption (UNEP/OzL.Pro.WG.1/34/CRP.1). The US pointed out that the global exemption for all ODS except HCFCs was due to expire at year-end, and that without it, laboratory testing on ODS could not be conducted. Switzerland, the EU, Argentina and China expressed support in principle for the proposal, although China wished to discuss specific wording changes with the US, and the EU wished to change the length of the extension. The Co-Chair asked the parties to consult bilaterally. On Friday morning, the US reported that the decision contained updated text without brackets.

Outcome: OEWG 34 agreed to forward the draft decision (UNEP/OzL.Pro.WG.1/34/CRP.1) to MOP 26 for its consideration.

NOMINATIONS FOR CRITICAL-USE EXEMPTIONS FOR 2015 AND 2016:

Co-Chair Mwendandu introduced this item, noting CUNs submitted by Argentina, China and Mexico. He reported that the MBTOC states that suitable alternatives for methyl bromide are available for high moisture dates.

Argentina requested bilateral consultations with the MBTOC so that they could provide additional information on Argentina’s CUN.

Australia welcomed the MBTOC’s recommendations on its CUN and said that she would meet with the MBTOC to discuss possible alternatives. She said that the programme of testing for alternatives was delayed due to the withdrawal of a promising alternative. She said additional funding for the programme has been confirmed, two commercial trials have been completed and two further trials have been established. She underscored the importance of finding effective alternatives and not implementing them without adequate scientific proof.

The US, emphasizing that that the challenges faced by strawberry growers in the US have been quite complex due to changing regulatory regimes and pest pressure, noted that 2014 is the final year that a CUN will be submitted. He said progress in phasing out methyl bromide is due to research into and implementation of alternatives. He also noted the use of new methods of crop rotation and pest control.

Canada said that they support methyl bromide phase-out efforts and are satisfied with the MBTOC recommendations. She said that Canada is still seeking to understand the potential effects of chloropicrin on groundwater, noting that the first phase of a study has been completed and that the second phase is on hold while the Canadian Pest Management Regulatory Agency investigates the chemical.

On Tuesday afternoon, Co-Chair Mwendandu informed delegates that a draft decision submitted by the US, Australia and Norway on halon recovery, banks and availability (UNEP/OzL.

Pro.WG.1/34/CRP.3) was available online. The US introduced the CRP, which suggests, *inter alia*, that: national ozone officers liaise with their civil aviation societies to gain a better understanding of how recovered halons are being supplied to carriers; parties submit this information to the Ozone Secretariat by March 2015 to allow for a collective view on halon management; parties assess restrictions and enable recovered halons to move between parties; TEAP, through the HTOC, liaise with the International Civil Aviation Organization to facilitate the transition to halon alternatives; and approach the International Maritime Organization on halon availability in the breaking of ships.

The EU noted “serious reservations” to the CRP, particularly regarding the international trade of recovered halons.

On Wednesday, the US reported on the status of informal consultations, asking that a small group be established to consult about the proposal with the EU and other interested parties. Switzerland noted reservations about the current drafting of the proposal, citing the need to strengthen text on halon usage in civil aviation. Togo also expressed interest in informal consultations, since it had a significant halon stockpile. The Co-Chair instructed all interested parties to consult informally and report back to plenary.

On Thursday morning in plenary, the US reported that the informal consultations were productive, noting that they had reviewed all articles of the draft decision and revised the text. She noted some interested parties had not been able to join the meeting and said the US wanted to consult them about the revised text. Reminded by Co-Chair Mwendandu that there would be no plenary session in the afternoon, the US said it would hold informal consultations Thursday morning to clean up the text as much as possible before providing a revised text to the Secretariat.

ISSUES RELATED TO ALTERNATIVES TO OZONE-DEPLETING SUBSTANCES

REPORT BY THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL ON ALTERNATIVES TO ODS:

Co-Chair McInerney introduced this item on Tuesday morning, informing delegates that the draft report would be presented to the OEWG and updated for MOP 26 in November 2014.

Lambert Kuijpers (the Netherlands), TEAP Co-Chair, presented the executive summary of the report (UNEP/OzL Pro.WG.1/34/2/Add.1, Annex 1), stating that it provides an analysis of the implications of avoiding high-GWP alternatives to ODS. He noted that it differentiates between Article 5 and non-Article 5 parties, while recognizing an increased demand within Article 5 parties. He stated that some sectors, including refrigeration, air conditioning and foam, have sufficient data available, which supports scenario development, while other sectors, in particular solvents and fire protection, do not have the same data availability. Kuijpers stated that the report considers a list of alternatives based on several parameters including, *inter alia*: commercial and economic viability; energy efficiency; cost efficiency; health and safety concerns; and suitability in high ambient temperatures.

Roberto Peixoto (Brazil), RTOC Co-Chair, described alternatives for refrigeration and air conditioning (RAC), identifying several subsectors, including domestic refrigeration,

commercial refrigeration, transport refrigeration, large-scale refrigeration, air conditioning, chillers, heat pumps and mobile air conditioning. He stated that all refrigerants were assessed under several dimensions, including availability and possibility for use in high ambient temperatures. Peixoto mentioned three scenarios for the RAC and foam sectors: a business-as-usual (BAU) scenario, a mitigation one (MIT-1) scenario and a mitigation two (MIT-2) scenario. Using a time frame from 2015-2030 and using and extrapolating recent economic growth parameters, he said that the BAU scenario incorporates current EU F-gas regulations but does not take any other measures or bans on HFCs into account.

He said that the MIT-1 and MIT-2 scenarios in RAC are based on some criteria that are similar, such as new EU regulations and a ban on mobile air conditioning using new 134a equipment by 2017 in all countries; however, he said they differ on certain parameters adopted by Article 5 parties, either simultaneously to non-Article 5 parties or five years after. He said that in the MIT-2 scenario there is a possibility for substantial reductions in CO₂ equivalent (CO₂e) by 2030. He presented the MIT-1 and MIT-2 scenarios for the foam sector, noting that the MIT-2 sector has stricter timelines and requirements, resulting in a greater GWP reduction. He acknowledged that cost and funding factors in the foam sector create challenges, noting that without economies of scale it is difficult to transition to low-GWP solutions.

Paul Ashford (UK), FTOC Co-Chair, mentioned other sectors, including medical uses, fire protection and solvents, while recognizing that technically viable alternatives are not always commercially viable or available. He summarized the discussion, saying, *inter alia*, that: information on available alternatives and improved technologies continues to evolve; adopting the MIT-1 scenario could cumulatively save *circa* 3,000 metric tonnes of CO₂e by 2030, while MIT-2 could save 11,000 metric tonnes of CO₂e in the same time period; and that opportunities exist to refine these assessments between meetings.

In the ensuing discussion, Saudi Arabia stated that it is not only about functional feasibility regarding high ambient temperatures, but also commercial availability, and reminded delegates that this report goes beyond the TEAP’s mandate by discussing GWP. Argentina asked if there were implications regarding multinational companies operating in developing countries. The Gambia asked for clarification on using CO₂ for refrigeration in areas where temperatures can reach between 30-40°C. Kuwait asked for clarification regarding what measurements were used to calculate what the Panel considered to be high ambient temperatures. Switzerland asked for clarification on why two MIT scenarios were selected. The US asked if the final report or future reports could reflect technology changes that outpace previous expectations and how this could influence final results. Bolivia asked what kind of simulation model is used to facilitate the scenario projections. China inquired about the methodology used, especially in the face of data gaps.

TEAP Co-Chair Kuijpers responded, *inter alia*, that: the report reflects discussions held in previous contact groups on the environmental benefits of ODS alternatives with a low GWP; uncertainty increases if a longer time scale is incorporated; the time scale can be refined or complimented as data becomes

available; some technologies exceed expectations and this should be taken into account; and regular checks should be conducted regarding market availability of certain technologies.

An informal group chaired by Paul Ashford (UK), FTOC Co-Chair, was formed to provide feedback on the overall report and suggest directions for further work. The group met Tuesday and Thursday. During Friday's plenary, TEAP reported that the group had provided valuable feedback, including on: a possible new scenario within the report looking at an unconstrained BAU scenario; an analysis of the impact of actual and projected regulations; the need for a specific annex on high ambient temperatures; more sectoral quantitative analysis rather than quantitative analysis on substances; and further information on the assumptions behind the mitigation scenarios. He said TEAP is also prepared for further comments and suggestions from parties if they are submitted no later than Friday, 8 August 2014.

REPORT BY THE SCIENTIFIC ASSESSMENT PANEL ON THE MAIN CLIMATE METRICS: On Tuesday morning, A.R. Ravishankara (US), SAP Co-Chair, provided a brief explanation of the concepts and metrics discussed in the SAP report on climate metrics, which is due to be released at the end of December 2014 or early in January 2015. He said these climate metrics include atmospheric lifetime, greenhouse effect, radiative forcing, GWP and global temperature potential (GTP). He noted that when comparing the GWP and GTP of several major ODS, estimates show rough correspondence between GWP and GTP when using the 100-year timeline chosen by policy makers, but diverge if shorter time horizons are used.

Responding to questions from parties, SAP Co-Chair Ravishankara said there are no specific suggestions on time horizons in studies on Earth systems, so 100 years for considering GWP is a policy choice and not one dictated by science. He said that if a shorter time horizon were to be chosen, it would show larger impacts for short-lived molecules. He also said that: the detailed SAP report will look at different GTP timelines; GTP depends on the atmospheric lifetime metric chosen; and while the possible feedback effects of quicker temperature increases, such as those due to captured carbon release from permafrost thawing, could be taken into account in GTP estimates, they will not be taken into account in the SAP report.

INFORMATION SUBMITTED BY PARTIES ON THEIR IMPLEMENTATION OF PARAGRAPH 9 OF DECISION XIX/6 TO PROMOTE A TRANSITION FROM ODS THAT MINIMIZES ENVIRONMENTAL IMPACT: On Tuesday morning, the Secretariat introduced its note on this subject (UNEP/OzL.Pro.WG.1/34/INF/4), saying 14 countries submitted information varying from short emails to detailed reports, and the Secretariat compiled the submissions without summarizing or translating them. She said if parties wished, the Secretariat could translate the submissions into all official languages of the UN and prepare an overall summary of the submissions. Co-Chair McInerney called for interested parties to communicate their interest in such an undertaking directly to the Secretariat.

On Friday, the Secretariat reported that as a result of consultations with parties, it would prepare a summary of the submissions provided by parties and translate it into all six official UN languages before sending it to the MOP. She

announced the Secretariat would also accept new or additional information submissions until 30 August, and when preparing the summary, the Secretariat will use the latest information provided by a party.

Outcome: The OEWG formed an informal group to provide additional guidance to the TEAP to finalize their report.

REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL ON THE 2015–2017 REPLENISHMENT OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

On Tuesday afternoon, Shiqiu Zhang (China), Senior Expert Member, TEAP, recalled the elements of the mandate for the report resulting from the MOP 25 decision. She explained that the calculation for the total funding requirement included: funding for HCFC consumption phase-out activities, based on existing commitments for stage I HPMPs and estimated costs for new activities for stage II and future HPMPs; funding for production phase-out; and funding for supporting activities, based on historical data and the assumption that current activity levels would continue. She said that the total replenishment funding requirement is expressed in terms of two different scenarios or "cases." She said that Case One has commitment-based phase-out estimates: US\$609.5 million for 2015-2017; \$550.6 million for 2018-2020; and \$550.6 million for 2021-2023. Case Two, she said, had unfunded phase-out estimates: US\$489.7 million for 2015-2017; US\$485.8 million for 2018-2020; and US\$636.5 million for 2021-2023.

TEAP Co-Chair Kuijpers detailed the differences between Cases One and Two and the assumptions and methods of each, explaining that Case One funding for stage II HPMPs addresses the difference between the "committed to" phase-down in stage I, and a 35% HCFC reduction level. He said Case Two looks at the difference between the total phase-out in each subsector on which stage I HPMP funding was based and the 35% reduction level. He also explained the rationale behind the Replenishment Task Force's (RTF) response to the request to provide estimates for dividing the funding related to the 2020 HCFC consumption and production targets equally between the 2015-2017 and 2018-2020 replenishments. He said that estimates produced are US\$492 million in 2015-2017 and US\$490.5 million for 2018-2020 under Case One, and US\$402.8 million and US\$401.3 million, respectively, under Case Two.

Marco Gonzalez (Costa Rica), Senior Expert Member, TEAP, discussed how the RTF approached the request in Decision XXV/8 to separately provide indicative figures for additional resources needed to enable Article 5 countries to gradually avoid high-GWP ODS alternatives. He reported that the total additional funding amounts are estimated at approximately US\$23 million per year over at least two triennia, equivalent to a total of about US\$138 million. He said the RTF concluded that this level of funding would enable avoiding consumption of about 10,000 metric tonnes of high-GWP alternatives.

Responding to questions raised by Saudi Arabia, Kuwait, India, Canada, Switzerland, Egypt, the EU, Australia, China and Mexico, Co-Chair Kuijpers said: the figures on cost effectiveness were based on MLF data regarding existing approvals for RAC conversions and, as such, do not look at high cost effectiveness

ratios for high ambient temperatures; TEAP was not provided guidance on swing plants, so no funding figures for them were included in the report; the decision on how to divide funding equally among the trienniums assumed no funding for stage III of HPMPs in 2020, even though there were no instructions to do so in the report's terms of reference; and figures in Cases One and Two only apply through 2020, so TEAP's report does not address the 2025 time horizon. He said that in considering the environmental impacts of Cases One and Two, Case Two offers lower HCFC consumption and emissions, but quantifying the overall environmental impact of Case One will take additional calculations.

He noted that where it is known that large amounts of a developing country's HCFC consumption is among multinational corporations, TEAP assumed no funding would be necessary. Co-Chair Kuijpers stated, with respect to low-volume-ODS-consuming countries, that as the amounts had already been agreed on, TEAP was left with no choice on the overall figures used. He said that if countries wished to have a more detailed analysis of the servicing funding requirements for low-volume-ODS-consuming countries, TEAP could perhaps provide it in a supplement. He also noted that TEAP could not make estimates regarding the impact of new technologies, since its analysis was dependent on what is done now within the MLF, and that when calculating annual tranches, compensation for lost profit was calculated over 18 years.

The US emphasized the success of the MLF and, with Japan, supported establishing a contact group to discuss concerns in more detail. Switzerland urged care in choosing which option to take forward and suggested that it may be worthwhile to study the cost of alternatives with a low ozone-depletion potential (ODP). Canada said that the report is a good basis for discussions and noted interest in avoiding high-GWP alternatives.

Colombia expressed interest in participating in a contact group on the MLF replenishment report, noting challenges faced by Annex 5 parties. Australia commended TEAP for the report, while expressing several concerns, including on: the issue of frontloading; the need for monitoring and reporting; and the importance of dividing the funds evenly from the perspective of donor countries. Saudi Arabia said that research and funding efforts should concentrate on HCFCs as an ODS, without directing support to HFC reductions.

Co-Chair Mwendandu closed the discussion and established a contact group on the MLF replenishment to be chaired by Paul Krajnik (Austria) and Marissa Gowrie (Trinidad and Tobago).

Contact Group: The contact group on replenishment met Tuesday-Friday to agree on a list of requests for elaboration in a supplementary RTF report. The group first compiled 28 suggestions, and then went through each for approval, amendment or deletion.

Three items were left for a decision by the plenary on Friday afternoon: two in brackets which were deleted by plenary, and one which a delegation tried to reopen after it had been agreed by the contact group, only to withdraw its request after a plea from another delegation to observe customary negotiating procedures.

The suggestions included, *inter alia*: the most recent HCFC consumption and production data to be reported to UNEP under Article 7 by 1 September 2014; the distribution between RAC and foam sector activities if the ratio would be 70:30 instead of 50:50; different options for frontloading versus backloading disbursement schedules; a look at projects where low-GWP technologies applied resulted in increased project costs and an estimation of the average increase of funding needs; a cost estimate for financing the conversion of swing plants in the production sector; and the increased needs for the conversion of SMEs in the RAC servicing sector.

On Friday in plenary, delegates agreed to forward the guidance to the TEAP.

Outcome: In the document entitled "Suggestions for elaboration in the supplementary RTF," OEWG asks the TEAP, in presenting its supplementary report to MOP 26, to add information on, *inter alia*:

- fleshing out the narrative and explanations regarding the Case One and Case Two scenarios; and
- explaining more clearly the exercise in dividing funding related to the 2020 target equally between the 2015-2017 and 2018-2020 replenishments.

The OEWG also asks TEAP to update the funding requirements presented in its May 2014 report, taking into account:

- the differences between Cases One and Two in environmental terms, regarding the overall quantity of ODS (and corresponding ODP) phase-out to be achieved with respect to 10% and 35% commitments, taking into consideration the achieved phase-out during the 2012-2014 replenishment period;
- that a certain proportion of the phase-out to meet the 2020 target might occur in non-eligible enterprises, including multinationals and enterprises established after the 2007 cut-off date;
- the HPMP agreements between the Executive Committee and Article 5 countries;
- distribution between the RAC and foam sector activities at a 40:60 ratio compared to that of the 50:50 ratio previously chosen by TEAP for its analysis;
- disaggregation of the cost effectiveness values provided for RAC into air conditioning manufacturing, commercial refrigeration manufacturing and refrigeration servicing;
- further elaboration of need for the servicing sector and capacity-building activities in stage II HPMP, in particular for low-volume-ODS-consuming countries and very low-volume-ODS-consuming countries;
- additional assumptions for disbursement scenarios that reflect less frontloading, while taking into the consideration the impact on low-volume consuming countries and very low-volume consuming countries (LVCs and VLVCs);
- costs associated with the conversion of small and medium enterprises in stage II of HPMPs; and
- changes in cost effectiveness figures and their consequent impact on the next three replenishments.

The OEWG also asks TEAP, as a separate element, to:

- estimate the funding needed to conduct surveys of high-GWP alternatives to ODS and project funding, taking into account

the availability of safe, environmentally-friendly, technically-proven and economically viable technologies;

- calculate the funding needed for this separate element according to a variety of schedules;
- calculate the amounts of high-GWP alternatives to ODS avoided in CO₂e terms for the upcoming replenishment periods in Cases One and Two, assuming a certain threshold for high-GWP alternatives, and calculate the cost-effectiveness in US\$ per tonne of CO₂;
- estimate the amounts to phase down in the production sector and associated funds for that sector; and
- estimate the improvements in cost effectiveness over time, including an estimate of the market penetration of not in-kind technologies.

The OEWG also asked TEAP to estimate the funding for the production sector with and without swing plants.

OUTCOME OF THE WORKSHOP ON HFC MANAGEMENT

Co-Chair McInerney introduced this agenda item on Tuesday afternoon. Gudi Alkemade (the Netherlands), provided an overview of the rapporteurs' report. She noted that the workshop was held in response to Decision 25/5, which called for the workshop to continue discussions on HFC management, and that participants had heard addresses from Tina Birmpili, Executive Secretary, Ozone Secretariat, and Ibrahim Thiaw, UNEP Deputy Director. She said that the TEAP, SAP and the Environmental Effects Assessment Panel (EEAP) also gave presentations. She noted four thematic discussions were held on: technical aspects; legal aspects; finance and technology transfer; and policies and measures for HFC management. She stressed that all presentations and interventions in the four thematic sessions were made in the participants' personal capacities and that the agenda was organized to facilitate an exchange of the broadest possible range of views. She said that the rapporteurs' report tries to reflect all the views expressed in the workshop. She also underscored that the report presented would not impact on or suggest how to deal with the outcomes and report of the workshop.

Saudi Arabia said that the workshop should have had more in-depth discussions on technical and legal concerns and suggested that no further action be taken. Uruguay stated that the report was not clear on some crucial aspects discussed in the workshop, such as the legal experts' views on HFC management with respect to the UN Framework Convention on Climate Change (UNFCCC) and its functioning. He also noted that the messages received from the private sector indicate that industry is prepared to invest in research and development, but only once there is political certainty.

Kuwait, with India, expressed concern that high ambient temperature conditions were not fully considered by the workshop. Argentina said that the report is not intended to reflect the "vision" or interests of the parties; rather, it is a depiction of the views of a group of panelists. Iraq, with Saudi Arabia, Kuwait, and India, commented that the workshop did not take all interventions into account. Brazil said the rapporteurs' report did not fully capture divergent views on whether or not an MP amendment is the appropriate way to address HFCs, and said the OEWG report should reflect the divergent opinions.

Canada, with the US, stated that the workshop was not expected to reflect the views of the parties, but rather aimed to share views and perspectives. Canada further suggested taking note of the report and said that there is the option of drafting a note or releasing a statement that says that the report does not reflect the views of all parties. Oman said the workshop was just an exchange of views, nothing more, and cannot be used as the basis for future decision-making. China emphasized that the workshop was an informal forum of a technical nature.

Colombia said the rapporteurs' summary accurately reflected the workshop and serves as a tool that parties now have at their disposal. The EU suggested further discussion of the report. Iran, with Saudi Arabia, Kuwait, and India, expressed hesitation in overburdening the MP with other issues. He noted that it does provide reference material for future work. FSM and Bahrain suggested additional comments that were not reflected during the workshop could be attached as an addendum.

Pakistan commended the workshop as a forum to exchange views and knowledge, but supported the view of Saudi Arabia and Kuwait, stating that it should not be used as the basis for a decision.

Bangladesh noted the timeliness of the workshop, given the phase-out of HCFCs. Grenada characterized the workshop as a fruitful exercise that provided useful information. Cameroon said that while some aspects of the workshop report may be disputed, it contains useful points and should not be ignored. Jordan said the workshop contributed to the discussion of the amendment proposals, and perhaps other workshops should be contemplated.

South Africa said that the workshop occurred because of the many questions raised in the past concerning the MP's amendment proposals, and the workshop succeeded in pointing toward answers to some of these while raising other questions for further discussion. He supported reflecting the concerns of parties in the OEWG report. Saudi Arabia opposed this suggestion. Colombia said it was not appropriate to change the rapporteurs' text, since it is not a negotiated text. She said she looked forward to seeing the full report of the workshop in the future, where a better balance of views will be available. Senegal said the workshop provided useful information on alternatives to HFCs.

Co-Chair McInerney said that most parties viewed the workshop as a useful way of informing parties about the issues regarding HFCs, but that it cannot be considered a comprehensive exploration of all views. Noting that a more extensive report of the workshop will be issued to parties in August, he said that the Co-Chairs proposed that the rapporteurs' report not be amended. He suggested that parties be allowed to provide further comments in an addendum to the full workshop report, and all elements will be presented to MOP 26 for a decision on the report's status.

Saudi Arabia, Colombia and Kuwait disagreed with the idea of formal party submissions for an addendum to the report, saying that this may alter the status of the report. Canada, supported by FSM but opposed by Kuwait, suggested that the OEWG just take note of the rapporteurs' report, while making it clear that it is not meant to be representative of the views of all parties. China

said that it did not oppose taking note of the report as long as the context and form of the workshop is clearly spelled out in the OEWG report.

Co-Chair McInerney said the OEWG report would only mention that the rapporteurs' report was presented, and that the full report would be available at the end of August.

ORGANIZATIONAL ISSUES RELATED TO THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL

Co-Chair Mwendandu introduced this item on Wednesday morning. He invited the TEAP to present volume five of the TEAP 2014 report: a description on the TOC appointment processes and their future configurations and the streamlining of the annual reports in response to Decision XXV/6.

RENOMINATION OF CO-CHAIRS AND MEMBERS OF THE TEAP AND ITS TECHNICAL OPTIONS COMMITTEES

COMMITTEES: TEAP Co-Chair Pizano said that each TOC is at a different stage of completion, with some being close and others just beginning the process. She said that the reappointments are for no more than four years, with start dates of January 1st of the year following the reappointment. She said that this aligns the membership terms of appointment with the quadrennial Assessment Report periods.

UPDATE ON PROCESSES OF THE TEAP FOR THE NOMINATION OF MEMBERS OF ITS TECHNICAL OPTIONS COMMITTEES

COMMITTEES: Bella Maranion (US), TEAP Co-Chair, said that members are nominated by parties, TEAP Co-Chairs or TOC Co-Chairs in full consultation with national focal points, with comments on nominations to be submitted in 30 days. In order to avoid a discontinuity in expertise, she said that appointments should be staggered. She also said that the Secretariat will keep a record of current appointment terms so that nominations and renominations can take place in a timely manner.

PROPOSED CONFIGURATION OF THE TECHNICAL OPTIONS COMMITTEES FROM 1 JANUARY 2015:

TEAP Co-Chair Maranion gave a brief overview of the TOC configurations, saying that parties generally expressed the view that the current configuration has served parties well and has been good for implementing the MP. She noted that while membership has decreased in some TOCs, flexibility has been maintained, to an extent.

OPTIONS FOR STREAMLINING THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL'S ANNUAL TECHNOLOGY UPDATES TO THE PARTIES:

TEAP Co-Chair Pizano said that the TEAP proposes, *inter alia*, that chapters will: continue to follow a similar format for consistency and ease of consultation; focus on information relevant to the upcoming MOP; and indicate when there is no significant new technical or economic information. She said that CUNs, EUNs, and reports responding to specific decisions will no longer be part of progress reports but will be standalone volumes.

Switzerland said that it is essential that the technical expertise is maintained and that the study of new technologies continues. The EU asked for more information on how the TEAP members addressed the need for geographic and gender balance. Canada expressed his satisfaction with the TEAP proposal, especially with respect to the nominations being a transparent process. Australia said that its previous concerns regarding the

configuration of the MBTOC had been addressed. The US said that the TEAP should continue to have the flexibility to make changes as necessary. He requested clarity on how the TEAP intended to address the EU's concern regarding geographic and gender balance. The EU suggested producing a one-page note providing more information in order to avoid rewriting the report. Saudi Arabia questioned if structure of the TOCs will include members who will ensure that the interests of countries with high ambient temperature are represented.

Co-Chair Mwendandu suggested that interested parties consult with TEAP on the margins of the meeting to address concerns and pose questions.

PROPOSED ADJUSTMENTS AND AMENDMENTS TO THE MONTREAL PROTOCOL

On Wednesday morning, Co-Chair McInerney invited proponents of the amendments to the MP regarding HFC phase-down (UNEP/OzL.Pro.WG1/34/4; UNEP/OzL.Pro.WG1/34/5) to make brief presentations on their proposals.

Canada noted that the North American proposal was supported by many other countries that agreed it was necessary to take urgent action on HFCs and that the expertise and institutions of the MP made it the best place to address these substances. She summarized the key changes in the 2014 version of the North American proposal from that of prior years as: a change in the baselines; a postponement of the control measures by two years to reflect the time elapsed since the original proposal; and a removal of exemptions for plants receiving credits under the Clean Development Mechanism from the HFC-23 byproduct emissions control measure. She expressed the hope that the OEWG would establish a contact group to consider both the North American and FSM proposals and take into account the views of all parties regarding any challenges involved in their adoption.

Mexico emphasized his support for the North American proposal because: it included funding for reducing production and consumption of HFCs, reflecting MP Article 10; and the baseline selected for Article 5 countries is 100% of average HFC consumption and production and 40% of average HCFC consumption and production from 2011-2012, which benefits those countries that do not have firm data for HFCs by sector and type of substance.

The US emphasized that it is not waiting for a MP amendment to act on HFCs, but admitted that a MP amendment on the matter would allow the US to act more comprehensively while sending an important signal to the global marketplace. He stressed that the North American proposal for an amendment would reduce HFCs through 2050 by more than 90 gigatonnes of CO₂e emissions. He underscored that creating a contact group would not commit anyone to a specific outcome.

FSM declared that "when there is a will there is a way" to realize a goal despite its challenges. He argued that since HFCs were created in response to the MP's actions, the Protocol parties "have the responsibility for cleaning up that mess," and the MP's experience and expertise made it best suited to do so. He noted that FSM shares the concerns of many Article 5 countries on issues such as financing, the safety of alternatives, and how best to deal with high ambient temperatures, but suggested that none of these were insurmountable.

Morocco, co-sponsor of the FSM proposal, called for setting up a framework to support consultation, dialogue and a “balanced conversation” on HFCs in which parties could express their views and concerns. He called for research and development within industry and technology sectors on phasing out HFCs and suggested the MLF could support the costs of conversion.

Saudi Arabia stressed that HFCs are not ODS and opposed establishing a contact group. Noting that this issue has been discussed for over five years without consensus, Kuwait, with India and Oman, said the MP should concentrate on ODS and opposed setting up a contact group. Lamenting slow progress, Cuba, with Malaysia, expressed hesitation in accepting the proposed amendment to include HFCs, noting there are more urgent issues to address regarding the phase out of ODS. Cuba suggested building synergies between the MP and the Kyoto Protocol.

Iraq acknowledged that many issues remain for parties that experience high ambient temperatures, saying that after these concerns are addressed, Iraq may consider an amendment. Bahrain stated it would be difficult to adopt the proposal until technological solutions are available and asked whether the parties that submitted the proposal have also done so within the UNFCCC. Comoros stated that it is premature to address HFCs in an amendment until further studies take place.

Argentina, with Brazil and Uruguay, opposed establishing a formal contact group until their concerns are addressed. Pakistan said a contact group should be formed only once there is consensus on the issue and a willingness to move forward.

Jordan noted that while discussions on HFCs are lengthy and ongoing, they are useful for building understanding. Jordan suggested asking TEAP to continue research on possible technical solutions and appropriate substitutes, while noting the need for patience and listening to each other.

Haiti, with Saint Lucia, the Maldives, and Trinidad and Tobago, noted their vulnerabilities to climate change as small island developing states (SIDS), and expressed their full support for the proposal. Haiti suggested working with economic and political decision makers to build support. Mozambique expressed support for the amendment, while commenting that if “we understand the legal issues, we should understand the justice issues.”

Japan, with New Zealand, Saint Lucia, Norway, Nigeria, Colombia, Costa Rica, Chile, the Dominican Republic, Switzerland, the EU, Australia, Kenya, Philippines, Serbia, the US, Canada, Mexico, FSM, Morocco and South Africa, supported establishing a contact group to consider HFC phase-out in a more structured manner on issues including legal concerns, financial support through the MLF, technology transfer, the existence of economically-sound alternatives, and synergies between the UNFCCC and the MP. Switzerland and the EU stated this contact group could discuss both reservations to and opportunities for phasing out HFCs.

Japan noted its country’s efforts to manage domestic HFC use, stating these have been shared on the Secretariat’s website. Nigeria and the Seychelles voiced full support for the proposed amendment. The Seychelles and Serbia suggested that the phase-out of HFCs be addressed by a flexible amendment,

wherein countries that want to phase down HFCs can do so, and countries with high ambient temperatures do so when technical options are available. Noting more than 25 years of experience associated with the MP, Australia and others underscored that it is legally possible to address HFCs under the MP and that industry expressed the need for a global signal to develop and commercialize low-GWP alternatives. South Africa and others called for political will to move forward, and suggested using similar mechanisms to those already present in the MP, such as the applications for essential-use and critical-use nominations with respect to HFCs.

China said that if HFCs are to be dealt with by the MP, the first step must be to seek a solution regarding the legal responsibility and division of labor between the MP and the UNFCCC. Iran said it believes that the MP is not the right body to address HFCs and did not favor forming a contact group. Egypt stated it did not like either proposal for an MP amendment on HFCs, but was willing to form a contact group to reach a more suitable solution. Cameroon and the Gambia also favored forming a contact group. Bangladesh pointed out the HFCs problem was created by the MP, so the MP is responsible for addressing it.

The Environmental Investigation Agency (EIA) said that the amendment proposals were being blocked from discussion by a handful of countries, even though the proposals had been submitted according to the rules of procedure. She suggested that those claiming that HFCs should be treated as greenhouse gases under the UNFCCC were doing nothing about them in that forum. Saudi Arabia and Kuwait objected to this statement, saying that NGOs should not criticize parties. India asked what the precedent was for NGO statements expressing such views. The Secretariat said the rules of procedure allow NGOs to make statements, and that this was the first time NGO statements had been objected to by parties. He suggested that since the EIA had expressed a general opinion without naming specific parties, it was uncertain whether it could be ruled as objectionable. Co-Chair McInerney stated that in his 10 years of attending the OEWG, there was a strong history of respect for the positions of individual parties. He asked NGOs to follow that tradition, concentrating on issues rather than positions. Continuing, the EIA said that the HFC workshop showed that more work remained to be done on HFCs, and suggested that a contact group on possible HFC amendments did not commit anyone to anything but allowed for fuller discussion.

The Natural Resources Defense Council (NRDC) noted that it had been participating since before MP was agreed, and had seen the Protocol parties “do great things.” He suggested a large majority of countries see an opportunity to reach a mutually beneficial agreement on HFCs using the tools in the MP tool kit, and that none of the proposals on the table require parties with high ambient temperatures to act before viable alternatives become available.

India asked if the NRDC statement constituted criticism of parties. Co-Chair McInerney said that he did not interpret the statement as direct criticism. He noted that he had asked NGOs to behave in a respectful way, and said he believed they had complied. The EU said that while all parties deserved respect, anyone can criticize anyone else respectfully.

The US, pointing out that his delegation had been criticized “more than any other over the past 15 years,” said that the NGO statement had not been disrespectful. He expressed concern about the idea that the OEWG might define what can be considered criticism or not.

Co-Chair McNerney suggested that all parties reflect on the agenda item overnight, and return to it on Thursday morning.

On Thursday morning, Co-Chair McNerney returned to the discussion of the proposed amendments to the Protocol and invited the proposal proponents to respond to Wednesday’s discussion.

The US highlighted what they saw as the main themes of Wednesday’s discussion, including, *inter alia*: the relationship between the MP and the UNFCCC, including on legal issues; the rationale for including HFCs within the MP; the availability of viable alternatives, including cost, safety of substitutes and consideration of environmental benefits; and funding via the MLF and the need for additional resources beyond those for HCFC phase-out. The US stated that the proposed amendment would seek to be flexible in nature, examining HFC alternatives on a sector-by-sector basis with a prolonged phase-down period of 20-30 years and allowing for various options to do so. The US reiterated that they would like to seek an open conversation to discuss the proposal within a contact group so that it reflects the parties’ various and legitimate concerns, noting that establishing a contact group did not mean that discussions would result in an outcome.

Mexico restated the need for a contact group, underscoring that the MP is technically prepared and has tremendous experience. She stated that the amendment is necessary and timely, while underscoring the need for flexibility and open discussion. Canada stated that they are encouraged by parties who identified the need for further discussion, stating that the amendment calls for the best knowledge among the proponents, but has yet to benefit from the collective knowledge of the MP parties.

FSM thanked the supporters and the opponents of the amendments, stating that each position allows for the opportunity to “teach and test” the amendment, while making space to adapt it.

Saudi Arabia, with Kuwait, restated their position on the relationship between the UNFCCC and the MP, underscoring that this relationship must be addressed before the issue can proceed, and reiterating the need to consider the conditions of high ambient temperatures.

Referring to Wednesday’s discussions, Colombia supported the NGO positions, stating that their job is to criticize parties and encourage progress. She stated that that the Montreal Protocol is about flexibility, compromise and listening, and is not about preventing conversation. She called for an informal group or discussion to allow the conversation to continue.

Noting its surprise at the continued discussion, Argentina stated that technical, financial and legal questions remain, and opposed forming a contact group.

Oman, Bahrain, Iran, Iraq and India supported Saudi Arabia and Kuwait in opposing the creation of a contact group. Egypt proposed the creation of two informal groups, one addressing legal matters and the other on technical questions. Uruguay

reiterated its call for MP talks with UNFCCC on coordination regarding HFCs. Brazil, noting many legitimate concerns that should be addressed before formal negotiations start on HFCs, asked the Co-Chairs for guidance on how to proceed.

Co-Chair McNerney observed that on Wednesday there had not been consensus on forming a contact group and said that he still heard no consensus. He said he did, however, hear some willingness to discuss the issues all delegations expressed interest in, especially legal issues and particularly how best to work with the UNFCCC. He noted Colombia’s suggestion of an informal group, and Egypt’s suggestion of two informal groups. He asked for the reactions of delegations to the idea of informal discussions during the remainder of the OEWG.

The EU expressed a preference for a formal contact group, but said if informal groups could address the amendment proposals, it would be interested in participating. Co-Chair McNerney suggested discussion of the amendment proposals might be too narrow a focus, and supported having a legal informal group address Uruguay’s suggestion on consultations with UNFCCC.

Togo, supported by Ecuador, said although it favored an amendment on HFCs, he was satisfied with “going back to the drawing board” and developing a new strategy, perhaps looking at how to change both the MP and Kyoto Protocol to address HFCs in complementary ways.

Saudi Arabia said it would support a single informal group, since many delegations could not attend two, if its focus was not as narrow as that suggested by the EU and it was known as an informal group on HFC management. Samoa said it would support any kind of discussion group, as long as it discussed alternatives and the needs of SIDS. While she said she preferred a formal contact group, Saint Lucia could support two informal groups if they met concurrently to discuss both alternatives and the amendment proposals. Kuwait stressed that formation of any informal group would have to be done with the proviso that no decision would result and no amendment proposal would be addressed.

Co-Chair McNerney said the interventions all suggested flexibility and that informal discussion would be welcomed on legal and technical aspects of HFC management raised at prior meetings and in the HFC management workshop, in order to develop options on issues discussed, including clarity on the roles of the MP and UNFCCC. He emphasized that the group would not develop a CRP or any decisions but would present a summary of its discussions to plenary. Two co-facilitators were appointed: Gudi Alkemade (the Netherlands) and Obed Baloyi (South Africa). The US expressed disappointment that once again an amendment proposal submitted in accordance with the rules of procedure had not been allowed formal discussion, but agreed to proceed with the Co-Chair’s proposal.

On Friday afternoon, Co-Facilitator Alkemade reported back to plenary on the informal discussion on HFC management, reiterating that no decision was taken. Building on the legal and technical aspects raised in the HFC management workshop, she stated that the co-facilitators provided several guiding questions to allow for open conversation on issues including the legal, technical and financial aspects concerning HFC management. She stated that the questions focused on, *inter alia*: addressing concerns raised on the mandate of the MP to manage HFCs

in view of provisions of the Vienna Convention; clarifying the linkages between the MP and the Vienna Convention with the Kyoto Protocol and the UNFCCC on HFC management; addressing issues of cost, availability of alternatives, and technology transfer, especially in the air conditioning sector and in regions with high ambient temperatures; addressing energy efficiency; and acknowledging international standards regarding alternatives to HFCs.

On legal issues, Co-Facilitator Alkemade reported that parties studied the specific text of the Vienna Convention, notably Article 2, on whether HFC management falls within the scope of the MP and the Vienna Convention. She said many participants called for strengthening synergies between the UNFCCC and the MP, perhaps through a joint meeting. On technical issues, she reported on discussions including: cost and availability of alternatives to HFCs, especially in high ambient temperatures; the need to provide industry with the right signals regarding low-GWP alternatives; what is meant by commercial availability; and that TEAP could address specific questions on the full range of fluorinated and non-fluorinated options.

Outcome: Co-Chair McInerney stated a finalized summary would be annexed to the OEWG 34 meeting report and could be used for possible further discussions at MOP 26.

UPDATE ON LIAISON BY THE SECRETARIAT WITH THE ORGANIZERS OF THE THIRD INTERNATIONAL CONFERENCE ON SMALL ISLAND DEVELOPING STATES REGARDING IMPLEMENTATION OF THE MONTREAL PROTOCOL BY THOSE STATES

Co-Chair Mwendandu introduced this item Wednesday afternoon, noting that Decision XXV/9 requests the Secretariat to liaise with the organizers of the Third International Conference on SIDS (the SIDS Conference), to be held in Apia, Samoa, from 1-4 September 2014, with a view to promoting discussions on the challenges associated with implementing the MP, and to report to the parties on the outcome at OEWG 34.

The Secretariat noted that the organizers, UN Department of Economic and Social Affairs (UNDESA), had established a preparatory process, with two preparatory committee meetings taking place in February and June 2014. She said that the Ozone Secretariat participated at the first meeting, during which Decision XXV/9 was brought to the attention of the parties. She said that the draft outcome document for the SIDS Conference, the SIDS Accelerated Modalities of Action (SAMOA) Pathway, has been agreed upon subject to further consideration and adoption in Apia. Trinidad and Tobago welcomed the liaison of the Secretariat with UNDESA.

OTHER MATTERS

Newly Detected ODS: On Wednesday afternoon, Co-Chair McInerney noted that during discussions on the adoption of the agenda, parties agreed to discuss a recently published paper on four newly detected ODS. Paul Newman, SAP Co-Chair, provided an overview of the article and associated information. He said that four newly detected compounds had been observed in the atmosphere. He emphasized that the substances are not new substances, but rather that they were newly detected in the atmosphere. He provided an overview of the four compounds, saying that their ODP is smaller than that of CFC-11. Newman

stated that the four substances contribute less than 0.5% of the global 2011 ODS GWP weighted emissions. He said that their concentrations are quite small compared to other ODS and that they are not currently significant for ozone depletion and climate forcing.

The EU questioned whether the SAP had investigated the ODP for HFO-1233zd. Newman said that HFO-1233zd has a lifetime of 40 days and quite a small ODP. Noting that the ODP is highly dependent on emission location, he said that in the mid latitudes it has a very low ODP due to the time it takes to reach the stratosphere, whereas in the tropics it is more easily able to reach the stratosphere thus has a higher ODP. SAP Co-Chair Ravishankara said that even with a variable ODP, the maximum ODP is still very low.

Pakistan queried how the substances are listed under the Montreal Protocol but only detected now. Newman responded that new analysis had detected these substances, and that they were able to establish time series data as older air samples could be analyzed. Responding to a question from Togo about recovery of the ozone layer, Newman said that by the middle of the century the ozone hole should be at about the level of the 1980s.

Releases, breakdown products and opportunities for the reduction of releases: On Wednesday afternoon, Co-Chair McInerney introduced the draft decision on releases, breakdown products and opportunities for the reduction of releases (UNEP/OzL.Pro.WG.1/34/CRP.6). The EU provided a brief overview, saying that the decision requests, *inter alia*: parties to review quantities and sources of releases and expected breakdown products and to provide the assessment panels with the information, including on production capacity, the technology used for controlling releases and the measuring and monitoring methods employed and management practices in place; the TEAP to investigate ODS in exempted uses and alternatives to products made using process agents and feedstocks; and to provide an assessment of the technical and economic feasibility of reducing or eliminating such uses and related releases.

China requested informal consultations with the EU. Canada stated that the decision was timely and favored discussions in a small group. The US asked to join the discussions, and a small group was established to discuss the matter.

During the Thursday afternoon small group meeting, Sweden and the EU led the discussion. Noting that the SAP has reported that new ODS have been detected, the small group discussed issues including: that large amounts of breakdown products have been measured in the Arctic region and in ground water; that there may be underreporting and underestimations on ODS, or in any case conflicting estimates; with suggestions that TEAP, SAP and EEAP reconcile on a common assessment method to avoid possible discrepancies in what is measured. Parties suggested this discussion proceed after the updated reports from TEAP, SAP and EEAP have been discussed, to which the EU said that the CRP could be forwarded to MOP 26 and discussed only if such reports have not yet been released.

During Friday morning's plenary, Co-Chair McInerney requested the EU to report back on the small group. The EU said a background note had been provided on the issue, which led to a fruitful discussion without conclusion.

Outcome: The OEWG forwarded the CRP, with brackets, to MOP 26 for consideration.

Measures to facilitate the monitoring of trade in HCFCs and substituting substances: On Wednesday afternoon, the EU introduced the draft decision on measures to facilitate monitoring of trade in HCFCs and substituting substances (UNEP/OzL.Pro.WG.1/34/CRP.5). The EU described the CRP, stating that it intends to monitor the trade of HCFCs, in particular the illegal trade of HCFCs masked as HFCs or other substances, and calls on the Ozone Secretariat to liaise with the World Customs Organization (WCO) to harmonize actions on this issue and create standardized customs codes to facilitate better assessment.

Saudi Arabia opposed the CRP, stating that it falls outside the mandate of the Montreal Protocol as trade is a World Trade Organization (WTO) concern and classification falls under the International Organization for Standardization. Argentina and China expressed hesitation, stating that this does not fall within the mandate of the MP and suggested going through the WCO or other bodies. Trinidad and Tobago, supported by Serbia, Switzerland, Canada, Grenada, the Russian Federation, Saint Lucia, Norway and Kenya, expressed support for the CRP, saying there is a need for better classification of HCFCs' import and export, especially as some HCFCs are labeled as HFCs and this could help countries curtail illegal trade. Kenya suggested that the CRP should also consider cases of contamination.

Noting some reservations, Co-Chair McInerney stated that there was considerable interest from delegations and suggested taking the issue forward in a contact group.

A contact group, co-chaired by Vika Rogers (Fiji) and Blaise Horisberger (Switzerland), met on Thursday afternoon. Co-Chair Horisberger invited the EU to present the draft decision on preventing illegal trade in HCFCs. The EU stated that while some parties has phased out HCFC consumption, others are allowed to continue, emphasizing that this can lead to illegal trade and it can be difficult for customs officers to respond. By liaising with the WCO and using targeted inspections, the EU said this could both prevent illegal trade and support data collection. Parties discussed issues including, *inter alia*: the inclusion or omission of HFCs; the benefits of labeling; the suggestion that the Montreal Protocol liaise with WCO and other bodies to provide technical expertise; data collection standards; basket versus individual Harmonized Commodity Description and Coding System (HS) codes; and deadlines for submission, regarding the Montreal Protocol and WCO's operating procedures.

The contact group reconvened on Friday afternoon, with Co-Chair Rogers moderating the discussion. Parties addressed, *inter alia*: whether or not to include HFCs in the text, noting that while they are not regulated under the MP, this information could prove to be useful data on trade; the discrepancy and need for clarification on customs codes; the need for transitional codes until an updated HS code is introduced; and the need to consider the different paragraphs in the text as two parallel processes. Parties agreed to forward the text, in full brackets, to the MOP for further deliberations.

On Friday afternoon, Co-Chair Horisberger reported on the work of contact group, stating that while some paragraphs were addressed, the group did not consider the preamble or the title.

He encouraged interested parties to liaise prior to MOP 26 and suggested parties demonstrate some flexibility so that an agreement could be reached in November. Co-Chair McInerney suggested the draft decision be forwarded to the MOP, and parties agreed.

Outcome: OEWG 34 agreed to forward the draft decision (UNEP/OzL.Pro.WG.1/34/CRP.6), with brackets, to MOP 26 for further consideration.

CLOSURE OF THE MEETING

On Friday afternoon, Co-Chair McInerney presented the draft report of the meeting (UNEP/OzL.Pro.WG.1/34/L.1). Delegates adopted the report with minor amendments to the agenda item on other matters and the Addendum of the Draft Report (UNEP/OzL.Pro.WG.1/34/L.1/Add.1). Co-Chair McInerney led the OEWG in a moment of silence for the victims of Malaysia Airlines flight MH17. He thanked the delegates, the Secretariat, report writers and interpreters for their efforts and welcomed parties to MOP 26, which will also be held in Paris, France, from 17-21 November. He gavelled the meeting to a close at 6:58 pm.

A BRIEF ANALYSIS OF OEWG 34

At the 34th meeting of the Open-Ended Working Group to the Montreal Protocol, discussions of HFCs once again proved to be the most contentious item on the agenda. Many delegates had attended the Workshop on HFC Management held just prior to the meeting, which had concluded on an upbeat note after two days of constructive discussion and debate on a wide range of concerns, including finance, technology transfer and legalities. Participants hailed the discussions on these complex issues as a success, and several expressed hope that the constructive workshop would set the tone for OEWG 34. Many were disappointed, therefore, when discussions in the OEWG quickly became contentious, with extensive debate on seemingly minor issues such as the adoption of the agenda for the meeting.

Over the course of the five-day meeting, participants tackled a number of issues, including, among others: the TEAP report on ODS alternatives; the TEAP study on the Multilateral Fund replenishment for 2015-2017; and the amendment proposal on the management of HFCs. While delegates anticipated difficult discussions of these complex issues, many said they had not anticipated the stalemates that ultimately developed. Several identified a marked change in the atmosphere of OEWG 34 and expressed concern about the impact of the discussions on the future work of the Montreal Protocol, including at the upcoming 26th Meeting of the Parties, scheduled for November 2014.

This analysis assesses the key issues at OEWG 34, the outcomes of the discussions and how these are likely to affect the future work of the parties to the Montreal Protocol.

HFC AMENDMENTS

As in recent years, the proposals to amend the Montreal Protocol to address HFCs were again a source of heated debate. The two-day HFC management workshop, which arose from a decision taken at MOP 25, gave many delegates hope that discussions on the amendments could move out of the "informal discussion groups" and into a formal contact group. However,

several participants expressed strong opposition to such a move, and once again a decision was taken to address HFCs in the context of an informal discussion.

Reasons for opposition focused largely on a lack of suitable alternatives in high ambient temperature conditions, and concerns on the legality of the Montreal Protocol addressing a substance that, although it is not an ODS, is still in widespread use as a result of the Montreal Protocol's decision to ban HCFCs. As many workshop participants noted, there is no legal obstacle to addressing HFCs under the auspices of the Montreal Protocol, but legal "wrinkles" will still have to be addressed. To wit, Article 2 of the Vienna Convention mandates parties to address the adverse effects of efforts to protect the ozone layer, which Article 1 defines as including the effects on the climate system. This clause, along with the Protocol's well-functioning institutions and extensive experience with the same sectors that an HFC phase-down will impact, would indicate, according to one experienced delegate, that the Protocol is the right institution to be managing HFCs.

Delegates also pointed to a proposal from the EU to the UNFCCC that was submitted in 2013 calling for parties to the UNFCCC to recognize the Montreal Protocol as the "correct" institution to address HFCs management. However, this proposal has received little attention. In general, little action on HFCs has occurred under the UNFCCC, a situation which, according to some, is due to the wide variety of issues the UNFCCC has to address.

Noting that opposition to discussion of the proposed amendments seems to have increased this year, some delegates suggested the more vociferous objections could be a reaction to a sense of growing acceptance among the wider community of the need to phase down HFCs. Several delegates, including both opponents to and supporters of the amendments, privately noted signs of growing support for eventual adoption of the proposed amendments on HFCs. One said "it is now more a question of 'when' than 'if,' as well as a question of what the amendments will contain in the end." Several delegates pointed to an increasing number of national and regional action on HFCs, including the commitment by the Group of 20 to decrease HFC consumption and the new F-gas regulation in the EU, as signs of momentum in that direction.

Other delegates suggested that opposition might be related to the ongoing negotiations in the climate process, rather than to the Montreal Protocol itself. Some delegates explained that by addressing HFCs only within the UNFCCC process, the UNFCCC "basket of gases" approach could be used to act on greenhouse gases other than HFCs, leaving these chemicals untouched. Still others suggested that some parties may wish to ensure that nothing happens in the context of the Montreal Protocol that could influence, in any fashion, the negotiations toward a climate agreement at the twenty-first meeting of the Conference of the Parties to the UNFCCC in Paris in 2015.

MLF REPLENISHMENT

Finance is another pressing issue for the Montreal Protocol. At MOP 26, parties will have to address the replenishment of the MLF for the next triennium. This is a key issue for work on HFCs, as Article 5 parties cite lack of funding for implementation as another concern associated with potential

efforts to phase out HFCs under the Protocol. Notably, both the FSM and North American HFC amendment proposals allow for MLF funding of efforts to phase down HFCs. Recognizing the importance of finance for both political will and effective implementation of parties' obligations, some delegates asserted that successful discussions on the MLF replenishment would help "send the right signals" about funding for an HFC phase-down.

At MOP 25, parties charged the TEAP with preparing a report for the consideration of parties to decide on an appropriate level of funding. The report also contains a separate element estimating the additional resources needed to support Article 5 parties in gradually avoiding high global warming potential (GWP) alternatives to ODS. The report indicated that the current estimation is US\$23 million per year over two triennia, in addition to the other funding requirements under the MLF. By establishing an estimate of the additional funding required, donor countries could begin discussions in their capitals to secure the funding needed. This could also provide a solid starting point for discussions on finance; a key issue for many Article 5 countries. Although providing funding to avoid high-GWP alternatives could place non-Article 5 countries under additional pressure, many donor countries have already realized this and acknowledged during this OEWG meeting that there will be a need to commit these additional funds for HFC phase-out should the amendments ever be accepted. However, since no formal discussions have taken place, questions regarding specificities have not been asked, let alone answered. Some parties have indicated that while they are not opposed to the amendments, they will need specifics on funding and technology transfer before they commit. This is something that is likely to be achieved in a formal, on the record, discussion.

Despite this, some countries argue that no matter what, there will still be insufficient low-GWP alternatives for high-ambient temperatures for all applications, given the technical challenges in finding and developing low-GWP alternatives for these conditions that are safe, efficient, efficacious and affordable. Amendment advocates counter that Article 5 countries with high ambient temperatures would not be forced to act when viable alternatives do not exist for a given sector or application, and past MP experience suggests that once countries signal the marketplace by placing a chemical on the Protocol's control schedules, industry responds by accelerating research and development of alternatives to the controlled substance for all relevant applications. This was a point echoed by industry representatives at the Workshop on HFC Management.

Having overcome the hurdle of whether or not to discuss the proposed HFC amendments at all, proceedings were nearly derailed again by disagreement within the contact group on the mandate for TEAP to carry out additional analyses on the MLF replenishment during the intersessional period. Part of the contention involved an attempt by one delegation to reopen a portion of the group's text that they had agreed to the day before. Stunned participants, unaccustomed to such tactics within the OEWG, refused to reopen the text and warned that ignoring normal rules of procedure, and the Chair's clear instructions on how the contact group would perform its task, could seriously

damage faith in MP processes. When the dispute was taken to the plenary, only last-minute reminders of the Protocol's history of cooperation and inclusion led to an agreement.

Some observers from donor countries also noted that the opposition to adding their data requests to the TEAP's supplemental report, for example on the environmental benefits of supporting low-GWP alternatives, will make it more difficult for environment ministries to persuade their finance ministries and legislatures to approve any additional funding. A few delegates were heard commenting later that if this is what a discussion on a report's terms of reference leads to, then what is going to happen at the MOP where the actual funding level will be decided.

The Montreal Protocol has a long history of cooperation and decision-making based on consensus. It is also one of the few fora that has habitually allowed the full and open participation of non-governmental organizations. Some of the tactics used to prevent constructive debate are not familiar to the forum, took many by surprise and had many wondering what lay ahead at MOP 26. Many also wondered if perhaps alternate ways to reach agreements need to be explored, in order to avoid such circumstances in the future.

ONE STEP FORWARD, TWO STEPS BACK?

The question of the HFC amendments was, as expected, contentious. What was not expected was the extent of the disagreements, which seemed to leave many questioning whether the workshop had contributed to any progress on furthering discussion of the amendments, as was intended by MOP 25. One veteran delegate expressed disappointment with the outcomes of the meeting, saying that by the close of OEWG, the work on this issue could have "actually regressed."

Despite the past successes of the Montreal Protocol, work remains to be done, as Executive Secretary Tina Birmipili emphasized in her opening remarks to OEWG 34. Just as important as forward momentum on these contentious issues, some veterans contend, is recognizing where past decisions have had unfortunate unintended consequences. The exponential growth in use of HFCs is the prime example of this problem; although HFCs are not ODS, their development and growth was spurred by the accelerated phase-out of HCFCs under the Protocol. More than one of the OEWG delegates declared, on and off the record, "this is the mess we made; it is up to us to clean it up." Another delegate called for parties to learn their lessons and move forward, saying "Our destiny may be determined by the will of the wind, but we as human beings have the ability to adjust our sails..." The question on many minds is how best to find the path forward and, at MOP 26, avoid the ruts in the road that became so visible during OEWG 34.

UPCOMING MEETINGS

UNGA Dialogue 4 on Technology Transfer Mechanism: Through General Assembly Resolution 68/210, Member States decided to hold four, one-day structured dialogues to consider possible arrangements for a facilitation mechanism to promote the development, transfer and dissemination of clean and environmentally sound technologies. The theme for the fourth dialogue will be: "Possible arrangements to enhance technology

facilitation." **date:** 23 July 2014 **location:** UN Headquarters, New York **contact:** UN Division for Sustainable Development **email:** dsd@un.org **www:** <http://sustainabledevelopment.un.org/index.php?page=view&nr=702&type=13&menu=1822>

Ninth Meeting of the Technology Executive Committee: As the policy arm of the UNFCCC's Technology Mechanism, the Technology Executive Committee (TEC): considers and recommends actions to spur the development and diffusion of climate change mitigation and adaptation technologies; reviews technological needs; and promotes the development and use of technology road maps for the adoption of promising technologies at the national, regional and international levels. **dates:** 18-21 August 2014 **location:** Bonn, Germany **contact:** UNFCCC Secretariat **phone:** +49-228-815-1000 **fax:** +49-228-815-1999 **email:** secretariat@unfccc.int **www:** http://unfccc.int/ttclear/pages/ttclear/templates/render_cms_page?TEC_meetings

WHO Conference on Health and Climate: This three-day conference hosted by the World Health Organization will bring together leading experts in the fields of health and climate change to discuss: strengthening health system resilience to climate risks; and promoting health while mitigating climate change. Within each of these themes the conference will make recommendations on policy options to maximize health benefits and the specific contribution of the health sector to the objectives. **dates:** 27-29 August 2014 **location:** Geneva, Switzerland **contact:** Marina Maiero **phone:** +41-22-791 2402 **email:** maierom@who.int **www:** <http://www.who.int/globalchange/mediacentre/events/climate-health-conference/en/>

2014 Climate Summit: This event is being organized by UN Secretary-General Ban Ki-moon, with the aim to mobilize political will for an ambitious legal agreement through the UNFCCC process. **date:** 23 September 2014 **location:** UN Headquarters, New York **www:** <http://www.un.org/climatechange/summit2014/>

TEC Workshop on National Systems of Innovation: The TEC will organize a Workshop on National Systems of Innovation. **dates:** 13-14 October 2014 **location:** Bonn, Germany **contact:** UNFCCC Secretariat **phone:** +49-228-815-1000 **fax:** +49-228-815-1999 **email:** secretariat@unfccc.int **www:** http://unfccc.int/ttclear/templates/ttclear/pages/ttclear/templates/render_cms_page?s=events_main

Climate Symposium 2014: This event will focus on the theme "Enhanced Understanding of Climate Processes through Earth Observation." It will: help in developing an efficient and sustained international space-based Earth observation system; bring together international experts in climate observations, research, analysis and modeling; and emphasize the role of space-based Earth observations in improving knowledge of the climate at global and regional scales, and in assessing models used for climate projections. **dates:** 13-17 October 2014 **location:** Darmstadt, Germany **contact:** Organizing Secretariat **email:** climate.symposium@eumetsat.int **www:** <http://www.theclimatesymposium2014.com>

Tenth Meeting of the Rotterdam Convention Chemical Review Committee (CRC-10): CRC-10 will review chemicals and pesticide formulations according to the criteria set out by the Convention in Annexes II and IV respectively and make recommendations to the COP for listing these chemicals in

Annex III. **date:** 22-24 October 2014 **location:** Rome, Italy
contact: Rotterdam Convention Secretariat **phone:** +41-22-917-8296 **fax:** +41-22-917-8082 **email:** pic@pic.int **www:** http://www.pic.int/

IPCC-40: This IPCC meeting will be held to adopt the AR5 Synthesis Report and approve its Summary for Policymakers. **dates:** 27-31 October 2014 **location:** Copenhagen, Denmark **contact:** IPCC Secretariat **phone:** +41-22-730-8208 **fax:** +41-22-730-8025 **email:** IPCC-Sec@wmo.int **www:** http://www.ipcc.ch/

Tenth Meeting of the Stockholm Convention Persistent Organic Pollutants Review Committee (POPRC-10): POPRC-10 will review chemicals proposed for listing in Annex A, Annex B, and/or Annex C of the Stockholm Convention. **dates:** 27-30 October 2014 **location:** Rome, Italy **contact:** Stockholm Convention Secretariat **phone:** +41-22-917-8729 **fax:** +41-22-917-8098 **email:** ssc@pops.int **www:** http://www.pops.int

73rd Meeting of the Executive Committee of the MLF: This meeting of the ExCom is expected to, *inter alia*, consider funding requests to the MLF for activities to implement the requirements of the Montreal Protocol. **dates:** 9-13 November 2014 **location:** Paris, France **contact:** MLF Secretariat **phone:** +1-514-282-1122 **fax:** +1-514-282-0068 **email:** secretariat@unmfs.org **www:** http://www.multilateralfund.org/

53rd Meeting of the Implementation Committee under the Non-compliance Procedure for the Montreal Protocol: This meeting will consider issues related to non-compliance and parties returning to compliance. **dates:** 14-15 November 2014 **location:** Paris, France **contact:** Ozone Secretariat **phone:** +254-20-762-3851 **fax:** +254-20-762-4691 **email:** ozoneinfo@unep.org **www:** http://www.montreal-protocol.org

Joint 10th Meeting of the Conference of the Parties to the Vienna Convention and the 26th Meeting of the Parties to the Montreal Protocol: MOP 26 will meet to consider, *inter alia*: nominations for critical- and essential-use exemptions; the next MLF replenishment; the report of the TEAP; the report of the Workshop on HFC Management; the summary of OEWG informal discussions on HFC management; and draft decisions forwarded to it by the OEWG. The MOP will be preceded by a 15 November meeting of the MOP Bureau. **dates:** 17-21 November 2014 **location:** Paris, France **contact:** Secretariat **phone:** +254-20-762-3851 **fax:** +254-20-762-0335 **email:** ozoneinfo@unep.org **www:** http://conf.montreal-protocol.org/default.aspx

GLOSSARY

CFCs	Chlorofluorocarbons
CO ₂ e	Carbon dioxide equivalent
CRP	Conference room paper
CTC	Carbon tetrachloride
CTOC	Chemicals Technical Options Committee
CUEs	Critical-use exemptions
CUN	Critical-use nominations
EEAP	Environmental Effects Assessment Panel
EUEs	Essential use exemptions
EUNs	Essential use nominations
FSM	Federated States of Micronesia
FTOC	Flexible and Rigid Foams Technical Options Committee
GTP	Global temperature potential
GWP	Global warming potential
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
HPMP	HCFC phase-out management plans
HTOC	Halons Technical Options Committee
MBTOC	Methyl Bromide Technical Options Committee
MLF	Multilateral Fund
MOP	Meeting of the Parties
MP	Montreal Protocol
MTOC	Medical Technical Options Committee
ODP	Ozone depletion potential
ODS	Ozone depleting substances
OEWG	Open-Ended Working Group
RAC	Refrigeration and air conditioning
RTF	Replenishment Task Force
RTOC	Refrigeration, Air Conditioning and Heat Pumps Technical Options Committee
SAP	Scientific Assessment Panel
SIDS	Small Island Developing States
TEAP	Technology and Economic Assessment Panel
TOC	Technical Options Committee
UNEP	United Nations Environment Programme
UNFCCC	UN Framework Convention on Climate Change