

## 2023 High-Level Political Forum on Sustainable Development

### Accelerating the recovery from the coronavirus disease (COVID-19) and the full implementation of the 2030 Agenda for Sustainable Development at all levels

#### Contributions from the Vienna Convention on the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer

*March 2023*

#### Introduction

1. The Secretariat for the Vienna Convention on the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer (Ozone Secretariat) in full consultation with the Presidents of the twelfth meeting of the Conference of the Parties to the Vienna Convention, Mr. Ndiaye Cheikh Sylla, Director of Cabinet, Department of Environment, Minister for the Environment and Sustainable Development, Senegal and the Thirty-Fourth Meeting of the Parties to the Montreal Protocol, Mr. Hassan Mubarak, Head, Hazardous Chemicals Management Unit and National Ozone Officer, Environmental Assessment and Control Directorate, the Supreme Council for the Environment, Bahrain, submits this report to the 2023 High-Level Political Forum on Sustainable Development (HLPF), in response to the invitation from Ms. Lachezara Stoeva, President of the United Nations Economic and Social Council.
2. The report outlines the work carried out under the Vienna Convention and the Montreal Protocol up to the end of 2022, in relation to the theme of the 2023 High-level Political Forum *"Accelerating the recovery from the coronavirus disease (COVID-19) and the full implementation of the 2030 Agenda for Sustainable Development at all levels"*. It highlights the relevant contribution of the international ozone regime to the Sustainable Development Goals (SDGs) under in-depth review by HLPF in 2023: SDG 6 on clean water and sanitation, SDG 7 on affordable and clean energy, SDG 9 on industry, innovation and infrastructure, SDG 11 on sustainable cities and communities, and SDG 17 on partnerships for the Goals.

#### About the Vienna Convention and the Montreal Protocol

3. The 1985 Vienna Convention for the Protection of the Ozone Layer (Vienna Convention) and its 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), referred to as the "ozone treaties" were established to protect human health and the environment from the threat of ozone depletion. Both treaties have achieved universal ratification with 198 parties. The Vienna Convention calls on parties to cooperate on scientific research and observations. The Montreal Protocol controls 96 manufactured ozone-depleting substances (ODSs) plus their isomers, most of which are also potent greenhouse gases. To date, the global implementation of the Montreal Protocol has led to the phase-out of 99 per cent of ODSs, or 1.8 million Ozone Depletion Potential tonnes, globally. The remaining 1 per cent (approximately 200,000-300,000 metric tonnes) is largely hydrochlorofluorocarbons (HCFCs). Global phase-out of these substances is expected by 2030.
4. The 2016 Kigali Amendment to the Montreal Protocol, which entered into force on 1 January 2019, added 18 hydrofluorocarbons (HFCs) to the list of controlled substances. While HFCs do not destroy ozone, they are potent greenhouse gases. Parties to the Montreal Protocol have emphasised the importance of pursuing energy efficiency and sustainability of equipment in the refrigeration and air-conditioning sectors while phasing down HFCs.

## Ozone Treaties and the Sustainable Development Goals

5. The table below summarizes how the ozone treaties contribute to meeting the SDGs. This submission is based on this summary and highlights how work in the past year contributes to the SDGs being reviewed in-depth at HLPF 2023.
6. It is important to note that by helping to restore the stratospheric ozone layer, the Vienna Convention and Montreal Protocol help mitigate against the effects of damaging ultra-violet (UV) radiation on living organisms and thus maintain the health of the planet on which the achievement of all sustainable development objectives ultimately depends. In addition, the implementation of the Montreal Protocol has led to significant climate benefits, which are described further in this report (see para 20).

OZONE TREATIES CONTRIBUTIONS TO THE GOALS	SUSTAINABLE DEVELOPMENT GOALS																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	
Universal ratification							√		√	√						√	
Partnerships with all stakeholders at all levels							√		√							√	
Funding to all developing countries	√						√	√	√	√		√	√			√	
Increased investment in green alternatives									√			√					
Technology and knowledge transfer	√							√	√	√		√	√			√	
Promoting the use of greener, safer chemicals									√			√					
Promoting technology innovation								√	√	√		√	√			√	
Institutional strengthening and capacity building	√								√	√		√				√	
Promoting science education and mainstr gender				√	√						√					√	
Promoting food security/safety and reducing FLW <sup>1</sup>	√	√							√		√	√				√	
Avoided damage to crops, fisheries and materials	√	√									√	√		√	√		
Protection from harmful UV radiation			√								√			√	√		
Avoided diseases (skin cancers and eye cataracts)			√								√						
Energy efficiency enhancements							√		√		√	√	√				
Climate change mitigation and adaptation							√		√		√	√	√			√	

*Table: Schematic overview of how the Ozone Treaties contribute to SDGs. The goals of relevance for the 2022 review are in purple<sup>2</sup>.*

## Reporting to High-Level Political Forum 2023

6. This report was prepared based on key results of the work of the parties to the ozone treaties at the international and national levels and the work of the Ozone Secretariat and its partners. It also draws from the regular updates by [three independent Assessment Panels of the Montreal Protocol](#)<sup>3</sup> presented at the Thirty-Fourth Meeting of the Parties to the Montreal Protocol. The panels aim to inform the parties of the latest developments in a wide array of scientific and technological disciplines relevant to the Montreal Protocol.
7. In 2022 three in-person meetings were convened, enabling parties to discuss and take decisions on many issues, the consideration of which had been deferred during the two years of online meetings with restricted agendas. Despite the heavy agenda of the forty-fourth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (OEWG44), the Fifth Extraordinary Meeting of the Parties to the Montreal Protocol (ExMOP5), and the Thirty-Fourth Meeting of the Parties to the Montreal Protocol (MOP34), significant progress was made on many substantive matters that contribute to **SDGs 7, 9, 11 and 17**.

<sup>1</sup> Food loss and waste.

<sup>2</sup> Goal 6 is not directly linked to the ozone treaties' work.

<sup>3</sup> <https://ozone.unep.org/science/overview>.

*(a) Progress, experience, lessons learned, challenges and impacts of the COVID-19 pandemic on the implementation of SDGs 6, 7, 9, 11 and 17 from the vantage point of your intergovernmental body, bearing in mind the three dimensions of sustainable development and the interlinkages across the SDGs and targets, including policy implications of their synergies and trade-offs*

### **Impact of the pandemic and challenges**

8. Reductions in the levels of production and consumption of hydrofluorocarbons (HFCs) required under the Kigali Amendment to the Montreal Protocol are measured against baseline levels. For example, for Group 1 parties operating under paragraph 1 of Article 5 (hereafter referred to as Article 5 parties), the consumption baseline is established as an average of its HFC consumption<sup>4</sup> for the years 2020 to 2022 plus sixty-five per cent of its baseline consumption of HCFCs. **The COVID-19 pandemic has potentially disrupted the demand for and trade in these substances**, which may have resulted in significantly lower levels of consumption than expected in some Article 5 parties. MOP34 reviewed a proposal to **revise the baseline methodology** due to the concern of Group 1 Article 5 parties of not being able to meet control measures of the Kigali Amendment. Control measures for this group of parties will apply from 2024 with the freeze of consumption of HFCs at the baseline level. The pandemic, therefore, may impact the Montreal Protocol's potential contribution to **SDGs 9 and 11**.
9. Article 5 parties must continue implementing their HCFC Phase Out Management Plan (HPMP) to achieve the full phase-out of this ozone-depleting substance by 2030 and start the preparation for the Kigali Implementation Plans for HFC phasedown (KIPs), with financial assistance provided by the Multilateral Fund for the Implementation of the Montreal Protocol (MLF or Multilateral Fund). However, due to constraints imposed by the COVID-19 pandemic on ground operations, **progress with the implementation of many projects has been delayed**. The situation started improving in 2022. The Executive Committee (ExCom) overseeing the operation of MLF, at its 90<sup>th</sup> and 91<sup>st</sup> meetings, approved 218 projects in 95 countries for a total funding of 101,068,390 USD<sup>5</sup>. The continued progress and delivery of these projects for the implementation of the Montreal Protocol has direct impacts on **SDGs 9 and 17** and indirect impacts on **SDGs 7 and 11**.

### **Lessons learned and experience**

10. In 2022, the Ozone Secretariat organized hybrid-style meetings allowing online participation in negotiations for delegations from countries where travel had been still restricted due to the COVID-19 pandemic. The technological opportunities and the mental shift in recognizing the possibility of holding meetings, including global ones, virtually will be one of the lasting positive impacts of the pandemic. However, based on the Ozone Secretariat's experience, online negotiations, especially around key issues, for example, on the replenishment of the Multilateral Fund or strengthening of Montreal Protocol institutions and illegal trade, had been a challenge. In the case of the Montreal Protocol, consideration of many substantive issues had been put on hold till the resumption of the physical meetings. Transitioning to a hybrid format for meetings increased the cost of meeting logistics<sup>6</sup> and forced virtual participants to spend time online at unreasonable hours due to time zone challenges. It is, therefore, critical for intergovernmental negotiations held under a Multilateral Environment Agreement (MEA), such as the Montreal Protocol, to have **in-person participation**. However, the option of **viewing meetings** that are not restricted will be kept. This considerably increases access to information to the decision-making process for a wider number of Montreal Protocol stakeholders and contributes to the upholding

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<sup>4</sup> Under the Montreal Protocol, consumption means production plus imports minus exports of controlled substances.

<sup>5</sup> <http://www.multilateralfund.org/InformationandMedia/Brochures> published by the Secretariat/MLF End of the year message\_Dec2022.pdf.

<sup>6</sup> Due to the need to have a fully functional meeting platform with interpretation and resources for maintaining it throughout the meetings.

of the **procedural aspects of the right to a healthy environment**. Effective decision-making under the Montreal Protocol contributes to **SDGs 7, 11 and 17**.

### **Progress**

11. The Multilateral Fund was established in 1991 to ensure equity and capacity for all countries to participate in the global phase-out of controlled substances. It provides financial support to 144 Article 5 parties and contributes both directly and indirectly to the delivery of **SDGs 7, 9, 11 and 17**. The fund is replenished every three years through contributions of 50 parties based on a careful projection of the implementation needs of Article 5 parties. **The replenishment of the Multilateral Fund for the triennium 2021–2023** had been pending since 2020 due to the inability to conclude the negotiations in the online format owing to the COVID-19 pandemic. The final decision was adopted only in July 2022 at ExMOP5, which had been specifically organized for the purpose of enabling parties to take this decision. Parties agreed on a budget of USD 540 million, of which USD 475 million is expected in new contributions.
12. In its latest [report](#),<sup>7</sup> the Energy Efficiency Task Force under the Technology and Economic Assessment Panel of the Montreal Protocol (TEAP) forecasts that energy demand due to the growing use of air-conditioning as a cooling solution in an increasingly warmer world will triple by mid-century. If the rate of energy consumption by the cooling sector remains unabated and current refrigerants in cooling systems do not switch to ozone and climate-friendlier alternatives, the sector will contribute to global warming that by 2030 could surpass the 1.5° degrees Celsius target of the Paris Agreement on climate change. The recognition by the Montreal Protocol parties of the **importance of seizing energy efficiency opportunities** while phasing down HFCs, with financial and technical support to Article 5 parties, can directly contribute to the significant progress on **SDGs 7, 9, 11 and 17**.
13. At its 91<sup>st</sup> meeting in December 2022, ExCom agreed to open **new funding window** for pilot projects to maintain and/or enhance the energy efficiency of replacement technologies and equipment while phasing down HFCs. The funding window amounts to \$20 million as part of the funding for KIPs and could be augmented in the future. These projects will provide opportunities to understand the benefits of adopting energy-efficient alternatives, existing barriers and solutions for the uptake of more efficient refrigeration, air conditioning and heat pump equipment. At the same meeting, to address the issue of disposal of controlled substances in an existing installed base and as waste, a **new funding window** was approved under MLF to start the national accounting of such used or unwanted substances and to develop a plan for their management, including cost-effective destruction in Article 5 parties. More information about this funding is provided in paragraph 26.

*(b) Three key areas where transformative actions for accelerated progress have been successful, and three key areas where support is most urgently needed, with regard to the cluster of SDGs under review in July 2023*

### **Three areas of transformative action**

#### *(1) Sustainable Cold Chains*

14. As a follow-up activity to the [Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development](#), the Food and Agriculture Organization of the United Nations and the United Nations Environment Programme published a joint [report](#) highlighting challenges and opportunities in delivering sustainable food cold chains.<sup>8</sup> The report brought together more than 80 case studies of various solutions around affordable,

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<sup>7</sup> TEAP May 2022: Decision XXXIII/5 - Continued provision of information on energy-efficient and low-global-warming-potential technologies (Volume 3).

<sup>8</sup> UNEP and FAO, 2022, Sustainable food cold chains: Opportunities, challenges and the way forward.

accessible and sustainable cold chains from around the world, outlining best practices and recommendations for governments and industry to develop sustainable cold chains and mitigate the impact of climate change on food systems, and demonstrating how much was already taking place on this front. The report emphasizes the key role of the Montreal Protocol in scaling up solutions and promoting collaboration among governments and other stakeholders. The contribution of sustainable cooling and refrigeration to mitigating climate change and as an adaptation strategy was also highlighted during an event at the twenty-seventh session of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC), organized by the Government of Italy, UNEP and FAO for the launch of the publication.<sup>9</sup>

15. The Rome Declaration under the Montreal Protocol is a political platform for commitments and actions to promote sustainable, affordable and accessible cold chains for food and vaccine and therefore contributes to **SDGs 7, 9, 11 and 17**.

*(2) Laying the ground for transformative action through effective international decision-making at in-person meetings*

16. During the global meetings of the Montreal Protocol in 2022 parties tackled in depth many pending issues, including the negotiations on the level of funding for replenishment of MLF for the current triennium 2021–2023 to support the implementation of the Montreal Protocol projects in 144 developing countries, Terms of Reference for the next replenishment study for the 2024-2026 triennium, strengthening the global coverage of atmospheric monitoring of ozone-depleting substances including collaboration with other atmospheric monitoring networks, usage and production of methyl bromide and carbon tetrachloride (both potent ozone-depleting substances and greenhouse gases), enabling enhanced access and facilitating the transition to energy-efficient and low or zero-global-warming-potential (GWP) technologies, institutional processes to strengthen the Montreal Protocol including illegal trade, and dumping of obsolete equipment in Africa, among others. **Parties adopted 24 decisions** that will help the Montreal Protocol stakeholders to move forward on many of these issues while contributing to the progress for **SDGs 7, 9, 11 and 17**.

*(3) Quadrennial assessment report of the three scientific and technical panels of the Montreal Protocol*

17. Science has been one of the pillars of the Montreal Protocol's success in achieving its objective. The timely, independent and authoritative assessments by the three scientific Panels of the Montreal Protocol have provided the parties with credible evidence-based information for policy-making. The information has also paved the way for future work, including synergies with the climate regime, sound chemical management and other potential areas such as food security, plastic pollution, and ecosystem health. During the pandemic years, the experts of the panels worked on **their 2022 quadrennial assessment reports**. The [Quadrennial "Scientific Assessment of Ozone Depletion 2022"](#)<sup>10</sup> presented to the parties at MOP34, highlights advances and updates in the scientific understanding of ozone depletion since the last assessment of 2018 and provides policy-relevant scientific information on current challenges and future policy choices. The key message of the report confirming that the actions taken under the Montreal Protocol continued to decrease atmospheric abundances of controlled ozone-depleting substances and advance the recovery of the stratospheric ozone layer has been widely covered

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<sup>9</sup> COP27 Event, "Sustainable Cold Chains: The Missing Link for Sustainable Development", UNEP and FAO, 12 November 2022.

<sup>10</sup> World Meteorological Organization (WMO) and UNEP. Scientific Assessment of Ozone Depletion: 2022, GAW Report No. 278, 509 pp.; WMO: Geneva, 2022.

in **international media**.<sup>11</sup> The efforts under the Montreal Protocol and the progress in achieving the recovery of the ozone layer contribute to **goals 7, 9, 11 and 17**.

### **Three areas where international support is needed**

#### *(1) Ratification of the Kigali Amendment*

18. The Montreal Protocol achieved universal ratification in 2009 with 198 parties, a testament to the global acceptance of its cause and one of the reasons for its success. As at 16 February 2023, the Kigali Amendment to the Montreal Protocol has been ratified by 148 parties. Thirteen instruments of ratification were received in 2022, including from the United States of America. It is estimated that the Kigali Amendment could avoid up to 0.5°C of climate warming, which could potentially be doubled if the phase-down of strong greenhouse HFCs would include concurrent improvement in energy efficiency. For this potential to materialize, all countries need to commit to and comply with the Kigali Amendment. **Political support to increase the visibility of the Montreal Protocol's climate benefits** will help promote the universal ratification and implementation of its Kigali Amendment.

#### *(2) Adoption of energy-efficient and low-global-warming potential technologies*

19. In its latest update presented in 2022, the Task Force on Energy Efficiency underscores the availability of alternative technologies. This implies that industries around the world are able to manufacture products using new technologies with refrigerants of lower GWP and higher efficiency. However, these technologies are **not easily accessible, especially in many Article 5 parties**, where the demand for cooling is projected to grow exponentially and where the uptake of cleaner technologies is of extreme importance. The experts also stressed that lower-efficiency equipment relying on HFCs with high GWP would delay the climate benefits of the Montreal Protocol due to the long lifetime of this equipment. The reasons behind this slow uptake of technologies are multiple (affordability, supply chain issues due to the pandemic, inadequate policies, and limited capacity for proper servicing of such technologies, among others). Coordinated efforts at all levels are required to effectively remove the barriers and make access to sustainable cooling technologies easier and more widespread.

#### *(3) Montreal Protocol and its effort on cooling as an important climate mitigation and adaptation strategy*

20. Substances controlled by the Montreal Protocol are used, inter alia, in equipment providing thermal comfort (cooling and heating) and refrigeration. Models indicate that in the absence of the Montreal Protocol, global mean temperatures would have risen over 2°C by 2070, due to warming from ozone-depleting substances alone<sup>12</sup>. The transition has been achieved through the gradual switch of industries around the world to alternatives safer for the planet, making the Montreal Protocol responsible for an equivalent 25% of global climate mitigation.<sup>13</sup> Under the Kigali Amendment, the parties to the Montreal Protocol will also reduce the use of HFCs while enhancing the energy efficiency aspects of cooling technologies. The partners of the Ozone Secretariat work on initiatives looking at passive and nature-based cooling solutions, access to cooling and sustainable energy for cooling. **All these efforts help make the cooling sector more sustainable**, which is an important adaptation strategy in hotter climates.
21. The challenges of and support for the implementation of the Kigali Amendment were discussed during the [High-level Roundtable](#) held at MOP34 on the occasion of the 35th anniversary of the Montreal Protocol. Panellists shared lessons learned from their national experience, highlighting

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<sup>11</sup> Between 9 January 2023 and 8 February 2023, there were 3,923 articles published in 2,427 media outlets across 104 countries in 22 languages.

<sup>12</sup> <https://ozone.unep.org/facts-and-figures-ozone-protection>

<sup>13</sup> TEAP May 2022: Decision XXXIII/5 - Continued provision of information on energy-efficient and low-global-warming-potential technologies (Volume 3).

the need to support more comprehensive and coordinated action around cooling. For example, there are efforts to develop national cooling action plans built around the Montreal Protocol and accounting for the Montreal Protocol's mitigation in Nationally Determined Contributions under the Paris Agreement. They also deemed it important to increase **the Protocol's profile and raise awareness of its potential positive dual effect (mitigation and adaptation) on climate policy**. Its visibility could lead to enhanced synergies with other MEAs and programmes, generate more resources for the development and uptake of alternative technologies, and help countries to go beyond compliance with the Kigali Amendment and achieve greater impact on the sustainable development agenda.

*(c) Examples of specific actions taken to recover from the COVID-19 pandemic that also accelerate progress towards multiple SDG targets, including actions identified by your intergovernmental body, building on interlinkages and transformative pathways for achieving SDGs*

### **Boosted funding for Kigali Implementation Plans**

22. Group 1 Article 5 parties (137 countries) that have ratified the Kigali Amendment will have to meet their first compliance target under the Kigali Amendment in 2024. These countries, gradually recovering from the COVID-19 pandemic, are taking active steps to start preparing their Kigali Implementation Plans (KIPs) for funding approval by the Multilateral Fund. A KIP consists of developing and implementing a comprehensive national strategy for the phase-down of HFCs. Early adoption and implementation of KIPs could encourage a faster transition to new technologies and alternative solutions.
23. The Executive Committee of the Multilateral Fund released an updated [guide for project preparation of stage I of KIPs](#) in April 2022 to assist parties and implementing agencies in the submission of funding requests. The first KIP, submitted by Niger, was approved by ExCom in December 2022. More project proposals are expected to be submitted in 2023. Discussions by ExCom on the cost guidelines implementation of the Kigali Amendment are ongoing. In addition, in 2022, the funding window was agreed for activities to maintain and/or enhance energy efficiency relating to pilot projects. The year 2023 is expected to firm up further discussion about an operational framework on how energy efficiency might be incorporated in the phase-down of HFCs in the medium and long run and how the Multilateral Fund can collaborate with other funding institutions, e.g., the Green Climate Fund.
24. Implementing the Kigali Amendment will be more challenging than ongoing HCFCs Phase-out Management Plans, requiring stronger coordination efforts with many stakeholders at the national level. To support the efforts of national ozone offices in 144 Article 5 parties, the existing **funding for institutional strengthening and national capacity building** has been increased by 38 per cent.

### **The end-of-life of controlled substances**

25. Currently, a large amount of ozone-depleting substances is still contained in existing equipment, chemical stockpiles, foams, and other products, not yet emitted to the atmosphere, which we refer to as ODS banks.<sup>14</sup> If not properly managed, there is a risk for the gradual release of these gases during the equipment or product's lifetime, or at its end of it. Their proper recovery, collection, reclamation or recycling for reuse, or transportation and storage for destruction come at a significant cost. The focus of the environmental policy under the Montreal Protocol is on the reduction of production and consumption of these gases rather than emission prevention. However, the former remains an area of potentially significant interest to the parties. To this end, there has been several demonstration projects funded by MLF. Some

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<sup>14</sup> ODS banks are defined as the total amount of substances contained in existing equipment, chemical stockpiles, foams, and other products not yet released to the atmosphere, IPCC/TEAP report 'Safeguarding the Ozone Layer and the Global Climate System, 2005.

estimate that adopting **lifecycle refrigerant management** through proper recovery, reclamation, recycling, and destruction could prevent emissions equal to 90 billion metric tons of CO<sub>2</sub> by the end of this century.<sup>15</sup>

26. In 2022, ExCom approved a funding window for the preparation of national inventories of banks of used or unwanted controlled substances and the development of a plan for the collection, transport, and disposal of such substances for Article 5 countries. In parallel, interlinkages with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal are being discussed. It is worth noting that there are [some ongoing projects](#) under the climate regime that look at ODS destruction for the generation and sale of carbon offsets through mandatory and voluntary carbon trading schemes.

#### ***Environmental management system (EMS)***

27. In 2022, the Ozone Secretariat started implementing its [environmental management system \(EMS\)](#) framework to mitigate and reduce its carbon emissions, particularly for its travel and external events. In line with the [Strategy for Sustainability Management in the United Nations System 2020-2030, Phase I: Environmental Sustainability in the Area of Management](#), the deadline for UN entities to implement an environmental management system (EMS) is 2025. The Ozone Secretariat was one of the first Multilateral Environmental Agreements to develop such a system, which will record and report on the activities and outcomes of the work of the Ozone Secretariat. For instance, it has been estimated that in 2021 the operations of the Secretariat and facilities have emitted **5 tCO<sub>2</sub>eq in total** or 0.29 tCO<sub>2</sub>eq per capita, which is below the UN average. In addition, for the last eight years, the Ozone Secretariat has also fully offset its annual carbon emissions.

*(d) Assessment of the situation in the mid-point of the implementation of the 2030 Agenda and the SDGs, against the background of the COVID-19 pandemic and within the respective areas addressed by your intergovernmental body, and policy recommendations, commitments and cooperation measures for promoting a sustainable, resilient and inclusive recovery from the pandemic while advancing the full implementation of the 2030 Agenda*

28. Building on the tangible results of the Montreal Protocol and its effective mechanism for implementation, parties took on another challenge by adopting the Kigali Amendment to phase down high-global warming potential HFCs in October 2016. The Kigali Amendment has been ratified by 148 parties as of 16 February 2023 with the commitment to strengthen the climate benefits of the Montreal Protocol. For Group 1 Article 5 parties, their first step in this direction will be the freeze of HFC production and consumption at the level of their baselines from January 2024 before starting stepwise reductions. Parties not operating under paragraph 1 of Article 5 (non-Article 5 parties), mainly industrialized countries, have committed to a more accelerated schedule and will need to achieve a 40% reduction by the same date.
29. According to the 2022 quadrennial assessment prepared by the Scientific Assessment Panel of the Montreal Protocol,<sup>16</sup> the following **results have been reached thanks to the Montreal Protocol action**:
- Decline in emissions of ozone-depleting substances starting from the 1990s. The Antarctic ozone hole is expected to return to recover by around 2066, and the Arctic ozone hole even earlier, by about 2045.

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<sup>15</sup> Environmental Investigation Agency (EIA), the Institute for Governance & Sustainable Development (IGSD), and the Natural Resources Defense Council (NRDC). The 90 Billion Ton Opportunity: Lifecycle Refrigerant Management. 2022. Available at <https://www.nrdc.org/resources/90-billion-ton-opportunity-lifecycle-refrigerant-management>

<sup>16</sup> World Meteorological Organization (WMO). Executive Summary. Scientific Assessment of Ozone Depletion: 2022, GAW Report No. 278, 56 pp.; WMO: Geneva, 2022



- The reduction and elimination of ODS emissions would avoid additional global warming of approximately 0.5–1°C by mid-century. In addition, the Montreal Protocol has also potentially avoided an additional 0.5–1.0°C globally averaged surface warming by the end of the century by protecting the terrestrial carbon sink from UV radiation damage, which would cause additional CO<sub>2</sub> to remain in the atmosphere.
  - Avoided solar UV radiation has prevented harm to ecosystems, human health, and man-built infrastructure. For example, for people born in the US between 1890 and 2100, the implementation of the Montreal Protocol avoided 443 million cases of skin cancer and prevented 63 million cases of cataracts.
  - Avoided UV radiation has decreased the generation of micro- and nano-plastics by the process of photodegradation.
30. In addition, the Multilateral Fund has provided \$3.9 billion of financial assistance to projects in 144 developing countries, which together with the actions from non-Article 5 parties has led to successful results and progress on many of the Sustainable Development Goals, including **SDGs 7, 9, 11 and 17**.

*(e) Key messages for inclusion into the Political Declaration of the September 2023 SDG Summit:*

31. Last year was the [35<sup>th</sup> anniversary](#) of the Montreal Protocol. The ozone community celebrated the global cooperation to protect life on earth, delivering concrete and tangible outcomes, which are described in this report and previous submissions to this process. In recognition of the achievements by Paul Josef Crutzen, Mario José Molina, and Frank Sherwood Rowland, winners of the Nobel Prize in Chemistry in 1995 for their work concerning the formation and decomposition of stratospheric ozone, in 2022 the parties adopted [a decision](#)<sup>17</sup> to **uphold their legacy by maintaining trust in and commitment** to the work of the Vienna Convention and its Montreal Protocol and to sustainable development.
32. The world is at a time of heightened concern about climate change that has already reached around 1.2°C above the pre-industrial levels.<sup>18</sup> If we are to avoid potential irreversible environmental damage, we need to curb carbon emissions rates with immediate effect. **The Montreal Protocol’s contribution to climate mitigation and adaptation presents an important opportunity in this respect.**
33. Recognizing this dual positive effect of the Montreal Protocol on climate, we at all levels need to **encourage countries, which have not yet ratified the Kigali Amendment, to do so**. Building on the legacy of the global ozone layer protection regime, we may seek **a stronger political resolve, broadened public-private partnership and coordinated efforts** to implement the Kigali Amendment within a suite of other measures to address the climate crisis.

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<sup>17</sup> Decision XXXIV/1 <https://ozone.unep.org/system/files/documents/MOP-34-9-Add-1E.pdf>.

<sup>18</sup> World Meteorological Organization (WMO). Executive Summary. Scientific Assessment of Ozone Depletion: 2022, GAW Report No. 278, 56 pp.; WMO: Geneva, 2022.