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**Open-ended Working Group of the Parties to
the Montreal Protocol on Substances that
Deplete the Ozone Layer**
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Item 8 of the provisional agenda*
Proposed amendment to the Montreal Protocol

Proposed amendment to the Montreal Protocol

Note by the Secretariat

Pursuant to paragraph 2 of Article 9 of the Vienna Convention, the Secretariat is circulating in the annex to the present note a joint proposal to amend the Montreal Protocol submitted by the Federated States of Micronesia and Mauritius.

The proposal is being circulated as received and has not been formally edited by the Secretariat.

* UNEP/OzL.Pro.WG.1/29/1.

Annex

**Explanatory Note Accompanying Proposals to
Strengthen and Amend the Montreal Protocol on
Substances that Deplete the Ozone Layer**

***Submitted by the Federated States of Micronesia and
Mauritius***

The Federated States of Micronesia and Mauritius submit the following proposals to amend the Montreal Protocol on Substances that Deplete the Ozone Layer ("Montreal Protocol") to regulate and phase-down hydrofluorocarbons ("HFCs") with a high global warming potential ("GWP") and promote the destruction of banks of ozone-depleting substances ("ODSs"). These proposals will strengthen the Montreal Protocol to provide fast-action climate change mitigation several times greater than the emission reductions sought during the first commitment period of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (respectively, the "Kyoto Protocol" and "UNFCCC").¹

These and other fast-action mitigation strategies will reduce the threat of crossing tipping points for abrupt, irreversible, and catastrophic climate changes—tipping points several leading scientists now warn may be only a few years away.² For the Federated States of Micronesia, Mauritius, and other small island developing states and least developed countries, near-term, abrupt climate change threatens our way of life and, in some cases, our very existence.³ In the face of this existential threat, the Federated States of Micronesia and Mauritius implore the international community to utilize every available means of reducing greenhouse gas ("GHG") emissions and other climate forcing agents, including black carbon, as quickly as possible while progress under the UNFCCC continues to be made to address the long-term driver of climate change—principally carbon-dioxide ("CO₂").⁴

The Montreal Protocol is paramount among the governance tools available to reduce non-CO₂ climate forcing agents. The Montreal Protocol is the world's most successful international environmental treaty, phasing-out almost 100 ODSs by 97% and placing the ozone layer on the path to recovery by mid-century.⁵ It also is the most successful climate treaty to date because most ODSs are also powerful GHGs. From 1990 to 2010, the Montreal Protocol will have reduced ODS emissions by a net 135 billion tonnes CO₂-

equivalent ("CO₂-eq.")—delaying climate forcing by 7 to 12 years.⁶ By 2010, the annual net CO₂-eq. emission reductions of ODSs will equal 11 billion tonnes CO₂-eq. per year, or 13% of current radiative forcing, and will be 5 to 6 times that of the reductions sought under the first commitment period of the Kyoto Protocol.⁷ The total delay in climate forcing is 31 to 45 years when early voluntary and national actions to reduce ODSs are included, beginning with the early warning from Drs. Rowland and Molina in 1974.⁸ Without this early action, ODS emissions would have reached an estimated 24-76 billion tonnes CO₂-eq. per year in 2010, nearly equaling the radiative forcing from anthropogenic emissions of CO₂.⁹

Recognizing that the Montreal Protocol can do still more to protect the climate system, as well as the ozone layer, in 2007 the Parties to the Montreal Protocol agreed to an "adjustment" to the control measures relating to hydrochlorofluorocarbons ("HCFCs") to accelerate the phase-out of HCFCs. This decision that has the potential to reduce ODS emissions by a further 16 billion tonnes CO₂-eq. by 2040.¹⁰ However, the climate mitigation benefits of the HCFC accelerated phase-out and other measures under the Montreal Protocol will be significantly reduced by the replacement of ODSs with high-GWP HFCs.¹¹

The HFC phase-down the Federated States of Micronesia and Mauritius are proposing will preserve the climate mitigation benefits the Montreal Protocol has already achieved and allow the Montreal Protocol to deliver still more urgently needed climate change mitigation. Phasing-down high-GWP HFCs has an enormous climate change mitigation potential of between 5.3 to 19.7 Gt CO₂-eq. by 2030 (between 1.3 to 3.3 Gt CO₂-eq. per year by 2030) and between 52.2 to 171.6 Gt CO₂-eq. by 2050 (3.3 to 12.9 Gt CO₂-eq. per year by 2050).¹²

Acting quickly to recover and destroy ODS banks will add to the total climate change mitigation the Montreal Protocol can deliver. The Technology and Economic Assessment Panel ("TEAP") of the Montreal Protocol estimates that ODS banks contain approximately 20 billion tonnes CO₂-eq. across all sectors worldwide.¹³ If over the next two decades the emission of all ODSs in banks were prevented, the direct positive radiative forcing avoided would be equal to approximately 3 - 4% of the total radiative forcing from all anthropogenic GHG emissions over the same period.¹⁴ Of

immediate concern, are "reachable" or "accessible" ODS banks in sectors identified as the most cost-effective to recover and destroy and that will also emit the vast majority of their ODSs by 2015.¹⁵ Without immediate action, these "reachable" banks will emit approximately 6 billion tonnes CO₂-eq. by 2015¹⁶—offsetting and surpassing the 5 Gt CO₂-eq. reduction sought during the initial commitment period of the Kyoto Protocol to the UNFCCC ("Kyoto Protocol").¹⁷

We respectfully request the international community to support these proposals and strengthen the Montreal Protocol once more to deliver further climate change mitigation.

¹ The Kyoto Protocol's emission reduction target, in terms of CO₂-eq., is -5.8 percent of a baseline of 18.4 billion tonnes CO₂-eq. or -0.97 billion tonnes CO₂-eq. per year from 2008-2012—roughly 5 billion tonnes CO₂-eq. during the 2008-2012 commitment period. See Guus J.M. Velders, et al., *The importance of the Montreal Protocol in protecting climate*, 104 PROC. NAT'L ACAD. SCI. 4814-19, 4818 (2007). Collecting and destroying ODS banks will prevent the emissions of 6 billion tonnes of CO₂-eq. by 2015 and a further 14 billion tonnes of CO₂-eq. thereafter. Phasing-down high-GWP HFCs has the potential to mitigate between 5.3 and 19.7 billion tonnes CO₂-eq. by 2030 and between 52.2 and 171.6 billion tonnes CO₂-eq. by 2050. See *infra* notes 12 and 16 and accompanying text.

² Tipping points are thresholds for non-linear climatic changes, where small increases in global warming produce irreversible and potentially catastrophic climate impacts, often exacerbating the climate crisis. Climate scientists warn that anthropogenic GHG emissions are pushing the climate system toward such tipping points, with some tipping points expected to be crossed within a decade. Potentially catastrophic impacts and runaway feedbacks include the disappearance of Arctic summer sea ice, disintegration of the Greenland Ice Sheet, collapse of the West Antarctic Ice Sheet, deglaciation of the Himalayan-Tibetan plateau, shutdown of the Atlantic Thermohaline Circulation, dieback of Amazonian and boreal forests, and the release of methane stored in permafrost and ocean hydrates. See Timothy Lenton et al., *Tipping elements in the Earth's climate system*, 105 PROC. OF THE NAT'L ACAD. OF SCI. 1786-1793 (2008); see also V. Ramanathan & Y. Feng, *On avoiding dangerous anthropogenic interference with the climate system: Formidable challenges ahead*, 105 PROC. OF THE NAT'L ACAD. OF SCI. 14245-14250 (2008).

³ For example, the disintegration of the Greenland Ice Sheet and/or collapse of the West Antarctic Ice Sheet would result in a rise in sea level in excess of 20 meters—inundating many island states and/or rendering them uninhabitable. See *id.*

⁴ CO₂ is responsible for approximately 45-60% of global anthropogenic radiative forcing. See P. Forster et al., IPCC, *Changes in Atmospheric Constituents and in Radiative Forcing*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS (S. Solomon et al. eds., 2007); see also J. Hansen et al., *Efficacy of climate forcings*, 110 J. GEOPHYS. RES. D18104 (2005).

⁵ See Stephen O. Andersen, et al., TECHNOLOGY TRANSFER FOR THE OZONE LAYER: LESSONS FOR CLIMATE (Earthscan Pub. Ltd., London, UK) (2008).

⁶ See Velders, et al., *supra* note 1, at 4817.

⁷ See *id.*

⁸ See *id.* Drs. Rowland and Molina first identified the causal link between ODSs and ozone layer depletion in 1974. See M. J. Molina & F.S. Rowland, *Stratospheric Sink for Chlorofluoromethane: Chlorine Atom-Catalysed Destruction of Ozone*, 249 NATURE 810-812 (1974).

⁹ See Velders et al., *supra* note 1, at 4816.

¹⁰ See Montreal Protocol, Report of the 19th Meeting of the Parties to the Montreal Protocol, at Decision XIX/6 (2007); see also U.S. EPA, *2008 Climate Award Winners*, (July 10, 2008), available at <http://www.epa.gov/cppd/awards/2008winners.html> (last accessed Jan. 6, 2009).

¹¹ Replacing HCFCs with high-GWP HFCs will offset a significant amount of the climate mitigation benefits of the HCFC accelerated phase-out. See Technical and Economic Assessment Panel ("TEAP"), RESPONSE TO DECISION XVIII/12, REPORT OF THE TASK FORCE ON HCFC ISSUES (WITH PARTICULAR FOCUS ON THE IMPACT OF THE CLEAN DEVELOPMENT MECHANISM) AND EMISSIONS REDUCTIONS BENEFITS ARISING FROM EARLIER HCFC PHASE-OUT AND OTHER PRACTICAL MEASURES (2007) [hereinafter TEAP RESPONSE] at 8 ("Since over 80% of the potential climate-related savings [from an accelerated HCFC phase-out] arise from the refrigeration sector, alternatives that result in lower GWP-weighted emissions (e.g. from a low GWP fluid or a less emissive design, or those that deliver sufficient efficiency improvements to offset their impacts) would be necessary to realise a significant proportion of this potential.").

¹² See Mack McFarland, *Potential Climate Benefits of a Global Cap and Reduction Agreement for HFCs*, (18 Nov. 2008) (unpublished research presented at the 20th Meeting of the Parties to the Montreal Protocol in Doha, Qatar) (on file). These estimates assume a business-as-usual scenario HFC consumption growth rate of 1-3% in developed countries and 3-6% in developing countries and a cap and reduction regulation schedule for developed countries similar to proposals in the U.S. in 2008 with a 10-year grace period for developing countries. The HFC proposals put forth in the U.S. were very conservative. Under a HFC high-growth scenario, the proposals would not have led to HFC reductions from "business-as-usual" until after 2020. The HFC proposals in the U.S. set the baseline as the average production and import of HFCs, on a GWP-weighted basis, from 2004 - 2006 and call for production and import levels to decrease from the baseline amount to 69-93% by 2012, 52-70% by 2020, 37-50% by 2025, 22-30% by 2030, 18-25% by 2035, and 15-20% by 2040. See, e.g., STAFF OF H. COMM. ON ENERGY AND COMMERCE (introduced by Rep. Boucher & Rep. Dingell), 110TH CONGRESS 2D SESSION, DISCUSSION DRAFT OF AMENDMENT TO THE CLEAN AIR ACT, at §401 (7 Oct. 2008). Further climate savings beyond the estimates stated here are possible if a more aggressive phase-down schedule is adopted.

¹³ See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) AND TEAP, IPCC/TEAP SPECIAL REPORT ON SAFEGUARDING THE OZONE LAYER AND THE GLOBAL CLIMATE SYSTEM: ISSUES RELATED TO HYDROFLUOROCARBONS AND PERFLUOROCARBONS (2005) [hereinafter IPCC/TEAP 2005 SPECIAL REPORT] at 9.

¹⁴ *Id.* at 136.

¹⁵ See EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR IMPLEMENTATION OF THE MONTREAL PROTOCOL, REPORT OF THE MEETING OF THE EXPERTS TO ASSESS THE EXTENT OF CURRENT AND FUTURE REQUIREMENTS FOR THE COLLECTION AND DISPOSITION OF NON-REUSABLE AND UNWANTED ODS IN ARTICLE 5 COUNTRIES (FOLLOW UP TO DECISION 47/52) (2006) [hereinafter MLF FOLLOW UP REPORT] at 13; ICF INTERNATIONAL, STUDY ON THE COLLECTION AND TREATMENT OF

UNWANTED OZONE-DEPLETING SUBSTANCES IN A5 AND NON-A5 COUNTRIES (2008) [hereinafter MLF 2008 REPORT] at 11-12.

¹⁶ The TEAP has provided estimates of refrigeration, SAC, and MAC banks in developed and developing countries in 2002 and 2015. Based on these estimates of the reductions to reachable banks over the period 2002 to 2015, emissions from these banks in non-Article 5 Parties, i.e., developed countries, will be at least 194,038 tonnes of chlorofluorocarbons ("CFCs") and 454,887 tonnes of HCFCs. In Article 5 Parties, i.e., developing countries, "reachable" banks of CFCs will be reduced by 264,972 tonnes of CFCs from 2002 to 2015. Estimates of HCFC reductions from banks in Article 5 Parties are more difficult to discern based on TEAP figures because these banks will grow over the period from 2002 to 2015 by 737,931 tonnes, making estimates of emissions, calculated based on reductions in banks, difficult during this period. The available HCFC bank in these sectors during the period 2009 to 2015 is likely greater than one million tonnes. Estimates of HCFC emissions from banks in non-Article 5 Parties and CFC emissions from banks in Article 5 Parties during this period based on reductions in these banks also underestimate the total emissions because non-Article 5 Parties can continue to produce and consume HCFCs during this period, albeit at a reduced rate over time, and Article 5 Parties can continue to produce and consume CFCs until 2010. See TEAP RESPONSE, *supra* note 11, at 27 (giving estimates of ODS banks in tonnes of ODS). Readily available stockpiles of ODS banks also exist in nearly all countries. See MLF 2008 REPORT, *supra* note 15, at 11-12; see also MLF FOLLOW UP REPORT, *supra* note 15, at 19-24 (estimating that 514,653 tonnes of CFCs, approximately 5.45 Gt CO₂-eq., will be available for recovery and destruction in "reachable" banks in Article 5 Parties worldwide in 2010 and decreasing to 375,469 tonnes, approximately 4 Gt CO₂-eq., in 2015). Estimates of CO₂-eq. have been calculated based on the global warming potential ("GWP") of CFC-12 (10,600) and HCFC-22 (1,700), the most common refrigerants found in refrigeration, SAC, and MAC banks. See P. Forster et al., *supra* note 4, at 212 (setting forth the GWP of CFC-12 and HCFC-22); IPCC/TEAP 2005 SPECIAL REPORT, *supra* note 13, at *Technical Summary* at 53-63 (listing the most common ODSs by sector). The TEAP has stated that "[e]nd-of-life measures [across all sectors] are consistent and significant contributors to savings in terms of ... climate, with cumulative savings of around ... 6 [Gt] CO₂-eq." See TEAP RESPONSE, *supra* note 11, at 12.

¹⁷ See *supra* note 1.

**Proposal to Amend and Strengthen the Montreal Protocol
on Substances that Deplete the Ozone Layer to Regulate
Hydrofluorocarbons**

***Submitted by the Government of the Federated States of
Micronesia and Mauritius***

I. Introduction

In 2007, the Federated States of Micronesia and Mauritius joined several other nations to put forth proposals to accelerate the phase-out of hydrochlorofluorocarbons (HCFCs) under the Montreal Protocol on Substances that Deplete the Ozone Layer ("Montreal Protocol"). While the HCFC accelerated phase-out was motivated by the desire to further accelerate the recovery of the ozone layer, it was also motivated by the critical need to protect the climate system. For the Federated States of Micronesia and Mauritius, climate change is an existential problem and achieving fast-action climate mitigation is a matter of survival. These efforts were ultimately successful, and a historic agreement was reached in September 2007 at the 19th Meeting of the Parties to the Montreal Protocol to accelerate the phase-out of HCFCs—delivering climate mitigation of up to 16 billion tonnes of carbon-dioxide equivalent ("CO₂-eq.") by 2040. In that decision, the Parties stipulated that selection of alternatives to HCFCs were to be selected in a manner that minimizes the environmental impacts, in particular the impacts on the climate system.

In order to preserve the climate mitigation benefits of the HCFC accelerated phase-out, as well as achieve further climate mitigation benefits, the Parties now must ensure that those substances and technologies that replace HCFCs are as climate friendly as possible. Currently, hydrofluorocarbons ("HFCs") with a high global warming potential ("GWP") are the principal substitutes for HCFCs and other ozone depleting substances ("ODSs") in numerous sectors. HFCs, which are powerful greenhouse gases ("GHGs") but are not an ODS, are currently included among the basket of GHGs regulated under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (respectively, the "Kyoto Protocol" and "UNFCCC").

Under the Kyoto Protocol, the growth of high-GWP HFCs is accelerating, increasing by approximately 15% per year, despite the availability of low and no-GWP alternatives in many sectors. If the current regulatory framework remains unchanged, this trend will be exacerbated by the HCFC accelerated phase-out which is forcing both developed and developing countries to quickly move into HCFC alternatives—often high-GWP HFCs. It is estimated that on a 100-year GWP basis, HFCs currently account for 2% of GHG emissions within the basket of 6 GHGs regulated under the UNFCCC, and their contribution will increase to 4% by 2020. However, under a CO₂ stabilization scenario, if HFCs are left unaddressed, their contribution is projected to account for up to 30% of GHG emissions by 2040. Given these dire predictions, it is clear that high-GWP HFCs must be subject to a regulatory phase-down. Current estimates project that phasing down high-GWP HFCs has the potential to provide climate change mitigation of between 5.3 and 19.7 billion tonnes of CO₂-eq. by 2030—approximately 1.3 to 3.3 billion tonnes of CO₂-eq. per year by 2030. By 2050, the total climate mitigation potential increases to between 52.2 and 171.6 billion tonnes of CO₂-eq.—approximately 3.3 to 12.9 billion tonnes of CO₂-eq. per year by 2050.

In the mid-term, the climate benefits are even greater because these estimates are based on the 100-year GWP of HFCs. However, most HFCs are short-lived when compared to other GHGs, and have a significantly greater 20-year GWP, making their near-term climate impact even greater. Therefore, preventing the emission high-GWP HFCs is one of the most effective fast-action climate strategies the world can employ and is essential to avoiding climate tipping points that raise the threat of abrupt climate change worldwide.

Last year, at the 20th Meeting of the Parties to the Montreal Protocol, the Parties, among other things, request the Technical and Economic Assessment Panel of the Montreal Protocol ("TEAP") analyze the cost, benefits, and options for regulating high-GWP HFCs based on the experience of the Montreal Protocol and report to the Parties by no later than June 2009. That decision, Decision XX/8, also requested the Ozone Secretariat host a workshop to discuss these issues and invite climate experts, the UNFCCC, and other interested stakeholders to participate. The Federated States of Micronesia and Mauritius are confident that this report and workshop will confirm the climate mitigation

benefits of phasing-down high-GWP HFCs and the important role the institutions of the Montreal Protocol can and should play in the process. Indeed, through the phase-out of ODSs, as well as financing the replacement of ODSs with high-GWP HFCs in Parties operating under paragraph 1 of Article 5 through the Multilateral Fund ("MLF"), the Montreal Protocol is responsible for the commercialization and prolific use of HFCs and has an obligation to make every effort to minimize the adverse environmental impact of the chemicals now used in the sectors it regulates.

In order to seize this important fast-action climate mitigation opportunity, jurisdiction for phasing-down high-GWP HFCs should be moved to the Montreal Protocol. Of paramount importance is the speed at which the Montreal Protocol can negotiate, agree to, and implement a phase-down a high-GWP HFCs; alternative approaches will be unable to create a governance structure within the necessary time period and may not have all of the advantages that have made the Montreal Protocol successful. The Montreal Protocol has universal ratification and reduction commitments for both developed and developing countries, as well as an effective financial transfer mechanism, the MLF, and effective technology transfer mechanism. This is critical because developing countries are the largest and fastest growing market for HFCs.

Further, the Montreal Protocol's scientific and technical bodies, e.g. the TEAP and Technical Options Committees ("TOCs"), work closely with industry experts, and have a 20-year history of involvement in every aspect of the Montreal Protocol, and are able to prepare reports on the technical and economic feasibility of alternatives in real-time. The speed at which the TEAP delivers its reports is due, in part, to its familiarity with the technology, both commercially available and in development, of the sectors that use ODSs, and also HFCs, while it enjoys the trust of the Parties, making it well-suited to continue to deliver the scientific and technical expertise required to quickly phase-down high-GWP HFCs.

Finally, in addition to the rapid response of the Montreal Protocol's scientific and technical bodies, the treaty itself also enables the Parties to quickly alter the phase-out or phase-down schedule of regulated chemicals in response to advances in science and technology through its "adjustment" process, providing the opportunity to "start

and strengthen" approach that retains the ability to quickly adjust as alternatives become commercially available or if advances in climate science demonstrate that the world needs more, faster, climate mitigation from the Montreal Protocol.

II. Proposal to Amend and Strengthen the Montreal Protocol

The Federated States of Micronesia and Mauritius propose that the Parties amend the Montreal Protocol to permit the Montreal Protocol to regulate HFCs. We will leave it to the Parties, Secretariat, legal experts, and others to determine which parts of the proposal should be considered as amendments, decisions, or adjustments. We have, however, attached to this proposal suggested changes to the text of the Montreal Protocol for consideration by the Parties.

Our analysis suggests that in order to regulate HFCs under the Montreal Protocol, the Parties will need to develop and agree upon a new Article 2J that will establish a production and consumption phase-down schedule for high-GWP HFCs, additional paragraphs in Article 3 to calculate control levels based on GWP, Life Cycle Climate Performance ("LCCP"), or another Life Cycle Analysis ("LCA"), the establishment of control measures in Article 5 for Parties operating under paragraph 1 of Article 5, the establishment of a new Annex F listing the HFCs to be regulated, as well as minor additions and changes throughout the Montreal Protocol to account for Article 2J and Annex F.

Special provisions, created through special treatment of a separate group of HFCs within Annex F, should be made for HFC-23, which is not a product like other HFCs, but a byproduct of HCFC-22 production and a powerful GHG with a 100-year GWP of 14,310. Control measures for HFC-23 emissions and mandatory destruction of HFC-23 may also be included in Article 2J according to parameters determined by the Parties with recommendations and assistance from the TEAP, MLF, and other experts and in consultation with the UNFCCC.

The Parties should also consider inserting a provision in Article 10 to confirm that financing made available to Parties operating under paragraph 1 of Article 5 to assist their compliance with their obligations under the HCFC accelerated phase-out give preference to climate friendly alternatives and technologies other than substances listed

in Annex F. In this way, funding already made available or committed to the HCFC phase-out can be used to finance the HFC phase-down, thereby minimizing the costs of phasing-down high-GWP HFCs.

With respect to coordination with the UNFCCC process and the post-2012 climate negotiations, the Federated States of Micronesia and Mauritius are of the opinion that responsibility for HFC emissions may be moved to the Montreal Protocol or remain within the basket of GHGs subject to the cap-and-trade scheme that may result from the post-2012 climate negotiations.

If HFC emissions are moved to the Montreal Protocol, the Federated States of Micronesia and Mauritius would encourage the Parties act quickly to address emissions of ODSs from banks and develop plans for addressing HFC banks in the future, so that they are in a position to deal with HFC emissions from banks when they occur. It is not sufficient to simply be satisfied with reducing emissions associated with production and consumption of high-GWP HFCs, when addressing banks of high-GWP HFCs presents a significant climate mitigation opportunity that is cost-effective when compared to most other mitigation measures. As discussed above, emissions and stockpiles of HFC-23 should be treated separately from those HFCs used as products that collect in banks of discarded products and equipment.

If emissions of HFCs are left within the basket of GHGs subject to the cap-and-trade scheme resulting from the post-2012 climate negotiations, the Federated States of Micronesia and Mauritius would implore the Parties to the Montreal Protocol and UNFCCC to coordinate with one another to ensure that HFC emission reductions resulting from the production and consumption phase-down of high-GWP HFCs under the Montreal Protocol are reflected in corresponding reduction to the allowances and overall cap resulting from the post-2012 climate negotiations to reflect those reductions. In this way, HFC emission reductions resulting from regulation under the Montreal Protocol will not simply provide additional cap space under the regime resulting from the post-2012 climate negotiations thereby permitting the emission of another GHG.

Instructions for Reading this Proposed Text

Language that is to be inserted in addition to language already existing will be **written in bold typeface**.

Where more than one policy option is being explored or specific dates or numbers will need to be negotiated, [insertions will be bracketed and underlined] to indicate interchangeable language or optional articles, paragraphs or provisions.

In certain instances, more than one option for regulating HFCs exists and/or comments have been deemed necessary for clarification or to present various options. These questions and comments will follow immediately after the provisions they address and will be preceded by the word "**Comments:**" in bold typeface.

Where text from the original treaty has been removed, the words or sentences removed will only be represented by **(deleted)** in bold typeface.

Where text from the original treaty is not included in this document for purposes of streamlining the document that language will only be represented by **(omitted)** in bold typeface.

**Text of Proposed Amendment to Strengthen the Montreal
Protocol on Substances that Deplete the Ozone Layer to
Regulate Hydrofluorocarbons**

Preamble

The Parties to this Protocol,

Being Parties to the Vienna Convention for the Protection of the Ozone Layer,

Recalling the UNFCCC, 1992, the Kyoto Protocol to the UNFCCC, 1998, and any related legal instruments that the Conference of the Parties to the UNFCCC may adopt, in accordance with the relevant provisions of the UNFCCC, to achieve the ultimate objective of the UNFCCC,

Mindful of their obligation under **(deleted) the** Convention to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer,

Aware also of the adverse effects to the climate system and the contribution to climate change of many ozone-depleting substances,

Recognizing that world-wide emissions of certain substances can significantly deplete and otherwise modify the ozone layer in a manner

that is likely to result in adverse effects on human health and the environment,

Recognizing also that, historically, ozone-depleting substances have made a significant contribution to climate change,

Recognizing further that actions taken by the Parties to this Protocol to protect the ozone layer by reducing the production and consumption of ozone-depleting substances has increased the use of hydrofluorocarbons as substitutes for ozone-depleting substances, Conscious of the potential climatic effects of emissions of ozone-depleting substances (deleted) and substances used as alternatives and substitutes to ozone-depleting substances,

Conscious also of the contribution of hydrofluorocarbons to climate change and the potentially significant increase in emissions of hydrofluorocarbons in the future,

Noting the pertinent provisions of the United Nations Conference on Environment and Development, Agenda 21, adopted June 1992, which calls on the Parties to "replace CFCs and other ozone-depleting substances consistent with the Montreal Protocol, recognizing that a replacement's suitability should be evaluated holistically and not simply on its contribution to solving one atmospheric problem or environmental problem."

Noting also the Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change adopted 9 July 2008 which calls for urgent action between now and 2012 to enable the full, effective, and sustained implementation of the UNFCCC by promoting actions under the Montreal Protocol on Substances That Deplete the Ozone Layer for the benefit of the global climate system.

Determined to ensure (deleted) that measures taken to protect the ozone layer from depletion and stabilize greenhouse gas concentrations in the atmosphere to prevent climate change should be based on relevant scientific knowledge, taking into account technical and economic considerations,

Determined also to protect the ozone layer and the climate system by taking precautionary measures to control equitably total global emissions of ozone-depleting substances (deleted) and hydrofluorocarbons, with the ultimate objective of (deleted) eliminating ozone-depleting substances and reducing hydrofluorocarbons on the basis of developments in scientific knowledge, taking into account technical and economic considerations and bearing in mind the developmental needs of developing countries,

Acknowledging that special provision is required to meet the needs of developing countries, including the provision of additional financial resources and access to relevant technologies, bearing in mind that the magnitude of funds necessary is predictable, and the funds can be expected to make a substantial difference in the world's ability to address the scientifically established problem of ozone depletion and climate change and (deleted) their associated harmful effects,

Noting the precautionary measures for controlling emissions of certain chlorofluorocarbons, **other ozone-depleting substances, and hydrofluorocarbons** that have already been taken at national and regional levels,

Considering the importance of promoting international co-operation in the research, development and transfer of alternative technologies relating to the control and reduction of emissions of **controlled substances (deleted)**, bearing in mind in particular the needs of developing countries,

HAVE AGREED AS FOLLOWS:

Article 1: Definitions

For the purposes of this Protocol:

1. "Convention" means the Vienna Convention for the Protection of the Ozone Layer, adopted on 22 March 1985.
2. "Parties" means, unless the text otherwise indicates, Parties to this Protocol.
3. "Secretariat" means the Secretariat of the Convention.
4. "Controlled substance" means a substance in Annex A, Annex B, Annex C **(deleted)**, Annex E **or Annex F** to this Protocol, whether existing alone or in a mixture. It includes the isomers of any such substance, except as specified in the relevant Annex, but excludes any controlled substance or mixture which is in a manufactured product other than a container used for the transportation or storage of that substance.
5. "Production" means the amount of controlled substances produced, minus the amount destroyed by technologies to be approved by the Parties and minus the amount entirely used as feedstock in the manufacture of other chemicals. The amount recycled and reused is not to be considered as "production".
6. "Consumption" means production plus imports minus exports of controlled substances.
7. "Calculated levels" of production, imports, exports and consumption means levels determined in accordance with Article 3.
8. "Industrial rationalization" means the transfer of all or a portion of the calculated level of production of one Party to another, for the purpose of achieving economic efficiencies or responding to anticipated shortfalls in supply as a result of plant closures.
9. "UNFCCC" means the United Nations Framework Convention on Climate Change, adopted on 9 May 1992.
10. "Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

11. "Climate system" means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.

12. "Emissions" means the release of greenhouse gases, aerosols, and/or their precursors into the atmosphere over a specified area and period of time.

13. "Source" means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.

Article 2: Control Measures

(omitted)

5. Any Party may, for one or more control periods, transfer to another Party any portion of its calculated level of production set out in Articles 2A to 2F, ~~(deleted)~~ Article 2H and Article 2J provided that the total combined calculated levels of production of the Parties concerned for any group of controlled substances do not exceed the production limits set out in those Articles for that group. Such transfer of production shall be notified to the Secretariat by each of the Parties concerned, stating the terms of such transfer and the period for which it is to apply.

5 bis. Any Party not operating under paragraph 1 of Article 5 may, for one or more control periods, transfer to another such Party any portion of its calculated level of consumption set out in Article 2F, provided that the calculated level of consumption of controlled substances in Group I of Annex A of the Party transferring the portion of its calculated level of consumption did not exceed 0.25 kilograms per capita in 1989 and that the total combined calculated levels of consumption of the Parties concerned do not exceed the consumption limits set out in Article 2F. Such transfer of consumption shall be notified to the Secretariat by each of the Parties concerned, stating the terms of such transfer and the period for which it is to apply.

5 ter. Any Party not operating under paragraph 1 of Article 5 may, for one or more control periods, transfer to another such Party any portion of its calculated level of consumption set out in Article 2J, provided that the calculated level of consumption of controlled substances in Annex F of the Party transferring the portion of its calculated level of consumption did not exceed [0.25] kilograms per capita in [2009] and that the total combined calculated levels of consumption of the Parties concerned do not exceed the consumption limits set out in Article 2J. Such transfer of consumption shall be notified to the Secretariat by each of the Parties concerned, stating the terms of such transfer and the period for which it is to apply.

(omitted)

8. (a) Any Parties which are Member States of a regional economic integration organization as defined in Article 1 (6) of the Convention may agree that they shall jointly fulfill their obligations respecting consumption under this Article and

Articles 2A to 2J(~~deleted~~) provided that their total combined calculated level of consumption does not exceed the levels required by this Article and Articles 2A to 2J(~~deleted~~).

(omitted)

9. (a) Based on the assessments made pursuant to Article 6, the Parties may decide whether:

(i) Adjustments to the ozone depleting potentials specified in Annex A, Annex B, Annex C and/or Annex E should be made and, if so, what the adjustments should be; and

(ii) **Adjustments to the [100-year global warming potential] OR [climate change impact as measured by [select LCA] specified in Annex F should be made and, if so, what the adjustments should be;**

(iii) Further adjustments and reductions of production (~~omitted~~), consumption [or emissions] of the controlled substances should be undertaken and, if so, what the scope, amount and timing of any such adjustments and reductions should be;

(omitted)

Comments: The choice of 100-year GWP or another LCA in paragraph 9 (ii) must conform to the same selection in Article 5 (1) *bis* and Annex F.

11. Notwithstanding the provisions contained in this Article and Articles 2A to 2J (~~deleted~~) Parties may take more stringent measures than those required by this Article and Articles 2A to 2J (~~deleted~~).

Article 2J: Hydrofluorocarbons

1. Each Party shall ensure that for the twelve month period commencing on 1 January [2012], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2012], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, its average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

2. Each Party shall ensure that for the twelve-month period commencing on 1 January [2015], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [85] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2015], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [85] per cent of its

average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

3. Each Party shall ensure that for the twelve-month period commencing on 1 January [2018], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [70] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2018], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [70] per cent of its average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

4. Each Party shall ensure that for the twelve-month period commencing on 1 January [2021], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [55] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2021], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [55] per cent of its average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

5. Each Party shall ensure that for the twelve-month period commencing on 1 January [2024], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [40] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2024], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [40] per cent of its average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

6. Each Party shall ensure that for the twelve-month period commencing on 1 January [2027], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [25] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2027], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [25] per cent of its average annual production in 2004, 2005, 2006. However, in order to

satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

7. Each Party shall ensure that for the twelve-month period commencing on 1 January [2030], and in each twelve-month period thereafter, its calculated level of consumption of the controlled substances in Annex F does not exceed, annually, [10] percent of its average annual consumption in 2004, 2005, 2006. Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January [2030], and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Annex F does not exceed, annually, [10] per cent of its average annual production in 2004, 2005, 2006. However, in order to satisfy the basic needs of Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to [10] per cent.

8. As of 1 January [2012], each Party shall endeavour to ensure that:

(a) The use of controlled substances in Annex F is limited to those applications where other more environmentally suitable alternative substances or technologies are not available;

(b) The use of controlled substances in Annex F is not outside the areas of application currently met by controlled substances in Annexes A, B, C, E and F, except in rare cases for the protection of human life or human health; and

(c) Controlled substances in Annex F are selected for use in a manner that minimizes climate change, in addition to meeting other environmental, safety and economic considerations.

9. Each Party shall apply measures to control emissions of substances in Group II of Annex F from facilities that produce substances in Group I of Annex C to ensure that emissions of substances in Group II of Annex F do not exceed [select percentage] of the mass of substances in Group I of Annex C being produced by such facilities in the related processes.

10. Each Party shall ensure that emissions of substances in Group II of Annex F from facilities producing substances in Group I of Annex C are destroyed through the use of destruction technologies that have been approved by the Parties.

11. Within one year of the date of entry into force of this Article, the Parties shall convene appropriate panels of national and international scientific, environmental, technical and economic experts, including experts from appropriate panels and bodies established under the Montreal Protocol, UNFCCC and any other Protocol to the UNFCCC, to consider the information submitted pursuant to Articles 7 and 8, and other relevant information, to make determinations and estimates of the quantity and sources of emissions of controlled substances in Annex F and recommendations for control measures to reduce such emissions. Within one year of being convened, the panels will report their conclusions, through the Secretariat, to the Parties.

12. The report referenced in paragraph 11 of this Article shall include determinations and estimates relating to:

- a. the amount of emissions from each Party of each controlled substance in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article;
- b. the sources of emissions from each Party of each controlled substance in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article; and
- c. the costs of preventing emissions of controlled substances in Annex F from each source identified pursuant to paragraph 1(b) of this Article.

13. The report referenced in paragraph 11 shall also include recommendations relating to:

- a. control measures and control levels to reduce emissions in Parties operating under paragraph 1 of Article 5 and Parties not so operating of controlled substances in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article;
- b. means of calculating emissions of controlled substances in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article;
- c. opportunities to co-operate and coordinate with ongoing efforts under Article 2F, Article 5 and Articles 10 to 10A to minimize the costs and adverse effects of emissions of controlled substances in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article.

14. Within one year of receiving the report referenced in paragraphs 11 to 13 of this Article, the Parties shall amend this Protocol to adopt control measures to reduce emissions of controlled substances in Annex F in excess of those emissions resulting from the production and consumption of controlled substances in Annex F permitted under this Article.

Article 3: Calculation of control levels

1. For the purposes of Articles 2, 2A to 2I and 5, each Party shall, for each group of substances in Annex A, Annex B, Annex C, or Annex E determine its calculated levels of:

- (a) Production by:

- (i) multiplying its annual production of each controlled substance by the ozone depleting potential specified in respect of it in Annex A, Annex B, Annex C or Annex E;
- (ii) adding together, for each such Group, the resulting figures;

(b) Imports and exports, respectively, by following, *mutatis mutandis*, the procedure set out in subparagraph (a); and

(c) Consumption by adding together its calculated levels of production and imports and subtracting its calculated level of exports as determined in accordance with subparagraphs (a) and (b). However, beginning on 1 January 1993, any export of controlled substances to non-Parties shall not be subtracted in calculating the consumption level of the exporting Party.

1 bis. For the purposes of Articles 2, 2J and 5, each Party shall, for each group of substances in Annex F determine its calculated levels of:

(a) Production by:

- (i) multiplying its annual production of each controlled substance by the [100-year global warming potential] OR [climate change impact as measured by [select LCA]] specified in respect of it in Annex F;
- (ii) adding together, for each such Group, the resulting figures;

(b) Imports and exports, respectively, by following, *mutatis mutandis*, the procedure set out in subparagraph (a); and

(c) Consumption by adding together its calculated levels of production and imports and subtracting its calculated level of exports as determined in accordance with subparagraphs (a) and (b). However, beginning on 1 January [2012], any export of controlled substances to non-Parties shall not be subtracted in calculating the consumption level of the exporting Party.

(d) Emissions of substances in Group II of Annex F by adding together all emissions of such substances from facilities that produce substances in Group I of Annex C or from facilities that destroy more than [select amount] of substances in Group II of Annex F per year, using a mass balance equation that incorporates the annual amount of substances in Group II of Annex F that is packaged for sale, exported or imported, emitted from equipment via leakage, process vents, and thermal oxidizers.

Comments: Article 1 bis can be calculated using GWP, LCCP or another LCA, consistent with what is selected for use in paragraph 9 of Article 2 and Annex F. If linkages to the UNFCCC are established, consideration should be given to using the same metric as is used by the Kyoto Protocol to the UNFCCC, the post-2012 climate treaty and the IPCC.

Article 4: Control of trade with non-Parties

(omitted)

1 sept. Within one year of the date of entry into force of this paragraph, each party shall ban the import of the controlled substances in Annex F from any State not party to this Protocol.

(omitted)

2 sept. Commencing one year after the date of entry into force of this paragraph, each Party shall ban the export of any controlled substances in Annex F to any State not party to this Protocol.

(omitted)

3 qua. Within [three] years of the date of the entry into force of this paragraph, the Parties shall, following the procedures in Article 10 of the Convention, elaborate in an annex a list of products containing controlled substances in Annex F. Parties that have not objected to the annex in accordance with those procedures shall ban, within one year of the annex having become effective, the import of those products from any State not party to this Protocol.

(omitted)

4 qua. Within [three] years of the date of the entry into force of this paragraph, the Parties shall determine the feasibility of banning or restricting, from States not party to this Protocol, the import of products produced with, but not containing, controlled substances in Annex F. If determined feasible, the Parties shall, following the procedures in Article 10 of the Convention, elaborate in an annex a list of such products. Parties that have not objected to the annex in accordance with those procedures shall ban or restrict, within one year of the annex having become effective, the import of those products from any State not party to this Protocol.

5. Each Party undertakes to the fullest practicable extent to discourage the export to any State not party to this Protocol of technology for producing and for utilizing controlled substances in Annexes A, B, C, **(deleted)**, E and F.

6. Each Party shall refrain from providing new subsidies, aid, credits, guarantees or insurance programmes for the export to States not party to this Protocol of products, equipment, plants or technology that would facilitate the production of controlled substances in Annexes A, B, C, **(deleted)**, E and F.

7. Paragraphs 5 and 6 shall not apply to products, equipment, plants or technology that improve the containment, recovery, recycling or destruction of controlled substances, promote the development of alternative substances, or otherwise contribute to the reduction of emissions of controlled substances in Annexes A, B, C, **(deleted)**, E and F.

8. Notwithstanding the provisions of this Article, imports and exports referred to in paragraphs 1 to 4 **qua (deleted)** of this Article may be permitted from, or to, any State not party to this Protocol, if that State is determined, by a meeting of the Parties, to be in full compliance with Article 2, Articles 2A to **2J (deleted)** and this

Article, and have submitted data to that effect as specified in Article 7.

9. For the purposes of this Article, the term "State not party to this Protocol" shall include, with respect to a particular controlled substance, a State or regional economic integration organization that has not agreed to be bound by the control measures in effect for that substance.

(omitted)

Article 4A: Control of trade with Parties

(omitted)

Article 4B: Licensing

(omitted)

1 *bis*. Each Party shall, by 1 January [2012] or within three months of the date of entry into force of the Article for it, whichever is the later, establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances in Annex F.

(omitted)

2 *bis*. Notwithstanding paragraph 1 *bis*. of this Article, any Party operating under paragraph 1 of Article 5 which decides it is not in a position to establish and implement a system for licensing the import and export of controlled substances in Annex F, may delay taking those actions until 1 January [2015].

(omitted)

3 *bis*. Each Party shall, within three months of the date of introducing its licensing system pursuant to paragraphs 1 *bis*. or 2 *bis*., report to the Secretariat on the establishment and operation of that system.

(omitted)

Article 5: Special situation of developing countries

(omitted)

1 *ter*. [The Parties shall, taking into account the review referred to in paragraph 8 of this Article, the assessments made pursuant to Article 6 and any other relevant information, decide by 1 January [2011], through the procedure set forth in paragraph 9 of Article 2, with respect to paragraphs 1 to 7 of Article 2J, what base year, initial levels, control schedules and phase-down dates for consumption and production of the controlled substances in Annex F will apply to Parties operating under paragraph 1 of this Article;]

Or use the following paragraph as 1 *ter*:

[Any Party that is a developing country and whose annual calculated level of consumption of the controlled substances in Annex F is less than [select amount] kilograms per capita on the date of the entry into force of the Article 2J for it, or any time thereafter until 1 January [select year], shall, in order to meet its basic domestic needs, be entitled to delay for [select duration] years its compliance with the control measures set out in paragraph 2 of Articles 2J, for [select duration] years its compliance with the control measures set out in paragraph 3 of Article 2J, for [select duration] years its compliance with the control measures set out in paragraph 4 of Article 2J, for [select duration] years its compliance with the control measures set out in paragraph 5 of Article 2J, for [select duration] years its compliance with the control measures set out in paragraph 6 of Article 2J, for [select duration] years its compliance with the control measures set out in paragraph 7 of Article 2J, subject to any adjustments made to such control measures in Article 2J in accordance with Article 2(9).]

Comments: The first option for Article 1 *ter*. will allow the Parties to set a phase-down schedule for Parties operating under Article 5 at a later date. The second option maintains the traditional delay of a certain amount of time for Parties operating under paragraph 1 of Article 5, with the specific amount of time to be specified in negotiations.

(omitted)

[3 bis. When implementing the control measures set out in Articles 2J, any Party operating under paragraph 1 *ter* of this Article shall be entitled to use:

(a) For controlled substances under Annex F, either the average of its annual calculated level of consumption for the period [select year] to [select year] inclusive or a calculated level of consumption of [select amount] kilograms per capita, whichever is the lower, as the basis for determining its compliance with the control measures relating to consumption.

Comments: Paragraph 3 *bis* is only necessary if the second option for paragraph 1 *ter* is used.

4. If a Party operating under paragraph 1 of this Article, at any time before the control measures obligations in Articles 2A to 2(~~deleted~~)J become applicable to it, finds itself unable to obtain an adequate supply of controlled substances, it may notify this to the Secretariat. The Secretariat shall forthwith transmit a copy of such notification to the Parties, which shall consider the matter at their next Meeting, and decide upon appropriate action to be taken.

5. Developing the capacity to fulfil the obligations of the Parties operating under paragraph 1 of this Article to comply with the control measures set out in Articles 2A to 2E and Article 2I, (~~deleted~~) any control measures in Articles 2F to 2H that are decided pursuant to paragraph 1 *bis* of this Article, **or any control measures in Article 2J**

that are decided pursuant to Article 1 *ter*, and their implementation by those same Parties will depend upon the effective implementation of the financial co-operation as provided by Article 10 and the transfer of technology as provided by Article 10A.

6. Any Party operating under paragraph 1 of this Article may, at any time, notify the Secretariat in writing that, having taken all practicable steps it is unable to implement any or all of the obligations laid down in Articles 2A to 2E and Article 2I, **(deleted)** any or all obligations in Articles 2F to 2H that are decided pursuant to paragraph 1 *bis* of this Article, **or any or all obligations in Article 2J that are decided pursuant to paragraph 1 *ter* of this Article**, due to the inadequate implementation of Articles 10 and 10A. The Secretariat shall forthwith transmit a copy of the notification to the Parties, which shall consider the matter at their next Meeting, giving due recognition to paragraph 5 of this Article and shall decide upon appropriate action to be taken.

(omitted)

Article 6: Assessment and review of control measures

Beginning in 1990, and at least every four years thereafter, the Parties shall assess the control measures provided for in Article 2 and Articles 2A to 2**(deleted)J** on the basis of available scientific, environmental, technical and economic information. At least one year before each assessment, the Parties shall convene appropriate panels of experts qualified in the fields mentioned and determine the composition and terms of reference of any such panels. Within one year of being convened, the panels will report their conclusions, through the Secretariat, to the Parties.

Article 7: Reporting of data

(omitted)

2 *bis*. Each Party shall provide to the Secretariat statistical data on its production, imports, exports and emissions of each of the controlled substances in Annex F for the year [2009], or the best possible estimates of such data where actual data are not available, not later than three months after the date when the provisions set out in this Protocol with regard to the substances in Annex F enter into force for that Party.

3. Each Party shall provide to the Secretariat statistical data on its annual production (as defined in paragraph 5 of Article 1) of each of the controlled substances listed in Annexes A, B, C, **(deleted) E, and F** and, separately, for each substance,

- Amounts used for feedstocks,
 - Amounts destroyed by technologies approved by the Parties,
- and
- Imports from and exports to Parties and non-Parties respectively,

for the year during which provisions concerning the substances in Annexes A, B, C, ~~(deleted)~~ E, and F respectively entered into force for that Party and for each year thereafter. Each Party shall provide to the Secretariat statistical data on the annual amount of the controlled substance listed in Annex E used for quarantine and pre-shipment applications. Data shall be forwarded not later than nine months after the end of the year to which the data relate.

3 *bis*. Each Party shall provide to the Secretariat separate statistical data of its annual imports and exports of each of the controlled substances listed in Group II of Annex A, ~~(deleted)~~ Group I of Annex C and Group I of Annex F that have been recycled.

4. For Parties operating under the provisions of paragraph 8 (a) of Article 2, the requirements in paragraphs 1, 2, 2 *bis*, 3 and 3 *bis* of this Article in respect of statistical data on imports and exports shall be satisfied if the regional economic integration organization concerned provides data on imports and exports between the organization and States that are not members of that organization.

[Article 7A: Reporting to the UNFCCC

1. Within one year of the adoption of a production and consumption schedule under Article 2J or Article 5 for any controlled substance listed in Annex F, and within one year of any subsequent amendment pursuant to paragraph 4 of Article 11 or adjustment pursuant to paragraph 9 of Article 2 to Article 2J, Article 5 or Annex F, the Technical and Economic Assessment Panel shall calculate and report to the Parties the carbon-dioxide equivalent emission reductions expected to result from the phase-down of hydrofluorocarbons for each Party for the present and subsequent commitment periods under [name post-2012 climate treaty].

2. The Parties shall adopt the findings of the Technical and Economic Assessment Panel in the report referenced in paragraph 1 of this Article at the next Meeting of the Parties and request the Secretariat immediately communicate the report and findings to the secretariat of the UNFCCC.

3. The Secretariat and all other bodies under this Protocol shall coordinate, cooperate and communicate with the UNFCCC and all relevant protocols and entities established under the UNFCCC as deemed appropriate or desirable in the execution of their duties under Article 2, Article 3, Article 4, Article 6 and Article 7, as those duties apply to controlled substances listed in Annex F.]

Comments: Article 7A is only necessary if HFCs are to remain in the basket of greenhouse gases under the post-2012 climate treaty and the production and consumption phase-down of HFCs is to be linked to the post-2012 climate treaty such that reductions resulting from the phase-down automatically trigger reductions to the overall cap under the post-2012 climate treaty or to allow the Parties to the

UNFCCC to themselves decide how much the assigned amounts and emissions limitations should be altered for any subsequent commitment period in light of the reduction in HFC emissions as a result of actions taken under the Montreal Protocol.

Article 8: Non-Compliance

(omitted)

Article 9: Research, development, public awareness and exchange of information

(omitted)

Article 10: Financial Mechanism

1. The Parties shall establish a mechanism for the purposes of providing financial and technical cooperation, including the transfer of technologies, to Parties operating under paragraph 1 of Article 5 of this Protocol to enable their compliance with the control measures set out in Articles 2A to 2E and Articles **2I to 2J (deleted)**, any control measures in Articles 2F to 2H that are decided pursuant to paragraph 1 *bis* of Article 5 of the Protocol **and any control measures in Articles 2J that are decided pursuant to paragraph 1 *ter* of Article 5 of the Protocol**. The mechanism, contributions to which shall be additional to other financial transfers to Parties operating under that paragraph, shall meet all agreed incremental costs of such Parties in order to enable their compliance with the control measures of the Protocol. An indicative list of the categories of incremental costs shall be decided by the meeting of the Parties. [Where a Party operating under paragraph 1 of Article 5 chooses to avail itself of funding from any other financial mechanism to meet any part of its agreed incremental costs, that part shall not be met by the financial mechanism under Article 10 of this Protocol.]

(omitted)

3. The Multilateral Fund shall:

(a) Meet, on a grant or concessional basis as appropriate, and according to criteria to be decided upon by the Parties, the agreed incremental costs;

(b) Finance clearing-house functions to:

(i) Assist Parties operating under paragraph 1 **and 1 *ter*** of Article 5, through country specific studies and other technical co-operation, to identify their needs for co-operation;

(omitted)

11. Whenever financial assistance and the transfer of technologies is made available under this Article to parties operating under paragraph

1 of Article 5 to enable their compliance with control measures under Article 2F and [Article 2J] [paragraph 1 ter of Article 5], preference shall be given to replacements and alternatives other than substances listed in Annex F and that minimize the adverse effects these replacements and alternatives will have on the climate system, in addition to meeting other environmental, safety and economic considerations.

Comments: The purpose of this paragraph is to utilize the funding made available for the HCFC phase-out in manner that will avoid transitioning twice, i.e., transitioning from HCFCs to high-GWP HFCs to low and no-GWP alternatives, where possible. This will reduced the amount of funding necessary to assist Parties operating under paragraph 1 of Article 5 in meeting their compliance with obligations under Article 2J and increase the climate mitigation benefits of the phase-out of HCFCs.

Article 10A: Transfer of technology

Each Party shall take every practicable step, consistent with the programmes supported by the financial mechanism, to ensure:

(a) that the best available, environmentally safe substitutes and related technologies are expeditiously transferred to Parties operating under paragraph 1 **and 1 ter** of Article 5; and

(b) that the transfers referred to in subparagraph (a) occur under fair and most favourable conditions.

Article 11: Meeting of the parties

(omitted)

5. The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State not party to this Protocol, may be represented at meetings of the Parties as observers. Any body or agency, whether national or international, governmental or non-governmental, qualified in fields relating to the protection of the ozone layer **or climate change** which has informed the secretariat of its wish to be represented at a meeting of the Parties as an observer may be admitted unless at least one third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Parties.

Articles 12 to 16

(omitted)

Article 17: Parties joining after entry into force

Subject to Article 5, any State or regional economic integration organization which becomes a Party to this Protocol after the date of its entry into force, shall fulfil forthwith the sum of the obligations under Article 2, as well as under Articles

2A to 2J (**deleted**) and Article 4, that apply at that date to the States and regional economic integration organizations that became Parties on the date the Protocol entered into force.

Articles 18 to 20:

(omitted)

Annexes A to E:

(omitted)

Annex F: Controlled Substances

Group I

Substance (100-year)	Global Warming Potential
(HFC-32)	675
(HFC-41)	92
(HFC-125)	3,500
(HFC-134)	1,100
(HFC-134a)	1,430
(HFC-143)	353
(HFC-143a)	4,470
(HFC-152)	53
(HFC-152a)	124
(HFC-161)	12
(HFC-227ea)	3,220
(HFC-236cb)	1,340
(HFC-236ea)	1,370
(HFC-236fa)	9,810
(HFC-245ca)	693
(HFC-245fa)	1030
(HFC-365mfc)	794
(HFC-43-10mee)	1,640

Group II

Substance (100-year)	Global Warming Potential
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14,800 (HFC-23)

Comments: The use of the 100-year GWP does not indicate a preference for use of the 100-year GWP, LCCP, or another LCA to establish control measures and attribute values to substances in Annex F.

**Further Background on Proposal to Amend and Strengthen the
Montreal Protocol**

***Submitted by the Federated States of Micronesia and
Mauritius***

Over the last 21 years, the Montreal Protocol on Substances that Deplete the Ozone Layer ("Montreal Protocol") has successfully phased-out numerous classes of ozone-depleting substances ("ODSs") by regulating their production and consumption. However, once released onto the market via production for consumption, ODSs are no longer regulated under the Montreal Protocol. Over this same period, ODSs have accumulated in "banks", which are the total amount of ODSs contained in existing equipment, chemical stockpiles, foams, and other products not yet released into the atmosphere.

Approximately 20 billion tonnes carbon-dioxide-equivalent ("CO₂-eq.") now exists in ODS banks. Of immediate concern are the approximately 6 billion tonnes CO₂-eq. emissions that will be released by 2015 from the most easily accessible and destroyable banks in refrigeration, stationary air conditioning ("SAC") and mobile air conditioning ("MAC"). If no action is taken to recover and destroy these "reachable" ODS banks, their emissions will offset and surpass the emission reductions achieved under the first commitment period of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (respectively, the "Kyoto Protocol" and "UNFCCC"). By taking aggressive action now, these emissions can be prevented at a cost that is much lower than the cost of many other climate change mitigation measures. The investments in infrastructure, training, and governance institutions necessary to recover and destroy these "reachable" banks in the near-term will also reduce the costs of recovering and destroying the remaining 14 billion tonnes CO₂-eq. in ODS banks that will be emitted after 2015, as well as the banks of hydrofluorocarbons ("HFCs") that are continuing to accumulate in these same sectors, providing further opportunities for cost-effective climate change mitigation. At the same time, collecting and

destroying ODS banks will also accelerate the recovery of the ozone layer by up to 2 years.

For the Federated States of Micronesia and Mauritius, rising sea levels and increasingly unstable weather patterns due to climate change are already having devastating impacts on our housing, food supplies and way of life. Indeed, like all low-lying islands, our very existence is at stake. For these reasons, the government of the Federated States of Micronesia and Mauritius are pursuing every available means of achieving near-term, fast-action climate change mitigation including from non-CO₂ sources, in addition to aggressive reductions of CO₂, which is the long-term driver of climate change. This includes recovery and destruction of ODS banks. But our window of opportunity is rapidly closing.

Last year, the Federated States of Micronesia and Mauritius put forth a joint proposal to promote the recovery and destruction of ODS banks. This joint proposal was joined by a separate proposal from the Government of the Republic of Argentina and received broad support from both developed and developing country Parties. At the 20th Meeting of the Parties to the Montreal Protocol in November 2008, the Parties agreed to Decision XX/7 to promote the environmentally sound management of ODS banks. Decision XX/7 represents a start which we must strengthen this year if we are to seize this opportunity.

Decision XX/7 authorizes the Multilateral Fund for the Implementation of the Montreal Protocol ("MLF") to immediately, and as a matter of urgency, commence pilot projects to recover, transport, store and destroy ODS banks. It also requests the Technical and Economic Assessment Panel ("TEAP") issue a report no later than June 2009 which analyzes the costs and benefits of ODS bank recovery and explores economic incentives and alternative sources of financing for ODS bank recovery and destruction and requests the Ozone Secretariat convene a workshop to discuss ODS bank destruction and to invite the UNFCCC, relevant international funding agencies, and other interested stakeholders to participate. The Federated States of Micronesia and Mauritius are confident that the pilot projects, TEAP report and ODS banks workshop will confirm that ODS banks recovery and destruction is a unique, affordable and time-sensitive climate change

mitigation opportunity that must be seized upon immediately.

Given the time it will take to approve an amendment to the Montreal Protocol authorizing and securing financing for a global-scale ODS banks recovery and destruction program, harness alternative sources of financing for ODS banks recovery and destruction, mobilize other international institutions in a coordinated effort, develop the infrastructure and expertise necessary to execute the program, and other delays, it is imperative that an amendment be adopted at the 21st Meeting of the Parties to the Montreal Protocol to begin this process in order to seize this time-sensitive opportunity.

Proposal to Amend and Strengthen the Montreal Protocol to Collect and Destroy ODS Banks

The Federated States of Micronesia and Mauritius propose an amendment to the Montreal Protocol that incorporates the elements listed below. We will leave it to the Parties, Secretariat, legal experts, and others to determine which parts of the proposal should be considered as amendments, decisions, or adjustments.

- Changes to the Article 10 of the Montreal Protocol authorizing the MLF to finance a global-scale ODS bank recovery and destruction program in Parties operating under paragraph 1 of Article 5 without creating an obligation for such Parties to recover and destroy ODS banks;
- Requests a supplemental replenishment to the MLF to immediately fund ODS bank destruction projects in Parties operating under paragraph 1 of Article 5;
- Changes to Article 10 of the Montreal Protocol authorizing the MLF or a separate entity created under Article 10 to finance ODS bank recovery and destruction utilizing financing as may be available from other international institutions, including carbon financing generated through the Clean Development Mechanism of the Kyoto Protocol and future carbon markets established under the post-2012 climate treaty;
- Changes to the essential and critical use exemption criteria requiring Parties operating under Article 2 to destroy a certain amount of

ODS banks proportionate to their essential and critical use exemption requests in order receive approval for such requests;

- Changes to Article 2F requiring Parties operating under Article 2 recover and destroy a certain amount of ODS banks in order to produce hydrochlorofluorocarbons ("HCFCs") for Parties operating under paragraph 1 of Article 5 pursuant to paragraph 8 of Article 2F; and/or
- Create an article requiring Parties operating under Article 2 to recover and destroy a certain percentage of their ODS banks in certain sectors.