

[See online](#)



OzoNews

A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol brought to you by OzonAction

Volume XIX

| 15 November 2019

In this issue:

1. Kigali Amendment latest ratifications
2. Countries commit to protect the ozone layer and climate under the Montreal Protocol
3. Summary and Analysis of the 31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP 31) 4-8 November 2019 | Headquarters of the Food and Agriculture Organization of the UN (FAO), Rome, Italy
4. Rome Declaration on the contribution of the Montreal Protocol to food loss reduction through sustainable cold chain development
5. UNEP OzonAction fosters ties with global HVAC&R associations in the margins of MOP-31
6. ASHRAE, UNEP Announce Lower GWP Award Selections
7. Spotlight on the vital work carried out by the Assessment Panels
8. Collaboration and fast action key to accelerate transition to efficient cooling
9. Pope: Montreal Protocol to protect ozone layer is a “model of international cooperation”
10. Sound ODS/HFC waste management and disposal
11. Chilling prospects: Tracking sustainable cooling for all 2019
12. Search, reuse and destroy: initiating global discussion to act on a 100 billion ton climate problem
13. Launching of 5th edition of Europe and Central Asia (ECA) Montreal Protocol Award for Customs and Enforcement Officers for 2019-2020

Special edition

31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP 31), 4-8 November 2019 | Headquarters of the Food and Agriculture Organization of the UN (FAO), Rome, Italy

NEW OzonAction Factsheet: Article 7 Data Reporting on HFCs - When Countries Need to Start Reporting

One of the important commitments of the Protocol is that of reporting the consumption and production of substances controlled under the Montreal Protocol.

Following ratification of the Kigali Amendment, this commitment is now extended to HFCs.

This short factsheet provides some useful information on relevant Article 7 reporting dates and deadlines for HFCs.

[Read/Download >>>](#)



Global

1. Kigali Amendment latest ratifications

Congratulations to the latest countries which have ratified the Kigali Amendment:

Jordan, 16 Oct 2019
Lesotho, 7 Oct 2019
Sao Tome and Principe, 4 Oct 2019
New Zealand, 3 Oct 2019
Mauritius, 1 Oct 2019



At the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, held in Kigali from 10 to 15 October 2016, the Parties adopted, in accordance with the procedure laid down in paragraph 4 of article 9 of the 1985 Vienna Convention for the Protection of the Ozone Layer, a further amendment to the Montreal Protocol as set out in Annex I to the report of the Twenty-Eighth Meeting of the Parties (Decision XXVIII/1).

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to [date](#).

[United Nations Treaty Collection](#)

2. Countries commit to protect the ozone layer and climate under the Montreal Protocol

Rome, 8 November 2019 – Delegates representing 171 parties to the Montreal Protocol concluded their Thirty-first Meeting of the Parties in Rome, Italy, from 4 to 8 November, with a number of key decisions based on rounds of negotiations.

Main issues included:

CFC-11: An update from the Scientific Assessment Panel (SAP) highlighting preliminary data with new scientific information showing reductions in emissions of trichlorofluoromethane (CFC-11) in 2018 and 2019. The issue of unexpected emissions of CFC-11 was brought to the attention of the parties in 2018, revealing that global emissions of CFC-11 had increased in the period after 2012. The parties agreed on a decision, including among others, actions to discover and prevent any illegal production or consumption of controlled substances.

Replenishment of the Multilateral Fund: The parties agreed on the terms of reference for the study to be carried out by the Technology and Economic Assessment Panel on the 2021-2023 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol.

2022 Quadrennial Reports: The three Assessment Panels to the Montreal Protocol were requested to prepare quadrennial assessment reports to be submitted by the end of 2022 for consideration by the parties. The panels were requested to pay particular attention to assessing the state of the ozone layer, the interactions between ozone and climate, the effects of changes in the ozone layer to human health and ecosystems, as well as alternative technologies to the controlled substances.

Other issues included the laboratory and analytical uses of ozone-depleting substances whereby the parties agreed to extend the global exemption beyond 2021 with monitoring. Critical use exemptions were granted to a few parties that requested to continue using small amounts of methyl bromide in agriculture.

Parties also undertook discussions on practical arrangements including the approval of the budget for 2020, as well as the membership of Montreal Protocol bodies for 2020. They also memorialized that 88 parties have ratified the Kigali Amendment, which came into force on 1 January 2019. The Amendment is expected to avoid 0.4°C of future global warming by the end of the century by cutting hydrofluorocarbons (HFC) by more than 80 per cent over the next 30 years.



The synergies between the Montreal Protocol, the Kigali Amendment and Sustainable Development Goals (SDG) were further underlined by the high-level roundtable discussion on the contribution of the Montreal Protocol to the development of sustainable cold chains and the reduction of food loss. The same issue was underscored in the Rome Declaration. Signed by 76 parties to date, the Declaration recognizes the importance of the Protocol and its Kigali Amendment in raising awareness for developing sustainable and efficient solutions in the cold chain.

In his opening statement at the high-level segment, the Italian Minister of the Environment, Land and Sea Protection, Sergio Costa, urged the parties to work together “to shoulder our responsibilities to ensure the protection of the environment for the future”, while Cardinal Pietro Parolin, on behalf of His Holiness, Pope Francis, noted the Montreal Protocol was an example of how cooperation can “achieve important outcomes, which make it simultaneously possible to safeguard creation.” Inger Andersen, UNEP Executive Director, underscored the interconnectedness of environmental challenges, stating “nothing short of universal ratification of the Kigali Amendment is acceptable.”

The overarching themes of cooperation, mutual respect, consensus building in the pursuit of ozone protection, safeguarding the environment and the well-being of humanity was underscored by Tina Birmpili, Executive Secretary, Ozone Secretariat. Reiterating the importance of working together, the need to remain vigilant and to react swiftly to address issues such as the recent unexpected increase in CFC-11 emissions, she noted that collectively “we must turn our minds to what more we can do to address climate change and biodiversity and ecosystem loss – the biggest challenges humanity faces right now.”

[United Nations Environment Programme, Ozone Secretariat, 12 November 2019](#)

3. Summary and Analysis of the 31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP 31) 4-8 November 2019 | Headquarters of the Food and Agriculture Organization of the UN (FAO), Rome, Italy



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

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

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

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

MOP 31 also addressed: review of the TEAP’s ToR, composition, balance, fields of expertise, and workload; ongoing reported emissions of carbon tetrachloride (CTC); critical use exemptions (CUEs); and issues of non-

compliance. Parties were also invited to sign the Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Management.

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

IIISD [daily reporting services](#) during MOP31

IIISD Reporting Services, October 2019

4. Rome Declaration on the contribution of the Montreal Protocol to food loss reduction through sustainable cold chain development

We, the ministers and heads of delegation of the following parties to the Montreal Protocol on Substances that Deplete the Ozone Layer Angola, Argentina, Australia, Austria, Bangladesh, Belarus, Belgium, Belize, Bosnia and Herzegovina, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Ecuador, El Salvador, Estonia, European Union, Fiji, Finland, France, Gambia (Republic of the), Germany, Grenada, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Jordan, Kyrgyzstan, Liberia, Libya, Luxembourg, Maldives, Micronesia (Federated States of), Montenegro, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Panama, Paraguay, Philippines, Poland, Qatar, Republic of Moldova, Rwanda, Saint Lucia, Senegal, Slovakia, Solomon Islands, South Sudan, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tunisia, Uganda, United States of America, Uzbekistan, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam,

Considering the discussions at the round table opening the high-level segment of the Thirty First Meeting of the Parties to the Montreal Protocol at the headquarters of the Food and Agriculture Organization of the United Nations, which has a prominent role in reducing food losses,

Recalling that about one-third of all food produced globally for human consumption is either lost or wasted, which has severe impacts on farmers' incomes and precious resources such as land, water and energy and generates greenhouse gases,

Reaffirming the cooperation among parties in implementing the Montreal Protocol and recognizing that the Montreal Protocol and its Kigali Amendment have raised awareness of the need to develop sustainable and efficient solutions in the refrigeration and air-conditioning sector to meet future cooling demand, including cold-chain initiatives for food preservation,

Aware of the key role of the cold chain in the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals related to, inter alia, ending hunger and poverty, food security, improved nutrition, climate action, sustainable agriculture and fisheries, health and well-being,

1. Stress the importance of pursuing national action and international cooperation to promote the development of the cold chain, including by using sustainable and environmentally friendly refrigeration to reduce food loss;
2. Underscore the multiple benefits of promoting the exchange of information on the contribution of the cold chain to the Sustainable Development Goals and encourage the ongoing work under the Montreal Protocol to this end;
3. Call for strengthening cooperation and coordination between Governments, the institutions of the Montreal Protocol, the specialized agencies of the United Nations, existing private and public initiatives and all relevant stakeholders to exchange knowledge and promote innovation of energy-efficient solutions and technologies that reduce the use of substances controlled by the Montreal Protocol in the development of the cold chain, thereby contributing to the reduction of food loss and waste.

Rome, 7- 8 November 2019

United Nations Environment Programme, OzoneSecretariat, November 2019

UNEP/OzL.Pro/2019.1/Annex

Annex xx

Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development

We, the ministers and heads of delegation of the following parties to the Montreal Protocol on Substances that Deplete the Ozone Layer Angola, Argentina, Australia, Austria, Bangladesh, Belarus, Belgium, Belize, Bosnia and Herzegovina, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Ecuador, El Salvador, Estonia, European Union, Fiji, Finland, France, Gambia (Republic of the), Germany, Grenada, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Jordan, Kyrgyzstan, Liberia, Luxembourg, Maldives, Micronesia (Federated States of), Montenegro, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Panama, Paraguay, Philippines, Poland, Qatar, Republic of Moldova, Rwanda, Saint Lucia, Senegal, Slovakia, Solomon Islands, South Sudan, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tunisia, Uganda, United States of America, Uzbekistan, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam,

Considering the discussions at the round table opening the high-level segment of the Thirty First Meeting of the Parties to the Montreal Protocol at the headquarters of the Food and Agriculture Organization of the United Nations, which has a prominent role in reducing food losses,

Recalling that about one-third of all food produced globally for human consumption is either lost or wasted, which has severe impacts on farmers' incomes and precious resources such as land, water and energy and generates greenhouse gases,

Reaffirming the cooperation among parties in implementing the Montreal Protocol and recognizing that the Montreal Protocol and its Kigali Amendment have raised awareness of the need to develop sustainable and efficient solutions in the refrigeration and air-conditioning sector to meet future cooling demand, including cold-chain initiatives for food preservation,

Aware of the key role of the cold chain in the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals related to, inter alia, ending hunger and poverty, food security, improved nutrition, climate action, sustainable agriculture and fisheries, health and well-being,

1. Stress the importance of pursuing national action and international cooperation to promote the development of the cold chain, including by using sustainable and environmentally friendly refrigeration to reduce food loss;

2. Underscore the multiple benefits of promoting the exchange of information on the contribution of the cold chain to the Sustainable Development Goals and encourage the ongoing work under the Montreal Protocol to this end;

3. Call for strengthening cooperation and coordination between Governments, the institutions of the Montreal Protocol, the specialized agencies of the United Nations, existing private and public initiatives and all relevant stakeholders to exchange knowledge and promote innovation of energy-efficient solutions and technologies that reduce the use of substances controlled by the Montreal Protocol in the development of the cold chain, thereby contributing to the reduction of food loss and waste.

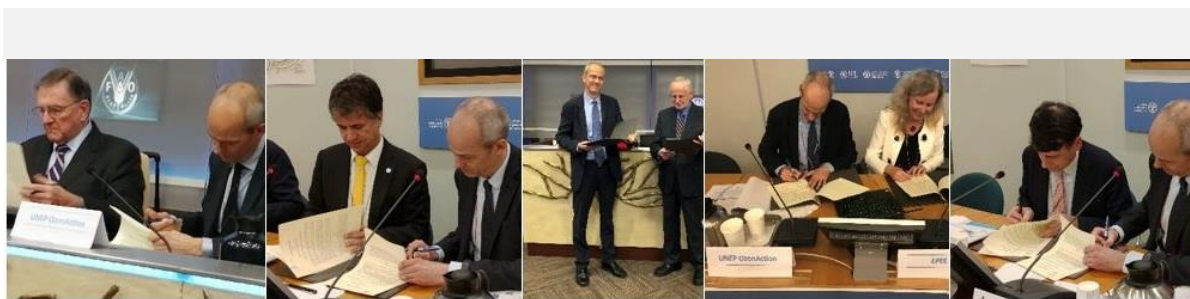
Rome, 7-8 November 2019

5. UNEP OzonAction fosters ties with global HVAC&R associations in the margins of MOP-31

Rome, Italy, 8 November 2019 – Through organizing six technical sessions and signing five memoranda of understanding (MOUs) with key global refrigeration and air-conditioning associations, UNEP OzonAction is fostering ties with key industry stakeholders and experts from the HVAC&R community aiming at providing state-of-the-art support and services to developing countries within the context of meeting commitments of the Montreal Protocol.

Since its establishment more than 25 years ago, UNEP OzonAction has maintained a healthy cooperation and relationship with industry associations and has partnered with them on numerous occasions to implement specific programmes and events. However, over the last few years, OzonAction has been strategizing its relationship with key industry associations through building long-term programmes and initiatives that fit into the phase-out timetables of the Montreal Protocol.

UNEP OzonAction supports 147 developing countries as an Implementing Agency (IA) as well as within its clearinghouse mandate, under the Montreal Protocol, including activities and programmes for the advancement of alternative refrigerants, safety, training, certification and standards updates. Accordingly, many important initiatives and products have been launched such as the Refrigerant Driving License (RDL), HFC Outlook Model, Refrigerant e-Learning Courses, Universal Training Kit, Refrigerant Management University Course as well as the Cold Chain Database Model.



MOUs signed between UNEP OzonAction and HVAC&R Associations at MOP-31 (Left to right): AHRI, AREA, ASHRAE, EPEE and IIR

OzonAction side events at MOP-31

At the 31st Meeting of Parties to the Montreal Protocol (MOP-31), UNEP OzonAction convened, in cooperation with industry partners, several technical side-events showcasing the different initiatives and products that were developed, launched and piloted successfully in many developing countries. The side-events also witnessed the signing of strategic MOUs with key partners namely: AHRI, AREA, ASHRAE, EPEE and IIR which institutionally cements the relationship between UNEP OzonAction and those partners, securing commitments in pursuing common goals and targets. The following side-events were held:

AHRI and UNEP honour the first Refrigerant Driving License (RDL) certified trainers worldwide

4 November 2019 –The RDL programme includes comprehensive competency and skill documentation, training curriculum, and supporting guides and tools to conduct the RDL training and testing. Six pioneering countries, Grenada, the Maldives, Rwanda, Sri Lanka, Suriname, and Trinidad and Tobago are currently leading the effort to pilot the RDL by holding training sessions for local technicians. With a target of 600 trainees (100 per country), the RDL is an ambitious endeavour that will advance global refrigerant management techniques and contribute to a safe, efficient, and environmentally-friendly refrigerant transition. The joint UNEP OzonAction and AHRI

side-event presented the outcomes of the first phase of the RDL Pilot Stage and awarded five countries certificates/badges for the first group of RDL certified trainers worldwide.

ASHRAE and UNEP announce the winners of 2019 Lower-GWP Innovation Award

5 November 2019 – ASHRAE and UNEP announced the winners of the 2019 Lower-GWP Innovation Award in which projects from Brazil, China, India, Saudi Arabia, and Thailand were recognized as recipients. During this joint ASHRAE-UNEP side event, several new products were presented, including the launch of the French version of the Refrigerant Literacy e-Learning course, the 59 engineering colleges in 20 countries using the UNEP University Course, and more than 1500 e-learners using the ASHRAE-UNEP Refrigerant Literacy and Sound management.

EPEE and UNEP release outcomes of the second pilot of the HFC Outlook Model

5 November 2019 – The HFC Outlook model is a pragmatic tool to support national decision-making about the Kigali Amendment. It has been developed in cooperation with EPEE, based on the EU GAPOMETER model and further improved and adapted for Article 5 countries. The model offers multiple and flexible scenarios for forecasting the outcomes of HFCs in different consuming sectors in conjunction with technology dynamics, compliance targets and socio-economic aspects. The HFC Outlook is a forward-looking tool for National Ozone Units (NOUs), to assess gaps and consider policies. The model has been successfully introduced in 10 developing countries starting with Bahrain and Kuwait, as the first pilot, followed by Bosnia and Herzegovina, Dominican Republic, Gabon, Guatemala, Honduras, Mali, Senegal, and Sri Lanka.

AREA and UNEP launch the Universal Training Kit

6 November 2019 - At the UNEP OzonAction and AREA joint side-event, held in cooperation with IIR and EPEE, and benefiting from EU experience in training programmes for the refrigeration servicing sector, the two organisations launched their new training tool entitled the “Universal Training Kit” which is designed as a modular training programme that is adaptable to accommodate different types of courses delivered by training institutes and centres in developing countries. The kit covers all aspects of sound and safe management of refrigerants including dealing with conventional and flammable refrigerants. The tool will allow training centres to design and build training courses with the preferred length, content and target audience. A dedicated portal is designed to assist users to build their preferred courses.

GFCCC and UNEP support Cold Chain through new Database Model

6 November 2019 - UNEP OzonAction partnered with the Global Food Cold Chain Council (GFCCC) through a special initiative to assist NOUs to better understand the use of HCFCs/HFCs in each of the Cold Chain sub-sectors. The aim to better design and implement respective policies and technical support activities for the different sub-sectors. The initiative is a voluntary one with the purpose of designing a comprehensive Database Model with an analytical tool to plot the significance of each sub-sector in terms of technology and refrigerant types/consumption along with other aspects.

[United Nations Environment Programme, OzonAction, November 2019](#)

6. ASHRAE, UNEP Announce Lower GWP Award Selections

ATLANTA (November 6, 2019) – ASHRAE and UN Environment Programme (UNEP) have announced the project selections for the [2019 ASHRAE-UNEP OzonAction Lower-GWP Refrigeration and Air-Conditioning Innovation Awards](#). The annual international award program promotes innovative design, research and practice by recognizing people who have developed or implemented innovative technological concepts applied in developing countries to promote lower global warming potential (GWP) refrigerants through refrigeration and air-conditioning applications.

The selected projects were announced at the 31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer in Rome.

"The projects selected represent long-term, global and energy efficient solutions to lessen the impact of ozone depleting substances," said ASHRAE Presidential Member and co-chair of the judging committee Sheila J.

Hayter, P.E. "We congratulate the selected project teams and look forward to witnessing their innovative concepts set a benchmark for sustainability in developing countries."

The projects in each category were selected based on delivering innovative solutions to meet refrigeration and air-conditioning needs by using lower-GWP technologies. The selection criteria included:

- Extent of need;
- Innovative aspects in transforming conventional practices;
- Technical replicability to developing countries; and
- Economy feasibility to developing countries.

"We are living at a watershed moment under the Montreal Protocol when developing countries must find long-term solutions to replace HCFC refrigerants while simultaneously minimizing climate impacts," said James S. Curlin, Acting Head/Network and Policy Manager OzonAction and co-chair of the judging committee. "It is vital to empower the research community to identify new approaches and alternative refrigerants that work for those countries."

UNEP OzonAction is proud to join with ASHRAE to recognize these winners who are proposing approaches that address the ozone, climate and energy dimensions."

Five projects were selected in two categories: Residential Applications and Commercial/Industrial Applications.



Projects selected for 2019 ASHRAE UNEP Lower GWP awards were recognized at an ASHRAE UNEP side event held during the Meeting of the Parties to the Montreal Protocol in Rome. Members of the judging committee present for award presentations were (back row left to right) Stephen Gill (UK), Jim Curlin (UNEP OzonAction), Jim Wolf (US) and Roberto Peixoto (Brazil). Certificates were accepted on behalf of winning project teams by National Ozone Unit representatives from regions where projects were implemented.

Residential Applications

Low Charge Ammonia Vapor Compression Refrigeration System for Residential Air-Conditioning implemented in India

Project Team: Rajesh Kumar N, D. Mohan Lal and Kamalakannan

This project was envisaged to develop an ammonia vapor compression refrigeration system of 3 TR capacity for residential air conditioning and to analyze the minimum possible charge in order to reduce leakage hazards associated with the system. Ammonia is an environmentally friendly solution with zero ODP and zero GWP values.

HFC-161 Application Technology Development for High Cooling Capacity Household Air Conditioners implemented in China

Project Team: Zhang Jianjun, Guo Zhikai, Zhang Lei, Zhang Mingjie and Xie Pinzan

The central objective of the project was to develop a household air-conditioning system with a large cooling capacity that replaced the use of HCFC-22 for HFC-161 as a refrigerant. The project provides solutions to the high use of HCFC-22 in China through replacement technologies that meet the latest environmental protection requirements for the domestic household air-conditioning industry. HFC-161, with ODP value of 0 and GWP value of 4, can be one of the solutions to comply with the HCFC phase-out commitments while leapfrog the use of higher GWP alternatives in line with the Kigali Amendment.

Commercial/Industrial Applications

Packaged Chillers with Integrated Air Handling Units Using HFC-32 and HC-290 implemented in Saudi Arabia

Project Team: Samir Hamed Alfetiany, Husam Quedan and Samer Hamed Alfetiany

The main goal for this project was to develop, design, manufacture and test a new large cooling capacity packaged air-conditioner (packaged chiller with integrated air handling unit) with a cooling capacity of 40,70 and 100kW respectively, using low GWP refrigerants (A3 and A2L) at standard and high ambient temperature conditions. The two refrigerants are HFC-32 which is A2L mildly flammable and HC-290 which is A3 highly flammable refrigerant. Also, the main challenge of this research is to address the safety requirement for each prototype and adopt this safe design and components in the prototypes.

The Crocodile Project CO₂ Transcritical Refrigeration System for a Hot-and-Humid Region implemented in Thailand

Project Team: Warot Lamlertpongpana, Wallop Lamlertpongpana, Jittakorn Sukjareon and Kittitach Chumnarnwat

The Crocodile Project is a CO₂ transcritical refrigeration system developed for high humidity and ambient temperature environments. It mainly consists of 2 parts: refrigeration and extraction. The refrigeration part is or the office building's air-conditioning system. The system will produce ice in the ice bank only at night, and the chilled water derived from this will be pumped to serve the air-conditioners during the daytime. The benefits of running at night is not only because the electrical demand charge is less, but because the ambient temperature is also lower, hence better system performance.

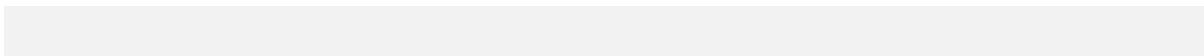
Low Charge Propane Chiller for a Supermarket Commercial Refrigeration System implemented in Brazil

Project Team: Rogério Marson Rodrigues, Ivair Lucio Soares Junior, Gustavo Galdi Heidinger, Cassio Lucio Simonetti and Edgard Soares Pinto Neto

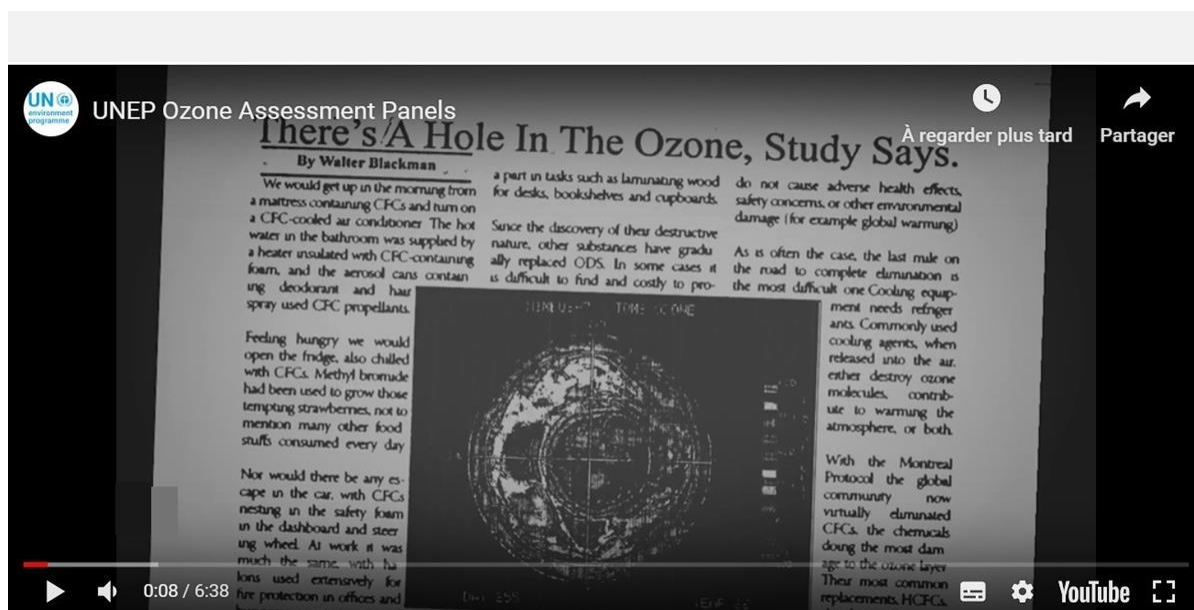
The goal of this project was to develop a natural refrigerant refrigeration system to use in supermarkets. The propane chiller cools a secondary fluid, glycol, which is then used to cool medium temperature cabinets and cold rooms. For low temperature cabinets and cold rooms, CO₂ is condensed by the same glycol (subcritical system).

The judges who reviewed the entries were Nesreene Ghaddar (Lebanon), Stephen Gill (UK), Roberto Peixoto (Brazil) and James Wolf (USA).

Projects will also be showcased at respective OzonAction Network meetings and at the ASHRAE Winter Conference in Orlando, Fla., USA, February 1-5, 2020. For more details on the projects and other ASHRAE-UNEP OzonAction activities, visit ashrae.org/ashrae-unep-portal



7. Spotlight on the vital work carried out by the Assessment Panels



The Assessment Panels are fundamental components of ozone protection since the Montreal Protocol was first established.

The video here highlights the vital work carried out by the various technical bodies that support the parties to the Montreal Protocol with scientific, technological and financial information to reach decisions about ozone layer protection.

[United Nations Environment Programme, Ozone Secretariat, 8 November 2019](#)

8. Collaboration and fast action key to accelerate transition to efficient cooling

A meeting of partners in the Climate and Clean Air Coalition (CCAC) Efficient Cooling and HFC initiatives presented numerous solutions to reduce cooling's impact on the climate.

Climate and Clean Air Coalition partners have once again stressed the growing importance for close collaboration and fast action to address some of humanity's biggest challenges – climate change, ozone depletion, food security, energy security.

At a Coalition side event on the margins of the 31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer in Rome this week, representatives from developed and developing countries, international organisations, businesses and NGOs, discussed ways to accelerate the global transition to ozone-friendly, lower-global warming potential (GWP) efficient cooling. The event showcased existing solutions and presented opportunities for collaboration.

Mr. Nicolas Encausse from France's Ministry for the Ecological and Inclusive Transition opened the meeting by highlighting efforts by France to prioritise efficient cooling during its presidency of the G7. This included launching the new CCAC Efficient Cooling Initiative at the G7 Environment Ministers meeting in Metz last May, and launching the "Biarritz Pledge for Fast Action on Efficient Cooling" during the G7 Summit in Biarritz in August 2019. There are currently 15 signatory countries to the pledge who have agreed to take immediate actions to improve efficiency in the cooling sector while phasing down hydrofluorocarbon (HFC) refrigerants as per the Kigali Amendment to the Montreal Protocol.

Mr. Encausse encouraged more countries to sign onto the Biarritz Pledge and collaborate through the Coalition's Efficient Cooling Initiative, to promote good practices and available alternatives, facilitate market transition, and find more financing opportunities beyond the Multilateral Fund.

To highlight the good practices and alternative technologies available to reduce cooling's impact on the climate the Coalition's HFC Initiative launched the report "Lower-GWP Alternatives in Stationary Air Conditioning: A Compilation of Case Studies".

Stationary air conditioning is the largest and most rapidly growing area of HFC use, particularly in developing countries, and is associated with significant indirect emissions of carbon dioxide (CO₂) from electricity consumption. The report presents ten case studies from around the world to show industry and government policymakers the feasibility of adopting lower-GWP energy efficient refrigerants. The case studies focus on a range of different geographic locations, climates, refrigerants, and technologies and considers the energy efficiency benefits of alternative systems, as well as the cost, safety, availability, and environmental impacts.

The report also serves as a reference guide for end-users and system purchasers on factors to consider when transitioning to lower-GWP air conditioning. It was launched by Ms. Nancy Akerman from US Environmental Protection Agency and Mr. Daniel de Graaf from the German Environment Agency.

Partners also outlined areas they were working on in the cooling sector.

Mr. Hidekazu Kuraya, Director of the Office of Fluorocarbons Policy of the Ministry of Environment of Japan, announced Japan would launch an initiative for the Life-Cycle Management of Fluorocarbons at the upcoming COP25 in Madrid this December. He stressed Japan's continued commitment and collaboration with the Climate and Clean Air Coalition.

Mr. Zitouni Ould-Dada, Deputy Director of the Food and Agriculture Organization's (FAO) Climate and Environment Division, emphasized the need for a holistic approach to find integrated solutions for addressing food security and climate change.

Mr. Chris Malley, Researcher at the Stockholm Environment Institute (SEI), shared how the CCAC is working with developing countries on national climate and air quality using the Long-range Energy Alternatives Planning - Integrated Benefits Calculator (LEAP-IBC). SEI is developing an upcoming module for the tool that will integrate refrigerant choice and energy efficiency to support countries to develop strategies to meet their commitments under the Kigali Amendment and assess the impacts and benefits of those strategies for climate, energy consumption, air quality, and public health.



Engr. Idris Abdullahi, Assistant Director and National Ozone Officer for the Federal Ministry of Environment of Nigeria shared their experience in developing their National Sustainable Cooling Plan, which is supported by UNIDO and funded by K-CEP.

An expert panel also discussed how countries can transition faster to energy-efficient and lower-GWP solutions to cooling.

Ms. Xiaofang Zhou, Director of the Montreal Protocol and Chemicals Unit of the United Nations Development Programme (UNDP) warned that national and international institutions are not working closely enough to maximise resources and address the HFC and energy efficiency issues in an integrated way. She advised countries to think about how these strategies can fit together and become mutually reinforcing as they work on their HCFC and HFC management plans and Nationally Determined Contributions (NDCs).

Mr. Kevin Fay, Executive Director of the Alliance for Responsible Atmospheric Policy, which represents industry, said there is no one size fits all solution for the Montreal Protocol or for climate mitigation, so a flexible approach is needed. Properly structured policy approaches will help identify the technologies needed and drive market transformation. Innovation in the private sector can be very fast so government policies should not lock industry into one path.

Mr. Durwood Zaelke, President of the Institute for Governance and Sustainable Development, said rising temperatures are going to drive increased global dependency on cooling. Addressing HFCs is one of the most effective ways to achieve near-term climate benefits, and the avoided warming can be doubled if the HFC phasedown is coupled with improving energy efficiency. As practical steps, countries should implement the minimum energy performance standards (MEPS) as soon as possible and make use of the power of public procurement, which can drive market transformations very quickly. Mr. Zaelke also announced a new Cooling Synthesis Report which will be jointly published by the International Energy Agency (IEA) and UNEP and launched at COP25.

The Climate and Clean Air Coalition's HFC Initiative has brought together governments, the private sector, and intergovernmental organizations to disseminate information on and strategies for developing, deploying, and promoting climate-friendly technologies. Capacity building activities, including technology conferences and exhibitions, interactive partner tools, and case studies, have increased knowledge of more sustainable technologies that are available in refrigeration and air conditioning, and provided information on policies that promote the development and deployment of these alternatives.

The Coalition's new Efficient Cooling Initiative aim is to enhance energy efficiency in the cooling sector while countries implement the phase-down of HFC refrigerants under the Montreal Protocol. It brings together governments, intergovernmental organizations, and the private sector to build high-level political leadership and facilitate collaboration among stakeholders.

Click [here](#) to download the Lower-GWP Alternatives report

[The Climate and Clean Air Coalition \(CCAC\) secretariat 8 November, 2019](#)

9. Pope: Montreal Protocol to protect ozone layer is a “model of international cooperation”

On Thursday, Pope Francis sent a message to the 31st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer. His message was read by Pietro Parolin, the Cardinal Secretary of State.

Pope Francis has praised the Montreal Protocol on Substances that Deplete the Ozone Layer as a “model of international cooperation, not only in the area of environmental protection, but also that of the promotion of integral human development”.

The Montreal Protocol is an addendum to the Vienna Convention for the Protection of the Ozone Layer, which provides a framework for international reductions in the productions of certain chemicals that contribute to the destruction of the so-called “ozone layer” in the earth’s atmosphere. As Pope Francis noted, this became “the first Convention of the United Nations system to gain universal endorsement on the part of the entire family of nations”. One hundred ninety-six States, as well as the European Union, have signed the agreement.



In a message to the 31st Meeting of the Parties to the Montreal Protocol, Pope Francis noted the positive results that have been achieved since the signing of the Vienna Convention thirty-five years ago. "In fact", he said, "many scientific studies, including more recent ones, attest to how the thinning of the ozone layer is gradually being reduced".

Three lessons

Pope Francis chose to focus on three lessons that can be learned since the implementation of the international ozone regime.

First, he pointed to the cooperation among various sectors of human society that led to the accord. "This cooperation has shown how we can achieve important outcomes" that make it possible to safeguard creation and promote human development.

The second lesson is that the "cultural challenge" we face "cannot be met solely on the basis" of a technological solution that ignores "the mysterious network of relations between things, and so sometimes solves one problem only to create others". He noted the adoption of the Kigali Amendment to the Montreal Protocol, which aims at prohibiting substances that lead to global warming, even if they don't directly harm the ozone layer; and he announced the Holy See's adherence to that Amendment.

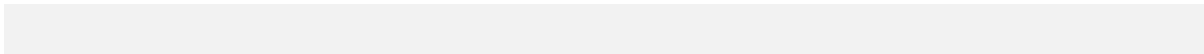
Finally, Pope Francis spoke about the importance of recognizing that "everything is connected", noting that the Kigali Amendment appeals to this principle. "Careful consideration of the various interconnections of our decisions and their resulting impact involves numerous levels of complexity", he said.

Is progress directed toward the common good?

Pope Francis concluded his letter by urging us to ask the question of whether the goals of progress are "truly directed to the common good" or, instead, "cause harm to our world and to the quality of life of much of humanity".

An appropriate response to that question, he said, can only be made in light of the three lessons he had already indicated: "First, to give real life to dialogue for the sake of shared responsibility for the care of our common home, one in which no one 'absolutizes' his or her own point of view. Then, to make technological solutions part of a broader vision that takes into consideration the variety of existing relationships. Finally, to structure our decisions on the basis of the central concept of what we can call 'integral ecology', grounded in the realization that 'everything is connected'".

[Vatican News, 7 November 2019](#)



10. Sound ODS/HFC waste management and disposal

Rome, 4 November 2019 – In the margins of the 31st Meeting of the Parties to the Montreal Protocol UNDP and GIZ had jointly organized a side event “*Sound ODS/HFC waste management and disposal*”.

This side event featured presentations on the issues of sustainable disposal of ODS/HFC containing in products, their management and experiences from demonstration projects and the panel discussion on the barriers and potential cost-effective ways of managing the ODS disposal and management.

The presentation on global banks of ozone depleting substances stressed that the ODS bank were estimated to equal to 9.2 Gt CO₂eq and that the annual emissions from the global ODS bank were estimated to amount to 1.5 Gt CO₂eq. An overview of End of Life ODS/HFC Waste Management provided information about the current state of management, destruction technologies and experiences, and identified barriers and the ways to overcome them.

The panel discussion touched upon the assessment of destruction technologies by the Montreal Protocol, experience of European Union Member States on the management of end-of-life ODS, and experience of Colombia in building the capacity to collect and destroy end-of-life ODS and implementation of the extended producer responsibility system.

Contact: [Ajiniyaz Reimov](#), UNDP

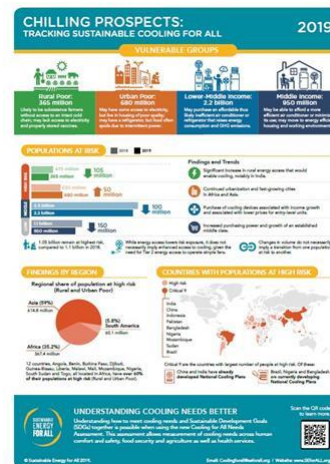


11. Chilling prospects: Tracking sustainable cooling for all 2019

The world is getting hotter and drier. Climate impacts are being universally felt, most tangibly in the volatility and frequency of extreme weather events, and every year the situation becomes more dire. In 2019, the International Panel on Climate Change (IPCC) reported that at 1.5°C of warming, 2.3 billion people could be both exposed and vulnerable to heatwave events, a threshold that could be reached as early as 2030.¹ It also reported that food loss and waste account for 8-10 percent of annual GHG emissions and that food security, particularly the production of nutritious fruits and vegetables, is vulnerable to climate change. The World Health Organization (WHO) reported that global vaccination rates remain at a stubborn 86 percent, and that 19.4 million infants were not reached with routine immunizations, including the temperature sensitive DPT vaccine.

Unsurprisingly then, in 2018 and 2019 the issue of cooling and how we deliver it affordably and sustainably has emerged as a focus of governments, health care companies, food manufacturers, real estate firms, air-conditioning and refrigeration equipment manufacturers, refrigerant producers, as well as development institutions. Rather than viewing access to cooling as a luxury, they recognize that in a warming world, access to sustainable cooling is a necessity.

Cooling is an issue of equity that underpins the ability of millions to realize the Sustainable Development Goals (SDGs). Safe living and working conditions, safe and nutritious food, and effective vaccines and medical care



depend on access to cooling, and as need for cooling grows, we must deliver it in a manner consistent with the Paris Agreement on Climate Change and the Kigali Amendment to the Montreal Protocol. It has to be sustainable.

This report is a follow-up to Chilling Prospects: Providing Sustainable Cooling for All, the first report to define and quantify the magnitude of the global cooling access challenge, including an assessment of 52 countries facing the biggest risks, measured by extreme heat, food losses, and damaged or destroyed vaccines and medicines. This report serves as a status update. It profiles fast action in access to cooling, provides an update on global access to cooling gaps, and provides policy makers, the private sector and development financiers with tools and guidance on how to accelerate progress on areas of priority. [...]

[Sustainable Energy for All \(SEforAll\), November 2019](#)

12. Search, reuse and destroy: initiating global discussion to act on a 100 billion ton climate problem

This report outlines the immediate need to act upon a 100 billion ton climate opportunity. Current climate pledges and action are insufficient, by a wide margin, to address the worsening climate crisis and meet the global target of containing warming below 1.5 °C.

“Banks” of fluorinated greenhouse gases, which consist of ozone depleting substances (ODS) and hydrofluorocarbons (HFCs) contained in existing equipment, chemical stockpiles, foams and other products, must be sustainably managed and properly disposed.

The report includes policy options and specific recommendations for actions by stakeholders at all levels including individuals, private sector, cities, states and provinces, nations, and most importantly, at a global level.

A comprehensive international framework, accompanied by strong national regulations and sustainable financing mechanisms, will be essential to address this issue. Sub-national and private sector leadership also has a significant role to play in piloting and jumpstarting scalable solutions.

Policy options discussed include extended responsibility schemes, incentive programs; recordkeeping, reporting and data collection; leak reduction programs, technician training requirements, and banning disposable refrigerant cylinders.

The report also introduces the concept of establishing a standalone ‘Global Recovery Fund’ that would serve as a central mechanism for implementation of policies and programs addressing banks. The role of producer responsibility in contributions to such a fund should be considered alongside other sources. [...]

[Read the report here](#)

[Environmental Investigation Agency \(eia\), 6 November 2019](#)



13. Launching of 5th edition of Europe and Central Asia (ECA) Montreal Protocol Award for Customs and Enforcement Officers for 2019-2020

The United Nations Environment Programme OzonAction, in cooperation with the World Customs Organization and the Ozone Secretariat, has launched the fifth edition of the ECA Montreal Protocol Award for Customs and Enforcement Officers for the period 2019-2020. Nominations forms are available in English and Russian and the award ceremony is scheduled for 2021. The award is part of the work programme of OzonAction's Regional Montreal Protocol Network for Europe and Central Asia (ECA network).

The award recognizes the crucial role of customs & enforcement officers in implementing trade restrictions and bans for hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). Both groups of chemicals, which are controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer, are widely used as refrigerants and foam blowing agents in the refrigeration, air conditioning and foam blowing sectors.

HCFCs contribute to ozone layer depletion and global warming. They will gradually be phased out by 2030 and are already banned in the European Union. HCFC traders require annual import / export quota as well as import / export licenses for HCFC shipments.

HFCs contribute to global warming. They are controlled and will gradually be phased down by the Parties to the Montreal Protocol under the Kigali Amendment to the Montreal Protocol. National legislation might already require establishment of import / export licenses for HFC shipments, and they are already restricted in the European Union.

The informal Prior Informed Consent (iPIC) system allows trade partners to confirm the legitimacy of an intended trade in controlled substances prior to issuing import / export licenses. More information on iPIC is available [here](#)

Tolerating illegal or unwanted trade in HCFCs / HFCs might undermine the success and credibility of the Montreal Protocol and lead to non-compliance.

OBJECTIVES

The award aims to recognize and offer encouragement to customs and enforcement officers and their respective organizations for successful prevention of illegal or unwanted trade in HCFCs / HFCs. This also includes equipment or products containing or relying on the use of HCFCs / HFCs.

The award is expected to enhance regional and international cooperation and raise awareness of the customs and enforcement community. It will facilitate reporting on illegal trade to UN Environment Programme and the Ozone Secretariat, pursuant to paragraph 7 of decision XIV/7 of the parties to the Montreal Protocol and encourage trading partners to consistently apply iPIC prior to issuing export / import licenses for HCFCs / HFCs. It is expected that the award will thus contribute to enforcing the Montreal Protocol trade provisions and compliance.

Often, seizures of controlled substances, equipment and products containing or relying on controlled substances are not publicized because of a perception that they reflect negatively on the concerned countries. Providing recognition and visibility of customs and enforcement agents might change this perception and encourage the reporting on illegal trade cases and seizures. Publicizing the seizures, court cases and penalties can discourage potential smugglers.

ELIGIBILITY

Eligible nominees include customs and enforcement officers and / or their respective organizations who have been directly involved or instrumental in preventing illegal or unwanted trade in HCFCs / HFCs as well as equipment or products containing or relying on the use of HCFCs / HFCs.

Eligible enforcement actions include the detection of an illegal shipment and the subsequent seizure, detention or sending back of the disallowed goods, as well as successful iPIC consultation preventing the issuance of export / import licenses for illegal or unwanted shipments.

Enforcement actions are eligible if they have not been submitted to any other award schemes.

GEOGRAPHICAL SCOPE AND TIME PERIOD



Eligible countries include those in the Europe and Central Asia (ECA) region including countries with economies in transition (CEIT countries) and Western European countries as well as their trading partners.

Eligible enforcement actions must have taken place during the period: 1 January 2019 – 31 December 2020.

NOMINATION

Completed nomination forms with detailed and comprehensive case descriptions and supporting photos and documents should be received by the UN Environment Programme as soon as possible but **at the latest by: 31 January 2021**.

[Learn more >>>](#)

United Nations Environment Programme, OzonAction, October 2019

Featured



OZONE SECRETARIAT

- [31st Meeting of the Parties to the Montreal Protocol](#), 4 - 8 November 2019, Rome, Italy
- [Bureau Meeting of the 30th Meeting of the Parties to the Montreal Protocol](#), 3 November 2019, Rome, Italy
- [63rd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol](#), 2 November 2019, Rome, Italy
- [41st Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol](#), 1 - 5 July 2019, Bangkok, Thailand
- [62nd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol](#), 29 June 2019, Bangkok, Thailand

Click [here](#) for Montreal Protocol upcoming Meetings Dates and Venues

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to [date](#)

The UN Environment Assessment Panels

The Assessment Panels have been vital components of ozone protection since the Montreal Protocol was first established. They support parties with scientific, technological and financial information in order to reach decisions about ozone layer protection and they play a critical role in ensuring the Protocol achieves its mandate.

The Assessment Panels were first agreed in 1988 to assess various direct and indirect impacts on the ozone layer. The original three panels are:

[The Technology and Economic Assessment Panel](#)

[The Scientific Assessment Panel](#)

[The Environmental Effects Assessment Panel](#)

In the past there were 4 main panels. The Panels for Technology and Economic Assessments were merged in 1990 into one Panel, now called the Technology and Economic Assessment Panel.

Why are the three current panels important to ozone layer protection? Each carries out assessment in its respective field. Every four years, the key findings of all panels are consolidated in a synthesis report.



THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

- [Executive Committee Primer – 2019](#) - An introduction to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

- [Report of the 83rd meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, Montreal, Canada, 27-31 May 2019](#)

- [83rd meeting of the Executive Committee](#)

- [82nd meeting of the Executive Committee](#)

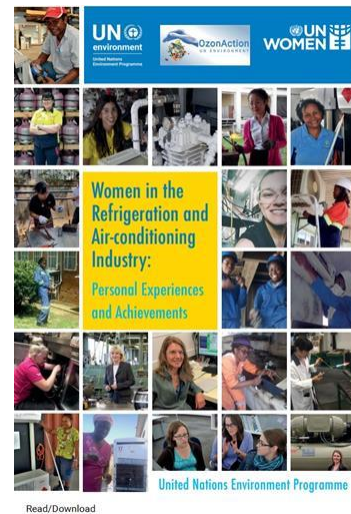
[Learn more](#)



OZONACTION

Women in the refrigeration and air-conditioning industry: Personal experiences and achievements The United Nations Environment Programme's (UNEP), OzonAction, in cooperation with UN Women, has compiled this booklet to raise awareness of the opportunities available to women and to highlight the particular experiences and examples of women working in the sector and to recognise their successes. All of the professionals presented in the booklet are pioneers. They are role models whose stories should inspire a new generation of young women to enter the weld and follow in their footsteps.

[Download the publication](#)



Read/Download

HS Codes for HFCs - Advice for countries in advance of the 2022 HS code update - The Kigali Amendment requires Parties to put into place an import and export licensing system for hydrofluorocarbons (HFCs) by 1st January 2019 (or two years later if required).

To enable a licensing system to function effectively, it is important that the government is able to monitor and record imports and exports of each specific HFC individually.

Import and export statistics are normally collected by customs officers using the international product nomenclature system – the Harmonized Commodity Description and Coding System, or Harmonized System (HS).

However, until the HS is revised in 2022, all HFCs are contained in a single HS code which does not allow differentiation of the individual chemicals or of mixtures.

This document outlines a proactive interim approach, recommended by the World Customs Organization (WCO), to establish additional digits in the existing national HS codes to identify specific HFCs.

This practical document is suitable for outreach to the customs agencies, customs officers in the field, and others involved in controlling trade in HFCs.

Document prepared by the UN Environment Programme in cooperation with the World Customs Organization (WCO).

[Download the publication](#)

Contact: Dr. Ezra Clark, UNEP, OzonAction



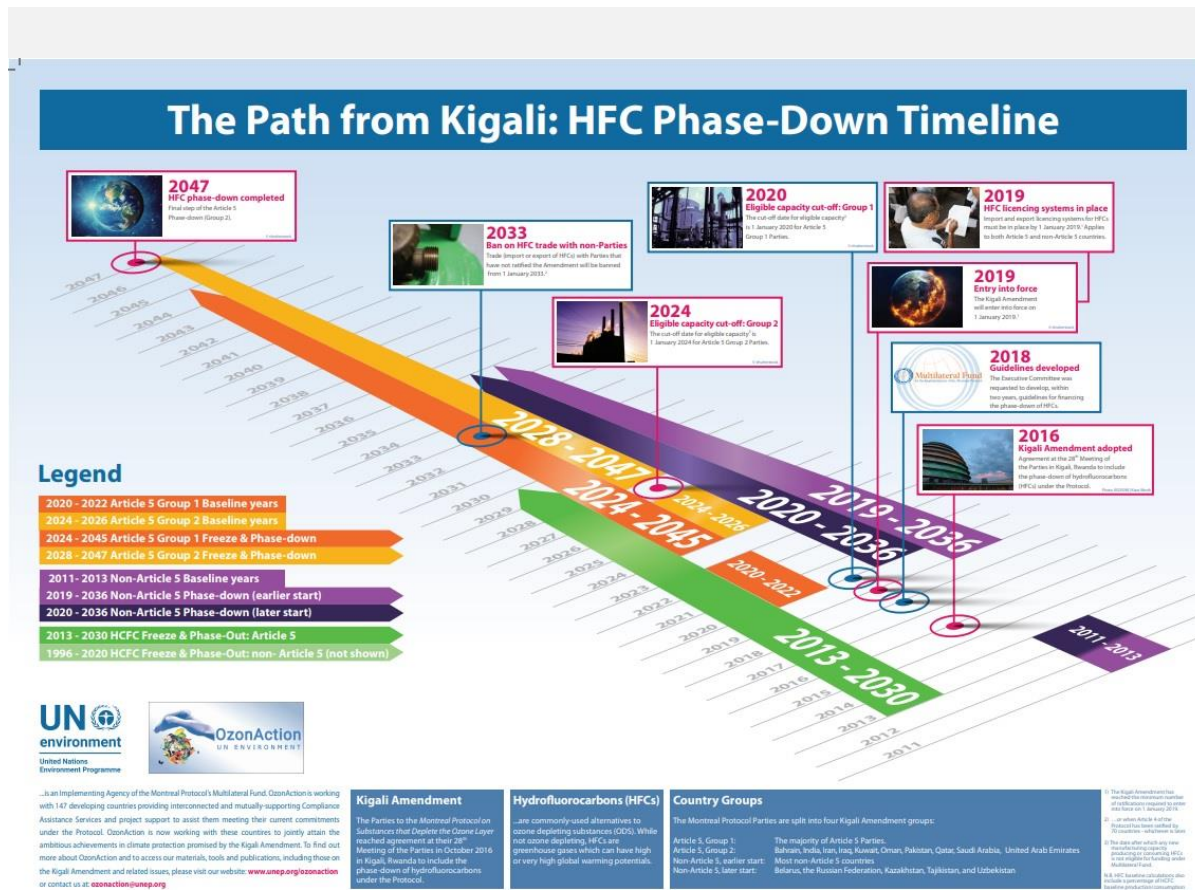
Update on new refrigerants designations and safety classifications - factsheet - The purpose of this fact sheet is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been awarded an «R» number over the last few years and introduced into the international market.

The United Nations Environment Programme (UNEP), represented by the OzonAction-Law Division, and ASHRAE have a Memorandum of Understanding to establish technical cooperation and mutual coordination toward providing professional technical services to the refrigeration and air-conditioning stakeholders (governmental, private, and public). The organizations work to ensure that up-to-date related technical information and standards are properly introduced and promoted.

Download the Factsheet

Contact:

W. Stephen Comstock, Manager of Business Development EMEA, ASHRAE
 Ayman Eltalouny, Coordinator International Partnerships, UN Environment OzonAction



The Path from Kigali: HFC Phase-Down Timeline

This timeline, produced by OzonAction, highlights key hydrofluorocarbons (HFCs) phase-down dates.

Click [here](#) to download the timeline



Good Servicing: Flammable Refrigerants Quick Guide

This is the electronic and interactive version of the UN Environment OzonAction Quick Guide on Good Servicing Practices for Flammable Refrigerants. It offers easy reference to the key safety classification and technical properties of flammable refrigerants that are available in the market.

It also provides important safety guidance for the installation and servicing of room air-conditioners designed to use flammable refrigerants.

This interactive guide allows you to scroll and browse the text, jump to specific chapters or use the comprehensive dynamic index to locate specific keywords, figures and tables. The application also includes a refrigerant charge size calculator and a room size calculator for flammable refrigerants.

Available for free on the Google play store (Apple version coming soon).

Search for “UNEP Quick guide” or use the QR code



Refrigerant Identifier Video Series

Guidance on how to identify refrigerants using a refrigerant identifier.

This new OzonAction video series consists of short instructional videos showing how to use and maintain a refrigerant identifier.

The videos provide useful guidance on safety and best practice, understanding the difference between different identifier units, testing procedures and identification of results.

It is intended for use by Montreal Protocol National Ozone Officers, Customs and Enforcement Officers as well as technicians involved in the servicing

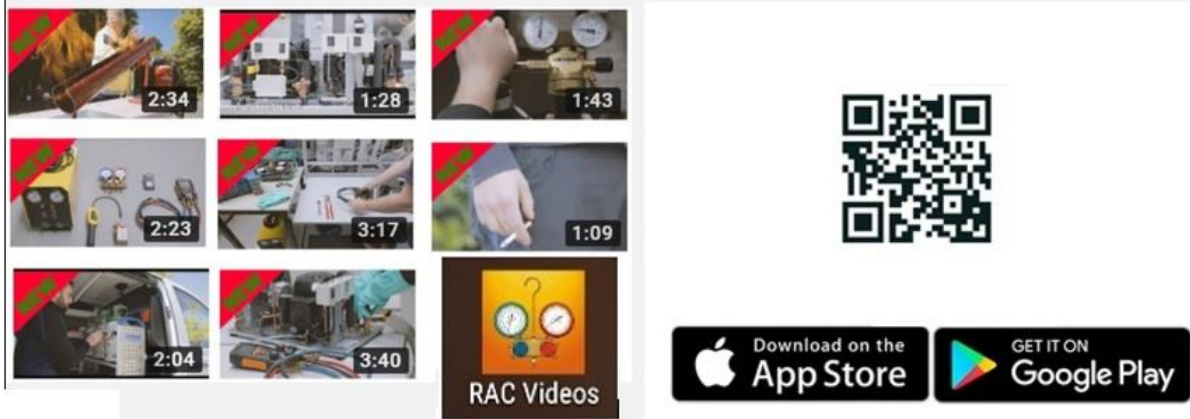
and maintenance of refrigeration and air conditioning systems.

The application features 10 short instructional videos on the following topics:

- Refrigerant cylinder types
- Types of identifiers
- Getting to know your identifier
- Safety and precautions
- Testing a sample – vapour (gas)
- Testing a sample – liquid
- Results
- Faults & error messages
- Maintaining the unit
- Software updates

Available for free on the Google play store (Apple version coming soon).

Search for “UNEP Refrigerant ID” or use the QR code



New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants ...

50,000 downloads and counting!

To install, search for "RAC Video" in the Google Playstore or Apple IOS store, or scan the QR code.



GWP-ODP Calculator Smartphone Application

The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals.

- Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
- The calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO₂-equivalent tonnes (or kg) and display the corresponding converted values
- The app includes both single component substances and refrigerant blends
- The components of a mixture and their relative proportions (metric, ODP,

CO₂-eq) are also displayed.

Available for free from the Apple IOS store and Google PlayStore. Search for "GWP ODP CALC" in the Playstore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses

OzonAction Smartphone Application WhatGas?

Available for **free** in the Google Play and Apple IOS Store

Scan the QR code or search for “UNEP”, “OzonAction” or “WhatGas?”



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned

international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

[OzonAction YouTube](#) | See also: [United Nations Treaty Collection](#)

OzonAction Factsheets



UN Environment-ASHRAE Factsheet Update on New Refrigerants Designations and Safety Classifications

OzonAction Series of 19 Fact Sheets related to the Kigali Amendment.

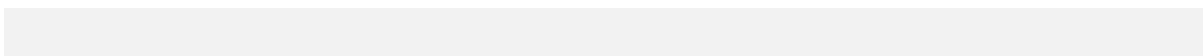
HS codes for HCFCs and certain other Ozone Depleting Substances ODS (post Kigali update).

The Kigali Amendment to the Montreal Protocol: HFC Phase-down - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluorocarbons (HFCs) continues the historic legacy of the Montreal Protocol. This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

Refrigerant Blends: Calculating Global Warming Potentials (post-Kigali update).

Global Warming Potential (GWP) of Refrigerants: Why are Particular Values Used? (post-Kigali update).

Tools Commonly used by Refrigeration and Air-Conditioning Technicians.





OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - Over 50,000 downloads to date -

OzonAction has launched an exciting new application which hosts series of short instructional videos on techniques, safety and best practice for refrigeration and air-conditioning technicians.

This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

New videos on flammable refrigerants just added!

Please share with your RAC associations, technicians and other interested stakeholders...

OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series

Available in the [Android Play Store](#) and [Apple Store/iTunes](#).

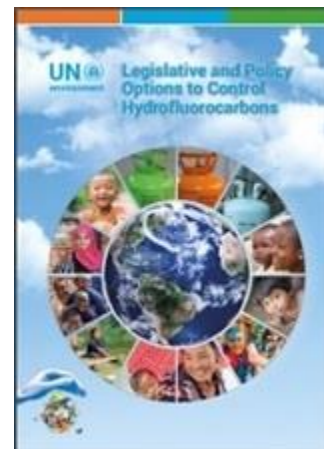
(Just search for "OzonAction", or scan this QR code)

Publications

Legislative and Policy Options to Control Hydrofluorocarbons

In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures.

This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries.



Latest issue of the Centro Studi Galileo - [Industria & Formazione](#). La rivista per il tecnico della refrigerazione e della climatizzazione, N. 7, 2019



Reading

[Twenty Questions and Answers About the Ozone Layer](#), presents complex science in a straightforward manner. It complements the [2014 Scientific Assessment Report of Ozone Depletion](#) by WMO and the U.N. Environment Programme.

Lead Author:

Michaela I. Hegglin

Coauthors:

David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



[Primer on Hydrofluorocarbons \(HFCs\)](#) - IGSD -11 January 2018

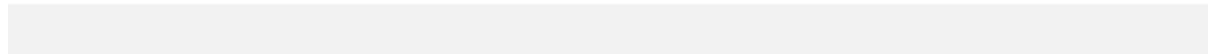
Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:

Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.

Contributing authors:

Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, Alex Milgroom, and Nancy J. Sherman.

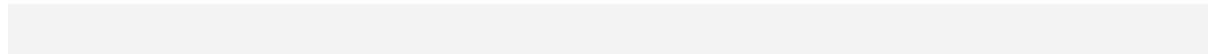


The [IIR International Dictionary of Refrigeration](#) Available in 11 languages, the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online. The IIR International Dictionary of Refrigeration offers researchers, industrialist or administrations the practical resources required to produce content related to refrigeration technologies in multiple languages.

This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your choice and find corresponding translations in the 10 other languages.

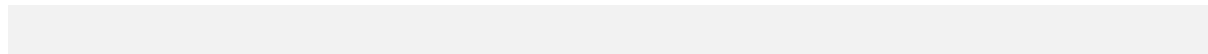
The dictionary provides term searches in Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Norwegian, Russian and Spanish.

Access the International Dictionary of Refrigeration on the [IIR website](#)



[Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report](#). The market research report was realised for the EU-funded [LIFE FRONT](#) project. Amongst the main result of the market research:

- Current charge limits set in standards both restrict and obstruct the development of hydrocarbon technology
- Over 50% survey respondents already work with hydrocarbons to some extent
- Most of those planning to start working with hydrocarbons in the future will do that in 2019-2020 timeframe - revision of standards could have a major impact on the scale of this shift
- Large proportion of respondents indicated they manufacture equipment using multiple refrigeration circuits - allowing higher hydrocarbon charge limits per single refrigeration circuit would have a profound impact on cost and availability of larger units.



[Tip of the Iceberg: Implications of Illegal CFC Production and Use](#). The Environmental Investigation Agency (EIA) recently released report urges Parties to the Montreal Protocol to address a number of remaining unanswered questions, in particular the absence of comprehensive data regarding the size of current banks of CFC-11 in PU foam and other products or equipment.



[Cold Hard Facts 3 - Review of the Refrigeration and Air Conditioning Industry in Australia](#) - The refrigeration and air conditioning industry is the largest user of synthetic greenhouse gases and ozone depleting substances in Australia. Cold Hard Facts 3 provides an economic and technological assessment of the refrigeration and air conditioning industry in Australia in 2016. The report includes an analysis of the size and economic value of the industry, the equipment and refrigerant gas bank, trends in gas imports and equipment, and direct and indirect emissions in this sector. [...] This study provides a broad view of the composition, size and value of the industry, and projections for its future. This will assist industry and policy makers with management of ozone depleting substances as they are phased out, and synthetic greenhouse gases, including hydrofluorocarbons (HFCs) which are being phased down from January 2018.

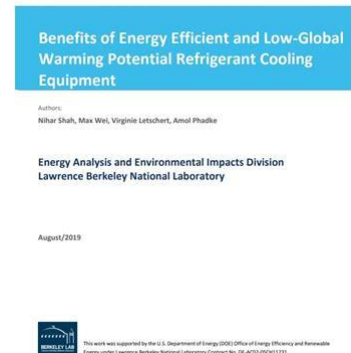


Ozone-depleting substances 2019 Aggregated data reported by companies on the import, export, production, destruction, feedstock and process agent use of ozone-depleting substances in the European Union, 2006-2018 1994-2019 - The 2019 edition of the European Environment Agency (EEA) report on ODS confirms that the EU has already achieved its goals on the phase-out of such substances under the Montreal Protocol. In particular, the report shows that in 2018, the consumption of ODS (an aggregated parameter that integrates imports, exports, production and destruction of ODS, except those for feedstock use) in the EU was negative (-1 505 metric tonnes), which means that more ODS were destroyed or exported than produced or imported. This was the case since 2010 with the exception of 2012. These negative values are the result of the phase-out according to Regulation (EC) No 1005/2009, which, in many aspects, goes further than the Montreal Protocol, in combination with rather high destruction rates and decreasing stocks. Companies in the EU have been consuming relatively small amounts of ODS under the Montreal Protocol.



Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment

Authors: Nihar Shah, Max Wei, Virginie Letschert, Amol Phadke.
Energy Analysis and Environmental Impacts Division
Lawrence Berkeley National Laboratory
August/2019



Miscellaneous



I am in the Montreal Protocol Who's Who... Why Aren't You?

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who".

We are pleased to invite you to submit your nomination*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's valuable work related to the Montreal Protocol and ozone layer protection.**

Please notify and nominate worthy candidates through the [on-line form](#)

We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

Take this opportunity to raise the profile of women and men who made an important contribution to the Montreal Protocol success and ozone layer protection.

- View the «Montreal Protocol Who's Who» [Introductory video](#)
- Contact : [Samira Korban-de Gobert](#), UN Environment, OzonAction

** If you are already nominated, no need to resubmit your profile*



New International Journal of Refrigeration service for IIR members -

Access the complete archives of the International Journal of Refrigeration (IJR) online. Designed with IIR members in mind, this new and practical electronic subscription gives members substantial advantages:

- Immediate and permanent access to the latest research and to IJR archive
 - Access the latest articles as soon as they become available online.
 - Browse, search and read each one of the nearly 4,500 papers since Volume 1, Issue 1.
 - Unlimited access to seminal contributions to the field of refrigeration dating back to 1978.
- Keep up-to-date with subscriptions to customized e-alerts on New Volumes, Topics and saved Searches.
Enhanced content and functions
- Easily export references, citations and abstracts.
 - Print, download or share articles with colleagues or peers.
 - See which papers, published in Elsevier or elsewhere, have cited any selected article.
 - Consult the research highlights overview of articles in volumes from 2012 onwards.
- To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.



International Observers - New AREA membership category - Due to the significant worldwide interest in European legislative developments and the increase in competence of personnel who handle new refrigerants, AREA is pleased to introduce its brand new "International Observer" membership category. This provides a fantastic opportunity for non-European RACHP installer bodies the world, to benefit from the expertise and discussions within Europe through access to AREA. Contact: info@area-eur.be

Ozone Hole: How We Saved the Planet



Premiere Wednesday, April 10, 2019
10:00h-11:00h pm, ET on PBS
New Documentary Tells the Remarkable Story of how Scientists Discovered the Deadly Hole in the Ozone – and the Even More Remarkable Story of how the World's Leaders Came Together to Fix It.

OZONE HOLE: HOW WE SAVED THE PLANET - New Documentary Tells the Remarkable Story of How Scientists Discovered the Deadly Hole in the Ozone – and the **Even More Remarkable Story of How the World's Leaders Came Together to Fix It.**

New program to scale up efficient, clean cooling in developing countries - The World Bank announced today [24 April 2019] a new program to accelerate the uptake of sustainable cooling solutions, including air conditioning, refrigeration and cold chain in developing countries. The program will provide technical assistance to ensure that efficient cooling is included in new World Bank Group investment projects and mobilize further financing. Globally, demand for cooling is increasing, mainly driven by growing populations, urbanization and rising income levels in developing countries. Further exacerbating the issue, rising temperatures will increase demand for cooling appliances, which not only use large amounts of energy, but also leak refrigerants that contribute to global warming.



Climate Action Summit - 23 September 2019

Member states, local leadership, private sector, civil society leaders and youth have been responding to the **Secretary General's call for this summit to accelerate ambition and increase commitments to take action to address the climate crisis**, one year ahead of when the Paris Agreement comes into effect.



The United Nations Environment Programme is leading the [Nature Based Solutions to Climate Change track](#) and the NBS Coalition which received [150+ proposals](#) to bring to the summit.

[Click here](#) to access recent OzoNews Issues
[Request a PDF](#) of the current issue



Disclaimer:

The United Nations Environment Programme (UNEP), Law Division, OzonAction provides OzoNews as a free service for internal, non-commercial use by members of the Montreal Protocol community. Since its inception in January 2000, the goal of OzoNews is to provide current news relating to ozone depletion and the implementation of the Montreal Protocol, to stimulate discussion and promote cooperation in support of compliance with the Montreal Protocol. With the exception of items written by UNEP and occasional contributions solicited from other organizations, the news is sourced from on-line newspapers, journals and websites.

The views expressed in articles written by external authors are solely the viewpoints of those authors and do not represent the policy or viewpoint of UNEP. While UNEP strives to avoid inclusion of misleading or inaccurate information, it is ultimately the responsibility of the reader to evaluate the accuracy of any news article in OzoNews. The citing of commercial technologies, products or services does not constitute endorsement of those items by UNEP.

If you have questions or comments regarding any news item, please contact directly the source indicated at the bottom of each article.

Prepared by: Samira Korban-de Gobert, OzonAction

Reviewed by: Dr. Ezra Clark, OzonAction

If you wish to submit articles, invite new subscribers, please contact:

Samira Korban-de Gobert,

Tel. (+33) 1 44.37.14.52,

samira.degobert@un.org



[unsubscribe](#)