

OzoNews

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

Volume XXII | 30 June 2022

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GLOBAL

1. Kigali Amendment latest ratifications

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

[Tajikistan, 29 June 2022](#)

[Congo, 16 June 2022](#)

[Singapore, 1 June 2022](#)



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](#)

Image: UN Treaty Collection website

2. 44th meeting of the Open-ended Working Group of the Parties

The forty-fourth meeting of the Open-ended Working Group of the parties to the Montreal Protocol (**OEWG44**), the Fifth Extraordinary Meeting of the Parties to the Montreal Protocol (ExMOP5) and the sixty-eighth meeting of the Implementation Committee (**ImpCom68**) will be convened **in-person in Bangkok, Thailand** as follows:

- ImpCom68 – 9 July 2022
- OEWG44 – 11 to 16 July 2022
- ExMOP5 - 16 July 2022 after the closing of OEWG44



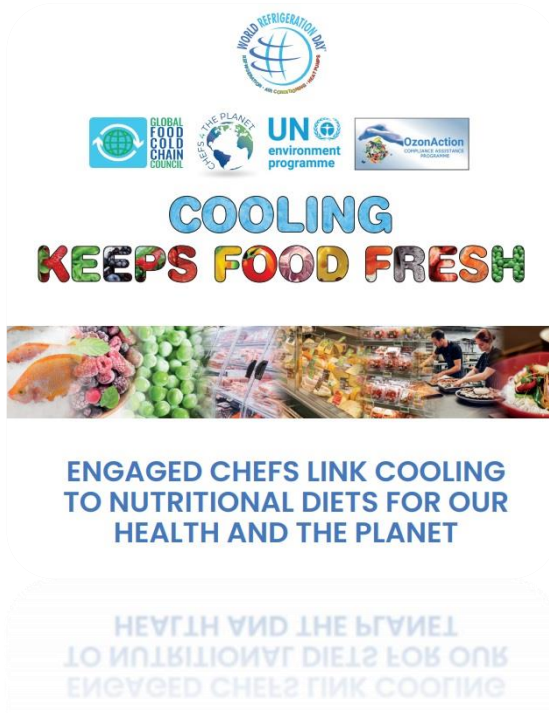
Learn more, and access related documents >>>

- [Meeting information](#)
- [Pre-session documents](#)
- [Side events](#)

[United Nations Environment Programme, Ozone Secretariat, June 2022](#)

Image: Ozone Secretariat website

3. UNEP & partners raise profile on cold chain with support of world-renowned chefs



Launches on World Refrigeration Day 2022, Chefs Say “Cooling Keeps Food Fresh” in Global Campaign

To celebrate World Refrigeration Day, leading chefs are reminding us that cooling enables nutritional diets, helps reduce the number of undernourished, and can lower greenhouse gas emissions. Says Swedish chef Henrik Andersson, “Thanks to our fridges and our cooling systems, we have fresh products everyday like our fish and vegetables. Cooling takes good care of our products.”

The chefs are part of the Chefs4thePlanet network.

Chefs4thePlanet is joining with United Nations Environment Programme OzonAction and Global Food Cold Chain Council in the “Cooling Keeps Food Fresh” campaign. It aims to raise awareness of cooling technologies that reduce food loss and promote climate

security. Twenty-two associations in the cooling industry and four intergovernmental agencies support the campaign which launches on World Refrigeration Day, recognized on and around June 26.

“Cooling, whether refrigerated or frozen, allows us to maintain the optimum quality of products from harvest to final use in the kitchen,” says Laurent Pichaureaux, a chef in Paris. Adds Gregory Cohen, a chef of French cuisine, “With the fridge, we have food that can be kept longer with the same freshness. We can transport food from one place to another without risk of deterioration. Nowadays, there is good technology to keep food fresher with less impact on the environment.”

Drawing on scientific studies, the campaign describes how cooling keeps food safe, promotes nutritious diets by prolonging shelf-life, helps feed the undernourished, and can help protect the environment.

“What causes malnutrition is lack of accessibility,” says Mercedes, a traditional Mexican chef. “The cold chain is a vital element for food safety. Each stage is intertwined with another, from collection to storage, packaging, warehousing, transport to point of sale, and storage at point of consumption.”

Cooling protects us against the proliferation of bacteria in the food we eat. The campaign advises us to keep the fridge and freezer in a safe temperature range. Bacterial grow most rapidly between 4.4 and 60 C (40 and 140F), some doubling in as little as 20 minutes. Cooling slows bacteria growth.

“Cold storage is essential because it allows me to keep my ingredients longer and above all avoid the risk of food poisoning! Increased temperatures cause and accelerate microbial growth and reduce product shelf life. says Denny Imbroisi, an Italian chef. “I maintain my ingredient quality thanks to the cold.”

Justine Piluso, a participant in Top Chef France 2020, says, “Cold is our ally provided you know how to use it. Some preparations should be kept high in the fridge, others lower, and yet others in the freezer. Some will be better in the fridge’s airtight box and others with damp paper. But all need cold.”

Cooling can also contribute to reduction of greenhouse gas emissions and reduced energy bills. “Besides its main purpose of keeping food fresh and safe to eat, your refrigerator can also be an agent of change to help solve environmental challenges such as preserving Earth’s ozone layer, fighting climate change, and promoting energy efficiency,” says Jim Curlin who heads UNEP’s OzonAction.

Food production accounts for 26% of total greenhouse gas emissions with 24% of that emitted from uneaten food. Besides the beneficial environmental impact of expanding the cold chain, nutritionists expect that 950 million people could be fed from food loss due to lack of refrigeration. In 2018, there were an estimated 821 million undernourished people in the world, with world population expected to grow by 2 billion in 2050. “A sustainable food cold chain will be an economic, social and environmental net-positive,” says Juergen Goeller, co-chair of the Global Food Cold Chain Council.

The Cooling Keeps Food Fresh campaign kicks off with short video messages delivered by the chefs in social media. The chefs also share recipes which depend on cooling for their preparation on the campaign website.

“Cold is important to maintain the temperature of ingredients and give the best products to our customers,” says Alan Geam, a one-star Michelin chef born in Lebanon.

Summing up the campaign, “Cold is life!” says Piluso.

Further Resources

- [Press Release: Cooling Keeps Food Fresh](#)
- [Cooling Keeps Food Fresh \(brochure\)](#)
- [World Refrigeration Day Campaign](#)
- [World Refrigeration Day 2022 - UNEP & partners raise profile on cold chain with...](#)

[World Refrigeration Day, 26 June 2022](#)

Image: WRD website

4. SunSmart Global UV App helps protect you from the dangers of the sun and promotes public health

A new app for mobile phones that provides localized information on ultraviolet (UV) radiation levels has been launched by the World Health Organization (WHO), the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Labour Organization (ILO). The SunSmart Global UV app provides five-day UV and weather forecasts at searchable locations. It highlights time slots when sun protection is required with the aim of helping people around the world know when to use sun protection, in an effort to reduce the global burden of skin cancer and UV-related eye damage.



The *SunSmart Global UV app* is available free of charge at both the [Apple App](#) and [Google Play](#) stores. It provides personalized options so that users can take actions to protect prolonged, excessive UV exposure, a major cause of skin cancer and other UV related diseases. The app allows the inclusion of national and local data streams and adaptation to multiple languages – it is currently available in Chinese, English, French, Russian, Dutch and Spanish.

“Evidence shows that overexposure to UV is the major cause of skin cancer. So, it’s vital for people to know when and how to protect themselves,” said Dr Maria Neira, WHO Director, Department of Environment, Climate Change and Health. “ We encourage everyone to use the application to protect themselves and their children, and to make this a daily habit.”

Globally, it is estimated that over 1.5 million cases of skin cancer (melanoma and non-melanoma combined) were diagnosed globally in 2020. During the same period, more than 120,000 people across the world lost their lives to this highly preventable disease. One of the main factors contributing to these cancers is excess UV radiation from thinning of the earth’s stratospheric ozone layer resulting from the release of certain manmade chemicals. Under the international treaty known as the Montreal Protocol, all UN Member States are phasing out the production and consumption of those substances according to a specific timetable. As a result of these continuing efforts, the ozone level is projected to recover by mid-century. In the meantime, individuals need to be particularly cautious to protect themselves from receiving too much UV exposure - this is where the UV app plays an important awareness role.

“The Montreal Protocol protects the stratospheric ozone layer which, in turn, protects human health and the environment by blocking most of sun’s harmful ultraviolet radiation from reaching the earth’s surface. Skin cancer can result from overexposure to the sun, so it is imperative for everyone to remain vigilant and ensure they protect themselves adequately with hats and sunscreen. The SunSmart App is a fantastic UV monitoring tool, and I would encourage everyone to use it,” advises Ms. Meg Seki, Executive Secretary of the Ozone Secretariat.

Everyone needs some sun, mainly for the production of vitamin D which helps to prevent the development of bone diseases such as rickets, osteomalacia and osteoporosis. But too much sun can be dangerous – and even deadly. The summer months hide real danger.

The UV App has been launched to coincide with the first day of summer in the northern hemisphere. By increasing the public's awareness and helping to reduce the incidence of skin cancer, this application ultimately supports the achievement of UN Sustainable Development Goal 3, which aims to ensure healthy lives and well-being worldwide by 2030.

“This app combines meteorological, environmental and health expertise to help protect people from the sun both at work and in their leisure. It is unique because it uses data from country-level weather and UV measuring stations to provide accurate and location-specific UV Index readings,” said WMO Secretary-General Professor Petteri Tallas. “It is a great example of science serving society.”

Much of UV-related illness and death can be avoided through a set of simple prevention measures:

- Limit time in the midday sun
- Seek shade when UV rays are most intense
- Wear protective clothing, hats and sunglasses
- Use a broad-spectrum sunscreen of sun protection

Protecting children from extended periods in the sun is particularly important as excessive sun exposure during these early years can significantly increase the risk of UV related diseases later in life.

“This app is a useful tool to assist companies and workers in identifying hazardous work and planning safety and health measures. The International Labour Conference adopted on 10 June a Resolution recognizing a safe and healthy work environment as a new Fundamental Principle and Right at Work. It is a global call for increased efforts to prevent work-related injuries and diseases. Tools such as SunSmart Global UV are a small but useful contribution to this endeavour,” said Vera Paquete-Perdigão, Director of the ILO's Governance and Tripartism, Department.

UV Index

The app is based on the UV Index, which describes the level of solar UV radiation at the earth's surface. The UV Index is reported on a scale of 1 (or “Low”) to 11 and higher (or “Extreme”). The higher the index value, the greater the potential for damage to the skin and eye, and the less time it takes for harm to occur. The maximum UV Index is at the solar noon when the sun is highest in the sky. Adapting outdoor activities and using sun protection are recommended when the UV Index is 3 or above. UV damage is cumulative and UV can be harmful when people are exposed for long periods – even at low levels.

The app seeks to bring worldwide consistency to UV reporting and public health messaging. It was developed by the Cancer Council Victoria and the Australian Radiation Protection and Nuclear Safety Agency, both WHO Collaborating Centres in Australia where a similar app demonstrated improved UV protection public awareness when it was used to support a decades-long, systematic public health campaign promoting sun-smart behaviour.

The Global Solar UV Index was developed jointly by the World Health Organization (WHO), the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP), the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the German Federal Office for Radiation Protection (Bundesamt für Strahlenschutz, BfS) to inform and alert the general public of the potential health risk associated with high UV solar radiation levels.

[The United Nations Environment Programme, Ozone Secretariat, 21 June 2022](#)

Image: UNEP, Ozone Secretariat website

5. Projected increase in space travel may damage ozone layer

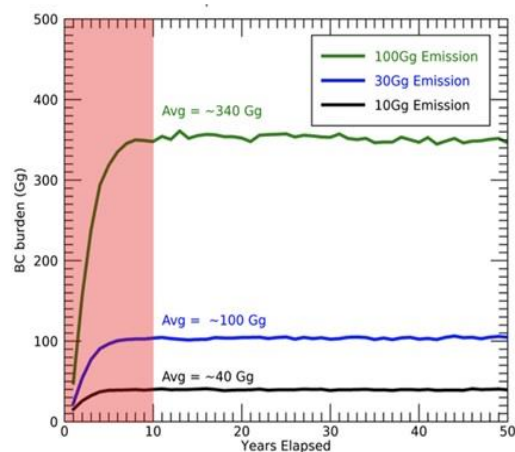
Projected growth in rocket launches for space tourism, moon landings, and perhaps travel to Mars has many dreaming of a new era of space exploration. But a NOAA study suggests that a significant boost in spaceflight activity may damage the protective ozone layer on the one planet where we live.

Kerosene-burning rocket engines widely used by the global launch industry emit exhaust containing black carbon, or soot, directly into the stratosphere, where a layer of ozone protects all living things on the Earth from the harmful impacts of ultraviolet radiation, which include skin cancer and weakened immune systems in humans, as well as disruptions to agriculture and ecosystems.

According to new NOAA research [published in the Journal of Geophysical Research Atmospheres](#), a 10-fold increase in hydrocarbon fueled launches, which is plausible within the next two decades based on recent trends in space traffic growth, would damage the ozone layer, and change atmospheric circulation patterns.

"We need to learn more about the potential impact of hydrocarbon-burning engines on the stratosphere and on the climate at the surface of the Earth," said lead author Christopher Maloney, a CIRES research scientist working in NOAA's [Chemical Sciences Laboratory](#). "With further research, we should be able to better understand the relative impacts of different rocket types on climate and ozone."

Launch rates have tripled



This graph depicts the yearly global stratospheric black carbon burden generated by 10,000 metric tons of soot exhaust per year (black), 30,000 metric tons per year (blue), and 100,000 metric tons per year (green). The 50-year time series average is labeled directly above each line. The red shading represents the first 10 years of the simulation that are excluded from the rest of the analysis. Current spaceflight activity contribute about 1,000 tons of black carbon to the stratosphere every year. Credit: NOAA Chemical Sciences Laboratory

Launch rates have more than tripled in recent decades, Maloney said, and accelerated growth is anticipated in the coming decades. Rockets are the only direct source of human-produced aerosol pollution above the troposphere, the lowest region of the atmosphere, which extends to a height of about 4 to 6 miles above the Earth's surface.

The research team used a climate model to simulate the impact of approximately 10,000 metric tons of soot pollution injected into the stratosphere over the northern hemisphere every year for 50 years. Currently, an estimated 1,000 tons of rocket soot exhaust are emitted annually. The researchers caution that the exact amounts of soot emitted by the different hydrocarbon fueled engines used around the globe are poorly understood.

The researchers found that this level of activity would increase annual temperatures in the stratosphere by 0.5 - 2° Celsius (or approximately 1-4°Fahrenheit), which would change global circulation patterns by slowing the subtropical jet streams as much as 3.5% and weakening the stratospheric overturning circulation.

How rocket exhaust affects the ozone layer

Stratospheric ozone is strongly influenced by temperature and atmospheric circulation, noted co-author Robert Portmann, a research physicist with the Chemical Sciences Laboratory, so it was no surprise to the research team that the model found changes in stratospheric temperatures and winds also caused changes in the abundance of ozone. The scientists found ozone reductions occurred poleward of 30 degrees North, or roughly the latitude of Houston, in nearly all months of the year. The maximum reduction of 4% occurred at the North Pole in June. All other locations north of 30° N experienced at least some reduced ozone throughout the year. This spatial pattern of ozone loss directly coincides with the modeled distribution of black carbon and the warming associated with it, Maloney said.

"The bottom line is projected increases in rocket launches could expose people in the Northern Hemisphere to increased harmful UV radiation," Maloney said.

The research team also simulated two larger emission scenarios of 30,000 and 100,000 tons of soot pollution per year to better understand the impacts of an extremely large increase in future space travel using hydrocarbon-fueled engines, and more clearly investigate the feedbacks that determine the atmosphere's response. Results showed that the stratosphere is sensitive to relatively modest black carbon injections. The larger emission simulations showed a similar, yet more severe disruptions of atmospheric circulation and climate loss than the 10,000 metric ton case.

Building a research foundation

The study built on previous research by members of the author team. [A 2010 study](#) led by co-author Martin Ross, a scientist with The Aerospace Corporation, first explored the climate impact of an increase in soot-producing rocket launches. A second study performed at [NOAA in 2017](#), on which Ross was a co-author, examined the climate response to water vapor emissions from a proposed reusable space launch system utilizing cleaner hydrogen-fueled rockets.

"Our work emphasizes the importance of ozone depletion caused by soot particles emitted by liquid-fueled rockets," Ross said. "These simulations change the long-held belief that

spaceflight's only threat to the ozone layer was from solid-fueled rockets. We've shown that particles are where the action is for spaceflight's impacts."

While the new research describes the influence that soot in rocket exhaust has on the climate and composition of the stratosphere, the scientists said it represents an initial step in understanding the spectrum of impacts on the stratosphere from increased space flight.

Combustion emissions from the different rocket types will need to be evaluated, they said. Soot and other particles generated by satellites burning up when they fall out of orbit is also a growing, poorly understood source of emissions in the middle-to-upper atmosphere. These and other topics will need further research to produce a complete picture of space industry emissions and their impacts on Earth's climate and ozone.

The study was supported by NOAA's [Earth's Radiation Budget](#) initiative.

For more information, contact [Monica Allen](#), NOAA Research Director of Public Affairs

[Oceanic and Atmospheric Research \(OAR\) - NOAA Research, 21 June 2022](#)

Image: NOAA website

6. Northeastern professor studies latest ozone hole science for UN Panel

Auroop Ganguly, professor of civil and environmental engineering at Northeastern University, will spend part of his summer reviewing the latest science on closing the ozone hole at the invitation of the United Nations Environmental Programme.



The quadrennial assessment report on the environmental effects of stratospheric ozone depletion is produced every four years at the stipulation of the Montreal Protocol, the 1987 landmark agreement that regulates ozone-depleting substances on a global basis to protect the earth's shield against ultraviolet radiation.

The assessments "monitor and report progress made on reducing ozone hole depletion with an emphasis on the interactions with climate variability and change," he says.

"My contributions will be on the climate impact aspects, specifically the two-way influence of the ozone hole and climate change on each other."

Ganguly, who has given invited and keynote talks at workshops organized by the U.S. National Academies and the National Science Foundation, is noted for his research in water resources, hydrology and infrastructure resilience as well as non-linear physics.

The 2022 quadrennial assessment report marks the fourth time Ganguly has been invited to join the U.N. Environmental Effects Assessment Panel review. He previously participated in 2010, 2014 and 2018.

Ganguly says he has agreed to review five of eight sections in the assessment, including sections on the response of aquatic ecosystems to the interactive effects of stratospheric ozone depletion, UV radiation and climate change as well as linkages between COVID-19, solar UV radiation and the Montreal Protocol.

The U.N. Environmental Programme calls the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer a “landmark” environmental agreement that regulates nearly 100 man-made chemicals known as ozone-depleting substances or ODS.

Once released to the atmosphere, the chemicals damage the stratospheric ozone layer that protects humans, as well as the environment, from harmful ultraviolet radiation emitted by the sun, the UNEP says.

“The protocol is to date the only U.N. treaty that has been ratified (by) every country on Earth—all 198 U.N. member states,” the UNEP says.

The protocol is working, U.N. experts say.

“The parties to the protocol have phased out 98% of ODS globally, compared to 1990 levels. Because most of these substances are potent greenhouse gasses, the Montreal Protocol is also contributing significantly to the protection of the global climate system,” the UNEP says.

“Without this treaty, ozone depletion would have increased tenfold by 2050 compared to current levels and resulted in millions of additional cases of melanoma, other cancers and eye cataracts,” the UNEP says.

A category of ozone-depleting substances known as chlorofluorocarbons, including refrigerants and aerosol sprays, was at first assumed safe after being introduced in World War II, according to [Science for the Public](#).

One of Ganguly’s graduate school teachers, atmospheric scientist Mario Molina, was among the first to sound the alarm in the 1970s that CFCs threatened to shrink the protective ozone layer.

In 1985, an “extreme depletion of ozone over Antarctica was discovered—the so-called ozone hole,” according to NASA.

Ten years later, Molina and fellow scientists F. Sherwood Rowland and Paul Crutzen were awarded the Nobel Prize in Chemistry for their work predicting the emergence of the ozone hole and the conditions that led to its development.

Ganguly, who will return July 8 from leading a Northeastern study abroad program in Tanzania, has until July 25 to submit his comments as part of the quadrennial assessment review on the continuing effects of ultraviolet radiation on health, ecosystems and materials.

He is scheduled to attend a review meeting in Kalmar, Sweden, in September.

[News @ Northeastern, 28 June 2022, By Cynthia Hibbert](#)

Image: Auroop Ganguly works in his lab in Forsyth building. Photo by Adam Glanzman/Northeastern University

International contest of scholar articles on the topic of “The Ozone Layer and Life on Earth” (Republic of Uzbekistan) - Regulation on the procedure for selecting scholar articles devoted to the protection of the ozone layer for the international contest under the Joint project of the State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection and UNDP/GEF ‘Complete HCFC Phase-out in Uzbekistan through Promotion of Zero ODS Low GWP Energy Efficient Technologies’.



Applications and electronic versions of scholar articles, including a link to the published paper on web-platforms or a scanned copy shall be sent to ozone.o3.uz@gmail.com by **August 1, 2022**

Learn more >>> <https://bit.ly/3L3xI3n> (English) <https://bit.ly/3GnBSzE> (Russian)

ASIA AND THE PACIFIC

7. Tonga looks at control of ozone depleting substances



On the 15th of June 2022 the Tonga – [Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC)], Department of Climate Change hosted a meeting with the advisory committee for ozone layer protection. The objectives of the meeting is to oversee Tonga’s obligations to the Montreal Protocol on Substances that Deplete the Ozone Layer as well as ensuring that all implemented and planned activities of the National Ozone Unit (NOU) is aligned with the provisions of the Ozone Layer Protection Act 2021.

The advisory meeting started with a joyful note as the CEO for MEIDECC and also Chairman of the Ozone Advisory Committee, Mr. Paula Ma’u greeted the members in excitement after a long break and self-isolations from HTHH tragic event and constraints of the Covid pandemic. He also extended his sincere gratitude to the members for their effective participation which he believes to be an unblemished symbol that the significance of safeguarding the ozone layer and keeping the compliance with the Montreal Protocol is still within the interest of the advisory members.

As a result of the advisory committee’s review of the Ozone Unit work plan and status of phasing out HCFC, some major concerns were raised. The areas of concern were:

- 1) Ensuring a proper storage facility for the seized refrigerants at Customs area

- 2) Establishing a legal way for seized refrigerants' disposal
- 3) Research and report on the consumption and control measures of Methyl Bromide by Quarantine – fumigation division
- 4) To include the Tonga Fire Services to the inspection team when surveying storage facilities for flammable refrigerants.

The meeting concluded with presentations on the phase out schedule of the Montreal Protocol and Ozone Layer Protection Act by Mr. 'Aloisio Fifita and Ms. Papyrus Tokai from the MEIDECC's Department of Climate Change and Corporate Services Division. One of the presentations highlighted that the maximum allowable consumption and the actual consumption rate being directly proportional to each other is a good indicator for achieving Tonga's phase out schedule with regards to the Montreal Protocol requirements. "Although the consumption rates of HCFC over the years vary and do not follow a specific trend, the most important factor is not exceeding the designated maximum allowable consumption for each period of time," said Mr. Fifita.

This meeting was conducted at the Department of Climate Change Office at Nuku'alofa and was attended by representatives from relevant line ministries as well as representatives from non – government organizations. The next ozone advisory meeting is tentatively planned for the last week of September 2022.

[Tonga, MEIDECC, 15 June 2022](#)

Image: MEIDECC.com

LATIN AMERICA AND CARIBBEAN

8. Interview: Laura Berón, Coordinator of the National Ozone Unit, on the technician training and certification programme in Argentina

Laura Berón, Coordinator of the National Ozone Unit, and Graciela Garau, Technical Consultant at the National Ozone Unit of Argentina, on the technician training and certification programme in Argentina.

What is the overarching goal of the technician training and certification programme in Argentina?

One of the main objectives under the HCFC phase-out management plan (HPMP) for Argentina was the reduction of HCFC consumption in the refrigeration and air conditioning (RAC) servicing sector. This was achieved by introducing alternatives to HCFC with a lower ozone-depleting potential (ODP) and wherever possible a lower global-warming potential (GWP).

While better for the environment, some of the low GWP refrigerants are also highly flammable, so handling them requires technical training and specialized skills.

The National Ozone Unit of Argentina, OPROZ, set as a priority to promote the training of RAC service technicians on the safe handling of these refrigerants, with a view to a subsequent certification. The ultimate goal was to help experienced service technicians safely manage flammable refrigerants when planning, installing, servicing and repairing RAC appliances.

Could you describe the process for initiating the training and certification programme in Argentina and how the National Ozone Unit addressed any major challenges?

The first step in the process was to engage qualified trainers. OPROZ selected eighteen national RAC experts for this programme,

In 2019, as part of the bilateral cooperation between the Italian Ministry for the Environment, Land and Sea and the Argentinian Government Secretariat of Environment and Sustainable Development a delegation of 20 professors (2 from the National Technological University, certification body) and representatives from Argentinian Government gathered in Casale Monferrato, Italy, to attend a train-the-trainers course on flammable refrigerants. The selected trainers were assessed according to the REAL Alternatives 4 LIFE blended learning programme for safe handling of flammable refrigerants; after a fully positive outcome, all participants were successfully certified.

Specific equipment and tools were then procured by UNIDO and delivered to each of the trainers by OPROZ in January and February 2020. The training program was launched in March 2020 with an inception meeting and a training session on the use of a specially designed mini-benches to study the refrigeration circuit and simulate different possible faults, in order to reinforce basic refrigeration competences.



OPROZ developed a training manual and course materials for the training programme. UNIDO concluded contracts with each of the trainers for the delivery of the courses.

OPROZ also worked closely with the National Technological University (UTN) – the national certification body – to develop the methodology and materials for the theoretical and practical examination on the Safe Handling of Flammable Refrigerants.

Then came the COVID-19 pandemic and very strict restrictions on movement enforced by the Government of Argentina in 2020 and 2021, so the programme faced significant delays.

Once the restrictions were finally lifted, the training programme was relaunched and is advancing well. To date, six (6) training courses have been delivered in San Juan (2), Salta (2), San Miguel de Tucuman (1) and Termas de Río Hondo (1), with a total of 104 technicians trained. Certification exams have taken place in San Juan, Tucuman and Salta and, so far, fifty-four (54) technicians have been certified.

Approximately fifteen (15) additional courses are planned to take place between now and August 2022.

What are the next steps and what is your vision for the future?

In order to incentivize participation in the certification scheme, the first 1,000 certified technicians will receive specific tools for working with flammable refrigerants. UNIDO has initiated the procurement process for the purchase of this equipment and OPROZ oversees the equipment delivery.

What are some of the lessons learned you could share with other National Ozone Units embarking on this process?

The refrigeration service sector in Argentina is rather informal, there are very few national institutes of higher learning for this profession, so it was decided that the courses should also focus on the theoretical aspects related to refrigeration with the aim of improving the overall knowledge of technicians in this profession.

So, in addition to the safety issues related to flammable refrigerants, subjects such as basic thermodynamics, principles of the refrigeration cycle, Mollier diagram, pressure/temperature charts, classification of blends and their different behaviour, basic concepts related to the design and service of refrigeration systems with flammable refrigerants, etc. were included in the courses' curricula.

With that in mind, it was very important to assemble a team of trainer's with not only solid theoretical knowledge but also significant practical experience, who could address technicians in their language, what we call "workshop jargon", to facilitate fruitful discussions with them.

Regarding the certification exams, these were originally designed solely on the manual's contents, but, once the courses began, and with them the interaction with the technicians, we realized that a more practical approach would be necessary, so, we changed a lot of questions to reflect this.

Notwithstanding, at the end of each exam, questions are analysed in order to see if other changes would also be necessary, such as, for instance, the language used.

Exams also have certain questions related to safety issues that are considered “essential”, meaning that in order to pass they must be correctly answered, no matter how many others are also correct.

One final important issue to consider was that technicians are not students and are not used to exams. So, an evaluation was taken after each course to prepare them for the real exam and to see if a subject was not properly understood and needed extra considerations. The results of these evaluations were discussed with each of the participants, so they could know which subjects would need further study. For that, trainers organized extra consultations and review classes. With this personalised approach, we are sure that we are building qualified professionals, who will have a lasting understanding of these topics (beyond the exam) and who will make valuable contributions to the RAC servicing sector of Argentina.

[The United Nations Industrial Development Organization \(UNIDO\), 23 June 2022](#)

Image: UNIDO

NORTH AMERICA



9. GreenChill Webinar: Exploring the true cost of refrigerant leaks and proactive solutions

Join GreenChill for a webinar on July 12 from 1 – 2 PM Eastern. This webinar will feature presenters from the North American Sustainable Refrigeration Council (NASRC) and a refrigeration consultant. Reducing refrigerant leaks is critical for food retailers to successfully navigate the phasedown of

hydrofluorocarbons (HFC) refrigerants. In this webinar, NASRC will highlight its retailer-led effort to identify the top leak issues, strategies to assess costs, and the solutions to proactively reduce leaks over the lifespan of the refrigeration system.

Join on your computer or mobile app

[Click here to join the meeting](#)

Join with a video conferencing device

sip:teams@video.epa.gov

Video Conference ID: 113 675 677 5

[Alternate VTC instructions](#)

Or call in (audio only)

[+1 202-991-0477,142270334#](tel:+12029910477142270334) United States, Washington DC

Phone Conference ID: 142 270 334#

[Find a local number](#) | [Reset PIN](#)

[US EPA GreenChill, 17 June 2022](#)

Image: GreenChill website

EUROPE & CENTRAL ASIA

10. Greening refrigeration and air conditioning sector in Georgia

UNDP provides refrigeration and air conditioning technicians with modern equipment

World Refrigeration Day is an international awareness campaign centred around June 26 to raise the refrigeration and air-conditioning sector's profile and focus public attention on the significant role that the industry and its technology play in protecting the environment and the atmospheric ozone layer. The 2022 theme, **#ColdChain4Life**, underlines the importance of the refrigerated cold chain in sustaining life.



The United Nations Development Programme (UNDP) and Georgia's Ministry of Environmental Protection and Agriculture (MEPA) acknowledged the Day by equipping refrigeration and air conditioning (RAC) technicians with modern appliances needed in their work.

Twenty RAC professionals received modern equipment worth EUR23,000 to detect refrigerant leakage, control pressure and temperature in refrigeration systems, and collect and store refrigerant waste. These professionals actively work in the Georgian RAC sector thanks to the training and certification programme supported by UNDP and the Georgian Refrigerant Recovery, Recycling and Reclamation Centre.

The equipment handover was hosted by Georgian Technical University, one of the higher education institutions offering refrigeration and air conditioning training programmes.

At the event, the Association of Refrigerating, Cryogenic and Air Conditioning Engineers presented its annual report and awarded honorary diplomas to the distinguished sector specialists.

The event wrapped up activities implemented by UNDP with funding from the Multi-Lateral Fund to the Montreal Protocol to help Georgia phase out harmful substances threatening the atmospheric ozone layer. Working in close partnership with Government, educational institutions and the private sector, the programme assisted to drive the change toward an environment-friendly refrigeration and air conditioning industry in Georgia.

Some of the programme achievements include:

- Hydrochlorofluorocarbons (HCFCs) consumption froze in 2013.
- Imports of the R-22 refrigerant fell to a record level of annual 15.5 tons in 2020.
- A ten-year action plan guided the phase-out of ozone-depleting substances in 2011-2021.
- Legislative changes and a new system of import quotas were introduced to limit the use of ozone-depleting substances.
- In 2021, the Georgian Public Broadcaster replaced its outdated climate control system with ozone-friendly air conditioning. Up to 130 kilograms of the R-22 refrigerant have been removed under this pilot project alone.
- Many Georgian companies and organizations switched to ozone-friendly equipment.
- Two refrigerant recycling centres were established, and 20 refrigeration service companies were equipped with refrigerant recovery machines, refillable refrigerant cylinders and portable refrigerant leak detectors.
- A range of vocational education colleges introduced training courses in refrigeration and air conditioning.
- Educational materials were created for refrigeration and air conditioning technicians, customs officers and environmental inspectors.
- Over 800 refrigeration and air conditioning technicians were trained in safe equipment handling, national regulatory and policy frameworks related to ozone-depleting substances and alternative technologies and energy efficiency measures.
- Up to 150 air conditioning and refrigeration technicians were certified under the newly established certification system.
- Up to 300 customs officers and environmental inspectors were trained in the identification of refrigerants and detection of illegal imports and misuse.
- Consultants of the largest home appliance stores participated in professional training on safe refrigeration technologies.
- The Revenue Service of the Ministry of Finance and the Department of Environmental Supervision of the Ministry of Environmental Protection and Agriculture received up-to-date equipment, including refrigerant identifiers and portable refrigerant leak detectors.

UNDP will continue supporting Georgia to phase out ozone-depleting substances by 97.5 percent by 2030. As the country achieves this ambitious goal, only 2.5 percent of the baseline consumption of ozone-depleting substances will be still in use for servicing purposes throughout the next ten years (2030-2040).

[The United Nations Development Programme \(UNDP\), 27 June 2022](#)

Image: UNDP/Gela Bedianashvili

FEATURED

Overview for the meetings of the ozone treaties in 2022

- 68th IMPCOM**, Bangkok, Thailand | 09 July 2022
- 44th OEWG**, Bangkok, Thailand | 11 - 16 July 2022
- 5th ExMOP**, Bangkok, Thailand | 16 July 2022
- 69th IMPCOM**, Venue – to be determined | 29 October 2022
- 33rd MOP Bureau**, Venue – to be determined | 30 October 2022
- 34th MOP**, Venue – to be determined | 31 October - 04 November 2022

Click [here](#) for past and upcoming Montreal Protocol Meetings Dates and Venue.

Online introductory course ‘International legal framework on ozone layer protection’

Designed for government representatives and national stakeholders new to the Vienna Convention and Montreal Protocol, students of environmental law, and anyone interested in learning about the ozone treaties, the [online course](#) launched by the Ozone Secretariat aims to provide an introduction to the international legal framework on ozone layer protection.



[United Nations Environment Programme \(UNEP\), Ozone Secretariat, 14 February 2022](#)

Image: UNEP, Ozone Secretariat website

Free teaching kits on ozone layer and environmental protection

- New free online teacher toolkits and lesson plans based on the success of UNEP’s Ozone Secretariat’s [Reset Earth](#) animation and video game



- Targeting Tweens by adopting animation and gamification to create innovative online lessons to raise awareness on ozone layer and environmental protection
- Available online in digital and print format for universal access

Read/download >>> [Ozone Secretariat's education platform](#)

Image: UNEP, Ozone Secretariat website

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. [Learn more >>>](#)



**[THE MULTILATERAL FUND
FOR THE IMPLEMENTATION OF THE
MONTREAL PROTOCOL](#)**

In view of the global COVID-19 situation and the relevant directives released by the Governments of Canada and Quebec in response to the pandemic, on 18 January 2022 the Secretariat informed the Executive Committee that the in-person 89th meeting, planned for 7 to 11 March 2022, in line with decision 87/60(a) would not take place.

Following discussions with the Executive Committee, the following contingency plan was approved:

(a) The 89th meeting will be held in two parts:

(i) Part I: Virtually, on 16, 18 and 20 May 2022, to consider items listed in the agenda of part I of the 89th meeting contained in document UNEP/OzL.Pro/ExCom/89/Add.1;

(ii) Part II: In-person, from 16 to 18 June 2022, in Montreal, Canada, at the International Civil Aviation Organization (ICAO);

(b) A "refresher" informal session for Executive Committee members will be organized on agenda item 7(a) of the 89th meeting, development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft criteria for funding (decision 83/65(d)), on 15 June 2022 from 4 p.m. to 6 p.m., in Montreal, Canada, at Le 1000, Conference Centre; and

(c) The 90th meeting will be held from 20 to 23 June 2022, in Montreal, Canada at ICAO.

In light of the Canadian Grand Prix being held the weekend of 17 to 19 June, all attendees are advised to make lodging arrangements as soon as possible.

- [Evaluation of regional networks of national ozone officers \(desk study and terms of reference for the second phase\)](#)
- [Evaluation of regional networks of national ozone officers \(desk study and terms of reference for the second phase\): Corrigendum](#)
- [Guide for project preparation of Stage I of Kigali HFC implementation plans \(KIP\) \(February 2022\)](#)
- [Updated guide for the presentation of stage II of HCFC phase-out management plans \(February 2022\)](#)
- [Executive Committee Primer 2022](#)

>>> Click [here](#) for the Executive Committee upcoming and past Meetings and related documents.



OzonAction

[OzonAction Compliance Assistance Programme](#) produces and outreaches a wide variety of information and capacity building materials and tools that support the implementation of the Montreal Protocol programs and assist Article-5 countries in meeting the compliance targets. These include publications, technology briefs and factsheets, mobile applications, videos, e-Learning, modelling and database programs and special educational or certification programs.

The section below features several of our most recent products.

Visit [OzonAction website](#) for more information, discover the entire range of products.

Images in this section are by OzonAction

OzonAction Knowledge Maps tool - The UNEP OzonAction Knowledge Maps tool was developed to provide the National Ozone Units (NOUs) and different UNEP partners with a simple tool to help them access data and information about relevant stakeholders, who are mainly involved in the implementation of programmes and projects under the Montreal Protocol (MP) supported by Multilateral Fund (MLF).

Refrigeration, Air-Conditioning, and Heat Pumps (RACHP) Associations & Organizations: This Knowledge Map provides a global directory of RACHP associations, societies, and organisations around the world. These are key stakeholders for ensuring safe and efficient refrigerant transitions.

Local Technical & Vocational Education and Training (TVET): This Knowledge Map provides a global directory of TVET entities and centres around the world. These are the strategic partners for conducting and promoting training and certification programmes related to the refrigeration servicing sector.



Click [HERE](#) to access the OzonAction Knowledge Maps tool

Click [HERE](#) to download the OzonAction Knowledge Maps tool flyer

Gas Card Tool: Web-based Visual Printable Cards of Refrigerant Gases

developed by the UN Environment Programme (UNEP) OzonAction, to provide engineers, workers, and technicians with easily accessible information on substances/ gases that they are working with or handling in the workplace on visual printable cards.

Content of Gas Cards - Each Gas Card is printable (in PDF or image format) and includes the following information about each substance/gas: a) General Characteristics (Chemical name, formula and type, ASHRAE designation, Trade names, Harmonized System (HS) codes, Chemical Abstract Service (CAS), United Nations (UN) numbers, Blend/ mixture components, Montreal Protocol Annex and Control measures, main usage, etc.) b) Gas Performance—Radar Chart (in terms of: Ozone depleting potential-ODP, Global warming potential- GWP, Toxicity Class & Flammability Class) c) Environmental and Safety Impact, and Safety Impact (with visualization of Toxicity & Flammability Class, Hazardous Symbols).



More Information - The Gas Card web-based tool is part of UNEP OzonAction’s portfolio of activities and tools to assist various stakeholders in developing countries, including customs officers and technicians, to achieve and maintain compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer. In the left navigation bar of the Gas Card tool web page, you will find a list of commonly used HFCs and HFC Blends in different sectors.*

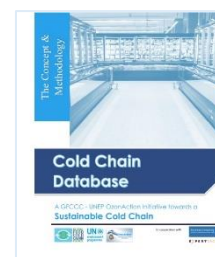
Using the Gas Card web-based tool

- The Gas Card tool is available online on the [OzonAction website](#)
- Read the full [2021 annual iPIC report](#)
- See the [flyer](#) introducing the new iPIC platform

** Based on the Overall Analysis of the Results of the Survey of ODS Alternatives Report (conducted in 119 countries from 2012 to 2015)*

OzonAction and GFCCC launch the methodology questionnaires the Cold Chain Database Initiative


The Global Food Cold Chain Council (GFCCC) and the United Nations Environment Programme (UNEP) OzonAction announced the launch of their Cold Chain Database and Modeling initiative. The initiative marks the first formal step to assist developing countries in identifying their cold chain baseline along with consumption of relevant HCFCs or HFCs or other refrigerants. The initiative was conceived in 2019 and kicked off during the 31st Meeting of Parties to the Montreal Protocol (Rome, Italy), which concluded with the Rome Declaration on “The Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development”.



- > [GFCCC-UNEP OzonAction Cold Chain Modelling Press Release](#)
- > [GFCCC-UNEP Cold Chain Database Methodology Final](#)

> For countries or partners interested to use the model data collection detailed questionnaires, please fill in the [Expression of Interest and NDA of Cold Chain Database](#) form and return to [Ayman Eltalouny](#)

Contact: [Ayman Eltalouny](#), Coordinator International Partnerships, UNEP, OzonAction



Substances	Quantity HPMP	Quantity Quota	Country	Units	Action
HCFC-22	500,000	500,000	Canada	kg	[+] [-]
HCFC-123	100,000	100,000	Canada	kg	[+] [-]
HCFC-141b	100,000	100,000	Canada	kg	[+] [-]
HCFC-142b	100,000	100,000	Canada	kg	[+] [-]

[HCFC Quota and Licence Tracker](#) - a new desktop application to assist with HCFC licences and quotas - National Ozone Officers have the great responsibility of managing the allocation and monitoring of quotas for substances controlled under the Montreal Protocol. This process can be complex with many importers, especially if the

country imports a range of different hydrochlorofluorocarbons (HCFCs) and mixtures containing HCFCs. To address this challenge, OzonAction developed a new desktop application that helps Ozone Officers with the tasks of planning, calculating, monitoring, and managing consumption quotas and licences. It can be used on a daily basis to track and manage the current year's quota allocations for different importers, or for future planning by trying different scenarios that adjust the type of substances imported, their quantity, or the number of importers. The HCFC Quota and Licence Tracker allows Ozone Officers to see the effect of such scenarios on the national HCFC consumption and helps ensure that the quotas stay within agreed HCFC Phase-out Management Plan (HPMP) targets. For countries that have ratified the Kigali Amendment, in the future OzonAction will extend the tracker to include hydrofluorocarbons (HFCs) once countries begin designing their quota systems for those controlled substances.

Access the:

- [HCFC Quota tracker app](#)
 - [Flyer for more information on the tracker](#)
 - [Short video tutorial on the OzonAction YouTube Channel](#)
-

[GWP-ODP Calculator Application](#) - Updated- “Quickly, efficiently and accurately convert between values in metric tonnes, ODP tonnes and CO₂-equivalent tonnes”



Data are extremely important for the Montreal Protocol community, and the data reporting formats for both A7 and CP have changed recently, to a large degree triggered by the Kigali Amendment. HFCs, blends, CO₂-equivalent values, etc, now have to be addressed much more frequently by Ozone Officers during their daily work. Sometimes the terminology and values are complex and can be confusing, and it helps to have it all the official facts and figures in one place. Conversion formulas need to be applied to calculate CO₂-eq values from both GWP and metric tonne values. This free app from OzonAction is a practical tool for Ozone Officers to help demystify some of this process and put frequently needed information at their fingertips.

What's new in the app:

- An updated more user-friendly interface
- Multilingual interface: English, French and Spanish
- A new **Kigali Amendment mode** - in this mode the GWP values used to calculate the refrigerant blends/mixtures only include GWP contributions from components that are controlled HFCs
- Latest updated ODP and GWP values from the recent reports from the Montreal Protocol technology and scientific expert panels as well as the Intergovernmental Panel on Climate Change (IPCC) reports
- References added for sources of all values
- New refrigerant mixtures (with ASHRAE -approved refrigerant designations)

If you already have the application installed on your device, be sure to update to benefit from the new features. The app can be viewed in English, French or Spanish.



Smartphone Application: Just search for “*GWP-ODP Calculator*” or UNEP in the Google Play store or use the QR code – free to download! If you already have the application installed on your device, be sure to update to benefit from the new features.



Desktop Application: *GWP-ODP Calculator* is also available online on the OzonAction [website](#)



Watch the new short introductory tutorial **video** on the *GWP-ODP Calculator* - available now on [YouTube](#)

>>> Read/download the [flyer](#) for more information

Updated OzonAction "WhatGas?" Mobile App

The OzonAction 'WhatGas?' application is an information and identification tool for refrigerant gases: ozone depleting substances (ODS), HFCs and other alternatives. It is intended to provide some stakeholders, including Montreal Protocol National Ozone Officers, customs officers, and refrigeration and air-conditioning technicians with a modern, easy-to-use tool that can be accessed via mobile devices or the OzonAction website to facilitate work in the field, when dealing with or inspecting ODS and alternatives, and as a useful reference tool.



This latest release includes the 2022 Harmonized System (HS) Codes for HFCs and blends, which facilitates the process of inspection and identification of controlled and alternative substances.

Scan the QR code to download the app (*currently available for Android devices only*). If you've already downloaded the app, to update visit the [Google Play Store](#)

[RAC Technician Videos](#) - Full length films!

Two 'full length' videos for refrigeration and air-conditioning (RAC) sector servicing technicians: on 1) Techniques, Safety and Best Practice and 2) Flammable Refrigerant Safety.

The OzonAction Refrigeration and Air-Conditioning Technician Video Series consists of instructional videos on techniques, security and best practice and flammable refrigerant safety. They are intended to serve as a complementary training tool RAC sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training. The videos are not intended to replace structured formal technician training, but to supplement and provide some revision of tips and skills and to build on training already undertaken.




These videos are based on the successful UNEP OzonAction smartphone application, the RAC Technician Video Series app. This application has been downloaded on more than **86,000** devices since its launch.

Following many requests to make the videos more versatile and better suited to classroom and training settings, OzonAction has responded to this demand and produced two 'full-length' instructional videos.


You may wish to share this message and the flyer with:

- Your national/regional RAC associations
- Training or vocational institutes
- Master RAC trainers in your country

- Any other interested national stakeholders

 You can watch these videos on the OzonAction YouTube Channel:

- [Techniques, Safety and Best Practice](#)
- [Flammable Refrigerant Safety](#)

 The videos are also available for download by request from UNEP OzonAction:
unep-ozonaction@un.org



If you prefer to access the video clips via the OzonAction smartphone application, just search for “RAC Technician Video Series” or UNEP in the Google Play Store and iTunes/App Store or scan the QR code – **Free to download!**

The flyer is available from the [OzonAction website](#).

[Refrigerant Cylinder Colours: What has Changed](#) - A new UNEP OzonAction factsheet on the new AHRI revised guideline on a major change to refrigerant cylinder colours

One of the ways in which refrigeration cylinders are quickly identified is by cylinder colour. Although there was never a truly globally adopted international standard, the guideline from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) although not required by law was used by the vast majority of industry and chemical producers around the world.

An AHRI revised guideline, first published in 2015, now removes paint colour assignments for refrigerant containers and specifies that all refrigerant containers should have the same paint colour from 2020 onwards. NOOs and technicians should be aware of this change and inform national stakeholders, as well as familiarising themselves with relevant container labels and markings for refrigerants.

Read/download the [factsheet](#)



Update on [new refrigerants designations and safety classifications](#) - The latest version of the factsheet providing up to date information on refrigerant designations and safety classifications is now available (September 2020 update). The factsheet, produced by **ASHRAE** in cooperation with **UN Environment Programme OzonAction** is updated every 6 months. Read/download the [factsheet](#)

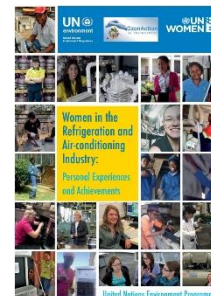


Contact: [Ayman Eltalouny](#), OzonAction, UN Environment Programme

[OzonAction's iPIC platform - Updated](#) Collaboration between China and Thailand using OzonAction's informal Prior Informed Consent (iPIC) system has resulted in the prevention of a huge consignment of ozone-depleting and climate damaging hydrochlorofluoro-carbons (HCFCs). Those chemicals, which are primarily used as refrigerants for air conditioners and fridges, are controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer and are being phased out by all countries according to a specific timeline.



[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 field and follow in their footsteps.



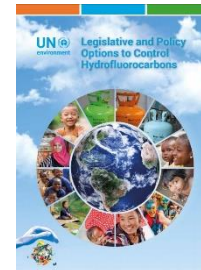
Read/download the [publication](#)

As part of IIR and UNEP OzonAction's partnership, a set of Cold Chain Technology Briefs was released over the past few years, which includes in-depth summaries about the cold chain in different key sectors. They include descriptions of technology, refrigerant options and trends and conclude with prospects and challenges. They cover the main cold chain sub-sectors, i.e., [Production & Processing](#), [Cold Storage](#), [Transport Refrigeration](#), [Commercial & Domestic](#), and [Fishing Vessels](#). [Download the Cold Chain Technology brief in English](#) | [French](#) | [Russian](#) | [Spanish](#)



PUBLICATIONS

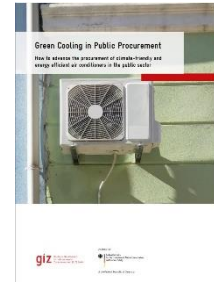
[Legislative and Policy Options to Control Hydrofluorocarbons](#) In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures. This booklet contains a recommended 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. [Read/download](#)



Latest issue of Centro Studi Galileo magazine, **Industria & Formazione**, n. [5-2022](#) (in Italian).

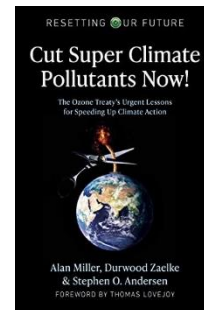


Green Cooling in public procurement How to advance the procurement of climate-friendly and energy-efficient cooling equipment in the public sector? Air conditioning in public buildings is often responsible for around 50% of total electricity consumption. Switching to climate-friendly cooling technologies ("Green Cooling") can reduce costs and energy consumption and improve the carbon footprint of public buildings. This study takes a closer look at the benefits of Green Cooling in the public sector and discusses current barriers and possible solutions. The information presented provides a solid basis to revise current procurement criteria for sustainable cooling systems in public buildings. **Read/Download the [study](#)**



Cut Super Climate Pollutants Now! The Ozone Treaty's Urgent Lessons for Speeding Up Climate Action (Resetting Our Future). We have a decade or less to radically slow global warming before we risk hitting irreversible tipping points that will lock in catastrophic climate change. The good news is that we know how to slow global warming enough to avert disaster. Cut Super Climate Pollutants Now! explains how a 10-year sprint to cut short-lived "super climate pollutants" – primarily HFC refrigerants, black carbon (soot), and methane – can cut the rate of global warming in half, so we can stay in the race to net zero climate emissions by 2050.

Authors: Alan Miller, Durwood Zaelke, Stephen O. Andersen.



E-Book on Process Safety Management (PSM) Training for Ammonia Refrigeration - a new e-book about the critical elements of a process safety management (PSM) training program for facilities operating an ammonia refrigeration system.

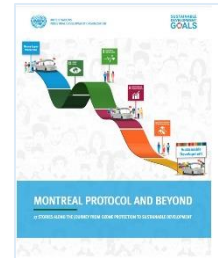
The e-book, titled "[7 Keys to a Compliant PSM Training Program for Ammonia Refrigeration](#)," outlines important questions a facility's program should address and questions that trained plant personnel should be able to answer. Topics covered include:

- Safety hazards and health considerations
- Emergency shutdown procedures
- Addressing deviations from system operating limits
- Risks and costs of non-compliance with regulatory standards

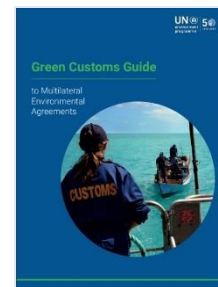
Request free Download [here](#)



[Montreal Protocol and beyond: 17 stories along the journey from ozone layer protection to sustainable development](#) - The 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) embody the global commitment to build a more sustainable future for all. These universally agreed objectives address the most urgent environmental, social, and economic challenges of our time... **Read/Download [here](#)**



The Green Customs Guide to Multilateral Environmental Agreements was designed to promote sustainable trade and encourage customs and border control officers to take on a proactive role in protecting the environment. The guide provides useful information and guidance about relevant trade-related multilateral environmental agreements (MEAs), thus facilitating legitimate trade in environmentally sensitive items while preventing illicit trade in such items and contributing to the achievement of the [Sustainable Development Goals](#).



Read/Download the [full report](#).

See pages 91-98 on "How the Montreal Protocol regulates trade", and "Montreal Protocol-specific training materials for customs officers."

MISCELLANEOUS

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- Prix de la meilleure innovation en Climatisation
- Prix de la meilleure innovation en Cuisine professionnelle
- Prix de la meilleure initiative en développement durable

Date limite de dépôt de candidature: **29 juillet 2022**

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



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

We 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 Programme, OzonAction

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



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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
Reviewed by: Ayman Eltalouny

If you wish to submit articles, invite new subscribers, please contact:
Samira Korban-de Gobert, samira.degobert@un.org



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