

OzoNews

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

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GLOBAL

- 1. Kigali Amendment latest ratifications**
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Congratulations to the latest countries which have ratified the Kigali Amendment:

[Thailand, 3 April 2024](#)

[Djibouti, 8 Mar 2024](#)

[Guatemala, 11 January 2024](#)



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. Chemistry Contribution to Stratospheric Ozone Depletion After the Unprecedented Water-Rich Hunga Tonga Eruption

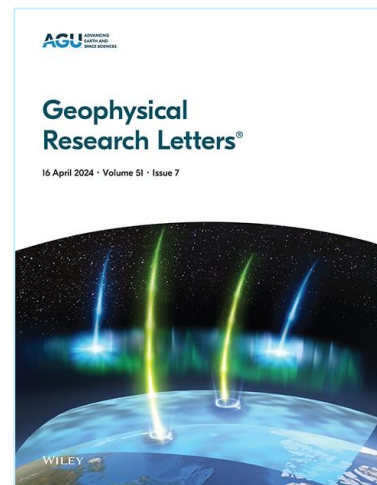
Abstract

Following the Hunga Tonga–Hunga Ha’apai (HTHH) eruption in January 2022, stratospheric ozone depletion was observed at Southern Hemisphere mid-latitudes and over Antarctica during the 2022 austral wintertime and springtime, respectively.

The eruption injected sulfur dioxide and unprecedented amounts of water vapor into the stratosphere. This work examines the chemistry contribution of volcanic materials to ozone depletion using chemistry-climate model simulations with nudged meteorology. Simulated 2022 ozone and nitrogen oxide ($\text{NO}_x = \text{NO} + \text{NO}_2$) anomalies show good agreement with satellite observations. We find that chemistry yields up to 4% ozone destruction at mid-latitudes near ~ 70 hPa in August and up to 20% ozone destruction over Antarctica near ~ 80 hPa in October. Most of the ozone depletion is attributed to internal variability and dynamical changes forced by the eruption.

Both the modeling and observations show a significant NO_x reduction associated with the HTHH aerosol plume, indicating enhanced dinitrogen pentoxide hydrolysis on sulfate aerosol.

Key Points



- Chemistry yields 4% and 20% ozone depletion in the lower stratosphere at mid-latitudes and Antarctica in August and October, respectively
- The majority of ozone depletion is ascribed to internal variability and dynamical changes induced by the eruption
- HTHH aerosol plume is associated with notable NO_x reduction, indicating enhanced dinitrogen pentoxide hydrolysis on sulfate aerosol

Authors: Jun Zhang, Douglas Kinnison, Yunqian Zhu, Xinyue Wang, Simone Tilmes, Kimberlee Dube, and William Randel

Read/Download full report >>>

[Geophysical Research Letters, Volume 51, Issue 7 April 2024](#)

Image: AGU

See also >>> [APARC \(SPARC\) workshop on the impact of the Hunga eruption, 22-24 April 2024 Paris \(France\)](#). This 2nd open science workshop invites latest research on Hunga's impacts on the atmosphere, with modelling and observational studies of the progressing volcanic aerosol and water vapour and its impacts on climate and the stratospheric ozone layer.

3. Call for proposals for innovation projects in the Cooling sector

The Climate and Clean Air Coalition (CCAC) has launched a call for proposals seeking solutions to pressing challenges for short-lived climate pollutant mitigation in the cooling sector. This call aims to bridge critical information, implementation, and finance gaps in the sector to create enabling environments for SLCP mitigation. Solutions supported by this call are expected to help sector stakeholders and governments implement and scale up mitigation action in line with the CCAC's [2030 objectives](#).



The call is open for 8 weeks, closing on 30, April 2024

- Focus areas in the HFCs/Cooling and more information can be found [here](#)
- Focus areas of other SLCP-emitting sectors can be found [here](#)

[The Climate and Clean Air Coalition \(CCAC\), 4 March 2024](#)

Image: CCAC

4. Richard Benedick, Negotiator of Landmark Ozone Treaty, Dies at 88

Richard Elliot Benedick (May 15, 1935 – March 16, 2024) was an American diplomat who was president of the National Council for Science and the Environment. He was an ambassador and was chief United States negotiator to the Montreal Protocol on protection of the ozone layer.



Ambassador Richard Benedick has played a major role in global environmental affairs as chief U.S. negotiator and a principal architect of the historic Montreal Protocol on protection of the ozone layer, and as Special Advisor to Secretaries-General of both the United Nations Conference on Environment and Development (Rio de Janeiro, 1992) and the International Conference on Population and Development (Cairo, 1994).

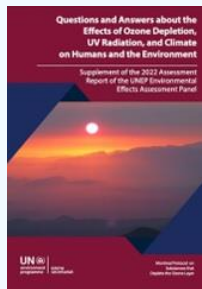
After serving several years on Battelle’s International Advisory Board, he became, in 1998, Deputy Director in the Environmental and Health Sciences Division at their Washington D.C. office of Pacific Northwest National Laboratory (PNNL), and since 2001 was Senior Advisor to the PNNL-University of Maryland Joint Global Change Research Institute.

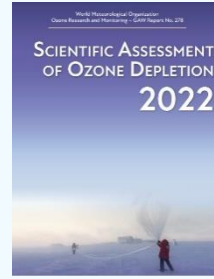
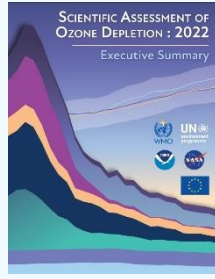
Since 1994 Benedick was also President of the National Council for Science and the Environment, an organization of about 500 universities, scientific societies, industry, and civic groups dedicated to improving the scientific basis for environmental decision making. He later was a visiting fellow in 1995 at the Wissenschaftszentrum Berlin (Social Science Research Center).

His book, "**Ozone Diplomacy: New Directions in Safeguarding the Planet**", was selected by McGraw-Hill Education for an anthology of twentieth-century environmental classics and is used in universities throughout the world. It has been frequently cited as the "definitive book" on the Montreal Protocol. In 2005, he served on the National Academy of Sciences Committee on Analysis of Global Change Assessments. He focused on climate policy and has promoted the concept of "an architecture of parallel regimes."

Source: [Wikipedia](#)

Image: Richard Benedick in an undated photograph. "The atmosphere in this town – it was an uphill fight; I don't think it would have happened without him," a former colleague said of his role in the approval of the Montreal Protocol. Credit: [The New York Times](#) - via Benedick family





Watch out for Illegal Trade of HCFCs and HFCs: Lessons learnt from the Global Montreal Protocol Award for Customs and Enforcement Officers. This publication provides an analysis of the cases submitted in the context of the [Global Montreal Protocol Award for Customs and Enforcement Officers](#). The Global Award was launched in 2018 by UNEP OzonAction. This Global Award is intended to raise awareness about the Montreal Protocol and to recognise customs and enforcement officials for their efforts in preventing and combating illicit traffic in Montreal Protocol and Kigali Amendment-regulated substances. Ozone-depleting substances (ODS) include hydrochlorofluorocarbons (HCFCs) and other compounds with a high Global Warming Potential (GWP), particularly hydrofluorocarbons (HFCs).



UNEP OzonAction, ASHRAE, April 2023 Fact sheet: Update on New Refrigerants Designations and Safety Classifications. 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.



[Sustainable cold chains: Virtual Exhibition](#) - The virtual exhibition for sustainable cold chains aims to highlight the critical role of cold chains in ensuring food safety and security, access to vaccines, reducing global warming and preventing ozone layer depletion.

The exhibition showcases commercially available cold chain technologies for food and vaccines, mainly targeting applications and equipment with refrigeration and cooling cycles that use ozone and climate-friendly refrigerants and have enhanced energy efficiency characteristics. It also aims to promote game-changing and systemic approaches, relevant initiatives, and not-in-kind solutions to cold chains

These technologies and approaches directly contribute to meeting national obligations under the Montreal Protocol on Substances that Deplete the Ozone Layer including its Kigali Amendment and the Paris Agreement on Climate Change. Sustainable cold chain contributes to the achievement of many [Sustainable Development Goals](#).

The exhibition is ongoing and continuously updated with submissions accepted on a rolling basis. The partners of the exhibition will continue promoting the exhibition at all relevant events throughout 2022 and beyond.

Click [here](#) for more information / submit a nomination >>>

Image: Sustainable cold chains website



Categories



1 exhibits
On site post-harvesting
and/or precooling
applications



6 exhibits
Storage of product, e.g.,
large warehouses /
Distribution centers



11 exhibits
Storage on board ships,
aircraft, and containers



4 exhibits
Food processing plants



1 exhibits
Transport (large and
smaller trucks, smaller
containers)



6 exhibits
Supermarkets (wholesale
markets & Retailers)



1 exhibits
Food services
(Restaurants, cafes,
tourism facilities, etc)



2 exhibits
Vaccines and other
pharmaceutical
products



0 exhibits
Game-changing and
systemic approaches

Vanuatu's Case Study on Integrating ODS/HFC Module into the National Single Window System - The National Single Window is a centralized system that links all relevant government approving authorities and acts as a 'one-stop-shop' where importers and exporters may submit applications electronically including information and all required paperwork to support the application and approval process. [Read/Download the Factsheet](#)



Recognition of Prior Learning Scheme for Refrigeration and Air-Conditioning Servicing Technicians in Mongolia - The Recognition of Prior Learning (RPL) process can help those in the industry acquire a formal qualification that matches their knowledge and skills and thereby contributes to improving their employability, mobility, and lifelong learning. RPL can make a significant contribution to providing the relevant learning framework necessary for the present and ongoing maintenance of a quality workforce, especially in the RAC servicing sector. In Mongolia, the RPL process has been rolled out in over 30 TVET trades in the construction, mining, and other sectors, including apparel and culinary etc. Mongolia initiated the RPL scheme for RAC servicing technicians as part of their implementation of the HPMP in cooperation with various national stakeholders. [Read/ Download the Factsheet](#)



AFRICA

5. Nigeria Federal Government donates over \$2m equipment to technical colleges

The federal government, in collaboration with the United Nations Development Programme (UNDP) and the Government of Italy, has handed over refrigeration and air conditioning servicing equipment worth over \$2 million to training centres under the hydro chlorofluorocarbons phase-out management plan (HPMP).

The move is in a bid to phase out hydro chlorofluorocarbons, a major gas that depletes the ozone layer from the Nigeria atmosphere.

Minister of State for the Environment, Dr. Iziq Adekunle Salako who was at the ceremony in Lagos on Friday, said that necessary policies were being put in place to ensure that only trained and certified technicians practice refrigeration and air conditioning servicing in the country.

The beneficiaries are government technical colleges in Ado-Ekiti, Oshogbo in Osun State as well as those in Ikorodu, Agidingbi, Ikotun, and Field of Skills & Dreams Trade Centre, Ogba in Lagos.

The minister who handed the equipment to Cool Plus Limited, consultants to the project, said the donation was in line with the HPMP Stage II Project, designed to support Nigeria achieve a phase-out of 1274.05 metric tons of HCFCs in the servicing sector by 2026.

The equipment includes refrigeration handling tools, tools, safety equipment, hydrocarbon service tools, equipment for recycling like portable recycling machines, external filter kits and burn outfitter accessories.

The minister said the essence of the equipment was to enhance the capacity of training centers to deliver effective training programmes on HCFC-free refrigeration and air-



conditioning technologies; and to promote the adoption of environmentally friendly practices and technologies in the refrigeration and air-conditioning sector.

“The first batch of HPMP is targeted to completely eliminate Nigeria’s 2010 baseline consumption of 344.9 tones of HCFCs by 2040. The refrigeration and air-conditioning service sector in Nigeria has remained largely unstructured with a large presence of informal, small, and medium scale practitioners with little or no presence of qualified engineers. More so, the technical capacity of technicians in the sector therefore remained very low and inadequate to drive the total HCFCs phase-out plan of the country,” the minister said.

To address the challenges, Salako said the establishment of Refrigeration & Air-conditioning Centres of Excellence, by strengthening of existing training centres to provide up to date best practices in using non-ozone depleting and low global warming potential refrigerants as well as improving the energy efficiency of cooling appliances, was approved for implementation under the HPMP stage 2 in 2018.

Receiving the equipment on behalf of the training centres, managing director of Cool Plus Ltd, Ade Awujoola, who urged Nigerians to be environmentally friendly in their daily activities said, since climate change is everyone’s business, he would deploy his over 30 years of experience to ensure that the best is delivered on the project.

[The Sun, Nigeria, 6 April 2024](#)

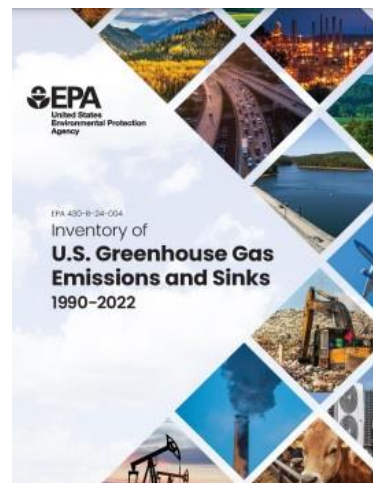
Image: The Sun

NORTH AMERICA

6. Inventory of U.S. Greenhouse Gas Emissions and Sinks

[The US] EPA develops an [annual report](#) called the Inventory of U.S. Greenhouse Gas Emissions and Sinks (Inventory), that tracks U.S. greenhouse gas emissions and sinks by source, economic sector, and greenhouse gas going back to 1990. EPA has prepared the Inventory of U.S. Greenhouse Gas Emissions and Sinks since the early 1990s.

This [annual report](#), provides a comprehensive accounting of total greenhouse gas emissions for all man-made sources in the United States, including carbon dioxide removal from the atmosphere by “sinks,” (e.g., through the uptake of carbon and storage in forests, vegetation, and soils) from management of lands in their current use or as lands are converted to other uses. The gases covered by the Inventory include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.



The national greenhouse gas inventory is submitted to the United Nations in accordance with the [Framework Convention on Climate Change](#) and also the [Paris Agreement](#). In preparing the annual emissions and sinks inventory report, EPA collaborates with hundreds of experts representing more than a dozen U.S. government agencies, academic institutions, industry associations, consultants, and environmental organizations. EPA also collects greenhouse gas emissions data from individual facilities and suppliers of certain fossil fuels and industrial gases through the [Greenhouse Gas Reporting Program](#).

Trends

Key findings from the [latest Inventory](#) include:

- In 2022, U.S. greenhouse gas emissions totaled 6,343 million metric tons of carbon dioxide equivalents, and 5,489 million metric tons of carbon dioxide equivalents after accounting for sequestration from the land sector.
- Emissions increased in 2022 by 1 percent (after accounting for sequestration from the land sector) compared to the previous year. The increase in total greenhouse gas emissions was driven largely by an increase in CO₂ emissions from fossil fuel combustion. In 2022, CO₂ emissions from fossil fuel combustion increased by 1 percent relative to the previous year. This increase in fossil fuel consumption emissions was from increased energy use, due in part to the continued rebound in economic activity after the height of the COVID-19 pandemic.
- Greenhouse gas emissions in 2022 (after accounting for sequestration from the land sector) were 17 percent below 2005 levels.

See the [Data Highlights](#) to learn more about the latest inventory findings.

[The United States Environmental Protection Agency \(USEPA\), April 2024](#)

Image: USEPA

EUROPE & CENTRAL ASIA

7. Illegal smuggling of refrigerant gases into Europe continues as the climate crisis worsens

Illegal climate-wrecking super-pollutant refrigerant gases are still being smuggled into Europe, EIA's latest research shows.



Five years after our Climate team first revealed a widespread European illegal trade in hydrofluorocarbon (HFC) climate gases, a new investigation has revealed that significant levels of trafficking persist despite the worsening climate emergency.

And the evidence suggests that black market traders and traffickers are becoming more sophisticated and adapting their tactics to evade detection.

Commonly used in refrigeration and air-conditioning, HFCs are currently being phased down under the European Union's F-gas Regulation.

But organised criminals attracted by high profits are taking advantage of weak law enforcement to meet the demand left by the transition away from the harmful gases.

In 2021, our [EIA] report [Europe's Most Chilling Crime](#) highlighted Romania as a key entry point for illegal HFCs arriving in the EU.

The latest investigation, [More Chilling Than Ever – Tackling Europe's ongoing illegal trade in HFC climate super pollutants](#), uncovered evidence of traders primarily sourcing HFCs from Türkiye and China to import illegally into the EU.

Trafficked from Bulgaria and other countries on the edge of the bloc, these chemicals are smuggled across the continent to destinations such as Greece, Germany, France, Italy, Portugal, and Spain.

The new investigation, in part conducted undercover, demonstrated that traders are becoming smarter at dodging detection, employing tactics such as avoiding banned disposable cylinders and disguising HFCs as less regulated hydrofluoroolefin (HFO) refrigerant alternatives.

EIA Senior Climate Campaigner Fin Walravens warned that the illegal HFC trade not only exacerbates climate change but has also been linked to significant tax evasion.

"The EU has recently revised its F-gas Regulation, offering enforcement agencies additional tools to combat illegal trade – but these will only work if they are implemented quickly and effectively," she said.

"As 2024 signals another reduction in HFC supply to EU markets, these risks fueling demand for illegal HFCs. There is an urgent need for coordinated, proactive enforcement efforts across the EU to combat HFC climate crime."

[More Chilling Than Ever](#) calls on the European Commission and all EU Member States to prioritise implementation of compliance-related measures under the new F-Gas Regulation and to step up enforcement.



Walravens added: “Globally, HFCs are being phased down under the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. As countries around the world begin to reduce HFC consumption, they can learn important lessons from Europe’s experience of illegal trade.

“There is a clear need to invest and strengthen monitoring, reporting, verification, and enforcement under the Montreal Protocol and to build capacity in developing countries, to ensure it is fit to meet the complex challenges posed by the global HFC phase-down.

“Ultimately, the illegal trade in HFCs is fueled by ongoing demand for the gases, primarily used in the cooling sector, and there is an urgent need to find better ways to keep cool.”

[Environmental Investigation Agency \(EIA\), 8 April 2024](#)

Image: eia

8. In the quest for data center sustainability, new F-Gas regulations must be embraced - A realistic phase-out of climate-impactful substances is required

The European Data Centre Association (EUDCA) – an organization representing Europe’s colocation data center community – welcomes the efforts of all policymakers to reduce emissions that are harmful to the environment and reduce, if not halt, the advance of global warming and its effects. This applies to the phasing out of fluorinated greenhouse gases (F-Gases).



Europe’s data center industry has acted quickly and decisively in support of net zero goals through initiatives such as co-founding and launching the [Climate Neutral Data Centre Pact \(CNDCP\)](#). Measuring, managing, and reducing Scope 1, 2, and 3 type emissions is a key element of achieving climate neutrality.

When it comes to F-Gases - which represent Scope 1 emissions that can be impactful due to the high Global Warming Potential (GWP) of many of these chemicals - the EUDCA also believes that a realistic phase-out of climate-impactful substances is required.

Originally adopted by the EU in 2006, the F-Gas Regulation was strengthened in 2015 by measures based on the successful phase-out of ozone-depleting substances, achieved 10 years ahead of schedule. With the new rules entering into force in the near future, the EU has stepped up its ambitions, with plans to completely phase out the production of climate-impacting F-Gases by 2050.

The new rules include limiting the total amount of the most important F-Gases (HFCs) that can be sold in the EU; banning the use of F-Gases in many new types of equipment where less harmful alternatives are widely available; and preventing emissions of F-Gases from existing equipment by requiring checks, proper servicing, and recovery of the gases at the end of the equipment's life.

What are F-Gases and why the ban?

F-Gas – or fluorinated gas – is a term applied to a range of synthetic gases containing fluoride which are used in a wide range of industrial applications. They have been developed as efficient refrigerants and effective coolants. They also perform well in fire suppression applications, offer good insulation, and are flame resistant.

In the data center industry, as in many other energy-intensive industries, F-Gases are pervasive. They are currently critical for the safe, reliable, and energy-efficient functioning of a range of equipment including HV & MV electrical switchgear (SF6), cooling (HFC refrigerants), and fire suppression systems (HFC gas and foams). The term applies to:

- Hydrofluorocarbons (HFCs): present in a multitude of applications such as refrigerants, blowing agents for fire fighting foams, and solvents.
- Perfluorocarbons (PFCs): widely used in electronics, cosmetics, and the pharmaceutical industry.
- Sulfur hexafluoride (SF6): applied for arc suppression and insulation in medium voltage (MV) and high-voltage (HV) switchgears.
- Nitrogen trifluoride (NF3): mostly present in microelectronics.

The inherent environmental Achilles' heel of F-Gases is that they are greenhouse gases. Some exhibit exceptionally high Global Warming Potential (GWP) - a term used to describe their relative potency as well as how long they remain active in the atmosphere.

What are the short-term implications of the F-gas ban?

Focusing on the implications for switchgear alone (we will deal with cooling at a later date), the EUDCA congratulates the EU on a staged approach that we feel is balanced. Existing switchgear can still be used until the equipment's end of lifetime; however, it cannot be serviced or maintained with SF6 from 1 January 2035.

The possibilities for purchasing switchgear relying on an insulating or breaking medium with a GWP >1000 will also be limited. Even though F-Gas-free switchgear alternatives are becoming more available on the market, policymakers acknowledge that they might not be in sufficient quantities. The regulation therefore permits a phased programme to help develop a new, competitive supply market.

The regulations are smart as they match the potential scope 3 emissions and market inefficiencies created by too aggressive a policy, while sending a clear signal to the market that future designs and upgrades must adopt F-Gas free solutions.

Long term challenges for F-Gas-free switchgear

Existing switchgear can be used to its theoretical end of life or 2035 – whichever is sooner. However, many EUDCA member operators are already taking steps from monitoring the supply chain and meeting with manufacturers to assess how and when new products are being brought to market, to using the new regulations as an inflection point to update switchgear across all their data center stock with new and F-Gas free switchgear.

Maintenance, upkeep, and monitoring become an increasingly important issue, especially in regard to F-Gas leak detection and prevention. This will drive the natural evolution of the overall design and operations of data centers.

While the phase-out of high GWP F-Gases is an essential step in reducing environmental impact, it also presents some challenges for legacy data centers. A too-rapid phase-out

could affect the efficiency and safety of existing data centers upon which the entire European telecommunication, Internet, and cloud technology depend. Safety emerges as the central pivot during this transition. Data center operators must forge strong collaborations with equipment manufacturers, standing as guardians of stringent safety protocols. In this journey, certification and quality assurance stand as watchmen, guarding the path to compliance.

Finally, the overall environmental impact of the transition, especially the embedded carbon in new equipment and construction work required to remove and replace old equipment means the transition isn't just about compliance, it is also about securing a legacy of sustainable innovation.

Conclusion

The EU's approach to the restriction of F-Gases is welcomed as it ensures an adequate balance between ambitious but gradual phase-out targets, whilst ensuring that such restrictions do not undermine data centers' safe reliable operation and comprehensive sustainability scope or digital potential.

However, to achieve this delicate balance, sufficient investment is needed in the coming years to both increase the recycling and reclaiming capacity of existing F-Gases and support the development and availability on the market of safe, reliable, and efficient alternatives that comply with current and upcoming restrictions.

The EUDCA will continue to review and publish information covering the new F-Gases legislation. We will do this by working with our members, other trade associations, vendors, and regulators. This collaborative approach will be instrumental in navigating the evolving landscape of F-Gas regulations, ensuring compliance, and contributing to a greener and more sustainable future.

By Michael Winterson, The European Data Centre Association (EUDCA). Steven Parker of Global Switch and Alessandro Zerbetto of Vertiv, both members of the EUDCA Technical Committee, contributed to this piece.

[Data Centre Dynamics \(DCD\), 11 April 2024](#)

Image: DCD

9. Youth For Ozone - Contest for Students - UNDP Georgia - A call for students to submit papers on ozone layer protection

The United Nations Development Programme (UNDP), the Ministry of Environmental Protection and Agriculture, the Environmental Information and Education Centre and the Faculty of Transportation Systems and Mechanical Engineering of the Georgian Technical University announce a competition for students "Youth for Ozone".



What we aim to achieve

The competition aims to highlight the significance of the ozone layer for human health and life on Earth, as well as modern technologies that help in its protection amid climate change.

In addition, the competition addresses the shortage of qualified specialists in refrigeration, heat pumps and air conditioning in Georgia.

Contest themes

- Modern technologies in refrigeration, heat pumps and air conditioning systems
- Energy-efficient heating and cooling systems
- Response to the challenge - protection of the ozone layer and climate change

Who can participate

Participants in the competition must meet the following criteria:

1. As of September 10, 2024, a participant must be enrolled as a vocational school, undergraduate, Master's, or postgraduate student at an authorised educational institution registered in Georgia.
2. The presenter must be the author of the paper. There can be a maximum of two non-student co-authors.
3. To register for the competition, please visit the link:
<https://forms.gle/FMVD5PGszJKagz4X7>

Formatting Guidelines

- Should not exceed 30 pages in length (excluding charts and annexes)
- Font: Sylfaen, size: 11
- The paper format must be Word and/or PDF

Selection criteria:

- A thorough analysis of the challenge
- Addressing the topic of the reduction of ozone-depleting substances and fluorinated greenhouse gas emissions in Georgia
- Level of innovation demonstrated
- Integration of gender perspectives
- Grammatical accuracy

Contest Evaluation Board

The Contest Evaluation Board will consist of representatives from the following organizations: UNDP (2), Georgian Technical University (2), Ministry of Environmental Protection and Agriculture (2), and Georgian Association of Refrigerating, Cryogenic and Air-conditioning Engineers (GARCAE) (2).

The Board will select the best three papers. The authors of these papers will receive hardware store vouchers as follows: 1st place - 1500 GEL; 2nd place - 1300 GEL; 3rd place - 1000 GEL.

Award Ceremony

The winning authors will receive awards at the student conference scheduled for 4 October 2024.

The conference will take place in the Technical University of Georgia (Building 1, 68, Merab Kostava Street, Tbilisi). All participating students will be invited to attend the event.

How to take part

The papers can be submitted from 1 June to 10 September 2024 at:

Ugrekheldzeirine05@gtu.ge and lali.tevzadze@undp.org

For additional inquiries, please contact:

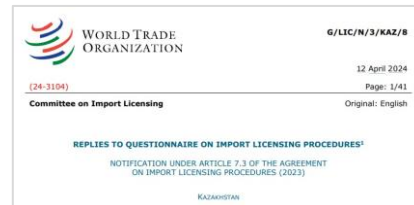
- [Irina Ugrekheldze](#), Georgian Technical University, 551 97 03 01
- [Lali Tevzadze](#), Project Manager, UNDP, 557 73 69 19

[The United Nations Development Programme \(UNDP\), Georgia, April 2024](#)

Image: UNDP-Georgia

10. World Trade Organisation - Replies to questionnaires on import licensing procedures – Kazakhstan

The following communication, dated 3 April 2024, is being circulated at the request of the delegation of Kazakhstan.



Modifications and additions compared to the 2022 licensing regime are highlighted in bold in the text for easy reference for other WTO Members.

1 OZONE DEPLETING SUBSTANCES

Outline of System

1. Kazakhstan manages its obligations for ozone depleting substances controlled by the Montreal Protocol on Substances that Deplete the Ozone Layer. The import, export and manufacture of the ozone depleting substances is prohibited under the Montreal Protocol, except where an essential or critical use exemption has been granted by the Parties to the Montreal Protocol. Kazakhstan's Montreal Protocol obligations are implemented through a system of licensing. Purposes and coverage of licensing

2. The requirements of the licensing systems are:
- import or export of ozone depleting substances;
 - pre-charged equipment containing ozone-depleting substances.

Strict conditions and reporting requirements apply in relation to all licences issued. [...]

3. The system applies to goods from all countries-parties to the Montreal Protocol.

4. The licensing system implements Kazakhstan's legal obligations under the Montreal Protocol. As well as limits on production and consumption of ozone depleting substances leading to eventual phase-out, the Protocol requires the establishment of a licensing system.

5. The legislation under which licences are maintained includes:

- Treaty on the Eurasian Economic Union (EAEU) of 29 May 2014;

- Annex No. 7 "Protocol on Non-Tariff Measures Concerning Third Countries" to the Treaty on the EAEU;
- Agreement on Movement of Ozone-depleting Substances and Products Containing Them and Accounting for Ozone-depleting Substances in Mutual Trade of the Member States of the Eurasian Economic Union of 29 May 2015;
- Decision of the Collegium of the Eurasian Economic Commission (EEC) No. 30 "On Measures of Non-Tariff Regulation" of 21 April 2015 (Section 2.1);
- Regulation on the importation/exportation of ozone-depleting substances and products containing ozone-depleting substances into/from the customs territory of the Eurasian Economic Union (Annex No. 20 to Decision No. 30 of the Board of the Eurasian Economic Commission dated 21 April 2015);
- Environmental Code of the Republic of Kazakhstan No. 400-VI of 2 January 2021;
- Law of the Republic of Kazakhstan No. 176 "On the Accession of the Republic of Kazakhstan to the Montreal Protocol on Substances, Depleting the Ozone Layer" of 30 October 1997;
- Law of the Republic of Kazakhstan No. 544-II "On Regulation of Trade Activity" of 12 April 2004;
- Law of the Republic of Kazakhstan No. 202-V "On Permissions and Notifications" of 16 May 2014;
- Resolution of the Government of the Republic of Kazakhstan No. 287 "On Approval of the List of Goods, the Export and (or) Import of which is Carried out on the Basis of Permits in accordance with International Treaties and Permits Issued by State Bodies" of 24 April 2015;
- Order of the Acting Minister of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan No. 39/NK "On Approval of the Register of Public Services" of 31 January 2020;
- Order of the Minister of the National Economy of the Republic of Kazakhstan No. 67 "On Approval of the Qualification Requirements Maintained for Activities on Export and Import Licensing of Goods, List of Documents Confirming Compliance with them, Application Forms for Obtaining a Licence and (or) Annex to the Licence, the Form of a Licence and (or) Annexes to the Licence" of 30 January 2015;
- Order of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan of 2 June 2020 No. 130 "On Approval of the Rules for the Provision of Governmental Services in the Field of Environmental Protection".

Licensing is a legislative requirement. It is an offence to import, export or manufacture the mentioned substance without a licence. It is not possible to abolish this system without legislative approval. The legislation does not leave designation of products to administrative discretion.

All substances that require licences are specified in a schedule to the legislation. No other substances require licensing under this legislation.

Procedures

6. Not applicable.

7. a) Application should be filed in advance of arrival of the goods. The maximum processing time for licence is 8 working days.

b) No.

c) No.

d) Yes, a licence application is considered by a single administrative body – the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

8. Part II of the Appendix to Annex No. 7 "Rules of the Issuance of Licences and Permits to Export and/or Import Goods" to the EAEU Treaty establishes the grounds for refusing licences:

(i) incomplete or inaccurate information in the documents submitted by the applicant to obtain a licence;

(ii) non-compliance with the requirements stipulated in the Appendix to Annex No. 7 to the EAEU Treaty;

(iii) termination or suspension of one or more documents that served as the basis for issuance of a licence;

(iv) violation of international obligations of an EAEU member State, which may occur as a result of performance of the contract which requires a licence;

(v) exhaustion of quota (in the case of registration of a licence for goods subject to quotas).

The decision to refuse a licence has to be justified and presented by the authorized body to the applicant in writing.

Eligibility of importers to apply for licence

9. All persons, firms and institutions are eligible to apply for licences.

Documentation and other requirements for application for licence

10. Application forms are available at: [//adilet.zan.kz/rus/docs/V2000020823#z211](http://adilet.zan.kz/rus/docs/V2000020823#z211). An importer is required to submit the following documents to the authorized body via the web portal of electronic licensing of the Republic of Kazakhstan "E-license" (<http://elicense.kz/?lang=en>) or via the web portal of "Electronic government" of the Republic of Kazakhstan "e-gov" (<https://egov.kz/cms/en>):

- electronic application;

- an electronic copy of the contract for the provision of intermediary services (in case if an intermediary represents an applicant);

- an electronic copy of the certificate of conformity or a written notice from the manufacturer that the ozone-depleting substances and (or) products containing ozone-depleting substances produced by him meet the requirements of the documents in accordance with which they are manufactured;

- an electronic copy of the current insurance policy;

- in case of import of recycled ozone-depleting substances, an electronic copy of the agreement (contract) with an organization on the recovery of ozone-depleting substances (submitted in case when the recovery will be carried out by a non-applicant) and confirmation

that the organization that plans to recover the ozone-depleting substances has an equipment that meets the established requirements;

- in case of import of recycled ozone-depleting substances, an electronic copy of the agreement (contract) with an organization on destruction of ozone-depleting substances (submitted in case when destruction will be carried out by a non-applicant) and confirmation that the organization that plans to destroy ozone-depleting substances has a destruction equipment which complies with the destruction technologies for ozone-depleting substances approved by the Decisions of the Parties to the Montreal Protocol;

- in case of import of ozone-depleting substances for use as raw materials, an electronic copy of the applicant's letter confirming the use of ozone-depleting substances exclusively as raw materials for the production of ozone-friendly chemicals, or a copy of the agreement (contract) with an organization that will use ozone-depleting substances exclusively as raw materials for production ozone friendly chemicals;

- an electronic copy of information confirming that the movement of ozone-depleting substances is carried out in reusable containers, if an EAEU member state establishes a ban on the import (export) of ozone-depleting substances in single-use containers.

11. Upon importation, an importer must present standard customs documentation along with a valid licence.

12. Licence application fee is ten Monthly Calculated Indices².

13. There is no deposit or advance payment requirement associated with the issue of licences. Conditions of licensing

14. Licences are valid for the licence period and cannot be extended.

15. There is no penalty for the non-utilisation of a licence or a portion of a licence.

16. Licences are not transferable between importers.

17. Licensees are not permitted to trade in ozone depleting substances with non-Parties to the Montreal Protocol. Conditions may also apply to the purpose to which the imported substance is to be applied if its consumption has been approved for a specific purpose through the Montreal Protocol.

Other procedural requirements

18. There are no other administrative procedures, apart from import licensing required prior to importation.

19. Foreign exchange is automatically provided by the banking authorities for goods to be imported. [...]

[The World Trade Organisation \(WTO\), 12 April 2024, pages 2-5](#)

Image: WTO

11. Avoidable Chemical Pollution – The essential use concept and its role in managing harmful chemicals



Increasing evidence demonstrates the harmful impacts chemical pollution is having on both public and environmental health. How we manage chemicals and work to prevent pollution is of the utmost importance. Could legislation focusing on avoidable, unnecessary, and **non-essential** uses of harmful chemicals be the way forward?

What is 'Essential Use'?

The '**Essential Use Concept**' was first introduced into international law several decades ago in a treaty to end the use of ozone depleting chemicals, called the Montreal Protocol (1). More recently, the EU's Chemicals Strategy for Sustainability included proposals to phase out known harmful chemicals, such as the forever chemicals, PFAS, in all uses bar those considered **essential for society** (2). Both the Montreal Protocol and the EU's Chemicals Strategy define essential use as **necessary for health, safety, or the critical functioning of society** and where no alternative solutions are yet available (1; 2).

Applying the Essential Use Concept

There has been much debate around the definition of the term 'essential' and **whether the concept should be applied on a use or product basis**, i.e., should it apply to a specific use of a chemical, such as PFAS use as a lubricant, or a specific product sector in which the chemical is used, such as the use of PFAS in cosmetics or clothing. A recent study suggests three categories could be outlined to facilitate a use-based approach, 1. non-essential uses deemed unnecessary for health, safety or functioning of society; 2. substitutable uses which have viable alternatives and are effectively non-essential; 3. essential uses considered necessary for health, safety, and other important services without established alternatives (3). A product-based approach would need to consider whether the chemical use can be justified given the product in question.

Essential Use and Chemical Pollution

It is widely regarded that the essential use concept should only apply to **uses of the most harmful chemicals**. As referred to in the EU Chemicals Strategy, these include chemicals that cause cancers, gene mutations, affect the reproductive or the endocrine system, or are persistent and bio-accumulative, as well as chemicals affecting the immune, neurological, or respiratory systems and chemicals toxic to a specific organ (2). Developing and applying an essential use concept could therefore support a **significant reduction in harmful chemical exposure for both people and the environment**, support safe and sustainable chemical innovation, and provide a reliable regulatory framework for industry and wider stakeholders.

Case Studies

Per- and Polyfluorinated Substances (PFAS)

PFAS are a large group of chemicals often referred to as '**forever chemicals**' due to their extreme persistence. Growing evidence of their widespread pollution and increasing association with detrimental health impacts has led to numerous restriction proposals around the world, some of which incorporate varying interpretations of an essential use approach.

In July 2021, the state of Maine became the world's first jurisdiction to ban the sale of products containing PFAS (4). By 2030, Maine will forbid selling products that use PFAS unless regulators determine their use to be '**currently unavoidable**', meaning it has been deemed essential for health, safety, or the functioning of society and for which alternatives are not reasonably available (5). In February 2024, California introduced a similar bill which also intends to ban all products containing PFAS by 2030 except for uses deemed unavoidable (6). In this instance 'unavoidable' relates to cases where there are currently no safer alternatives, PFAS is necessary for the product to perform its core function, and the use of the product is deemed necessary for health, safety, or the functioning of society.

Ozone-depleting Substances

The Montreal Protocol is a landmark multilateral environmental agreement that regulates the production and consumption of nearly 100 industrial chemicals, referred to as ozone-depleting substances (1). It outlines a set of universally agreed upon tasks, including use of the essential use concept, to **ensure long-term protection of the ozone layer** from harmful chemical substances.

Under the Montreal Protocol, a controlled substance similarly qualifies as essential only if it is deemed, 1. necessary for health and safety or the critical functioning of society; 2. That there are no technically or economically feasible alternatives.

The Protocol has successfully met its objectives thus far and continues to safeguard the ozone layer today.

Essential Use and UK Chemical Regulation

Whilst Fidra recognise the challenges of implementing the essential use concept, we feel it as a key part of effective chemical regulation that prioritises both public and environmental health. Incorporating the concept into the UK Chemical Strategy and our regulatory framework presents an **opportunity to address some of the most significant global challenges currently being faced**, including climate change, the biodiversity crisis, and the increasing occurrence of chronic diseases among the world's population.

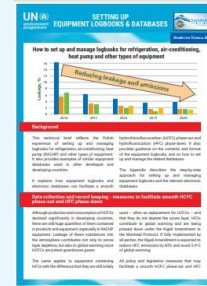
The essential use concept has been demonstrated to be a successful approach in managing harmful chemicals and protecting public and environmental health. Fidra **strongly supports integrating the essential use concept** into the management of hazardous chemicals, and as a **key step towards phasing out all hazardous chemicals** from future use.

To find out more, read our [12 Key Asks](#) of the UK Chemical Strategy.

[Fidra, UK, 12 April 2024](#)

Image: Fidra

How to set up and manage logbooks for refrigeration, air-conditioning, heat pump and other types of equipment - Background: This technical brief reflects the Polish experience of setting up and managing logbooks for refrigeration, air-conditioning, heat pump (RACHP) and other types of equipment. It also provides examples of similar equipment databases used in other developed and developing countries. It explains how equipment logbooks and electronic databases can facilitate a smooth hydrochlorofluorocarbon (HCFC) phase-out and hydrofluorocarbon (HFC) phase-down. It also provides guidance on the contents and format of the equipment logbooks, and on how to set up and manage the related databases. The Appendix describes the step-by-step approach for setting up and managing equipment logbooks and the relevant electronic databases. **Factsheet in [English](#) and [Russian](#)**

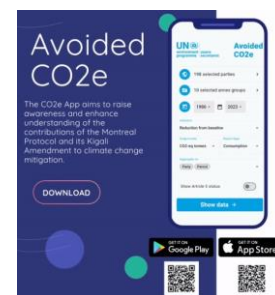


FEATURED



Overview for the meetings of the ozone treaties - Click [here](#) for upcoming and past Montreal Protocol Meetings dates and venues.

Avoided CO₂e - The CO₂e App available from the Ozone Secretariat aims to raise awareness and enhance understanding of the contributions of the Montreal Protocol and its Kigali Amendment to climate change mitigation.

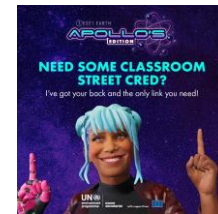


World Ozone Day 2023 theme: Montreal Protocol: fixing the ozone layer and reducing climate change - On World Ozone Day, we celebrate the achievements of the Montreal Protocol on Substances that Deplete the Ozone Layer in fixing the ozone layer and reducing climate change. The theme for the 2023 International Day for the Preservation of the Ozone Layer, to be marked on 16 September, is **Montreal Protocol: fixing the ozone layer and reducing climate change**. This reiterates the recent finding by the Scientific Assessment Panel of the positive impact the Montreal Protocol has on climate change, that ozone recovery is on track and how climate challenges can be supported through the Kigali Amendment.

The theme and other related materials available [here](#) in the six UN official languages.



New gaming technology to create environment simulation game for teenagers- The UN Environment Programme's (UNEP) Ozone Secretariat today launched a simulator game and avatar using the latest software technology. **Apollo's Edition** is the latest addition to the [Reset Earth education platform](#). Targeting 13-18-year-olds, the free online education material developed provides educators with resources to teach students the importance of environmental protection.



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.



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](#)

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 >>> \[United Nations Environment Programme \\(UNEP\\), Ozone Secretariat\]\(#\)](#)



The Multilateral Fund for the Implementation of the Montreal Protocol

The Fund is dedicated to reversing the deterioration of the Earth's ozone layer. It was established by a decision of the Second Meeting of the Parties to the Montreal Protocol (London, June 1990) and began its operation in 1991. The main objective of the Fund is to assist developing country parties to the Montreal Protocol whose annual level of consumption of the ozone depleting substances (ODS) chlorofluorocarbons (CFCs) and halons is less than 0.3 kilograms per capita to comply with the control measures of the Protocol. Currently, 147 of the 197 Parties to the Montreal Protocol meet these criteria. They are referred to as Article 5 countries.

The Multilateral Fund is managed by an Executive Committee with equal membership from developed and developing countries. Since the inception of the Fund, the Executive Committee has held 93 meetings. The Fund Secretariat, located in Montreal, assists the Executive Committee in its tasks. Projects and activities supported by the Fund are implemented by four international implementing agencies and a few bilateral agencies.

On 27 October 2023, the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (35thMOP) decided on the replenishment of the Multilateral Fund for the triennium 2024-2026. The Parties agreed on a budget of US \$965 million for the triennium, a record amount.

As at 8 November 2023, the contributions received by the Multilateral Fund from developed countries, or non-Article 5 countries, totalled over US\$ 4.7 billion. The Fund has also received additional voluntary contributions amounting to US \$25.5 million from a group of donor countries to finance fast-start activities for the implementation of the HFC phase-down.

To facilitate phase-out by Article 5 countries, the Executive Committee has approved 144 country programmes, 144 HCFC phase-out management plans (HPMPs), 24 Kigali HFC implementation plans (KIPs), pilot projects to maintain and/or enhance energy efficiency in the context of HFC phase-down and has funded the establishment and the operating costs of ozone offices in 145 Article 5 countries.

New and updated guides and submission forms for the preparation of project proposals:

- Guide for funding requests for preparation of national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances >>>
- Updated interim guide for the presentation of stage I of Kigali HFC implementation plans (July 2023) >>>
- Updated guide for the presentation of new stages of HCFC phase-out management plans (July 2023) >>>

All guides and submission forms are available [here](#)

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



[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: Celebrating International Women's Day, 8 March 2024](#) - on the occasion of **International Women's Day (IWD)**, UNEP OzonAction would like to express our best wishes and sincere thanks to all our female colleagues working in National Ozone Units for your leadership, outstanding dedication, great intellectual input, and tireless work on the Montreal Protocol! This treaty is often referred to as the most successful multilateral environmental agreement to date, and both women and men take equal credit in making this amazing achievement possible. OzonAction is extremely proud of all the female **Ozone Officers, Assistant Ozone Officers, technical experts, and support staff**, as well the women in national stakeholder groups and partner organizations, notably those in the **refrigeration, air conditioning, and customs**. Through your work, you are providing girls and young women who are interested in pursuing careers in environmental protection with a role model by showing them that there are successful women in Montreal Protocol fields – you are indirectly investing in their future. [...]



- [Miruza Mohamed: A Woman Behind the Maldives' Environmental Transformation](#)
- [Samira de Gobert: Leading Change in Environmental Communication and Women's Empowerment](#)
- [Colleen Keyworth - From Family Roots to Industry Beacon: Leading Advocate for Women in HVACR](#)
- [Laura López: Impulsando la implementación del Protocolo de Montreal y la equidad de género en Guatemala](#)
- [Marta Pizano: A trailblazer's path from research to global policy](#)
- [Liazzat Rabbiosi: A Woman Facilitating International Environmental Policy-making](#)
- [Cecilia Mercado: Breaking Barriers-A legacy of environmental leadership and empowerment](#)
- [Sarah Nakanyika: A Woman Leading Cooling Advancement in Zambia](#)
- [Yvette Gauthe Boko: Une femme forte à la tête du Bureau national de l'ozone au Bénin](#)

Considerations for establishing national HFC Quota System - As HFC consumption in most countries is determined by their import, this document aims to highlight guiding principles and key aspects that countries need to consider when developing their import quota system. The underlying principles and approaches are equally applicable for production and export quota allocation. [Read/download the full document](#)



Every Action Counts: Kigali Amendment - UNEP 2022 - This brochure targets the general public and explains in a simplified manner what the Montreal Protocol and its Kigali Amendment signify. It includes some actions that everybody can do to support the Kigali Amendment. It also covers the relationship between the Kigali Amendment and Sustainable Development Goals. It introduces some examples of successful communication campaigns on the Kigali Amendment. [English/Spanish](#)



[Gender Mainstreaming in the Montreal Protocol: Experiences in Latin America and the Caribbean](#) -Taking into account that women and girls constitute half of the world’s population and, therefore, represent half of the potential and innovation necessary to face the “triple planetary crisis” – climate change, nature and biodiversity loss, pollution and waste –, positioning people and the planet as central pillars of the transformation necessary to overcome it, and considering the guiding principles and the scopes of action of the Operational Policy on Gender Mainstreaming of the Multilateral Fund, the United Nations Environment Programme (Latin America and the Caribbean Office). [English](#) / [Spanish](#)



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

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 the 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 Gard web-based tool

- The Gas Gard 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)



[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 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

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 for 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 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](#).

[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 hydrochlorofluorocarbons (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 weld 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

[Results of a Worldwide Survey about Women in Cooling Released by IIR and UNEP OzonAction](#) - Refrigeration, Air-Conditioning, and Heat-pumps (RACHP) are crucial for our health, nutrition, comfort, and well-being. It is one of the sectors that crosscuts many of the UN sustainable development goals and can contribute significantly to safeguard the environment, advance welfare of humanity and support the growth of employment and economics worldwide. Women are highly under-represented in this sector as indicated by the fact that only 6% of the members of national refrigeration associations/organisations/institutions are women. In order to better understand the background, motivation, challenges, and opportunities faced by women working in RACHP a worldwide survey was undertaken by the International Institute of Refrigeration (IIR) and OzonAction of UN Environment Programme (UNEP) in cooperation with several partners. [Read/Download the Full Report](#)



Sustainable Food Cold Chains: Opportunities, Challenges and the Way Forward-This [UNEP-FAO] report explores how food cold chain development can become more sustainable and makes a series of important recommendations. These include governments and other cold chain stakeholders collaborating to adopt a systems approach and develop National Cooling Action Plans, backing plans with financing and targets, implementing, and enforcing ambitious minimum efficiency standards. At a time when the international community must act to meet the Sustainable Development Goals, sustainable food cold chains can make an important difference.



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](#)



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](#)



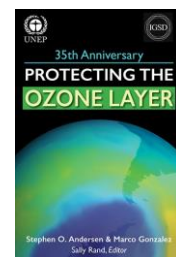
E-Book on Process Safety Management (PSM) Training for Ammonia Refrigeration - a new e-book about the critical elements of a process safety management (PSM) training program for facilities operating an ammonia refrigeration system. The e-book, titled "[7 Keys to a Compliant PSM Training Program for Ammonia 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

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Protecting the Ozone Layer - 35th Anniversary Edition - a new book celebrating the 35th Anniversary of the Montreal Protocol. [The electronic version \(Kindle Edition\) of the book has become available for purchase \\$3.03 on Amazon.](#) The book highlights successes and documents innovation during the first 35 years and inspires new ambition to strengthen protection of stratospheric ozone and climate before Earth passes tipping points. The book tells the story of the Montreal Protocol, revealing a model of cooperation, collaboration, universal ratification, record of compliance with over 99 per cent of controlled ozone-depleting substances (ODSs) phased out, the ozone layer on the path to recovery, the 2007 Montreal Adjustment, and the 2016 Kigali Amendment moving the Montreal Protocol further into environmental protection. Unfinished business includes: HCFC phase out, ODS bank management, HFC phase down, uncontrolled ozone-depleting greenhouse gas nitrous oxide (N₂O), feedstock exemptions for plastics production, and dumping of obsolete cooling appliances.



[The book was released at 34th Meeting of the Parties to the Montreal Protocol on 31 October 2022.](#)



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Prepared by: Samira Korban-de Gobert

Reviewed by: James S. Curlin

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Samira Korban-de Gobert, samira.degobert@un.org



UNEP, OzonAction, 1, rue Miollis, Bldg. VII – 75015, Paris • France