

# 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

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

[Belize, 3 October 2023](#)

[Kenya, 22 September 2023](#)

[Republic of Moldova, 22 September 2023](#)

[Egypt, 22 August 2023](#)





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



NAIROBI, KENYA  
23-27 OCT 2023

**Thirty-Fifth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer**

**Nairobi, Kenya, 23–27 October 2023**

>>> Click [here](#) to access related meeting information and pre-session documents.

## 2. Organisers Introduce Overarching Agenda for the 2023 World Cold Chain Symposium

The [Global Food Cold Chain Council](#) (GFCCC), the [United Nations Environment Programme OzonAction](#), and its partners announce that the 2023 World Cold Chain Symposium, taking place in advance of the Montreal Protocol 35<sup>th</sup> Meeting of the Parties on **October 21<sup>st</sup>, 2023 in Nairobi, Kenya**, will feature four sessions focusing on different aspects of the theme Sustainable Growth: Building Business Models for Cold Chain Development.

These sessions, described below, will give further insight into both the operational and conceptual development of sustainable cold chain projects, creating a dialogue on the importance of not only business feasibility for cold chain projects but how focus on continual growth and sustainability will better assist in the expansion of the cold chain internationally.



**The agenda for the 2023 World Cold Chain Symposium will include such discussions as:**

1. The opening session will include high-level discussion on the challenges and opportunities for sustainable cold chain expansion of projects
2. The second session will feature presentations by numerous current cold chain projects, many of which are focused on the African continent.
3. The third session will highlight efforts by a wide array of governments, foundations, industry, and NGO organizations to build systematic business models and finance mechanisms to drive cold chain expansion and technology innovation.
4. The fourth session will feature a roundtable discussion by industry representatives on the importance for technology innovation for the Cold Chain

All will include a mix of academics, policymakers, business experts, and nongovernmental organizational representatives.

The sponsors and cooperating partners believe the Symposium will continue to build on the dialogue that has begun through not only the previous World Cold Chain Symposiums, but at climate events all over the world. It will also help set the stage for the conversations focusing on cooling and food insecurity at this year's upcoming 28<sup>th</sup> UN Climate Change Conference, happening this November and December in the United Arab Emirates.

For event information, including registration for program and reception, please visit the website <https://wccs.performedia.com/> or email [dobson@foodcoldchain.org](mailto:dobson@foodcoldchain.org)

UNEP is an Implementing Agency of the Multilateral Fund of the Montreal Protocol on Substances that Deplete the Ozone Layer. OzonAction's goal is to enable developing countries to meet and sustain their compliance obligations under the treaty.

GFCCC is an independent not-for-profit industry organization that seeks to simultaneously reduce food waste, and related greenhouse gas emissions in the processing, transportation, storage, and retail display of cold food by expanding and improving access to energy efficient low-global warming potential technology.

[UNEP-OzonAction, 21 September 2023](#)

Image: GFCCC logo

### 3. When it comes to heating the planet, the fluid in your AC is thousands of times worse than CO<sub>2</sub>

Air conditioning has made life in many hot places possible, but the special fluids that make it work are extremely hazardous to the climate



Air conditioning has made it possible to live comfortably in many hot places, but the special chemicals that make it work are actually extremely hazardous to the climate.

Refrigerants used in fridges, freezers and cars change from a fluid to a gas to transport heat away from the place you want cooled.

In refrigerators, the refrigerant starts as a liquid and expands into a gas, which forces it to cool down. This chilled gas circulates through the fridge, absorbing heat as it flows along.

Once the chilled fluid has absorbed significant heat, say, from eggs you just hardboiled and placed inside, it gets squeezed in a compressor and gets even hotter. The refrigerant then flows through condenser coils where it releases its heat out and cools back into a liquid.

The cycle starts over when the refrigerant enters the expansion device, where the fluid spreads out, cools, and once again turns into a gas.

Air conditioners also use refrigerants and operate similarly to this, but they release their heat to the outdoors rather than your kitchen.

Refrigerants absorb a lot more heat than water or other common fluids, which makes them great for cooling systems but bad for climate change when they escape.

Some of the earlier refrigerant chemicals that allowed hot places like Phoenix, Arizona and Dubai to grow into population centers, were a family known as chlorofluorocarbons (CFCs), but scientists discovered that these were causing widespread damage to the ozone layer in the mid to late 1900s.

So, countries came together and ratified the Montreal Protocol which went into effect in 1987 and banned CFCs. This is cited as one of the most successful international environmental laws ever.

The family of chemicals that replaced those CFCs was hydrofluorocarbons or HFCs. They were first commercialized in the 1990s. But these were found to be dangerous for the climate and were rapidly building up in the atmosphere as air conditioning spread across the world.

The way to compare damaging gases is “global warming potential” or GWP, which the Environmental Protection Agency defines as how much energy one ton of a gas can absorb over a certain period of time, compared to one ton of carbon dioxide. Over one century, the GWP of carbon dioxide is one, therefore. Methane, the second most important greenhouse gas after carbon dioxide is 28, or 28 times worse. The common refrigerant known as R-410A, has a global warming potential of 2,088.

In 2016, the Kigali Amendment to the Montreal Protocol phased down the use of climate-harming hydrofluorocarbons 85% by 2036, so that phasedown is currently happening.

According to the most recent comprehensive climate report from the Intergovernmental Panel on Climate Change in 2021, this Kigali Agreement will meaningfully prevent some warming of the Earth if fully enforced.

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In the United States, people are not allowed to intentionally release hydrofluorocarbons and other refrigerants under the Clean Air Act. When an appliance containing a refrigerant is disposed of, the EPA also requires the last person in the disposal process to recover the refrigerant to a certain level or verify that there hasn't been any leakage.

However, accidents happen. When a car is totaled in a collision, all of those refrigerants escape into the atmosphere. The EPA also restricts sales of refrigerants, but people can purchase small cans of certain HFCs in stores if they contain two pounds or less. When a car is dumped at a junk yard, personnel there are responsible for recovering the refrigerant.

Scientists say that lowering our emissions of HFCs will have a fairly quick payoff because most persist in the atmosphere for roughly 15 years, far less time than carbon dioxide.

[ABC News, 13 October 2023, By Isabella O'Malley](#)

*Image: Cary Gleason, owner of Cary's Auto, charges a vehicle's air conditioning with R-134A refrigerant inside his repair facility, Monday, Aug. 28, 2023, in Scottsdale, Ariz. Refrigerants absorb a lot more heat than water or other common fluids, which makes them great for cooling systems, but bad for climate change when they escape. (AP Photo/Matt York)*



**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 exhibit

On site post-harvesting  
and/or precooling  
applications



6 exhibits

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



0 exhibits

Storage on board ships,  
aircraft, and containers



4 exhibits

Food processing plants



1 exhibit

Transport (large and  
smaller trucks, smaller  
containers)



8 exhibits

Supermarkets (wholesale  
markets & Retailers)



1 exhibit

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



2 exhibits

Vaccines and other  
pharmaceutical  
products



0 exhibits

Game-changing and  
systemic approaches

# AFRICA

#### 4. 14 Refrigeration Technicians From Francophone Africa Learn About Natural Refrigerants in Germany

A total of 14 participants from Francophone (French-speaking) African countries Mali, Cameroon, Burkina Faso, Senegal, and Mauritius recently engaged in a two-week comprehensive “Cool Training” program organized by German environmental group GIZ Proklima at the vocational training institute Bundesfachschule Kälte-Klima-Technik (BFS) in Maintal, Germany.



These training sessions provided insights into the use of natural refrigerants, including CO<sub>2</sub> (R744), ammonia (R717) and propane (R290).

Thirteen participants attended under the auspices of the ROCA project, sponsored by the EU and the German Federal Ministry for Development and Cooperation (BMZ). An additional participant from Mauritius was from the HCFC Phase-Out Management Plans (HPMP) initiative, likewise, supported by BMZ.

The ROCA project promotes ozone- and climate-friendly cooling technologies in four African countries: Burkina Faso, Cameroon, Mali, and Senegal. It started in April 2021 and will run until March 2024. The HPMP initiative provides services like policy advice, training on the safe handling of natural refrigerants, recommendations for the recovery and recycling of HCFCs and technology transfer in different countries.

The Cool Training program prioritized experimental learning, providing participants hands-on experience to deepen their technical expertise under the direction of veteran trainer Reiner Mayers. They became acquainted with the equipment, understanding the nuances of safe and efficient operation of systems that employ natural refrigerants.

These technicians, equipped with newfound skills and expertise, aren't just students. They are poised to become team leaders of change in their respective countries. Team leaders, trainers and entrepreneurs are expected to disseminate their learnings, furthering the cause of sustainable refrigeration practices in Francophone Africa.

Another significant part of their learning was a field trip to Nordforst, a German logistics firm that uses ammonia refrigeration systems. The participants observed first-hand the working of an active ammonia refrigeration system, gaining insights into its maintenance, operation procedures and safety measures.

The anticipated knowledge dissemination from this project is designed to catalyze the adoption of energy-efficient, environmentally friendly refrigeration practices in Francophone Africa.

[Ammonia21, 10 October 2023, By Saroj Thapa](#)

*Image: The participants of the Cool Training in front of the training center Bundesfachschule Kälte-Klima-Technik (BFS), Picture credit: Green Cooling Initiative webpage*

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## 5. The Gambia lays the foundation for energy savings and increased grid security through improved energy efficiency for air conditioners and refrigerators

On 3-4 October 2023, a national capacity-building workshop in Banjul marked the formal start of the *Leapfrogging to Energy-Efficient and Climate Friendly Air*



*Conditioners and Refrigerators in The Gambia* project. It provided the first opportunity to convene the broad range of stakeholders involved, including representatives from Gambia's Ministries of Petroleum and Energy (MOPE), Finance and Economic Affairs (MOFEA), Trade, Industry, Regional Integration and Employment (MOTIE), Health (MOH), Environment, Climate Change and Natural Resources (MECCNAR), Gender, Children and Social Welfare (MOGCSW) and from Gambia Standard's Bureau, Public Utility Regulation Authority (PURA), National Environment Agency (NEA), National Assembly, Refrigeration and Air-conditioning Technicians Association, National Electrotechnical Committee (NEC), Bankers' Association, consumer associations, academia and trade associations.

The project is funded by the Green Climate Fund (GCF) Readiness Programme and is being implemented with MOPE as the focal ministry and MOFEA as the GCF National Designated Authority, with the support of UNEP's United for Efficiency (U4E) initiative. The project activities include a National Cooling Action Plan and a legislative framework based on Minimum Energy Performance Standards (MEPS) and labels for energy-efficient and climate-friendly room air conditioners and residential refrigerating appliances in The Gambia.

The project was developed against the backdrop of a predicted increase in the demand for room air conditioners and refrigerating appliances in The Gambia of up to 44% by 2040, dependence on imported petroleum products for electricity generation, and a strained electricity grid with high transmission losses and many consumers subject to daily planned and unplanned power outages.

It builds on The Gambia's existing National Energy Policy and Energy Efficiency Action Plan which, amongst other targets, has the stated objective of improving energy efficiency through the introduction of mandatory MEPS and labelling of energy appliances, including refrigerating appliances and room air conditioners, the imposition of a variable value-added tax that discriminates based on performance standards and increased public awareness and access to energy efficient appliances.

The project will:

- Build local capacity for government policymakers on energy-efficiency of air conditioners and refrigerating appliances and their impact on the environment and climate.
  - Develop a national market assessment to assess the current situation of air conditioners and refrigerating appliances in The Gambia.
  - Formulate a National Cooling Action Plan which will provide background recommendations for the development of the legislative framework on energy efficiency measures and an integrated vision across the sectors that are involved in cooling.
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- Establish a regulatory framework for implementation of MEPS and labels for air conditioners and refrigerators.
- Develop a concept note to scale up the project to broader activities beyond the completion of the project.

Based on U4E's Country Savings Assessments, a full market transition to high efficiency room air conditioners and residential refrigerating appliances in The Gambia could result in annual savings in 2040 of:

- 9 GWh on annual electricity savings (with avoided investment costs for two 5 MW fossil fuel-based power plants).
- 7 million USD savings in annual electricity costs.
- 5 thousand tonnes of CO<sub>2</sub> avoided annually (equivalent to taking around 16 thousand cars off the road).

The workshop objective was to provide capacity-building training to ensure that policymakers and relevant stakeholders fully understand the context of energy efficiency policy measures for air conditioning and refrigeration options, including MEPS, labelling, market compliance, and public awareness, as well as their impact on the environment.

To this end, the first day of the workshop was open to a wide range of stakeholders. It set the scene for the project with information on international trends for refrigeration and air conditioning, an overview of National Cooling Action Plans, and the importance of market assessments, including a proposed way forward for the project. This was complemented with details of U4E resources and tools, such as the [model regulation guidelines](#) on air conditioners and refrigerating appliances and [guidance for energy labelling for lighting and appliances](#), and their application in The Gambia, and case studies from other countries on energy-efficient cooling products, such as the [East African Community/Southern African Development Community project](#).

The second day hosted a more strategically focused audience and provided an opportunity for the participants to receive an update on the ongoing market assessment and to discuss existing MEPSs in the region, what the development of the national cooling plan needs to take into account, and the national legislative process for the adoption of the MEPS, including the way forward.

During the event, the Deputy Permanent Secretary, Mr. Alagie Manjang, for MOPE, emphasised the need for significant investment in power generation equipment and electricity transmission and distribution systems to meet rising cooling demand. He further emphasised the need for a strong policy and regulatory framework, which are also crucial to promoting higher-efficiency appliances.

He further stated that the lack of dedicated policies on import restrictions and limited information on energy-efficient products hinders a sustainable market transformation. A gradual transition to energy-efficient appliances is necessary, as the cost of energy saved over their lifespan can be significantly higher than the original capital cost. Consumers can also gain significant financial returns by opting for more energy-efficient alternatives.

Mr. Peter D. Mendy, project focal point for MOPE, also emphasized the importance of energy efficiency in The Gambia, stating it can save money, reduce environmental impact, and reduce energy demand.

Mr. Patrick Blake, UNEP Programme Management Officer, reaffirmed the commitment of UNEP-U4E to transforming The Gambia market to energy-efficient and climate-friendly

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residential refrigerating appliances and room air conditioners. Mr. Blake was grateful for the assistance provided by the GCF and the government's commitment during the project's development. He further emphasised that if sound policy decisions for air conditioners and refrigerating appliances are implemented by 2040, The Gambia could realise annual electricity savings over 50 GWh and electricity bill savings of nearly \$11 million annually, which could contribute to the achievement of the Sustainable Development Goals, the implementation of the National Determined Contributions under the Paris Agreement, and the Kigali Amendment to the Montreal Protocol.

For more information on the project, contact U4E's [Patrick Blake](#), or [Mzwandile Thwala](#).

Alternatively, you can download a copy of the project [factsheet](#) from the U4E website, along with copies of the [presentations](#) from the workshop.

[United for efficiency \(U4E\), 11 October 2023](#)

*Image: U4E*

## ASIA AND THE PACIFIC

### **6. Brazil is Enforcing the Kigali Amendment to the Montreal Protocol to Control HFCs**

In a considerable move towards combating climate change and protecting the environment, Brazil has enacted the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. This milestone was achieved through Decree No. 11.666 in August, and it marks a vital step in addressing the high potential of Hydrofluorocarbons (HFCs) to intensify global warming. HFCs may not deplete the ozone layer, but their contribution to climate change cannot be ignored.



The Kigali Amendment, named after the Rwandan city, where it was adopted in 2016, is an extension of the Montreal Protocol, which has been hailed as one of the world's most successful environmental agreements. The original Montreal Protocol focused on phasing out ozone-depleting substances (ODS) like chlorofluorocarbons (CFCs) and halons. Its remarkable success in achieving its goals has been pivotal in protecting the Earth's ozone layer.

However, as the world reduced its use of ODS, there was a surge in the production and consumption of HFCs, hydrochlorofluorocarbons (HCFCs), and other related compounds. These chemicals, used primarily in air conditioning, refrigeration, and other applications, are potent greenhouse gases, with global warming potentials thousands of times greater than carbon dioxide (CO<sub>2</sub>).

The Kigali Amendment, therefore, aims to address this unintended consequence by phasing down the production and consumption of HFCs. Signatories to the Montreal

Protocol are required to reduce their HFC usage over time, ultimately leading to a significant reduction in their contribution to global warming.

### **Brazil's Commitment to the Kigali Amendment**

Brazil's commitment to combating climate change has taken another step forward with the enactment of the Kigali Amendment. By aligning with the goals of the amendment, Brazil acknowledges the importance of mitigating the impacts of HFCs on the climate.

To implement the Kigali Amendment domestically, Brazil's environmental agency, the Brazilian Institute of the Environment and Renewable Natural Resources (Ibama), will play a pivotal role. Ibama will publish a Normative Instruction (IN) that will establish the requirements and procedures related to the import control of HFCs and mixtures containing HFCs. This regulation will set annual import limits in compliance with the Protocol, ensuring that Brazil meets its obligations under the Kigali Amendment.

### **Public Engagement and Transparency**

Ibama's commitment to transparency and public participation is commendable. The Institute has announced its intention to open a public consultation on Normative Instruction (IN) through the Participa + Brasil platform. This initiative allows all interested sectors, including industry, environmental organizations, and the public, to access the proposal and make their contributions on the subject. This inclusive approach ensures that a wide range of perspectives and expertise are considered in the development of the regulation, promoting fairness and effectiveness in its implementation.

More info in Portuguese: [Ibama informa sobre Implementação da Emenda de Kigali para controle dos HFCs no Brasil – Ibama \(www.gov.br\)](http://www.gov.br/ibama/pt-br/assuntos/legislacao/2023/08/ibama-informa-sobre-implementacao-da-emenda-de-kigali-para-controle-dos-hfcs-no-brasil)

### **[Global Product Compliance \(GPC\), 8 October 2023](#)**

Image: GPC\_IBAMA

### **7. Report Exposes Widespread Dumping of Inefficient, Climate-Damaging Air Conditioners with Obsolete Refrigerants**

A new report warns that multinational companies are exporting millions of inefficient air conditioners to Southeast Asia, taking advantage of loopholes in national laws and regulations. Because these units contain high global warming potential (GWP) refrigerants, this appliance dumping contributes to climate change, strains national energy grids, and burdens consumers with higher energy bills.

[This report](#) by CLASP, with support from the Institute for Governance & Sustainable Development (IGSD), documents that five of the six Southeast Asian markets studied – Indonesia, Malaysia, the Philippines, Thailand, and Vietnam – are saturated with low-efficiency room air conditioners (ACs), while only Singapore has efficient ACs with less-damaging refrigerants. The inefficient ACs are produced by multinational companies that make high-efficiency models for sale in their home country markets.



With record heatwaves sweltering Southeast Asia and elsewhere each year, demand for residential air conditioning is projected to rise rapidly to support the lives and livelihoods of billions. The report shows that if all six countries prevented inefficient AC dumping, it would reduce cumulative emissions over 25 years by more than 1 billion metric tons of carbon dioxide – close to the annual emissions of Malaysia, the Philippines, and Thailand combined. Over the same 25 years, the region would also save USD 148 million cumulatively for consumers, equivalent to 12% of Indonesia’s 2021 GDP.

**The report finds:**

- The dominant multinational brands responsible for this dumping are headquartered in China, Japan, South Korea, and the United States. Since the majority of electricity in Southeast Asia is generated by fossil fuels, energy intensive RACs contribute towards substantial indirect carbon emissions.
- In 2021, a notable 74% of total sales (6.2 million units) in the six markets were classified as low efficiency. However, sales of low-efficiency RACs vary by country. Indonesia and the Philippines are the most exposed to dated technology, with 97% and 78% of RACs, respectively, falling into this category, while in Vietnam, Malaysia, and Thailand the number is around 60%. Singapore had the most efficient RAC market, with just 21% of total sales being low-efficiency models.
- Most RACs imported to Southeast Asia do not meet the applicable minimum energy performance standards (MEPS) of the export countries. This means these inefficient units cannot be sold in those domestic markets. Approximately 93% of RACs imported into Southeast Asia from China do not meet the efficiency requirements of China MEPS. 59% of RAC exports from South Korea to Southeast Asia and 21% of RAC exports from Japan to Southeast Asia are below the brands’ home-country requirements.
- The six Southeast Asian RAC markets use HFC refrigerants that have high GWPs. R-410A, an obsolete refrigerant scheduled for phasedown under the Montreal Protocol, has a GWP of 2,088, meaning it is over 2,000 times the potency of carbon dioxide. RACs containing R-410A accounted for 35% of Southeast Asia sales in 2021, measuring highest in Singapore (90%) and Thailand (66%).

**Commenting on the research, Christine Egan, CEO of CLASP, said,** “In the midst of a global climate emergency where high temperature records are broken annually, it is disappointing that the production and sale of affordable efficient ACs does not extend across all markets in Southeast Asia. This research shows the added financial savings and emission reductions that can come from stopping the influx of obsolete, energy-guzzling appliances that provide life-saving cooling to millions of people.”

**Tad Ferris, Senior Counsel at IGSD, cautioned,** “This report warns of trade practices harmful to every living creature and ecosystem. The unchecked dumping of inefficient ACs using obsolete refrigerants is exacting an exorbitant toll in vulnerable Southeast Asian communities facing record-setting heat waves during the climate emergency. It is imperative to reverse this trajectory. This report underscores a suite of solutions that include collaborative commitments between multinational corporations and exporting and importing countries, to eliminate the high lifecycle cost of inefficient ACs with obsolete refrigerants.”

Drawing from the research, the report provides actionable recommendations to mitigate dumping. It emphasizes the urgency of implementing robust energy performance standards, fostering favorable trade practices, and enforcing anti-environmental dumping

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policies. These steps are pivotal to ensure sustainable cooling access while reducing negative impacts on the environment and energy systems.

[The Institute for Governance & Sustainable Development's \(IGSD\), 20 September 2023](#)

Image: IGSD

**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 >>>](#)

[UN Environment Programme, OzonAction, July 2023](#)



**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 >>>](#) [UN Environment Programme, OzonAction, July 2023](#)



## WEST ASIA

**8. Energy-efficiency and Ozone experts meet to explore cooperation and funding opportunities for climate protection in Montreal Protocol context**

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**Amman, Jordan, 28 September 2023** – The Kigali Amendment to the Montreal Protocol, which came into effect on January 1, 2019, marks a significant milestone in global climate protection. This visionary amendment, driven by the imperative to reduce the use of high global warming potential hydrofluorocarbons (HFCs), widely used as refrigerants in various applications and significant contributors to climate change, is expected to make a substantial contribution to global climate objectives.

In recognition of the pressing need to mitigate the carbon footprint associated with cooling, heating, and ventilation by advancing energy-efficient technologies and legislation, the United Nations Environment Programme (UNEP) OzonAction's Compliance Assistance Programme (CAP) in West Asia (WA) and Europe and Central Asia (ECA) organized a two-day "Joint ECA-WA Twinning Workshop for National Ozone Officers/Montreal Protocol Officers (NOOs/MPOs), National Energy Efficiency Policymakers, and Financial Mechanisms Focal Points" on 25-26 September 2023, in Amman, Jordan.

This workshop comes as the first in a series of similar workshops to be held in other regions and as an integral component of a two-year "twinning" project, funded by the Multilateral Fund for the Implementation of the Montreal Protocol. The primary aim of this project is to foster collaboration among NOOs/MPOs, National Energy Efficiency Policymakers, and Financial Mechanism Focal Points, with a particular focus on integrating energy-efficiency considerations into the Montreal Protocol objectives, especially in support of the Kigali Amendment.

The joint ECA-WA twinning workshop brought together a diverse group of NOOs/MPOs, Energy Efficiency Policymakers, and Financial Mechanisms Focal Points from 22 countries (34 male, 22 female), in addition to representatives from regional and international organizations and key resource persons and experts and was conducted in conjunction with a "Joint ECA-WA Network Meeting of NOOs/MPOs" from 27-28 September 2023.

With the changing landscape of the Montreal Protocol, NOOs/MPOs find themselves at a crossroads, needing to meet the Protocol's HCFC phase-out compliance targets while simultaneously preparing for the HFC phase-down. This shift necessitates careful consideration of technology and policy choices to sustainably manage refrigerants while fostering energy-efficient technologies, especially in high ambient-temperature countries.

Through this initiative, participants had the opportunity to enhance their capacity to align their national Montreal Protocol compliance programmes with the Kigali Amendment while integrating energy efficiency considerations into their endeavours within the refrigeration and air conditioning sector. The workshop also emphasized the concept of "twinning," encouraging close coordination between National Energy Efficiency Policymakers and Financial Mechanism Focal Points with their respective NOOs/MPOs to advance energy efficiency within the Montreal Protocol framework, including the strategies outlined in the Kigali HFC Implementation Plan (KIP).

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**Contact:**

[Halvart Koeppen](#), Montreal Protocol Regional Coordinator, UNEP OzonAction CAP, Europe and Central Asia

[Khaled Klaly](#), Montreal Protocol Regional Coordinator, UNEP OzonAction, CAP, West Asia

[UNEP OzonAction, 28 September 2023](#)

*Image: OzonAction*

## NORTH AMERICA

### 9. NIFA Invests \$1.8 Million in Pest Management Alternatives

NIFA [National Institute of Food and Agriculture] has invested \$1.8 million in four projects as part of the Methyl Bromide Transition Program. Methyl bromide (MB) is an odorless, colorless gas previously used in many agricultural and related systems as a soil and structural fumigant to control a wide variety of pests. MB depletes the stratospheric ozone layer.



As part of the Clean Air Act, the U.S. Government agreed to reduce methyl bromide incrementally from 1991 until the complete phase out in 2005. Since 2005, the only use of MB in the United States is through critical use exemptions and quarantine and pre-shipment exceptions.

The pressure to completely phase-out MB has created an urgent need for new economical and effective pest control tactics to control soil-borne and postharvest pests, and pests in the processing and shipping industries.

The Methyl Bromide Transition Program supports the discovery and implementation of practical pest management alternatives for commodities and uses affected by the MB phase-out. Funded projects include integrated and Extension-only projects seeking to solve pest problems in key agricultural production and post-harvest management systems, processing facilities, and transport systems for which MB has been withdrawn or withdrawal is imminent.

#### 2023 Awardees

- Arkansas State University
- University of Delaware
- Kansas State University
- North Carolina State University

[National Institute of Food and Agriculture, 11 October 2023](#)

*Image: NIFA*

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## 10. US tackles climate-warming HFC industrial gases with new rules

WASHINGTON, Oct 6 (Reuters) - The U.S. Environmental Protection Agency on Friday announced two new measures aimed at reducing climate-warming chemicals used in refrigerators and air conditioners that can help the U.S. meet its goals to halve its greenhouse gas emissions this decade.



The agency issued a final rule that restricts the use of gases known as hydrofluorocarbons, or HFCs, used in 40 types of imported or domestically manufactured foams, aerosol products, and refrigeration, air conditioning, and heat pump equipment, setting compliance dates from 2025 to 2028.

HFCs are significantly more potent than carbon dioxide in contributing to global warming.

The EPA also issued a proposal that aims to improve how HFCs are managed and reused, setting requirements for repairing leaky equipment, rules for using reclaimed HFCs and leak detection rules for large refrigeration equipment.

The two regulatory actions come after the EPA issued a final rule in July phasing down the use of HFCs by 40% below historic levels from 2024 to 2028.

The Senate voted 69-27 in September last year to ratify the global Kigali amendment to the Montreal Protocol that calls for the phase-down of HFCs.

Congress also passed the 2020 American Innovation and Manufacturing Act, which called on the EPA to deliver plans to reduce the production and consumption of climate-damaging chemicals by 85% by 2036.

White House National Climate Advisor Ali Zaidi said by ratifying the Kigali amendment, a rare environmental treaty that has bipartisan support, and executing steps to meet its targets, the U.S. is positioned "to lead on innovating and manufacturing alternatives to super-polluting HFCs."

### [Reuters, 6 October 2023](#)

*Image: Signage is seen at the headquarters of the United States Environmental Protection Agency (EPA) in Washington, D.C., U.S., May 10, 2021. REUTERS/Andrew Kelly/File photo*

## EUROPE & CENTRAL ASIA



## 11. Commission welcomes agreement on new legislation to prevent 500 million tonnes of emissions from fluorinated gases and ozone depleting substances

The Commission welcomes the provisional agreement reached today by the European Parliament and the Council on strengthened rules to massively reduce greenhouse gas (GHG) emissions from fluorinated gases (F-gases) and ozone-depleting substances (ODS). Building on existing EU legislation which has already limited the use and emissions of these gases significantly, the Regulations agreed today will prevent almost 500 million tonnes of further emissions by 2050. It will contribute to the EU's 2030 climate targets of at least 55% emission reductions and help make Europe climate-neutral by 2050.

Used in everyday life appliances, for example in refrigeration and air conditioning, F-gases and ODS are highly potent, human-made greenhouse gases with some of the worst global warming potential, often several thousand times stronger than carbon dioxide (CO<sub>2</sub>). The Regulation provides incentives to use climate-friendly alternatives, further stimulating the global market and helping other countries to make the transition as well. The world market for equipment using F-gases is currently growing rapidly due to increasing temperatures and higher living standards. The new Regulations contribute towards limiting global temperature rise in line with the Paris Agreement, and set an example internationally, raising ambition considerably beyond the Kigali amendment of the Montreal Protocol.

### **New F-gas Regulation**

At EU level, F-gases currently account for 2.5 % of total GHG emissions. The reinforced F-gases Regulation will prevent the emission of around 300 million tonnes of CO<sub>2</sub> equivalent by 2050.

- **Delivering higher ambition:** The agreement tightens the quota system for hydrofluorocarbons (HFC phase-down). The use of **Hydrofluorocarbons (HFCs)** - the most commonly used F-gases representing around 90% of F-gas emissions - would be **reduced by 95% by 2030 compared to 2015, going down to zero by 2050**. From 2025, the HFC quota that the Commission allocates every year will be sold for €3 per tonne of CO<sub>2</sub> equivalent.
  - **Restricting use, based on best practice:** The agreement introduces new restrictions to make sure that F-gases are only used in new equipment where no suitable alternatives are available or that only the most climate-friendly F-gases are used. For example, new air-conditioning, heat pumps and electrical equipment must use the most climate-friendly gases and some types of equipment must become F-gas free. For instance, in medium-voltage switchgear, where Sulphur hexafluoride (SF<sub>6</sub>), the most potent greenhouse gas in the world, has been traditionally used. The new restrictions will apply from 2025 to 2035 depending on the readiness to shift to climate-friendly solutions for each type of equipment.
  - **Bringing positive impact at global level:** In addition to promoting markets for climate-friendly equipment, an export ban will ensure that obsolete equipment using refrigerants with a high global warming potential that may not be sold in the EU can also not be exported to other countries in the world.
  - **Ensuring compliance with the Montreal Protocol:** The F-gas proposal makes sure that the EU complies with all rules of the Montreal Protocol, and even goes beyond its ambition.
  - **Cutting costs for consumers:** As the market for climate-friendly equipment expands, prices are expected to go down. Moreover, such equipment will generate lower energy costs, thus enabling people to save money over the lifetime of the equipment.
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## New Regulation on Ozone-Depleting Substances

The use of ozone-depleting substances (ODS) in new equipment is already forbidden in the EU. By introducing these new measures targeting products in which ODS were legally used in the past, the EU will prevent the equivalent of around 200 million tonnes of CO<sub>2</sub> emissions and 32,000 tonnes of ozone-depleting potential emissions by 2050.

- **Higher ambition:** Most additional emission savings will be achieved by requiring ODS to be recovered or destroyed from insulation foams when buildings are renovated or demolished. The use of ODS in the chemical industry will now also be more strictly regulated.
- **Streamlining:** Industry and authorities will benefit from cost savings thanks to a modernised licensing system and the end of obsolete quota and registration requirements.

## Better enforcement and monitoring

For both pieces of legislation, enforcement and implementation will be improved, making it easier for customs and surveillance authorities to control imports and exports, and to crack down on the illegal trade of gases and related equipment. The agreement will also make monitoring more comprehensive, covering a broader range of substances and activities, and improving the procedures for reporting and verifying data.

## Next steps

Today's provisional agreement now requires formal adoption by the European Parliament and the Council. Once this process is completed, both Regulations will be published in the Official Journal of the European Union and enter into force.

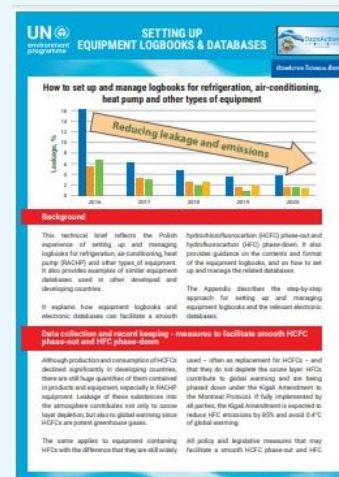
## [The European Commission, 5 October 2023](#)

Image: EC

### 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.

This factsheet is available in [English](#) and [Russian](#)  
[UN Environment, OzonAction, August 2023](#)



## FEATURED



Summary of the 45<sup>th</sup> meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer: 2-7 July 2023. Read/Download the full [Summary Report](#)

See also >>>

- [IISD daily reporting/highlights](#)
- [UNEP Ozone Secretariat/OEWG-45](#)

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

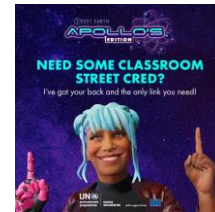
**World Ozone Day 2023 theme announced: Montreal Protocol: fixing the ozone layer and reducing climate change** - On World Ozone Day, we celebrate the achievements of the Montreal Protocol on Substances that Deplete the Ozone Layer in fixing the ozone layer and reducing climate change. The theme for 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.

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



### 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](#)

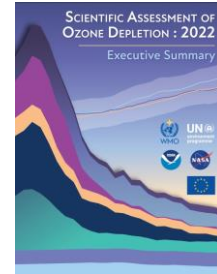
In the past there were 4 main panels. The Panels for Technology and Economic Assessments were merged in 1990 into one Panel, now called the Technology and Economic Assessment Panel.

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**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 >>>](#)

**Scientific Assessment of Ozone Depletion: 2022 - [Executive Summary](#)**

[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 91 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.

Last 16 July 2022, following the adoption of interim budgets for the Multilateral Fund due to the Covid-19 pandemic, the Fifth Extraordinary Meeting of the Parties to the Montreal Protocol (5<sup>th</sup> ExMOP) decided on the replenishment of the Multilateral Fund for the triennium 2021-2023. The Parties agreed on a budget of US \$540 million for the triennium.

As at 5 December 2022, the contributions received by the Multilateral Fund from developed countries, or non-Article 5 countries, totaled over US\$ 5.02 billion. The Fund has also received additional voluntary contributions amounting to US \$25.5 million from a group of

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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 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](#)**

**Upcoming events:**

- The 93<sup>rd</sup> meeting is scheduled for 11 to 15 December 2023, in Montreal, Canada
- 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*

[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)



Substances	Quantity	ODP	Licence
HCFC-22	100	0.055	5.5
HCFC-123	100	0.022	2.2
HCFC-124	100	0.022	2.2
HCFC-141b	100	0.022	2.2

**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 CO<sub>2</sub>-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, CO<sub>2</sub>-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 CO<sub>2</sub>-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 refrigerants 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 also available for download by request from UNEP OzonAction: [unep-ozonaction@un.org](mailto: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 field and follow in their footsteps. **Read/download the [publication](#)**



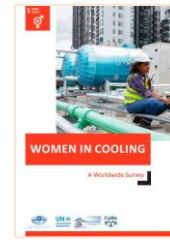
As part of IIR and UNEP OzonAction's partnership, a set of Cold Chain Technology Briefs was released over the past few years, which includes in-depth summaries about the cold chain in different key sectors. They include descriptions of technology, refrigerant options and trends and conclude with prospects 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

**[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](#)**

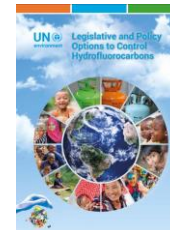


**[Sustainable Food Cold Chains: Opportunities, Challenges and the Way Forward](#)**

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](#)**



Latest issue of Centro Studi Galileo magazine,  
**Industria & Formazione**, n. **[10-2022](#)**  
(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](#)**



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.

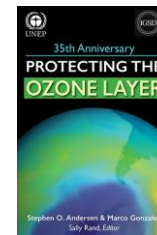
The e-book, titled "[7 Keys to a Compliant PSM Training Program for Ammonia Refrigeration](#)," outlines important questions a facility's program should address and questions that trained plant personnel should be able to answer. Topics covered include:

- 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](#)



[Protecting the Ozone Layer - 35<sup>th</sup> Anniversary Edition](#) - a new book celebrating the 35<sup>th</sup> 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 (N<sub>2</sub>O), feedstock exemptions for plastics production, and dumping of obsolete cooling appliances. [The book was released at 34<sup>th</sup> Meeting of the Parties to the Montreal Protocol on 31 October 2022.](#)



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implementation of the Montreal Protocol, to stimulate discussion and promote cooperation in support of compliance with this multilateral environmental agreement. With the exception of items written by UNEP and occasional contributions solicited from other organizations, the news is sourced from on-line newspapers, journals, and websites.

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