

OzoNews

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

Volume XXII | 15 August 2022

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GLOBAL



1. Kigali Amendment latest ratifications

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

Mongolia, 27 July 2022
Tajikistan, 29 June 2022
Congo, 16 June 2022
Singapore, 1 June 2022

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

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

United Nations Treaty Collection

Image: UN Treaty Collection website



2. Policies, Procedures, Guidelines and Criteria of the Multilateral Fund

The "[Policies, Procedures, Guidelines and Criteria of the Multilateral Fund](#)" contain the policies, procedures, guidelines and criteria, as established by the Meetings of the Parties of the Montreal Protocol and elaborated by the Executive Committee of the Multilateral Fund in accordance with its terms of reference.

The document is updated after each Executive Committee meeting.

The current version of the document is updated as at July 2022 and includes decisions taken at the 90th Executive Committee Meeting and the 33rd Meeting of the Parties to the Montreal Protocol. The document is available as a PDF file (in its entirety and in 11 separate chapters).

The supplement "[HCFC Phase-out Management Plans and HCFC Production Phase-out Management Plans](#)", containing relevant decisions and agreements on HCFC phase-out multi-year projects and phase-out of production of HCFCs, is available as a PDF file (updated as at July 2022).

Another supplement "[Phase-out Plans and Projects](#)" contains relevant decisions and agreements on multi-year projects for the phase-out of other ODS and is also available as a PDF file (updated as at July 2022).

[The Multilateral Fund for the Implementation of the Montreal Protocol, July 2022](#)

Image: UNMLF website

3. Tonga eruption blasted unprecedented amount of water into stratosphere

The huge amount of water vapor hurled into the atmosphere, as detected by NASA's Microwave Limb Sounder, could end up temporarily warming Earth's surface.

When the Hunga Tonga-Hunga Ha'apai volcano erupted on Jan. 15, it sent a tsunami racing around the world and set off a sonic boom that circled the globe twice. The underwater eruption in the South Pacific Ocean also blasted an enormous plume of water vapor into Earth's stratosphere – enough to fill more than 58,000 Olympic-size swimming pools. The sheer amount of water vapor could be enough to temporarily affect Earth's global average temperature.



An image from Jan. 18, 2022, shows the ash plume from the Hunga Tonga-Hunga Ha'apai volcanic eruption that occurred the day before. An astronaut took a photograph of the plume from the International Space Station. Credit: NASA

"We've never seen anything like it," said Luis Millán, an atmospheric scientist at NASA's Jet Propulsion Laboratory in Southern California. He led a new study examining the amount of water vapor that the Tonga volcano injected into the stratosphere, the layer of the atmosphere between about 8 and 33 miles (12 and 53 kilometers) above Earth's surface.

In the [study](#), published in *Geophysical Research Letters*, Millán and his colleagues estimate that the Tonga eruption sent around 146 teragrams (1 teragram equals a trillion grams) of water vapor into Earth's stratosphere – equal to 10% of the water already present in that atmospheric layer. That's nearly four times the amount of water vapor that scientists estimate the 1991 Mount Pinatubo eruption in the Philippines lofted into the stratosphere.

Millán analyzed data from the Microwave Limb Sounder (MLS) instrument on NASA's Aura satellite, which measures atmospheric gases, including water vapor and ozone. After the Tonga volcano erupted, the MLS team started seeing water vapor readings that were off the charts. "We had to carefully inspect all the measurements in the plume to make sure they were trustworthy," said Millán.

A Lasting Impression

Volcanic eruptions rarely inject much water into the stratosphere. In the 18 years that NASA has been taking measurements, only two other eruptions – the 2008 Kasatochi event in Alaska and the 2015 Calbuco eruption in Chile – sent appreciable amounts of water vapor to such high altitudes. But those were mere blips compared to the Tonga event, and the water vapor from both previous eruptions dissipated quickly. The excess water vapor injected by the Tonga volcano, on the other hand, could remain in the stratosphere for several years.

This extra water vapor could influence atmospheric chemistry, boosting certain chemical reactions that could temporarily worsen depletion of the ozone layer. It could also influence surface temperatures. Massive volcanic eruptions like Krakatoa and Mount Pinatubo typically cool Earth's surface by ejecting gases, dust, and ash that reflect sunlight back into space. In contrast, the Tonga volcano didn't inject large amounts of aerosols into the stratosphere, and the huge amounts of water vapor from the eruption may have a small, temporary warming effect, since water vapor traps heat. The effect would dissipate when the extra water vapor cycles out of the stratosphere and would not be enough to noticeably exacerbate climate change effects.

The sheer amount of water injected into the stratosphere was likely only possible because the underwater volcano's caldera – a basin-shaped depression usually formed after magma erupts or drains from a shallow chamber beneath the volcano – was at just the right depth in the ocean: about 490 feet (150 meters) down. Any shallower, and there wouldn't have been enough seawater superheated by the erupting magma to account for the stratospheric water vapor values Millán and his colleagues saw. Any deeper, and the immense pressures in the ocean's depths could have muted the eruption.

The MLS instrument was well situated to detect this water vapor plume because it observes natural microwave signals emitted from Earth's atmosphere. Measuring these signals enables MLS to "see" through obstacles like ash clouds that can blind other instruments measuring water vapor in the stratosphere. "MLS was the only instrument with dense enough coverage to capture the water vapor plume as it happened, and the only one that wasn't affected by the ash that the volcano released," said Millán.

The MLS instrument was designed and built by JPL, which is managed for NASA by Caltech in Pasadena. NASA's Goddard Space Flight Center manages the Aura mission.

National Aeronautics and Space Administration (NASA), 4 August 2022

Image: NASA website

4. World Cold Chain Symposium convened global leaders, created dialogue on food loss and waste

Washington, DC - Paris, France, July 27, 2022
- The organizers Global Food Cold Chain Council (GFCCC) and United Nations Environment Programme (UNEP) OzonAction, the sponsor Carrier, and



supporters Ozone Secretariat and the Cool Coalition, thank the speakers and audience members for their enthusiastic interest at the 2022 World Cold Chain Symposium, held on July 10th at the UN Conference Centre in Bangkok, Thailand. The Symposium, which included a diverse set of speakers from the private sector, government, international organizations, academia, and non-profits, brought together a group representing more than 90 countries to share perspectives on the challenges and opportunities in the expansion of the sustainable food cold chain. Today, the video recording of the Symposium is available for the public to view.

The Symposium focused on the theme of “Promoting the Sustainable Food Cold Chain: Pursuing the Action Agenda” and showcased speakers from UNEP (OzonAction and the Cool Coalition), the Ozone Secretariat, the Multilateral Fund Secretariat, UN Food and Agriculture Organization, U.S. Department of State, National Ozone Units and governments of India and Vietnam, industry representatives from the Global Food Cold Chain Council, the University of Birmingham and the World Refrigeration Day Secretariat. Speakers shared details of innovative cold chain initiatives in Somalia, the Philippines, India, Rwanda, and Vietnam. A session on financing options for the food cold chain featured the World Bank, the Multilateral Fund, and the Green Climate Fund. The full speaker list is available on the Symposium website linked above.

The Symposium highlighted important themes that will be discussed at venues including those related to the Montreal Protocol and the Climate Conference of the Parties in 2022 and 2023. The dialogue included:

- The importance of cold chain data collection and analysis and tools and services available to developing countries.
- Encouragement of financial support for cold chain expansion projects consistent with the Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development
- Development of partner projects on agriculture and cold chain linkages
- Promote development and implementation of financial mechanisms under the Green Climate Fund, World Bank, other UN implementing agencies, and private sector interests

“The global community has embraced the need for and environmental and economic benefits of expansion of a sustainable cold chain,” said Kevin Fay, Executive Director of the Global Food Cold Chain Council. “This event showcases this building momentum on activities that will improve health, help the environment by reducing food loss, greenhouse gas emissions, and waste fresh water, and creating additional food and economic security.”

James Curlin, Head of UNEP OzonAction, said “The views expressed during the symposium demonstrate that a wide constellation of organizations, countries, and financial mechanisms consider an expanded and sustainable cold chain to be a vital common objective. The innovative initiatives described during the event were inspirational and gave us food for thought about the next steps we can take either as individuals or in collaboration. Opportunities to advance the sustainable cold chain abound and need to be acted upon.”

[Global Food Cold Chain Council \(GFCCC\), 3 August 2022](#)

Image: GFCCC website

5. Managing the carbon footprint related to leakage of refrigerants

UNDP upgrades methodology on assessing GHG emissions from refrigerants

As global temperatures rise, the need for cooled spaces and refrigeration also increases. A study published in “Annual Reviews” in 2021 shows that greenhouse gas (GHG) emissions associated with space cooling and refrigeration amount to approximately 4,400 million tonnes of CO₂eq, corresponding to over 10% of worldwide GHG emissions.



Yet sales of refrigeration and air conditioning (RAC) equipment continue to grow, exacerbating the pace of climate change even further.

The ‘cooling’ demand in UNDP offices, warehouses and vehicles is no exception. UNDP’s Montreal Protocol and Chemicals and Waste Management Unit (MPU) provides technical support and guidance to countries in meeting their obligations under the Montreal Protocol and UNDP is leveraging its technical expertise to calculate, manage, monitor and minimize its carbon footprint from refrigerant use more effectively.

The “**GUIDANCE NOTE: Assessing greenhouse gas emissions from refrigerants use in UNDP operations**” is now available to help UNDP offices to more accurately assess direct emissions^[2] of refrigerants from RAC appliances and vehicles in its operations and provides a step-by-step guide to relevant UNDP staff on how to apply this methodology. The methodology discussed in the Guidance Note has been tested by 11 offices from across UNDP – taking on this additional task for the greater good! - and has proven successful.

The document has been developed by the UNDP MPU with support from the UNDP Greening Moonshot team and independent RAC expert Mads Giltrup. This improved accounting approach will incentivize offices to take measures for better procurement, maintenance, servicing, and disposal of cooling assets and ultimately reduce UNDP’s operational carbon footprint as committed under the **Moonshot Initiative**.

The Guidance Note can also be useful to operations/facility managers or carbon accounting experts outside of UNDP.

For questions and comments, please contact greening@undp.org

Footnotes ^[1] GWP values from the latest (Sixth) IPCC Assessment Report. ^[2] Indirect emissions due to electricity/energy consumption of cooling assets are not covered by this methodology and are captured under the Facility/Electricity section in the EMT, UNDP’s framework to monitor GHG emissions resulting from UNDP’s global Facility, Vehicle and Travel operations.

[UNDP-Greening Moonshot](#), July 2022

Image: UNDP website

6. Innovative Approaches for the Implementation of the Kigali Amendment - OEWG44 side event recording

How to successfully implement the preparation projects for the Kigali Implementation Plans (KIP)? The recent OEWG44 side event organized by GIZ, presented, and discussed helpful tools and concepts.

The preparation of the Kigali implementation plans (KIPs) has started. Some countries are already implementing KIP Stage I preparation projects and several countries have already submitted or will be submitting the PRPs to the next meetings of the Multilateral Fund for the Implementation of the Montreal Protocol Executive Committee.

To successfully implement the preparation projects and define ambitious and sustainable KIP strategies, innovative approaches, and methodologies for HFC surveys as an example are necessary. [Watch the recording >>>](#)



[GIZ, July 2022](#)

Image: GIZ website



It is estimated that by 2050 the world will need as many as 14 billion total air conditioning units, a 289% increase. That is an increase justified by the projections that CO2 concentrations could double by the same date.
GETTY IMAGES/ISTOCKPHOTO

7. Opinion: Air-conditioner use will jump 280% in the next decades. How can we keep cool without making climate change worse?

There are appliances ready for the market now that use compounds less risky for global warming. Carbon markets could incentivize manufacturers to make even more.

Recent heatwaves have led to thousands of deaths and captured headlines as we enter a dangerous new era of extreme heat contributing to dangerous wildfires and harming agriculture production. Yet, one of the quickest and most sought-after solutions to deal with extreme temperature, air conditioners, could rapidly increase global warming.

This spike in deadly temperatures has experts predicting greater demand for air conditioning. Currently the world has roughly 3.6 billion units operating globally, but it is estimated by 2050 the world will need as many as 14 billion total air conditioning units, a 289% increase. While this increase is certainly justified in terms of the immediate relief air conditioning can provide, it could also be a climate disaster.

This is due to gases called hydrofluorocarbons (HFCs), which are a group of industrial chemicals primarily used for refrigeration and cooling, including in most air conditioners.

HFCs are a major climate concern due to their high global warming potential (GWP). GWP is a measure of the warming potential of 1 ton of a gas, once emitted into the atmosphere, relative to 1 ton of carbon dioxide (CO₂) in a given period of time.

The HFCs in your air conditioner could have a GWP score well over 3,000. This means HFCs heat the planet 1,000s of times more than CO₂.

These high-GWP substances are also found within foam insulation and refrigeration appliances, which will also be increasingly called upon with extreme temperatures. These substances have been leaking for decades, contributing to nearly 10% of global warming emissions. It is expected their emissions will rise by a staggering 90% from 2017 levels by 2050. Introducing billions of more appliances over the next decade could easily push current climate goals out of reach.

The good news is there are appliances ready for market now that use much lower GWP compounds – some representing more than a 1,000% reduction from what is typically used in appliances currently. Legislation passed last year that will reduce the production and consumption of HFCs in the U.S. by 85% over the next 15 years. Both efforts will, over time, move the market towards low-GWP appliances.

While these efforts will certainly begin a shift to lower-impact alternatives, they won't shift the market at the scale and speed we need. Switching to low-GWP options requires new equipment, which often means new and potentially costly investments. This means high-emitting HFC appliances will enter the market and contribute to climate change for many years to come. Avoiding these additional HFCs in the near-term will significantly impact long-term global warming.

So how can we rapidly drive the use of the available existing alternatives?

The carbon market might just be part of the answer. Generating carbon credits can provide the financing needed to incentivize manufacturers to produce appliances utilizing ultra-low GWP compounds at competitive costs faster, preventing a significant amount of HFC emissions.

By transitioning away from high-GWP appliances, the world could avoid around four to eight years of total annual global greenhouse gas emissions, based on 2018 levels, over the next four decades. A global phase down of HFCs could prevent 0.5 degrees of warming by 2100.

Carbon markets may also provide an opportunity for U.S. leadership on the global stage. The incentives supporting manufacturers' rapid switch to low GWP appliances could create a competitive advantage for U.S. manufacturing in international markets as the world moves to address climate change.

There is the potential to catalyze the changes we need over the next few years, not over a decade, if we leverage the power of carbon markets. Taking advantage of this opportunity can provide both the U.S. and the world with access to the technologies needed to stay cool, and keep the planet cool as well.

MarketWatch, 9 August 2022, By Mary Grady

Image: MarketWatch website / GETTY IMAGES/ISTOCKPHOTO

UNEP & partners raise profile on cold chain with support of world-renowned chefs Launches on World Refrigeration Day 2022, Chefs Say **"Cooling Keeps Food Fresh"** in Global Campaign. To celebrate World Refrigeration Day, leading chefs are reminding us that cooling enables nutritional diets, helps reduce the number of undernourished, and can lower greenhouse gas emissions.

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



World Refrigeration Day, 26 June 2022

CITATION >>>

[...] Dr Bond* likened the global action required to address plastic pollution to [the Montreal Protocol](#) that banned ozone-depleting chemicals - a treaty widely considered to be one of the most successful global agreements ever signed.

"We need the same thing with plastic pollution, and we're moving in that direction, but just very, very slowly." [...]

Quote from the BBC article "[Plastic pollution: Birds all over the world are living in our rubbish](#)", 4 August 2022, By Victoria Gill

* Dr Alex Bond from the Natural History Museum in London, and one of the researchers involved in the "[Birds and Debris](#)" project.

AFRICA

8. Liberia: EPA trains customs Officers, others on ozone depleting substances' detection

The Environmental Protection Agency of Liberia (EPA) through its National Ozone Unit over the weekend conducted a one-day training for 15 customs and law enforcement officers at Bo Waterside Border in Grand Cape Mount County.

The training which is the second and final of two customs and other law enforcement officers' training workshops focused on 'monitoring and detection of Ozone Depleting Substances (ODS).

The training was intended to build the capacities of customs and other law enforcement officers at the various border crossing points in the country on how to detect ozone-depleting substances.

It also sought to train officers on how to properly check and verify ODS import documentation.

At the end of the training, the Bo Waterside Border Joint Chief of Security, Saxon Tambo lauded the EPA for the training and encouraged participants to make use of the skills for the good of the country.



He pleaded with the EPA, through its Ozone Unit to always organize such training to keep customs and other law enforcement officers abreast of changes taking place in the world of trades. since “on one is too old to learn”.

Saxon thanked the Agency’s Ozone Unit and German Agency for International Cooperation (GIZ) for organizing the training and requested the EPA to regularly upgrade the capacity of personnel assigned at the border.

The one-day training was facilitated by Boima Manobah, Abraham Zuah from the Customs Department of the Liberia Revenue Authority (LRA), and Sete F. Marshall of the EPA.

The training covered five key topics which include; Ozone Layer Depletion: How to Remediate Impact; The Kigali Amendment and the Role of Customs Officers in its successful implementation; The new Harmonized System (HS) Codes for ODS and ODS-based Equipment with reference to HCFC-22; ODS Control Measures under the Montreal Protocol; ODS Smuggling Methods, Identification of Illegal Trade in ODS, Inspection and Verification of ODS Import Documentation; and a Practical session on ODS Detection using the Refrigerant Analyzer.

FrontPageAfrica, 2 August 2022

Image: FrontPageAfrica website

9. Des climatiseurs sans effet de serre arrivent bientôt au Burkina selon le Bureau national Ozone

La première session ordinaire de l’année 2022 du comité national Ozone s’est ouverte ce 11 août 2022 à Ouagadougou. Au cours de cette session, les participants feront le bilan des activités déjà réalisées et celles à réaliser jusqu’au 1^{er} septembre 2022, par le Bureau national Ozone et ses partenaires ; d’examiner et valider le rapport d’inventaire de l’importation en 2021 des substances et équipements du froid et de la climatisation ; d’examiner le programme de la célébration de la Journée internationale de protection de la couche d’ozone 2022 et enfin d’échanger sur un futur projet pilote d’installation des climatiseurs à bonne efficacité énergétique.



Sur le dernier point, Samuel Paré, Coordonnateur du Bureau National Ozone dira, « Bientôt nous allons recevoir des climatiseurs et des réfrigérants qui ne détruisent pas la couche d’ozone et qui ne sont pas de gaz à effet de serre et qui ont une très bonne efficacité énergétique...».

Rappelons que le Bureau National Ozone au Burkina Faso a été créé par arrêté depuis le 25 février 2019 avec pour mission le suivi et la mise en œuvre de la Convention de Vienne et du Protocole de Montréal ; en rapport avec la préservation de la couche d’ozone. Cette organisation se charge du contrôle des importations des appareils de froid et la climatisation, de la formation des acteurs concernés et de la sensibilisation pour l’adoption de bonnes pratiques en matière de froid et de climatisation.

« Chaque fois que vous voulez acheter un réfrigérant, [...] venez contrôler au Bureau Ozone, on le fait gratuitement », a mentionné le Coordonnateur du Bureau National Ozone. [...]

Faso7, 11 August 2022, By Josué Tiendrebeogo

Image: Faso7 website

ASIA AND THE PACIFIC

10. New study shows pathway to phasing down HFCs in India

A [new paper](#) in *Environmental Research Letters* by NRDC [Natural Resources Defense Council] experts and our colleagues lays out a pathway for India to phase down super climate-warming hydrofluorocarbons, or HFCs, without infringing on the nation's effort to scale up access to cooling for millions.



HFCs are used primarily as refrigerant gases in cooling appliances to help give them their cooling effect, as well as in the production of insulating foams and more. But HFCs have climate warming power – often called global warming potential, or GWP – thousands of times that of CO₂ on a pound-for-pound basis, and the world has just begun a transition away from HFCs to using climate-friendlier alternatives under the Kigali Amendment to the Montreal Protocol. The effort is expected to stave off at least a quarter a degree Celsius of warming by the end of this century.

India will face unique challenges in this transition. It's a hot country with very low adoption of refrigerant-based air conditioning today – just 8 percent of homes have it, and the country as a whole tops the global list of nations lacking the cooling they need.

The Kigali Amendment works by capping HFCs at a close-to-current level of use (for things like building new air conditioners and refrigeration systems and filling up leaks in existing ones) and progressively phasing down from there. For countries with a century of adopting air conditioning behind them, this makes for a plentiful 'HFC baseline' from which to start. For India and other countries with cooling markets still early in their development, the task is harder. The Indian market for HFC-using products is small relative to its potential and its need to grow is large.

Here enters the good news: the ERL study finds a clear path to phasing down HFCs in India while phasing up cooling and identifies few high priorities to help ensure a smooth, successful transition.

The first is to start early – within the next few years, despite that Kigali’s requirements for India begin only in 2028 – and maintain a steady pace of converting manufacturing industries to using climate-friendly alternatives. This approach leaves plenty of time to transition sectors at a reasonable speed, similar to the pace followed in prior fluorocarbon transitions, and leaves time for industries to recoup their investments along the way. It avoids the pitfalls of waiting to get started until it’s necessary – 2028 and later – an option that we found will leave India needing to transition manufacturers away from HFC-based technologies faster than has been done before to keep pace.

There is already very positive indication that industry prefers to move ahead of government mandates. India’s biggest HFC-using sector, air conditioning, has recently achieved a major milestone: over the last few years, more than 90 percent of new room-style air conditioners now contain climate-friendlier alternative R-32, with roughly one-quarter the climate potency of the globally ubiquitous, high-GWP HFC called R-410A. It’s exactly this the kind of early action that will make implementing Kigali far easier, one reason that NRDC and others in Indian civil society have been encouraging this particular step for many years. India is also home to the largest market for low-GWP, R-290-based air conditioners, although they are sold in comparatively smaller volumes.

The second finding is a strong incentive to move as quickly as possible to low-GWP alternatives in the largest sectors of the cooling economy, such as room air conditioning. In order to grow these major cooling sectors by many-fold over the coming years, a transition to low-GWP alternatives such as R-290 and others is likely to be needed, as they offer the opportunity to grow refrigerant use without limit under the Kigali Amendment.

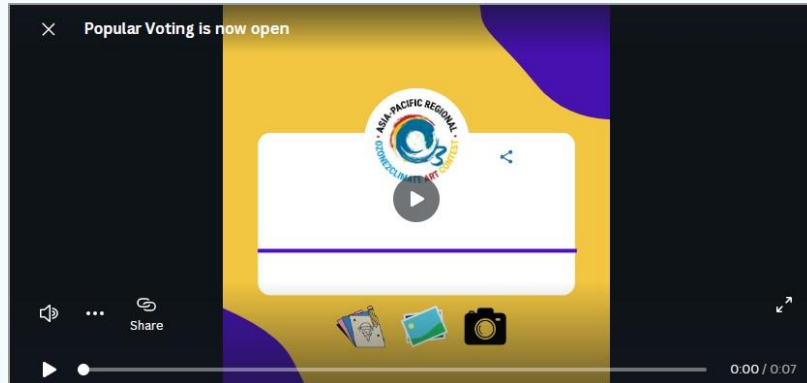
Phasing down HFCs in India will yield dramatic climate benefits. Our study shows it will avoid use and likely emissions of HFCs equivalent to 2.2 billion metric tons of CO₂ through 2050 compared to current market trends, equivalent to a full year of India’s total greenhouse gas emissions in 2018. Should India advance its timeline to that of most other developing countries – and it indeed has a long history of outpacing requirements of the Montreal Protocol as it addressed ozone-depleting substances (ODSs) – we show an additional 337 million metric tons CO₂ of potential climate benefit to be reaped.

India’s cooling economy is on the cusp of a transformation. Recent process in the air conditioning sector has already placed it among the leading countries in the world adopting climate-friendlier alternatives to HFCs. With a few smart, early moves, India’s industries can get set for long-term, sustainable success.

Natural Resources Defense Council (NRDC), 5 August 2022, By Alex Hillbrand

Image: NRDC website

Ozone2Climate Art Contest- Popular Voting is NOW OPEN until 31 August 2022



The Asia Pacific Regional Ozone2Climate Art Contest, launched by UNEP Asia and the Pacific Office, UNESCO, and the National Ozone Units in the Asia Pacific in partnership with Mahidol University, is the regional awareness-raising initiative for the protection of the ozone layer and mitigation of climate change through arts: drawing, photography, and graphic design.

Almost 100 pieces of artworks selected as the national winner of each category (from over 5,300 artworks received both online and offline submission across 34 participating countries in Asia-Pacific) are now competing at the regional level contest until 31 August 2022.

>>> VOTE NOW

be part of this journey to save the ozone layer and climate

#YourVoteMatters

More information: www.ozone2climate.org

LATIN AMERICA AND CARIBBEAN



11. Refrigeration and air conditioning sector: Guyana receives funding for acquisition of new equipment to train technicians

Guyana received support funding under the Hydrochlorofluorocarbons (HCFC) Phase-out Management Plan (HPMP) from the Multilateral Fund for the acquisition of new equipment to train technicians in the Refrigerant and Air Conditioning sector (RAC).

The country is currently phasing out the use of Hydrochlorofluorocarbons (HCFC) through the HPMP. The project also includes replacing harmful Ozone Depleting Substances (ODS) with alternative and ozone-friendly technologies. The need to train technicians in the recovery, storage and recycling of refrigerants is one of the primary initiatives undertaken by the National Ozone Action Unit of the Hydrometeorological Service (NOAU) to ensure the uptake of new and emerging technologies.

The NOAU is responsible for coordinating and monitoring all activities relevant to the smooth phase-out of man-made ODS used in Guyana.

Guyana agreed to the Vienna Convention for the protection of the ozone layer and the Montreal Protocol on Substances that Deplete the Ozone Layer on August 12, 1993, and subsequently endorsed the London, Copenhagen, and Montreal Amendments on July 23, 1999.

With the assistance of the Multilateral Fund (MLF) through the United Nations Environment Programme (UNEP) and the Regional Office for Latin America and the Caribbean (UNEP/ROLAC), a Country Programme was formulated and approved for the phasing out of ODS. As a party to the Montreal Protocol, Guyana's obligations include reporting on the use and consumption of the HCFCs in Guyana annually, which to date, informs that Guyana is on schedule to phase-out the use of HCFCs by 2030.

"As part of the NOAU's obligations, equipment for partner institutions have been acquired to train technicians to perform their re-gassing and refrigerant recovery tasks efficiently. Guyana is being assisted in this regard through funding provided by the Multilateral Fund, with support from its implementing partner, the United Nations Development Programme (UNDP). The partnership with the UNDP was critical in ensuring that the equipment procured satisfied the highest international standards," the Hydromet Office penned in a statement.

Over the years, the NOAU has worked with several of the beneficiary institutions to achieve overall national compliance under the Montreal Protocol. The work of these institutions will be further enhanced through the acquisition of the pieces of equipment. These institutions are the University of Guyana, Government Technical Institute, GuySuCo Training Centre and the Essequibo Technical Institute.

Decades of collaboration between the NOAU and these institutions have yielded a group of trained and licensed technicians who have adopted the new technologies being introduced into the Refrigeration and Air Conditioning (RAC) sector. As a result, some pieces of equipment will also be made available to practicing technicians on loan to

enhance their trade and environmental safeguards. Guyana has been able to maintain its manufacturing, exporting and related sectors with all the ice, freezing and cooling services necessary, while phasing out ODSs and introducing new technologies, in keeping with its obligations under the Montreal Protocol.

“The NOAU is grateful to its funding partners, implementing partners and other associates that have contributed to this work and its many successes in the past. The Ministry of Agriculture recognises the support of the Representative of the UNDP, the Programme Managers and Associates that have been integrally involved in ensuring that Guyana benefits from the procurement of these pieces of equipment,” the statement ended.

[Guyana Times, 6 August 2022](#)

Image: Guyana Times website

NORTH AMERICA

12. North American Sustainable Refrigeration Council releases refrigerant transition hub to help retailers shift from high global warming refrigerants

MILL VALLEY, California—August 2, 2022—The North American Sustainable Refrigeration Council (NASRC), a 501(c)(3) environmental nonprofit working to advance climate-friendly natural refrigerants in supermarkets, today announced it published a [free refrigerant transition hub](#) to help retailers navigate regulation changes implemented by the American Innovation and Manufacturing (AIM) Act. Enacted in 2020, the AIM Act authorizes the Environmental Protection Agency (EPA) to phase down hydrofluorocarbon (HFC) refrigerant greenhouse gas emissions by 85% by 2036.

“HFC regulations from the AIM Act and several states are pressuring retailers to transition to climate-friendly refrigerants,” said Danielle Wright, executive director of NASRC. “Retailers need neutral information to help them make the right decisions. NASRC works in partnership with the supermarket industry, so we are uniquely positioned to identify the gaps in available resources.”

The federal phasedown of HFCs is expected to result in refrigerant shortages and significant price increases. In Europe, refrigerant prices increased by 900% following a similar HFC phasedown. Also, new legislation introduced in states such as California proposed to ban the sale and distribution of virgin HFC refrigerants as early as 2025, further driving the need for natural refrigerant solutions.



Learn more about the [environmental impacts of HFCs](#) / [Refrigerant Transition Hub](#)

NASRC will continue to evolve the hub as state and federal governments pass new legislation. Some of the resources available now include:

- [HFC Policy Tracker](#) – An interactive map to aid retailers in navigating the complex system of regulations by tracking the latest policies at the federal and state levels.
- [Natural Refrigerants in Supermarkets Factsheet](#) – An overview of why natural refrigerants in supermarkets are one of the most impactful and cost-effective climate solutions.
- [Nat Ref Tech Library](#) – The most comprehensive collection of presentations on the latest natural refrigerant technologies.

[The North American Sustainable Refrigeration Council \(NASRC\), 2 August 2022](#)

Image: NASRC website

FEATURED



OZONE SECRETARIAT

Overview for the meetings of the ozone treaties in 2022

[69th IMPCOM](#), Montreal, Canada | 29 October 2022

[33rd MOP Bureau](#), Montreal, Canada | 30 October 2022

[34th MOP](#), Montreal, Canada | 31 October - 04 November 2022

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

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

A new app for mobile phones that provides localized information on ultraviolet (UV) radiation levels has been launched by the World Health Organization (WHO), the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Labour Organization (ILO). The *SunSmart Global UV app* is available free of



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

Image: UNEP, Ozone Secretariat website

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



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

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 >>>](#)



**THE MULTILATERAL FUND
FOR THE IMPLEMENTATION OF THE
MONTREAL PROTOCOL**

Multilateral Fund's post-COVID-19 recovery response

The COVID-19 pandemic has wreaked havoc on people's health and economic security around the world. The economic impact of lockdowns has left many developing countries vulnerable to further financial decline. Many of those countries are beneficiaries of the Multilateral Fund for the Implementation of the Montreal Protocol (referred to as Article 5 countries). Their continued efforts to restore the ozone layer, mitigate climate change and protect the environment are at risk.

COVID-19 has had an unprecedented adverse impact on the manufacturing and trade of a range of consumable products because of supply constraints and a fall in demand. Cooling applications are one example. Converting cooling applications to ozone- and climate-friendly technologies is a cornerstone of the work of the Multilateral Fund, which is expected to be temporarily undermined by the pandemic. Recovery will be slow, and it will take time before output and manufacturing can be brought back to pre-pandemic levels.

The Multilateral Fund recognizes the urgency of this moment and the role it can play in post-COVID-19 recovery measures to support the environmental protection efforts of Article 5 countries and to contribute to the economic sectors that rely on the substances needed for cooling applications like refrigeration and air-conditioning that are essential for human health and welfare.

In this context, the Multilateral Fund's response involves immediate action to reinforce its role of providing financial and technical assistance to Article 5 countries to sustain the implementation of their phase-out activities under the Montreal Protocol and to contribute to economic recovery post-COVID-19. The Executive Committee has given a high priority to the continued operations of the Fund by establishing an effective intersessional approval process that has provided over US \$35 million. The funds are being used for continued support to the national ozone units in implementing phase-out activities at the country level; for continued conversion of manufacturing lines, including refrigeration and air-conditioning manufacturing lines to low-to-zero global-warming-potential alternative technologies not relying on controlled substances; and for technical assistance to technicians so that they can apply better servicing practices and sustain their livelihood despite the downturn in the economy. This funding is expected to provide economic stimulus that will allow these small enterprises to remain in operation.

Much-needed international cooperation has continuously been provided through the Multilateral Fund to governments of Article 5 countries to support them in establishing policies that will support their recovery efforts, especially for sectors in which people's livelihoods are directly affected by the pandemic. The bilateral and implementing agencies of the Fund continue to identify near-term priorities and approaches for capacity-building, information exchange and implementing training projects in these countries despite the challenges of travel restrictions. Their efforts have resulted in innovative virtual on-line solutions ensuring that countries continue to be assisted during this time. The Multilateral Fund will continue its work to heal and restore the ozone layer, which is protecting the planet from the side effects of excessive ultraviolet radiation, despite the challenges of the new reality created by the pandemic.

- [Policies, Procedures, Guidelines and Criteria of the Multilateral Fund \(29 July 2022\)](#)
 - [HCFC phase-out management plans and HCFC production phase-out management plans \(28 July 2022\)](#)
 - [Updated guide for project preparation of Stage I of Kigali HFC implementation plans \(KIP\) \(28 April 2022\)](#)
 - [Updated guide for the presentation of stage II of HCFC phase-out management plans \(15 February 2022\)](#)
 - [Executive Committee Primer 2022](#), 23 January 2022
 - [Adjusted consolidated business plan of the Multilateral Fund 2022-2024](#), 5 January 2022
-

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



OzonAction

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

**The section below features several of our most recent products.
Visit [OzonAction website](#) for more information,
discover the entire range of products.**

Images in this section are by OzonAction

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.

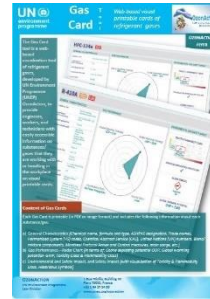
Local Technical & Vocational Education and Training (TVET): This Knowledge Map provides a global directory of TVET entities and centres around the world. These are the strategic partners for conducting and promoting training and certification programmes related to the refrigeration servicing sector.



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).



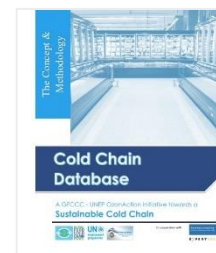
More Information - The Gas Card web-based tool is part of UNEP OzonAction’s portfolio of activities and tools to assist various stakeholders in developing countries, including customs officers and technicians, to achieve and maintain compliance with the Montreal Protocol on Substances that Deplete the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

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

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

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

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



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

> [GFCCC-UNEP Cold Chain Database Methodology Final](#)

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

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



HCFC Quota and Licence Tracker - a new desktop application to assist with HCFC licences and quotas

National Ozone Officers have the great responsibility of managing the allocation and monitoring of quotas for substances controlled under the Montreal Protocol. This process can be complex with many importers, especially if the country imports a range of different hydrochlorofluorocarbons (HCFCs) and mixtures

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

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

GWP-ODP Calculator Application - Updated- "Quickly, efficiently and accurately convert between values in metric tonnes, ODP tonnes and CO₂-equivalent tonnes"

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



- An updated more user-friendly interface
- Multilingual interface: English, French and Spanish

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

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



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



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



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

>>> [Read/download the flyer](#)

Updated OzonAction "WhatGas?" Mobile App - The

OzonAction 'WhatGas?' application is an information and identification tool for refrigerant gases: ozone depleting substances (ODS), HFCs and other alternatives. It is intended to provide some stakeholders, including Montreal Protocol National Ozone Officers, customs officers, and refrigeration and air-conditioning technicians with a modern, easy-to-use tool that can be accessed via mobile devices or the OzonAction website to facilitate work in the field, when dealing with or inspecting ODS and alternatives, and as a useful reference tool. This latest release includes the 2022 Harmonized System (HS) Codes for HFCs and blends, which facilitates the process of inspection and identification of controlled and alternative substances.




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


RAC Technician Videos - Full length films! Two 'full length' videos for refrigeration and air-conditioning (RAC) sector servicing technicians: on 1) Techniques, Safety and Best Practice and 2) Flammable Refrigerant Safety. The OzonAction Refrigeration and Air-Conditioning Technician Video Series consists of instructional videos on techniques, security and best practice and flammable refrigerant safety. They are intended to serve as a complementary training tool RAC sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training. The videos are not intended to replace structured formal technician training, but to supplement and provide some revision of tips and skills and to build on training already undertaken. These videos are based on the successful UNEP OzonAction smartphone application, the RAC Technician Video Series app. 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. Share this message and the flyer with:



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

 You can watch these videos on the OzonAction YouTube Channel:

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

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



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

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

Refrigerant Cylinder Colours: What has Changed - A new UNEP OzonAction factsheet on the new AHRI revised guideline on a major change to refrigerant cylinder colours - One of the ways in which refrigeration cylinders are quickly identified is by cylinder colour. Although there was never a truly globally adopted international standard, the guideline from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) although not required by law was used by the vast majority of industry and chemical producers around the world. An AHRI revised guideline, first published in 2015, now removes paint colour assignments for refrigerant containers and specifies that all refrigerant containers should have the same paint colour from 2020 onwards. NOOs and technicians should be aware of this change and inform national stakeholders, as well as familiarising themselves with relevant container labels and markings for refrigerants. **Read/download the factsheet**



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

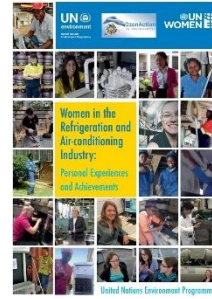


Contact: **Ayman Eltalouny**, OzonAction, UN Environment Programme

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



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



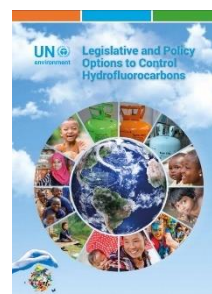
As part of IIR and UNEP OzonAction's partnership, a set of Cold Chain Technology Briefs was released over the past few years, which includes in-depth summaries about the cold chain in different key sectors. They include descriptions of technology, refrigerant options and trends and conclude with prospects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

Download the Cold Chain Technology brief in [English](#) | [French](#) | [Russian](#) | [Spanish](#)



PUBLICATIONS

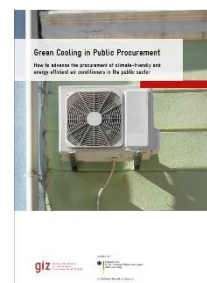
Legislative and Policy Options to Control Hydrofluorocarbons - In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures. This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries. **Read/download**



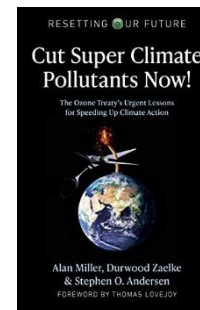
Latest issue of Centro Studi Galileo magazine, **Industria & Formazione**, n. **6-2022** (in Italian).



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



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



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

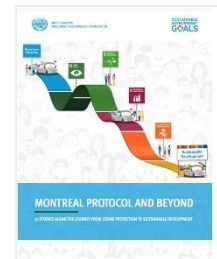
E-Book on Process Safety Management (PSM) Training for Ammonia Refrigeration - a new e-book about the critical elements of a process safety management (PSM) training program for facilities operating an ammonia refrigeration system. The e-book, titled "**7 Keys to a Compliant PSM Training Program for Ammonia Refrigeration**," outlines important questions a facility's program should address and questions that trained plant personnel should be able to answer. Topics covered include:

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

Request free Download [here](#)



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

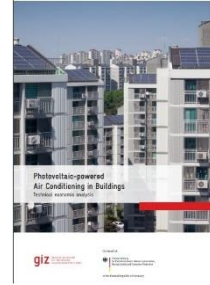


The Green Customs Guide to Multilateral Environmental Agreements was designed to promote sustainable trade and encourage customs and border control officers to take on a proactive role in protecting the environment. The guide provides useful information and guidance about relevant trade-related multilateral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



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

Photovoltaic-powered Air Conditioning in Buildings - Space cooling in buildings is characterized by enormous growth rates, due to increasing ambient temperatures, growing population and urbanisation. Air-conditioned buildings in many countries are largely dominated by mid to low appliance energy efficiency levels, highly climate-damaging refrigerants as well as fossil-fuel based electricity supply. This in sum generates a huge amount of greenhouse gas (GHG) emissions, furthering climate change. The objective of this paper is to further unfold the technical and economic potential of solar PV-powered green air conditioners. Therefore, it focuses on the most widely applied type of active cooling appliance: single split-type air conditioning systems with a cooling capacity up to 5 kW. It looks at the current development of technical main components and based on that defines model cases for hybrid and off-grid solutions for private and small commercial applications. The technical and economic potential for these cases is then analysed for 13 countries worldwide. Subsequently, a case study on Médecins Sans Frontières' (MSF) solar AC project in Haiti provides practical insights on the use of PV-powered AC systems in the context of off-grid social infrastructure. **Read/Download the study [here](#)**



International Institute of Refrigeration (IIR) New Informatory Note. Low-GWP Refrigerants: Status and Outlook - The latest IIR Informatory Note outlines the options available for low-GWP refrigerants and their respective performance. It provides a series of recommendations on refrigerant selection criteria, research priorities and personnel training. A **Summary for policymakers** outlining the main conclusions and recommendations of this Informatory Note is available in open access. Also available in **French** language.



MISCELLANEOUS

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



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

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

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

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

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

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

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



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Request a PDF of the current issue

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

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

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

Prepared by: Samira Korban-de Gobert
Reviewed by: James S. Curlin

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



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