Volume XX | 15 May 2020

Please find here a reissue of this edition of OzoNews (Volume XX, 15 May 2020) with an error corrected. Thank you for your understanding.

In this issue:

-- UNEP's Statement on the COVID-19 global pandemic –

GLOBAL

UNEP's Statement on the COVID-19 global pandemic

We are pleased to share the **statement** of the United Nations Environment Programme on the COVID-19 global pandemic.

Furthermore, the presentation of the Executive Director on UNEP's engagement with the United Nations System and its response to the COVID-19 situation, provided during a briefing at the subcommittee meeting of the CPR, 2 April 2020, has also been made available at the following **link**

COVID-19 Pandemic updates from UNEP

1. Ozone for life: 35 years of ozone layer protection

This year, we celebrate 35 years of the Vienna Convention and 35 years of global ozone layer protection. Life on Earth would not be possible without sunlight. But the energy emanating from the sun would be too much for life on Earth to thrive were it not for the ozone layer. This stratospheric layer shields Earth from most of the sun's harmful ultraviolet radiation. Sunlight makes life possible, but the ozone layer makes life as we know it possible.

So, when scientists working in the late 1970s discovered that humanity was creating a hole in this protective shield, they raised the alarm. The hole – caused by ozone-depleting gases (ODSs) used in aerosols and cooling, such as refrigerators and air-conditioners – was threatening to increase cases of skin cancer and cataracts, and damage plants, crops, and ecosystems.

The global response was decisive. In 1985, the world's governments adopted the Vienna Convention for the Protection of the Ozone Layer. Under the Convention's Montreal Protocol, governments, scientists and industry worked together to cut out 99 per cent of all ozone-depleting substances. Thanks to the Montreal Protocol, the ozone layer is healing and expected to return to pre-1980 values by mid-century. In support of the Protocol, the Kigali Amendment, which came into force in 2019, will work towards reducing hydrofluorocarbon (HFCs), greenhouse gases with powerful climate warming potential and damaging to the environment.

World Ozone Day, held on September 16, celebrates this achievement. It shows that collective decisions and action, guided by science, are the only way to solve major global crises. In this year of the coronavirus pandemic that has brought such social and economic

hardship, the ozone treaties' message of working together in harmony and for the collective good is more important than ever. The slogan of the day, 'Ozone for life', reminds us that not only is ozone crucial for life on Earth, but that we must continue to protect the ozone layer for future generations.

UN Environment, Ozone Secretariat, May 2020

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2. Lower-GWP Refrigeration & Air Conditioning Innovation Award

What is lower GWP refrigeration and air-conditioning innovation award?
The award promotes innovative design, research, and practice, recognizing individuals and teams who have developed or implemented innovative technologies or concepts. Projects must be implemented or conceived specifically for use in developing countries and be aimed at advancing lower global warming potential (GWP) refrigerants.

Who are the awarding organizations?
Award recipients will be recognized by ASHRAE and UN Environment Programme.

How often is the award issued/awarded?
Annually.

What are the award categories?
Projects can be entered into one of two categories:
• Residential Applications
• Commercial/Industrial Facilities

What is the entry criteria?
The award is open to individuals and to teams of individuals. If submission is by an individual, individuals must confirm the work was not a team effort. If a team of individuals is selected, the team itself shall determine which team members shall be entitled to be certificated (maximum 5 per team). All awards will be made in the name of individuals, not in the name of their affiliations.

ASHRAE membership is not a requirement for submission.

How do I enter for the award?
To enter, please go to the link below and fill out the online form.
www.ashrae.org/lowerGWP

The submission form requires descriptive responses to each of the following:

- Description of innovation in the field of lower-GWP refrigerants
- Project details (description must include confirmation project has been implemented and date of implementation)

- Extent of need
- Description and goal of the research, design, practice or project
- Environmental impact achieved including specific reference to the GWP chemicals' contribution
- Further application(s) of project in developing countries from both the technical and economic perspectives, including how the innovation can be replicated
- Photographs illustrating the project, as well as statistical data demonstrating the project's successful performance or experimental findings (tables, figures, charts, etc.) are encouraged to be provided with the application.

How are the projects selected?
Projects in each category will be selected based on innovative solutions for designs, practice, or research using lower-GWP technologies. The selection will take into account the following criteria:
• Innovative aspects in transforming conventional practices (40%);
• Extent of need (25%);
• Technical replicability in developing countries (25%); and
• Economy feasibility for developing countries (10%).

What happens to the selected projects?
Selected entries in each category will be publicized by both ASHRAE and the UN Environment Programme.

When does the entry period opens and closes?
Entries are now being accepted. Entry period closes 1 September 2020. Click **here** to learn more and to complete an online entry form. To receive updates about the awards, please send an **email** to request to be added to our mailing list.

3. RAC Technician Videos - Full length films!

OzonAction is very pleased to release two 'full length' videos for refrigeration and air-conditioning (RAC) sector servicing technicians: on 1) Techniques, Safety and Best Practice and 2) Flammable Refrigerant Safety.

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

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

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

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

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

You can watch these videos on the OzonAction YouTube Channel:

- **Techniques, Safety and Best Practice**
- **Flammable Refrigerant Safety**

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

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

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4. The new updated OzonAction GWP-ODP Calculator Application

"Quickly, efficiently and accurately convert between values in metric tonnes, ODP tonnes and CO_2-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_2-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 CO_2-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)

The new and updated UNEP OzonAction ***GWP-ODP Calculator*** application will help you to convert between values in metric tonnes, ozone depleting potential (ODP) tonnes and CO_2-equivalent tonnes of substances controlled by the Montreal Protocol and their alternatives.
This application, available at no cost, is particularly useful for National Ozone Officers to assist with understanding and calculating quantities of controlled substances, both pure substances and mixtures, for quota assignment, reporting requirements, etc. Other stakeholders interested in ODP and global warming potential (GWP) values of controlled substances and their alternatives will also find this tool useful.

Operation of the application is very simple — just select a substance from the dropdown list and enter the known value in the appropriate field; the calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO_2-equivalent tonnes and display the corresponding converted values. The ODP, GWP and information about the substance is provided. For mixtures, the components of the mixture and their relative proportions (metric, ODP, CO_2- equivalent tonnes) are also calculated.

The updated ***GWP-ODP Calculator*** application now includes a new Kigali Amendment mode. The app can now be used in two different modes: the regular "Actual Values" mode and the "Kigali Amendment" mode. In the Kigali Amendment mode, the GWP values provided are those specified in the Kigali Amendment to the Montreal Protocol, i.e. GWP values are only assigned to controlled HFCs. In this mode the GWP values used to calculate the refrigerant blends/mixtures only include GWP contributions from components that are controlled HFCs. The user can effortlessly switch between modes.

The OzonAction GWP-ODP Calculator uses standard ODP values and GWP values as specified in the text of the Montreal Protocol to make the conversions. Other ODP and GWP values from the recent reports of the Montreal Protocol Technology and Economic Assessment Panel and Scientific Assessment Panel as well as the Intergovernmental Panel on Climate Change (IPCC) are used when appropriate, with references to sources of all values used. The app includes new refrigerant mixtures (with ASHRAE- approved refrigerant designations).

This application is designed primarily for use by Montreal Protocol National Ozone Units and other related stakeholders. The application was produced by UN Environment Programme (UNEP) OzonAction as a tool principally for developing countries to assist them in meeting their reporting and other commitments under the Protocol and is part of the OzonAction work programme under the Multilateral Fund for the Implementation of the Montreal Protocol.

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.
Using the application:

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

Desktop Application: *GWP-ODP Calculator* is also available online on the OzonAction **website**

Watch the new short introductory tutorial **video** on the *GWP-ODP Calculator* - available now on **YouTube**
Read/download the **flyer** for more information

5. UNEP OzonAction Encourages Everyone to Celebrate World Refrigeration Day 2020

World Refrigeration Day (WRD) is an international commemorative day that raises awareness about the refrigeration and air-conditioning industry and its contribution to modern life, as well as its connection to key societal objectives including mitigating climate change, protecting the ozone layer, and achieving the sustainable development goals (SDGs). Inaugurated in 2019, the initiative is well recognized and supported by leading industry associations and organizations around the globe, as well as governments and non-governmental organisations.

WRD is organized each year on 26 June, the birth date of Lord Kelvin after whom the Absolute temperature scale (the "Kelvin Scale") is named. UNEP OzonAction was one of the early supporters of this commemorative day where if offered platform for announcing it to governments at the inter-regional network meeting of Ozone Officers, February 2019, and supported the celebration of the first edition of this awareness-raising event.

This year, UNEP OzonAction, the **WRD Secretariat**, **ASHRAE**, the **European Partnership for Energy and Environment** (EPEE), and the **International Institute of Refrigeration** (IIR) are partnering to promote a global campaign centered around the theme of the Cold Chain. This topic has generated great interest in recent years given its multi-dimensional contribution to key issues including Food Safety/Food Security, Health, Climate Change/Ozone Protection, Sustainable Production/Consumption, and others.

The Food Cold Chain can best be defined as the series of actions and equipment applied to maintain a product within a specified low temperature range from harvest/production to consumption, including farming/fishing, food processing, cold storage, transportation, food services, and domestic uses.

The 2020 campaign, which is being organized under the slogan "Cold Chain 4 Life", aims at building knowledge and raising awareness amongst three different groups:

• General Public: consumers and direct beneficiaries of services/products offered through the cold chain.

• Policymakers: governments and authorities responsible for drafting and implementing relevant strategies and regulations.

• Owners/Operators: decision makers in terms of technology selection and operational procedures of different technologies required for cold chain processes.

"World Refrigeration Day is a great opportunity for all of us to celebrate the tremendous contribution that refrigeration and air conditioning makes to our societies. This includes enabling our agricultural and food systems to harvest, store, transport and sell the foods that nourish us all. The food cold chain is what makes this possible," said James Curlin,

Acting Head of UNEP OzonAction, *"We encourage everyone to organize your own national or local WRD celebrations on 26 June to shine light on great work of the refrigeration and air conditioning sector, which is so vital for the success of the* ***Montreal Protocol.****"*

National Ozone Units, national associations and industry groups, companies and professionals working in the refrigeration and air conditioning sector, schools and individuals can all join in the activities.

You are all invited to join the "Cold Chain 4 Life" campaign by organizing relevant events/functions or using the resources which the campaign will offer soon. Please follow-us on the OzonAction web site and through the WRD web site and associated social media tools.

Cold Chain 4 Life is an international campaign organized by the WRD Secretariat, UNEP OzonAction, ASHRAE, IIR and EPEE to help governments, organizations, companies and media promote World Refrigeration Day 2020. The Web-Ads (banners) available through below links may be used free of charge in websites and other media providing the they are not altered; logos and other branding are not added; that the they are not used in ways which state or imply endorsement of a brand, product or service by the WRD Secretariat or the campaign's organizers.

The United Nations Environment Programme, OzonAction, April 2020

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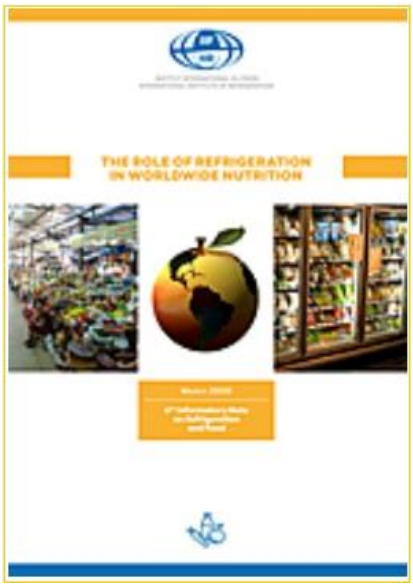
6. The IIR publishes a new Informatory Note on the Role of Refrigeration in Worldwide Nutrition



In line with its corporate objective to promote knowledge of refrigeration and associated technologies and applications on a global scale, the International Institute of Refrigeration (IIR) has published a new Informatory Note on "The Role of Refrigeration in Worldwide Nutrition".

The 6th IIR Informatory Note on The Role of Refrigeration in Worldwide Nutrition draws on the latest figures, findings from reputable organisations such as the FAO, the United Nations and the Global Cold Chain Alliance to demonstrate the essential role that efficient cold chains can play in improving global food security.

"The deployment of an efficient cold chain is essential for global food security"

An update of previous versions published by the IIR in November 1996 and June 2009, this Note aims to emphasise the importance of refrigeration by proving that a more efficient cold chain can significantly reduce food losses and thus improve food safety and security in a sustainable way.

In this respect, the Note provides a series of recommendations with the aim of supporting efforts at national and international levels to implement appropriate measures in order to fulfil global commitments.

Some key figures:

- over 13% of all food is lost due to a lack of refrigeration
- an improved cold chain could feed 950 million inhabitants per year
- more than 1,600 million tons of food are lost and wasted every year
- 63% of all food losses come from developing countries.

Designed to meet the needs of decision makers worldwide, a complementary Summary Sheet for Policymakers outlining the key issues identified in the full version of this IIR Informatory Note is also available. Both publications available in French and English can be downloaded at **www.iifiir.org > Publications > Informatory Notes** (**https://iifiir.org/en/iir-informatory-notes**).

The International Institute of Refrigeration (IIR) is an independent intergovernmental science and technology-based organisation promoting refrigeration knowledge and associated technologies that improve quality of life in a cost-effective and environmentally sustainable manner including:

- Food quality and safety from farm to consumer
- Comfort in homes and commercial buildings
- Health products and services
- Low temperature technology and liquefied gas technology
- Energy efficiency
- Use of non-ozone depleting and low global warming refrigerants in a safe manner.

For more information visit **www.iifiir.org**

Contact: **Deonie Lambert**, Communications Manager

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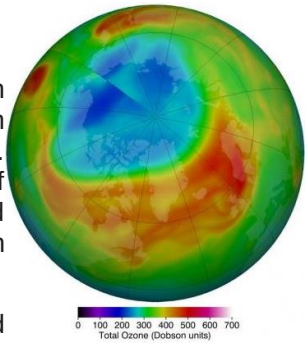
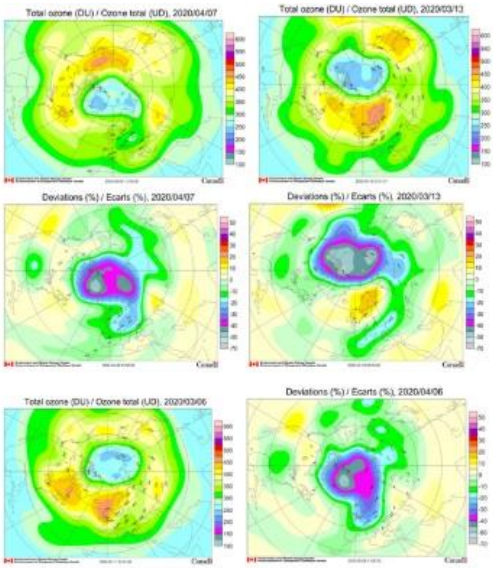
7. Arctic ozone depletion reached record level



Depletion of the ozone layer, the shield that protects life on Earth from harmful levels of ultraviolet radiation, reached an unprecedented level over large parts of the Arctic this spring. This phenomenon was caused by the continuing presence of ozone-depleting substances in the atmosphere and a very cold winter in the stratosphere (the layer of the atmosphere between around 10 km and round 50 km altitude).

The last time similarly strong ozone depletion was observed over the Arctic was during spring 2011, and ozone depletion in 2020 was even stronger, according to WMO's Global Atmosphere Watch ozone observing

stations, **NASA** and the **Copernicus Atmospheric Monitoring Service implemented by ECMWF**.



The ozone hole closed in April with an increase in stratospheric temperatures which culminated in an influx of ozone-rich air from the lower atmosphere.

The depletion would have been even worse if it had not been for a successful international agreement called the Montreal Protocol on Substances that Deplete the Ozone Layer. This led to a phaseout of substances such as chlorofluorocarbons (CFCs). But they remain in the atmosphere for several decades and their concentrations are still high enough to cause severe ozone destruction.

“The Arctic stratosphere continues to be vulnerable to ozone-depleting substances linked to human activities,” said WMO Secretary-General Petteri Taalas. “The degree of ozone loss experienced in any particular winter depends on the meteorological conditions.

The 2020 ozone loss shows that we have to remain vigilant and maintain continuous observations,” said WMO Secretary-General Petteri Taalas.

“WMO’s Global Atmosphere Watch stations in the Arctic and the Antarctic provide us with early warnings in case of low ozone and intense UV radiation levels. We pay tribute to National Meteorological Services for continuing vital atmospheric monitoring and observing activities despite the constraints of the COVID-19 era,” he said. [...]

World Meteorological Organization (WMO), 1 May 2020

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8. Ozone layer deal may have led to new contaminant problem, researchers say

Replacements for ozone-eating CFCs break down in atmosphere into new contaminants.

A landmark environmental agreement that helped close the ozone hole in the 1990s has led to new chemical contaminants forming in the atmosphere and accumulating on land, researchers "The Montreal Protocol was probably one of the best regulations out there to involve all the countries at once," said Heidi Pickard, one of nine researchers to publish the findings in a paper Thursday.

The concentration of chemicals called short-chain fluorinated alkyl acids has increased sevenfold in ice cores from two High Arctic locations, including one on Ellesmere Island in Nunavut, since 1990. The ice core samples collected on Ellesmere Island are now stored at the University of Alberta in Edmonton. (CBC)

"But, of course, you have these unintended consequences."

The Montreal Protocol, which came into force in 1989, banned chlorofluorocarbons, or CFCs, that were used in refrigerators, air conditioners and aerosol sprays. They were destroying the ozone layer, which helps protect the planet from damaging ultraviolet solar radiation.

Rows of air conditioners are seen on the walls of a building in Singapore's financial district on Dec. 11, 2009. The Montreal Protocol, which came into force in 1989, banned chlorofluorocarbons, or CFCs, that were used in refrigerators, air conditioners and aerosol sprays. (Vivek Prakash/Reuters)

It has been signed by 197 parties.

But the chemicals used to replace the banned ones are breaking down in the atmosphere into new contaminants known as short-chain fluorinated alkyl acids.

They don't seem to be as toxic as other long-lived contaminants such as dioxins. They are, however, highly persistent, said co-author Amila De Silva of Environment Canada.

"They're known as forever chemicals. They just don't break down."

Little is known about this family of chemicals, said Pickard, who now works at Harvard University. But at least one of them is known to be toxic to plants. Others harm freshwater insects. Others accumulate in plants, including food crops.

High accumulation rate

Their presence is growing. Although still measured in billionths of a gram per litre, their concentration in ice cores from two High Arctic locations has increased about sevenfold since 1990, said co-author Alison Criscitiello from the University of Alberta.

A giant glacier is seen making its way to the waters of Croker Bay on Devon Island on July 11, 2008. Short-chain fluorinated alkyl acids have been found contaminating two of Earth's remotest places — the Devon Island ice cap and Mount Oxford on Ellesmere Island. (Jonathan Hayward/Canadian Press)

"It's significant," she said. "The accumulation rate is fairly high."

Concentrations of one chemical known to be harmful are expected to increase as further substitutes for the banned compounds are phased in.

As well, preliminary data suggests the concentration of these chemicals is higher in the south.

"When we measure rain and snow in populated urban areas, we're finding quite a prevalence of these substances in much higher concentration," De Silva said.

Finding these acids in two of Earth's remotest places — the Devon Island ice cap and Mount Oxford on Ellesmere Island — should be a warning, the scientists say.

More research urged

"There is not toxicological information out there," Pickard said.

No one knows, for instance, if they increase in concentrations higher up the food chain.

"The lower end of the food web is probably the target for these substances — the invertebrates, the plankton, plants that take up water," De Silva said.

Pickard said some scientists believe the chemicals have immune-system impacts on children at levels already exceeded in the ice cores.

"There's a lot of research that needs to be done," said Criscitiello. "It's quite a large class of chemicals."

The researchers hope **their paper in Geophysical Research Letters** will spark interest. And, if nothing else, they hope their findings highlight a need to cast a wide scientific net when environmental regulations are drafted.

"When the Montreal Protocol came into effect, there wasn't enough research available to understand [the consequences]," said De Silva. "A more holistic approach to decision-making when it comes to environmental impacts is necessary.

"It's difficult to do, but it is necessary."

CBC, 15 May 2020, By Bob Weber

See **original paper** in AGU (American Geophysical Union).

ASIA PACIFIC

9. Timor-Leste's "Ozone Week" Engages Public on Montreal Protocol

29 April 2020, Dili, **Timor-Leste** has recently raised the bar in terms of its outreach of the Montreal Protocol on Substances that Deplete the Ozone Layer through a series of successful outreach events organized in March 2020 under its new 'Ozone Week' banner. Led by the National Ozone Unit (NOU) of the National Directorate of Climate Change, which is part of the State of Secretariat of Environment, these events helped mobilise support for the national ozone layer protection programme.

Timor-Leste is one of the world's youngest nations, having become a member of the United Nations in 2002, and also one of the most recent countries to join the Montreal Protocol, which it ratified on 16 September 2009. Since ozone layer protection is still a relatively new subject for the general population, it is important for the NOU to conduct regular outreach to explain the issue to the public.

Marquee events for 'Ozone Week' on 19 and 20 March included exhibitions and a series of Talk Shows – panel discussions with key political and technical figures working on ozone protection in Timor-Leste. The events focused on controls on hydrochlorofluorocarbons (HCFCs) and new alternative technologies in the refrigeration and air-conditioning (RAC)

sector, and shared information available in Timor-Leste. The State Secretary of State of Environment, Demetrio do Amaral de Carvalho, described the government's plans for management of ozone depleting substances and the ratification of the Protocol's Kigali Amendment.

The Talk Show format engaged the audience in the topics and generated lively questions for the panellists about ozone science, the Montreal Protocol, and the use of R22 refrigerants in the country. Discussions shed light on topics like the challenges faced by importers and the Customs Authority on the management of HCFCs and hydrofluorocarbons (HFCs), the adoption of alternative technologies in Timor-Leste, and training RAC technicians.

Although the NOU has organized similar awareness-raising activities in the past, this was the first time that it has deployed it's home-grown 'Ozone Week' brand to capture the public's attention on the Montreal Protocol. "Our National Ozone Unit has been working hard to create the policies and rules of the road to ensure the ozone layer protection," said, Mario Ximenes, Timor-Leste's National Ozone Officer. *"It's vital that the public knows about this work because they play an important role in its success. We wanted to raise the bar with Ozone Week and get our message out to as many people as possible this year."*

The participants invited to this event included the Dom Bosco and Becora Training Centers, refrigeration and air-conditioning equipment importers and servicing companies (Startec Enterprise, Holiqun/Gree, Venedimick Air-Cond, NEC Servicing, Global Air-con, Unitech, Leader, and Lee Electrical), Directorates under the Secretariat of State of the Environment, Customs Authorities, relevant line ministries and students from several universities in Dili.

After the Talk show and exposition concluded, the NOU organised a quiz session during which awards were granted to those who participated.

To further outreach the event beyond the in-person attendance, several media outlets including GMN-TV and RTTL were also invited to attend and provide coverage, which helped disseminate information to the broader community.

"COVID-19 made Ozone Week more challenging, but we saw great engagement from the attendees," said Luis Belo, Chief of the Department of the National Ozone Unit. *"It's an engagement we'll look to increase in the future."*

The outreach events are part of the country's Institutional Strengthening supported by the Multilateral Fund for the Implementation of the Montreal Protocol. **UN Environment Programme OzonAction** assists Timor-Leste in its role as an Implementing Agency of the Fund.

Contact: **Hu Shaofeng**, Senior Regional Montreal Protocol Coordinator Asia-Pacific, UNEP **OzonAction**

WEST ASIA

10. First Montreal Protocol-related Online Training During the COVID-19 Pandemic

5 May 2020, Doha, Qatar – The COVID-19 pandemic is having an unprecedented impact on the world, what UN Secretary General António Guterres calls "a public health emergency… an economic crisis, a social crisis and a human crisis that is fast becoming a human rights crisis." While the world is grappling with this multifaceted challenge, most of humanity is now experiencing the “Great Lockdown” where in-person gatherings have been replaced by social distancing to protect public health. In this "new normal" context, **UN Environment Programme (UNEP)** remains open-for-business and is working for, and with, Member States to continue delivering on its mandate through virtual means. This includes the implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer, where **UNEP OzonAction** and the Government of Qatar recently teamed up to deliver the first **Montreal Protocol**-related virtual training events organized during the time of COVID-19.

Being socially-distanced does not have to mean that people have to be disconnected from one another. With video conferencing tools and good connectivity, people who have access to the necessary IT infrastructure can benefit from distance learning. OzonAction's Compliance Assistance Programme (CAP) team in West Asia, Qatar's National Ozone Unit and their partners recently applied this concept to deliver two activities under the country's HCFC Phase Out Management Plan, organizing highly-successful online training for refrigeration trainers and customs officers, respectively. Along the way, they demonstrated proof-of-concept and learned valuable lessons for the future.

The first remote Refrigeration Train-the-Trainer event was organized by the West Asia CAP team and the National Ozone Unit in cooperation with the University of Qatar and the Italian Association of Refrigeration Technicians (ATF). During the course, which was spread over three days from 30 March to 1 April, five master trainers who work in the country's refrigeration and air conditioning sector were trained, assessed and certified in specific skills needed to safely and efficiently use new refrigerants that replace ozone-depleting hydrochlorofluorocarbons (HCFCs), which are being phased out under the Montreal Protocol. The master trainers were located in Qatar (appropriately socially-distanced in the national training center), the instructor from ATF delivered presentations from Italy, and the CAP team moderated and observed from Bahrain. The arrangements for the trainee's practical assessment had to be done with particular care and adapted to remote observation by video, to ensure that the activity was done correctly in full compliance with the requirements of the European F-Gas regulations certification body.

Shortly after this experience, the first remote training of customs and enforcement officers was organized the West Asia CAP team and the National Ozone Unit in cooperation with the General Customs Authority of Qatar using the authority's recently-launched online training platform. The trainers were Mr. Khaled Klaly and Ms. Dina Kisbi from CAP, Ms. Mona Al Emadi from the National Ozone Unit, and Mr. Mohammed Khater from the Ministry

of Municipality and Environment. From 21- 23 April 2020, over 135 customs and enforcement officers who joined from their homes were divided into three groups and trained on enforcing ODS regulations, best practices under the Montreal Protocol to enhance monitoring and control of controlled substance, and how to combat illegal trade. Trainees were given the chance to interact with the trainers, question, ask comments, and make interventions. At the conclusion of the training, Mr. Ahmad Al-Jammal, Head of the General Authority of Customs and Mr. James Curlin, Acting Head of OzonAction, providing closing remarks, both acknowledging the great work by the different partners and confirming that this was only possible due to collaborative efforts. Mr. Abd Al Rahman Alabd Al Jabbar, Head of Radiation & Chemicals Protection Department at the Ministry of Municipality and Environment stated that *" We are appreciative of all efforts done to successfully implement the activities under the HPMP during such difficult circumstances, and we will be working towards actively achieving the set goals on behalf of Qatar under the **Montreal Protocol**."*

Both refrigeration sector training and the customs training are traditionally conducted face-to-face with trainees gathered in a classroom with their trainers and include a hands-on practical session. In this case, all of this had to be adapted to remote delivery. The CAP team and National Ozone Unit had a number of concerns when organizing these trainings, varying from issues related to the connectivity, ensuring that the right software and hardware was available, managing a high number of trainees while ensuring their full engagement, and guaranteeing that material is delivered effectively within the short duration of the training sessions. The hands-on components with equipment, which posed a specific challenge, had to be performed through video inspection of the trainee's work (in the case of the refrigeration training) or by use of a training video (in the case of the customs training).

From the experience, it is highly recommended to prepare well in advance – preparations prior to the actual training are the key to success. Testing the platform, the setup, discussing the details and flow of the agenda, who moderates and who gather questions from trainees need to be agreed in advance. Conducting a demonstration with representatives from the different parties is very important to test the set-up before the actual training. Additionally, providing trainees with a procedural and checklist document before the actual training is vital. During the training, understanding and flexibility should be practised by all involved. Language preferences, the general organizational setup, and the country's regulatory framework were all taken into account when the training events were organized. It is definite that “one size fits all” does not apply here, but surely the experience is applicable everywhere when local circumstances permit.

It is not surprising that this "e-initiative" comes from Qatar. Although live online training is a relatively new practice under the Montreal Protocol, electronic platforms are not new for Qatar. The Government was a leader of paperless meetings under the Montreal Protocol, when they promoted the concept for the 20th Meeting of the Parties that they hosted in Doha in 2008. That paperless tradition was subsequently adopted throughout the Montreal Protocol community.

OzonAction CAP is working closely with other countries and partners to pursue similar distance learning opportunities in the context of the implementation of the Montreal Protocol.

Contact: **Khaled Klaly**, Montreal Protocol Regional Officer for West Asia, UNEP **OzonAction**

LATIN AMERICA and CARIBBEAN

11. La Enmienda de Kigali en la era del coronavirus
En un entorno de recesión global, Kigali deberá ser un motor para impulsar medidas contracíclicas y la inversión en tecnologías eficientes: Agustín Sánchez


Agustín Sánchez Guevara, Especialista internacional en el Protocolo de Montreal y cambio climático

La pandemia de covid-19 está ocasionado severas afectaciones a la economía de los países. En México, aún no se tiene claridad del impacto, pero del manejo de la crisis dependerá el daño a las finanzas públicas. A pesar de esto, compromisos como la Enmienda de Kigali no se detienen. A finales de 2018, cuando se ratificó, los sistemas de refrigeración y aire acondicionado (RAC) instalados en territorio nacional consumían 30 mil toneladas de HFC, es decir, aproximadamente 49.6 megatoneladas de CO_2 equivalente, según datos del Gobierno Federal. La Hoja de ruta para implementar la Enmienda de Kigali en México, publicada en mayo del 2019 por la Semarnat, detalla que para 2024 el consumo se debe congelar "tomando como línea base el promedio de consumo de HFC en el periodo de 2020 a 2022". El "Diagnóstico Nacional para la Mitigación de Emisiones de HFC", presentado en marzo de este año, propone medidas de sustitución, recuperación, reciclaje, captura y destrucción, capacitación, profesionalización, normativa, etcétera. Pero ¿qué se ha logrado desde la ratificación y qué debería hacer la industria para cumplir estos objetivos?

Mundo HVAC&R conversó con Agustín Sánchez, especialista internacional en el Protocolo de Montreal y cambio climático, para responder estas incógnitas.

Mundo HVAC&R (MH): ¿Cuál es su evaluación del camino que la industria sigue para alcanzar los acuerdos de la Enmienda de Kigali?
(AS): El camino todavía no está muy definido. Se necesitan acuerdos con la industria entre los proveedores de servicios y distribuidores, para que se diseñe un plan conveniente a todos los niveles y en todos los sectores, así como con los instaladores y técnicos. Esto serviría para tomar acciones referentes a la reducción y consumo responsable del uso de energía; un aspecto que impacta en la economía de los negocios, de las personas y del país. Además, se podrían instalar nuevas tecnologías libres de gases fluorados o con menor impacto en el clima global. Así, podríamos decir que estamos en la dirección correcta de la implementación de la Enmienda de Kigali, que es parte fundamental para lograr las metas del Acuerdo de París.

MH: ¿Cuáles son las acciones a corto, mediano y largo plazo que la industria debe acatar para la protección del medioambiente?

AS: Para la industria RAC en el corto plazo es importante hacer la planeación para la adopción de nuevas tecnologías, pensando en las alternativas existentes y en las que están en proceso de investigación. Hay que planear costos de instalación, mantenimiento, energía, y la posible dependencia de tecnologías no estandarizadas; de lo contrario, un caso de éxito podría convertirse en un fracaso en un futuro no lejano.
En el mediano y largo plazo se deben considerar las experiencias del corto plazo e invertir en tecnologías que cumplan con los lineamientos establecidos en la Enmienda de Kigali, con la normatividad de eficiencia energética de México y de los países desarrollados hacia donde se destinan las exportaciones de nuestro país. Es decir, reducir de manera planeada y sostenida las emisiones directas e indirectas.

MH: ¿Cómo puede la capacitación contribuir a la reducción de las emisiones contaminantes del sector?
AS: Con la certificación de la industria y de los técnicos, los sistemas podrán ser utilizados en su máxima capacidad para reducir significativamente el consumo de energía y asegurar el correcto mantenimiento. Ahora, los equipos son mucho más sofisticados, tienen controles electrónicos conectados a redes y hasta pueden ser operados con inteligencia artificial. El que los mantenga e instale debe ser un profesional calificado y necesariamente certificado. Los técnicos ya no deben trabajar igual que hace años.

MH: ¿Qué le hace falta a la industria RAC nacional para cumplir con estos objetivos?
AS: Tener lineamientos claros en programas de conversión tecnológica, así como conocimiento de las alternativas disponibles y en proceso que permitan ir hacia el objetivo de reducción de los HFC.

MH: ¿Qué opinión tiene de la gestión de residuos de refrigerantes?
AS: Desafortunadamente es una deficiencia que tiene el sistema en general. Aunque aparentemente existe la normatividad y la capacidad instalada para la recuperación, reciclaje, regeneración y hasta la destrucción de refrigerantes, no hay lineamientos ni incentivos para generar un proceso de valorización de refrigerantes recuperados que permita afianzar un nicho de negocios para los técnicos, recicladores y hasta para las tecnologías de destrucción.
Se trata de un proceso largo y complicado, el cual requiere de la suma de voluntades y de la creatividad en el diseño de políticas públicas que impulsen estas medidas.

MH: ¿Por qué sería bueno realizar reuniones de trabajo que involucren a representantes de toda la cadena productiva del sector RAC?
AS: Para realizar un diagnóstico base, se debe conocer el estado actual del mundo de la industria. Deberían de participar todos, el fabricante, el distribuidor, el usuario que los utiliza en los comercios y otras industrias, los distribuidores de refrigerantes y la autoridad, sobre todo la que tiene que ver con la capacitación y normalización del uso eficiente de la energía. Poder desarrollar un diagnóstico entre todos estos sectores es esencial para poder diseñar una estrategia que lleve al cumplimiento de la Enmienda.

MH: ¿El marco jurídico nacional para el control del consumo de sustancias reguladas por el Protocolo de Montreal y sus enmiendas es comprendido a cabalidad por la industria?
AS: No, tengo duda acerca de si se ha logrado permear el alcance de la Enmienda de Kigali, en particular la esencia del phase-down, ya que no se puede entender como una

eliminación total ni como una reducción de cualquier magnitud. Es decir, ni se puede imponer exclusivamente tecnologías de cero potencial de calentamiento global, pero tampoco se puede impulsar tecnologías que sólo reduzcan relativamente el PCG de sus refrigerantes, aun cuando su eficiencia sea aparentemente muy alta. No hay claridad en la normatividad ni en la política pública, por lo que la industria puede entender lo que considere conveniente. Parafraseando a Lewis Carrol, si no se sabe a dónde vamos, cualquier camino es bueno.

MH: La Enmienda de Kigali entró en vigor en enero del 2019, ¿qué avances se han realizado a la fecha?
AS: La industria ha registrado mucha actividad, especialmente por un efecto colateral que es el cumplimiento de la normatividad en materia de eficiencia energética y emisiones en los mercados internacionales.
En ese sentido son de aplaudirse los esfuerzos que realizan, con recursos propios, la industria automotriz, que esperemos se reactive pronto, así como la industria de la refrigeración comercial y doméstica. Fuera de estos mercados no existe una única alternativa en el resto de los sectores, y no se tendrá acceso a nuevas tecnologías, si no se cuenta con apoyos suficientes para el impulso de la inversión, lo cual ante la crisis mundial de este 2020 no se espera que sea muy pronto.

MH: ¿Cómo impactará la pandemia de coronavirus al cumplimiento de los compromisos ambientales de México?
AS: Uno de los efectos que traerá la pandemia es una recesión económica generalizada y muy profunda. La Enmienda de Kigali deberá ser un motor que guíe e impulse inversiones hacia tecnologías más limpias y eficientes, que permitan ahorrar recursos en la generación de energía, impulsar el empleo en la manufactura y crear nichos de mercado que permitan ampliar las opciones de trabajo. Ello traerá varias ventajas: la industria podría entrar en un proceso acelerado de reactivación, mayor eficiencia energética que permitiría reducir costos y, en consecuencia, una menor necesidad de generación de electricidad, lo que implicaría menor subsidio en la producción de ésta y el impulso de energías limpias. Esto significaría cumplimiento permanente y sustentable de la Enmienda de Kigali.
Todo este círculo virtuoso sólo es posible si se detona un proceso ordenado y controlado de cambio acelerado de los sistemas de refrigeración y aire acondicionado, con lineamientos claros, objetivos definidos y supervisión puntual, aprovechando los posibles apoyos internacionales, los cuales deben ser dedicados única y exclusivamente a este proceso, sin el más mínimo desvío.
Estas son condiciones que deben cumplirse de manera cabal para tener este proceso anticíclico, de lo contrario el efecto de la covid-19 será un cambio desordenado y sin rumbo, cumpliendo las necesidades de la industria de manera emergente, con consecuencias en el cierre de empresas y concentración de mercados, haciendo más caros los productos y afectando el nivel de actividad económica del sector RAC y subsectores. Esto llevaría a un cumplimiento fortuito de la Enmienda y con el riesgo en el futuro de caer en un incumplimiento aún más costoso.

MH: ¿Cuáles son sus recomendaciones para la industria RAC?
AS: Ante dos variables macro muy importantes, el cumplimiento de la Enmienda de Kigali y la recesión mundial, es necesario impulsar medidas contracíclicas que permitan la adopción de alternativas tecnológicas de alta eficiencia energética para reducir el consumo de HFC, así se generarían inversiones para incrementar el empleo de capital

humano especializado. Esto beneficiará a los usuarios finales, reducirá costos de generación de energía y posicionará a la industria.

Mundo HVACR, Mayo 2020, Por Danahé San Juan

NORTH AMERICA

12. NASRC Aggregated Incentives Program (AIP)

Preliminary Application Open

NASRC is pleased to announce that the preliminary funding application for our **AIP Pilot** is now open! This is the first of two steps to receive funding for natural refrigerant projects in California under the AIP Pilot, and will be used to assess project eligibility and estimated funding support.

California Retailers: **Apply now** to access streamlined funding for projects that incorporate natural refrigerants!

Program Resources

AIP Overview & Eligibility
Under the AIP Pilot, NASRC will coordinate funding from **multiple sources** through a streamlined application process. AIP will be piloted in California in conjunction with CARB's **F-gas Reduction Incentive Program**. Read more about the program **here** and review the AIP eligibility requirements **here**.

Program Guidelines
Please review the **program guidelines** for more information on the eligibility criteria, funding process, and participation requirements of the AIP Pilot. Other program materials are available **here**.

Technology Showcase
Our **AIP Webinar Series** was launched to help retailers prepare by highlighting natural refrigerant technologies that support low-GWP compliance and are potentially eligible for funding. Check out the **upcoming webinars** or watch webinar recordings **here**.

Apply Now

*Applications will be reviewed on a rolling basis. **Contact us** with questions or comments.*

13. Bipartisan HFC Bill Gets Socially-Distanced Senate Hearing

With the COVID-19 pandemic disrupting normal Senate business, the Environment and Public Works Committee (EPW) held an **unusual written "hearing"** to consider the bipartisan **American Innovation and Manufacturing Act (S. 2754)** to phase down the powerful climate pollutants called hydrofluorocarbons (HFCs). [...]

Natural Resources Defense Council (NRDC), 7 May 2020, By David Doniger

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14. Staying Cool, While Saving the World (and Money)- Winners of the 2020 SAE* Environmental Excellence in Transportation Award

April 27, 2020, *Washington, DC* — Engineers and other experts from three continents, who designed new car air conditioning which saves both the climate and money, have been given a prestigious industry award.

An international team from the Institute for Governance & Sustainable Development (IGSD), MAHLE, and TATA Motors Limited (TML), has been awarded the **2020 Environmental Excellence in Transportation (E2T) Award** in the "Mobile Energy and Emissions" category by SAE International (formerly the Society of Automotive Engineers). The team's *"Greener Auto Air Conditioner to Save the World" is* an innovative motor vehicle air conditioning system that reduces the carbon footprint of mobile air conditioning (MAC), improves fuel efficiency, and saves both automobile manufacturers and owners money on operating costs.

The award, which showcases the work of individuals and teams who through their ingenuity and dedication have made significant innovations that reduce the environmental impact caused by the transportation industry, recognizes the team's unrelenting drive to be "future ready" by developing a system with an affordable refrigerant that is nearly ten times better for the planet than the main existing one. [...]

The most common refrigerant used in today's MAC systems is hydrofluorocarbon (HFC)-134a (R-134a), which has very high global warming potential (GWP) (GWP_{100yrs} = 1300). Over the last three decades, markets for such MAC systems have grown as a result of increased vehicle sales and demand for comfort, with significant consequences for the climate.

The use of current high GWP refrigerants in refrigerators and air conditioning systems could contribute up to 0.5°C (0.9º F) of warming by the end of this century, with about 30% of this coming from MACs. The 2016 Kigali Amendment to the Montreal Protocol mandates the gradual global phasedown of HFCs but accelerating it would greatly benefit the climate.

So far, however, adopting low GWP alternatives has remained slow in price-sensitive markets. The "'*Greener Auto Air Conditioner to Save the World*" project addresses this by using the low GWP, environmentally friendlier, and affordable refrigerant R-152a, which

has a GWP of 138, nearly ten times smaller than that of HFC-134a, in a secondary loop configuration. It is the first commercially viable and cost-saving MAC system to use R-152a in an automobile with a front and rear AC system.

The prototype was successfully developed and validated on a TATA Motors Aria utility vehicle. The test results demonstrated a substantial increase in fuel economy without compromising on occupants' thermal comfort.

"We are honored to be part of the team that developed this AC system, proving that affordability, efficiency, and environmental protection go hand-in-hand," said Dr. Stephen O. Andersen, IGSD Director of Research. "This technology is ready to go, using off-the-shelf components," said Tim Craig, Principal, Melrose Technologies LLC (Mr. Craig was formerly Head of Thermal Pre-Development at MAHLE Behr USA, Inc.). "The climate benefit is clear, and the fuel savings potential is the most compelling project outcome."

"The adoption of R-152a-based secondary loop MAC (SL-MAC) systems by the auto industry would play a major role in curbing the rise in global temperature. This technology is low cost, and the refrigerant R-152a is patent-free, so SL-MAC systems can be implemented quickly and affordably," said Kristen Taddonio, Senior Climate and Energy Advisor, IGSD. "This extraordinary team of engineers used a network of global advisors from countries including China, France, Germany, India, Italy, and the United States to bring this project to fruition."

"IGSD is proud to partner with TATA, MAHLE, and the CCAC to prove that climate action can be both fast and affordable," said Durwood Zaelke, President of IGSD.

SAE International Announces Winners of Environmental Excellence in Transportation Award, **press release**

** SAE International (formerly the Society of Automotive Engineers).*

The Institute for Governance & Sustainable Development (IGSD), 27 April 2020

EUROPE & CENTRAL ASIA

15. Illegal trade round-up May 2020

In this round-up: Investigative study, commissioned by EFCTC, reveals how illegal imports of HFCs continue to enter EU; EFCTC ramps up efforts to stop illegal trade, with new dedicated website. Find out more at **https://stopillegalcooling.eu/** ; the European Commission insists it is doing everything it can to stop illegal HFC imports ; EFCTC's position is that the F-gas Regulation is working but needs to be improved, a different viewpoint than that expressed in a recent Cooling Post Article; Romania sets penalties for breaches of the F-gas regulation; iPIC Platform used to prevent illegal R-22 shipment from China to Thailand.

An investigative study by Kroll, commissioned by EFCTC reveals how illegal imports of HFCs continue to enter EU. Shipments arrive through various ways including misdirected transshipments, quota abuse, open smuggling, and counterfeit products. For 2019, Kroll has been able to build evidence of a total of at least 3,000 tonnes of HFCs. Extrapolated data indicates that this could be equivalent to as much as 4.7 million tonnes of CO_2 equivalent, or as much as driving more than 3.5 million new cars for one year. Read the **complete press release here**. Find out more about illegal trade of HFCs **here**.

See also >>> EFCTC ramps up efforts to stop illegal trade: with new dedicated website providing more resources. Click **here** to find out more

The European Fluorocarbons Technical Committee (EFCTC), 3 May 2020

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16. Un investigado en Mota del Cuervo por estafar 70.000 euros en la compra de gases fluorados

La Guardia Civil de Mota del Cuervo (Cuenca) investiga a un hombre al que achaca varios delitos en la compra de gases fluorados, [...]

Las investigaciones de la Guardia Civil revelaron que la cuantía de lo estafado ascendía a 70.000 euros y que se extendía a provincias como Madrid y Barcelona, y la comunidad autónoma de Navarra. [...]
El investigado ha sido puesto a disposición del Juzgado de Guardia de San Clemente y la Guardia Civil ha recordado que los gases fluorados son sustancias que alteran la capa de ozono por lo que su distribución ilícita constituye un delito contra la seguridad colectiva.

ABC *España*, 13 de Mayo 2020

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

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

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

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

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

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

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

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

Geographical scope and time period

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

Eligible enforcement actions must have taken place during the period:

1 January 2019 – 31 December 2020.

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

Learn more >>>

FEATURED

OZONE SECRETARIAT

Click **here** for Montreal Protocol upcoming Meetings Dates and Venue.

Recent Meetings:

- **31st Meeting of the Parties to the Montreal Protocol,**
  4 - 8 November 2019, Rome, Italy
- **Bureau Meeting of the 30th Meeting of the Parties to the Montreal Protocol,**
  3 November 2019, Rome, Italy
- **63rd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol,**, 2 November 2019, Rome, Italy

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to **date**

The UN Environment Assessment Panels

The Assessment Panels have been vital components of ozone protection since the Montreal Protocol was first established. They support parties with scientific, technological and financial information in order to reach decisions about ozone layer protection and they play a critical role in ensuring the Protocol achieves its mandate. The Assessment Panels were first agreed in 1988 to assess various direct and indirect impacts on the ozone layer. The original three panels are:

- **The Technology and Economic Assessment Panel**
- **The Scientific Assessment Panel**
- **The Environmental Effects Assessment Panel**

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

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

THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

Provisional agenda of the 85th meeting of the Executive Committee


UNITED NATIONS

EP

United Nations Environment Programme

The Eighty-fifth Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, has been postponed due to the coronavirus disease (COVID-19).

The 85th meeting has been postponed until immediately after the 42nd meeting of the Open-ended Working Group (OEWG), and will be held in Montreal for a duration of four days, from 19 to 22 July 2020, on the understanding that the meeting might be further postponed or cancelled in light of the evolution of the COVID-19 pandemic.

Provisional Agenda

The Multilateral Fund for the Implementation of the Montreal Protocol, April 2020

Click **here** for the Executive Committee upcoming and past Meetings.
Recent meetings:

- **84th meeting of the Executive Committee**
- **83rd meeting of the Executive Committee**
- **82nd meeting of the Executive Committee**

- **Executive Committee Primer – 2019** - An introduction to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

OZONACTION

COVID-19 pandemic: Letter from James S. Curlin, Acting Head, OzonAction, to the National Ozone Officers - On behalf of the United Nations Environment Programme (UNEP) OzonAction, I would like to express our deep appreciation to your country for its continued high-level commitment to implement the Montreal Protocol on Substances that Deplete the Ozone Layer, including during very challenging times such as what the world is now facing with the COVID-19 pandemic. I would like to re-assure you that during this very difficult period, OzonAction's Compliance Assistance Programme (CAP) – like the rest of UNEP – remains open for business. Our CAP teams in Bangkok, Manama, Nairobi, Panama City, and Paris continue to work with great dedication and diligence to support Article 5 countries with meeting their compliance, reporting and project-related needs. Our internal processes are all functioning well, including those related to finance and administration. Our CAP teams continue to provide technical and policy support. Our information clearinghouse, capacity building services, and refrigeration and air conditioning partnerships are still developing and distributing tools and information to support your work. [...] **Read/download**

The UNEP OzonAction WhatGas? application has been updated and improved

New features:

- An updated more user-friendly interface

- Multilingual interface: English, French and Spanish

- HFCs and HFC containing mixture

- Latest updated ozone depleting potential and global warming potential values from the recent reports from the Montreal Protocol technology and scientific expert panels as well as the Intergovernmental Panel on Climate Change; as well as the standard ODP and GWP values as specified in the text of the Montreal Protocol

- References to sources of all values used

- New refrigerant mixtures (with ASHRAE approved refrigerant designations)

- Values for 'actual GWP' and 'Kigali Amendment context' GWP for pure substances and mixtures (i.e. only including GWP values/components assigned to controlled hydrofluorocarbons - HFCs).

The WhatGas? application is an information and identification tool for refrigerant gases: ozone depleting substances (ODS), HFCs and other alternatives. It is intended to provide a number of 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. If the user requires additional information or assistance in identifying a refrigerant gas they are inspecting or that is described in the relevant paperwork, this can be easily obtained by consulting the application.

Using the application:

If you already have the application installed on your device, be sure to update to benefit from the new features.

Smartphone Application: Just search for "WhatGas?" or UNEP in the Google Play store or use the QR code – free to download!

Desktop Application: WhatGas? is also available online on the OzonAction **website**

For more information: Watch the new short introductory tutorial **video** on WhatGas? available on **YouTube**

See/download the **WhatGas? flyer**

Over 10,000 installations on Android and iOS devices to date!

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. This guideline was intended to support manufacturers, engineers, installers, contractors and users, and was also widely used by customs and enforcement officers and National Ozone Officers (NOOs) to help identify the contents of cylinders.

In recent years, the number of refrigerants has dramatically increased, particularly as chemical producers continue to develop numerous new refrigerant mixtures for various applications. This fast-rising number of refrigerants created some concern since as more and more colours were used, the potential for misidentification of cylinders of similar colours increased. It was therefore decided by AHRI that for the benefit of the industry the guideline should be updated. This was to ensure continuation of correct identification and safe use of refrigerants based on clear and distinct product markings and labels. The revised guideline, first published in 2015, removes paint colour assignments for refrigerant containers and specifies that all refrigerant containers should have the same paint colour from 2020 onwards. This colour is a light green/grey, called “silk grey” (RAL 7044[4]). This guideline also provides a means by which colours can be assigned to printed materials, such as printed labels on refrigerant containers; these colours generally follow the familiar AHRI colours previously used for refrigerants.

It is very important that the range of stakeholders in the refrigeration and air-conditioning industry as well as NOOs and customs and enforcement personnel are aware of this change. **Cylinder colours can no longer be relied on as a means to identify the type of refrigerant in a container**. The principal method of cylinder identification now needs to be the container labels and markings. It is important to note that **flammable refrigerants** should include a red band on the top of the cylinder.

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. It will be important to inform and train customs officers of this change as colour codes have always been a helpful way to identify refrigerants. Given the possibility of mis-labelled or counterfeit refrigerants in cases of doubt/suspicion, it is recommended to verify the type of refrigerant using a refrigerant identifier

For more information 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 (April 2020 update).

The factsheet, produced by **ASHRAE** in cooperation with **UN Environment Programme OzonAction** is updated every 6 months.

The purpose is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been awarded an “R” number (or ASHRAE designation) over the last few years and which have been introduced into the international market.

Read/download the **factsheet**

The factsheet, as well as more information on ASHRAE-UNEP joint activities and tools, is also available on the **ASHRAE UNEP Portal**.

Contact:

- **Ayman Eltalouny**, OzonAction, UN Environment Programme

- **W. Stephen Comstock**, Manager of Business Development EMEA, ASHRAE

OzonAction’s iPIC system helps prevent an illegal shipment of 72 tonnes of HCFC-22

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.

The OzonAction new iPIC platform - The Informal Prior informed consent system (iPIC) has been completely overhauled and updated - *OzonAction latest updated and streamlined version of the online Informal Prior-Informed Consent (iPIC) platform. Responding to comments and feedback we have changed how the system looks and operates.* **See the iPIC flyer for more details - Visit iPIC website to familiarise yourselves with the new features and functionalities.** *Automatically re-set your password if required.*

Contact: iPIC Online Administrators for any further questions.

Servicing tail for HCFCs: What is it & why does it matter?

This concept of a servicing tail, while allowed under the Montreal Protocol might not always be consistent with the phase-out targets specified under the HCFC Phase out Management Plan (HPMP) funding agreements agreed by Article 5 countries with the Executive Committee when receiving funds for HCFC phase out, where countries are obliged to meet these targets as specified in the agreement.

Details and explanations are provided in this **Policy Brief**.

Contact: Ezra Clark, UNEP, OzonAction

OzonAction Factsheet: Proposed additional HS code sub-headings for HFCs in advance of the 2022 HS code update - 'Cheat Sheet'

This document is intended to accompany the OzonAction policy brief: "***HS CODES FOR HFCs - Advice for countries in advance of the 2022 HS code update***", available **here**.

Download the Factsheet

Contact: Ezra Clark, UNEP, OzonAction

OzonAction Factsheet: Dealing with seized ODS - Options for Article 5 countries

This concise factsheet summarises the five main options available to countries when dealing with seized ODS or HFCs as well as outlining the various considerations and the pros and cons of these options.

Download the Factsheet

Contact: **Ezra Clark**, UNEP, OzonAction

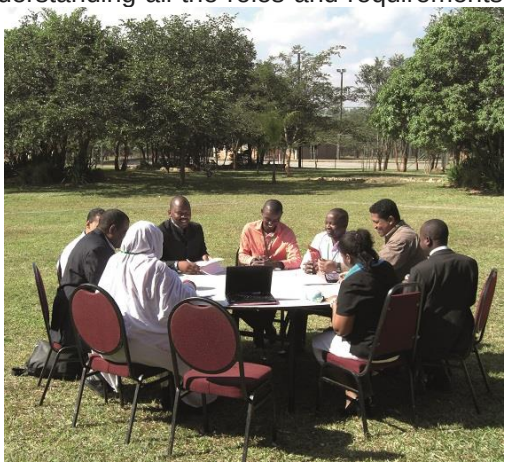
UNEP OzonAction Training Programme for National Ozone Officer

A key factor contributing to the significant success of the Montreal Protocol on Substances that Deplete the Ozone Layer is the 'country-driven approach'. This approach places National Ozone Units at the centre of the action to protect the ozone layer.

The National Ozone Unit led by the National Ozone Officer (NOO), is the single most important element in national strategies to comply with the Montreal Protocol.

The knowledge and capacity of the NOO in effectively developing projects, managing strategies, reporting data, and working with national and international institutions -directly or indirectly affects each developing (Article 5) country's ability to meet its obligations under the Montreal Protocol treaty.

For this reason, OzonAction has completely transformed and updated its NOO training programme to assist NOUs in successfully understanding all the roles and requirements and in carrying out their daily tasks in Montreal Protocol implementation. The main objective of this training programme is to provide new National Ozone Unit (NOU) staff with essential information about the Montreal Protocol, a country's obligations under the Montreal Protocol, and the main activities carried out by NOUs. It aims to provide new NOU staff with fundamental knowledge and information tools that will enable them to support their national government in meeting the commitments agreed by all countries under the Montreal Protocol.



Download the flyer >>>

Contact: **Mikheil Tushishvili**, Montreal Protocol Programme Officer, UNEP, OzonAction.

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

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

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

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

Download the Factsheet

Contact: **Ezra Clark**, UNEP, OzonAction

HS Codes for HFCs - Advice for countries in advance of the 2022 HS code update

The Kigali Amendment requires Parties to put into place an import and export licensing system for hydrofluorocarbons (HFCs) by 1st January 2019 (or two years later if required).

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

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

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

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

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

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

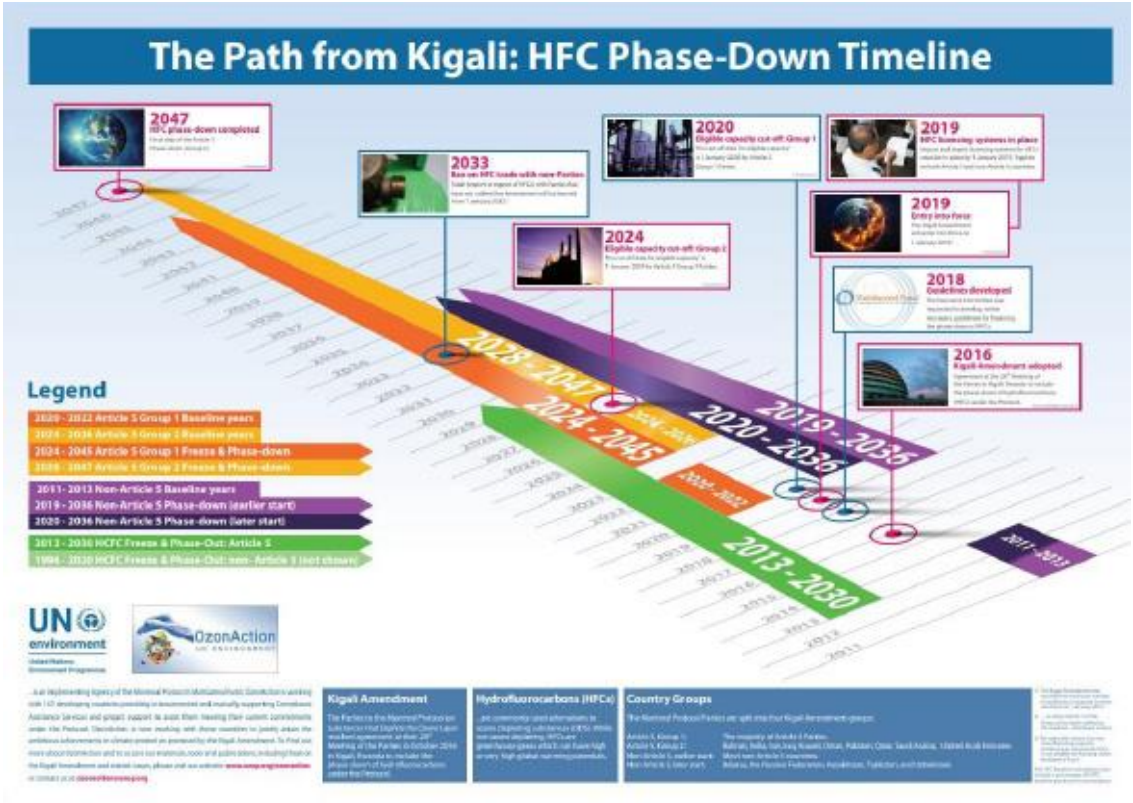
Download the publication

Contact: **Ezra Clark**, UNEP, OzonAction

Women in the refrigeration and air-conditioning industry: Personal experiences and achievements

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

Download the publication



The Path from Kigali: HFC Phase-Down Timeline - This timeline, produced by OzonAction, highlights key hydrofluorocarbons (HFCs) phase-down dates. Click **here** to download the timeline

Good Servicing: Flammable Refrigerants Quick Guide

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

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

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

Available for free on the Google play store (Apple version coming soon). Search for "UNEP Quick guide" or use the QR code

Refrigerant Identifier Video Series

Guidance on how to identify refrigerants using a refrigerant identifier.

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

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

It is intended for use by Montreal Protocol National Ozone Officers, Customs and Enforcement Officers as well as technicians involved in the servicing and maintenance of refrigeration and air conditioning systems.

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

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

Available for free on the Google play store (Apple version coming soon). Search for "UNEP Refrigerant ID" or use the QR code

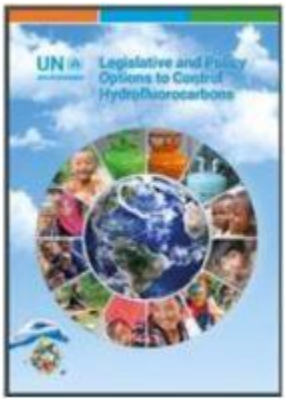
OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - Over 50,000 downloads to date -

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

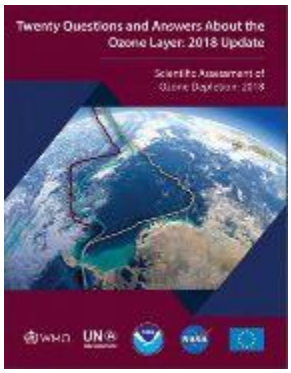
New videos on flammable refrigerants just added!
Please share with your RAC associations, technicians and other interested stakeholders…

OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series Available in the **Android Play Store** and **Apple Store/iTunes**. (Just search for "OzonAction", or scan this QR code)

PUBLICATIONS



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



Twenty questions and answers about the ozone layer: 2018 update, is a component of the Scientific Assessment of Ozone Depletion: 2018 report. The report is prepared quadrennially by the Scientific Assessment Panel (SAP) of the Montreal Protocol on Substances that Deplete the Ozone Layer.

Lead Author: Ross J. Salawitch
Coauthors: David W. Fahey, Michaela I. Hegglin, Laura A. McBride, Walter R. Tribett, Sarah J. Doherty

Read / Download:

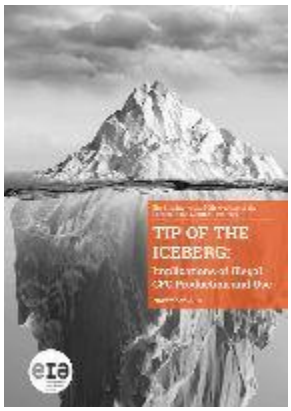
20 Questions and Answers about the ozone layer-2018 | **Figures**

Primer on Hydrofluorocarbons (HFCs) - IGSD -11 January 2018
Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO_2-eq by 2050, and avoid up to 0.5°C of warming by 2100.
Lead authors:
Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.
Contributing authors:
Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, Alex Milgroom, and Nancy J. Sherman.

The **IIR International Dictionary of Refrigeration** Available in 11 languages, the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online. The IIR International Dictionary of Refrigeration offers researchers, industrialist or administrations the practical resources required to produce content related to refrigeration technologies in multiple languages.
This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your choice and find corresponding translations in the 10 other languages.
The dictionary provides term searches in Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Norwegian, Russian and Spanish.
Access the International Dictionary of Refrigeration on the **IIR website**

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

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



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

Cold Hard Facts 3 - Review of the Refrigeration and Air Conditioning Industry in Australia
[...] This study provides a broad view of the composition, size and value of the industry, and projections for its future. This will assist industry and policy makers with management of ozone depleting substances as they are phased out, and synthetic greenhouse gases, including hydrofluorocarbons (HFCs) which are being phased down from January 2018.

Ozone-depleting substances 2019 Aggregated data reported by companies on the import, export, production, destruction, feedstock and process agent use of ozone-depleting substances in the European Union, 2006-20181994-2019 - The 2019 edition of the European Environment Agency (EEA) report on ODS confirms that the EU has already achieved its goals on the phase-out of such substances under the Montreal Protocol. [...]

Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment
Authors: Nihar Shah, Max Wei, Virginie Letschert, Amol Phadke.

Energy Analysis and Environmental Impacts Division
Lawrence Berkeley National Laboratory, August/2019

Lower-GWP Alternatives in Stationary Air Conditioning: A Compilation of Case Studies -The case studies in this booklet discuss several applications in the stationary air conditioning sector. The applications include chillers of natural refrigerants and hydrofluoroolefins (HFOs) as well as split-units which use hydrocarbons (HCs) as the refrigerant. The technologies presented in these case studies are only some examples of the many available options for zero and lower GWP substances. The examples take into account design criteria such as system performance, environmental impact and cost. All these refrigerants still have many challenges that should be considered in the design, for example their flammability, toxicity, lower efficiency in some cases, and cost. Balancing these challenges using a consistent and comprehensive methodology across all refrigerants and system types is essential in assessing alternatives...

Climate and Clean Air Coalition (CCAC), 2019

Latest issue of Centro Studi Galileo magazine,
Industria & Formazione, n. 3 - 2020
(in Italian language).

COVID-19: Regular and correct maintenance of ventilation systems - General Eurovent recommendations for equipment care during the coronavirus pandemic.

In this GENeral Document, Eurovent presents general and basic recommendations on the operation of ventilation systems during the coronavirus pandemic.

The document also provides additional sources of information on COVID-19.

Read/download

A new approach to define safe charge limits for flammable refrigerants - The LIFE FRONT project has just released its latest report entitled "**Recommendations for the revision of safety standards for RACHP equipment**". LIFE FRONT is an EU-funded project that aims to remove barriers posed by standards for flammable refrigerants in refrigeration, air conditioning, and heat pump (RACHP) applications. With this new report, it provides project results from the laboratory testing as well as recommendations on measures to minimize concentrations of flammable refrigerants in the case of a leak; implementation of mitigation measures performance testing; and increasing charge size flammability risk focusing on smaller devices as described in the access categories 'a' and 'b' in the EN 378-1 (2016) Standard. [...]

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 are pleased to invite you to submit your nomination*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's valuable work related to the Montreal Protocol and ozone layer protection.**
Please notify and nominate worthy candidates through the on-line form We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

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

- View the «Montreal Protocol Who's Who» **Introductory video**
- Contact : **Samira Korban-de Gobert,** UN Environment Programme, OzonAction

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

New International Journal of Refrigeration service for IIR members

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

- Immediate and permanent access to the latest research and to IJR archive
- Access the latest articles as soon as they become available online.
- Browse, search and read each one of the nearly 4,500 papers since Volume 1, Issue 1.
- Unlimited access to seminal contributions to the field of refrigeration dating back to 1978.
- Keep up-to-date with subscriptions to customized e-alerts on New Volumes, Topics and saved Searches. Enhanced content and functions
- Easily export references, citations and abstracts.
- Print, download or share articles with colleagues or peers.

- See which papers, published in Elsevier or elsewhere, have cited any selected article.
- Consult the research highlights overview of articles in volumes from 2012 onwards.

To access this new service, click "**activate my e-IJR subscription now**" and follow the instructions.

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

Contact: info@area-eur.be

GIZ Proklima Cool Training is a series of international trainings on the safe use of natural refrigerants in the refrigeration and air-conditioning (RAC) sector. Launched in 2014, these trainings have since supported the worldwide promotion of sustainable cooling technologies by providing training on the safe handling of natural refrigerants. Main target group are international RAC technicians and trainers as well as political decision makers from developing countries and emerging economies. Depending on the training program, the courses are offered as one-week or two-week packages aiming at NOU representatives and technicians, respectively.

Schedule 2020

- Technician Training: 4-15 May 2020
- Policy Training: 2-5 June 2020 (in English/French)
- Policy Training: 15-19 June 2020 (in Spanish)

Learn more >>>

Susan Solomon earns Killian Award, MIT's highest faculty honor Atmospheric chemist is recognized for her "leadership in working toward real-world solutions to address the global climate crisis."

Atmospheric chemist Susan Solomon, whose pioneering scientific and environmental policy work has helped to shape international agreements for healing the ozone layer and mitigating climate change, has been named the recipient of the 2020-2021 James R. Killian Jr. Faculty Achievement Award.

The Killian Award is the highest honor the MIT faculty can give to one of its members, to recognize "outstanding contributions to their fields, to MIT, and to society." [...]

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Prepared by: Samira Korban-de Gobert, OzonAction
Reviewed by: Ezra Clark, OzonAction

If you wish to submit articles, invite new subscribers, please contact:
Samira Korban-de Gobert,

Tel. (+33) 1 44.37.14.52,
samira.degobert@un.org

UNEP, OzonAction, 1 rue Miollis, Bat. VII, Paris 75015, France