See online

OzoNews

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

Volume XVIII | 30 June 2018

In this issue:

1. Women in the Refrigeration and Air-conditioning Sector - Call for stories
2. Philippines Negros Occidental urged to lead reduction of HFCs use
3. Caribbean ozone officers network meet on Montreal Protocol implementation
4. 'It takes a village to raise a good HVAC&R technician'
5. Europe and Central Asia meeting of Montreal Protocol and refrigeration and air-conditioning (RAC) experts
6. Europe and Central Asia meeting of Montreal Protocol, Refrigerants literacy and real alternatives online courses
7. Facing the low GWP challenge
8. EPEE urges early EU ratification

Global



1. Women in the Refrigeration and Air-conditioning Sector - Call for stories

Time to submit is running out! Deadline is 31st July

Please share **your** experiences of working in the RAC sector

From female service technicians to installers, from designers to trainers, from manufactures to RAC associations, UN Environment OzonAction are looking to highlight your experience.

OzonAction, in cooperation with UN Women, is seeking short 'stories' about women working in the refrigeration and air-conditioning (RAC) sector, explaining their motivations, training and education, the challenges they may have faced, their experience and day to day details of their working lives.

Being aware of the experiences of women working in the RAC sector and the opportunities available can encourage and inspire other women to consider careers in the sector and support girls to seek to follow a career path in this fast growing and important sector.

OzonAction, therefore is launching a global initiative 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 the accepted submissions will be compiled into an official publication and outreached to a broad range of stakeholders in the Montreal Protocol and RAC community.

The authors of the two most relevant and interesting submissions will be invited to attend an award ceremony and side event organised by UN Environment OzonAction at an international Montreal Protocol meeting.

Completed entry forms with descriptions and photos should be received by 31st July 2018

How to apply

If you are a woman working in any part of the RAC sector, we encourage you to submit an entry. Please use the standard template provided. We very much welcome that you provide pictures showing you at work to accompany the submission.

Nominations will be reviewed, verified and edited, as required, by an expert panel established by UN Environment. All the accepted submissions will be compiled into an official UN Environment publication, which will be outreached to a broad range of stakeholders in the Montreal Protocol and RAC community.

The authors of the two most relevant and interesting submissions (as decided by the expert panel) will be invited to attend an award ceremony and side event organised by UN Environment OzonAction at an international Montreal Protocol meeting.

Completed submissions, sent by email, based on the standard template (with photos) should be received by the UN Environment regional focal points as soon as possible but **at the latest by 31st July 2018**.

For more information and the application form please see OzonAction website

Asia Pacific



Environmental campaigners Jessica Dator-Bercilla (left) and Rodne Galicha urge Negrenses to lead the reduction of hydrofluorocarbons use in the country. PNA PHOTO

2. Philippines Negros Occidental Province urged to lead reduction of HFCs use

BACOLOD City – Environmental campaigners urged Negrenses to lead in reducing the use of hydrofluorocarbons (HFCs) in the country.

Christian Aid's climate change advisor for Asia and the Middle East Jessica Dator-Bercilla and Climate Reality Project Philippines manager Rodne Galicha made the call during a press briefing on Friday.

Bercilla and Galicha did such amid efforts to ratify the Philippines' accession to the Kigali Amendment, an addition to the Montreal Protocol which aims to reduce the production and consumption of ozone depleting substances to protect the earth's fragile ozone layer.

The Kigali Amendment was ratified by at least 20 countries in [2017]. To date, [39] states, excluding the Philippines, have ratified it.

"You are a champion of a lot of climate-related solutions. We appeal to you to lead the country in committing to reduce the use of HFCs and couple it with energy efficiency," Dator-Bercilla told Negrenses.

HFCs are purely man-made substances commonly used as cooling agents for various purposes, like air conditioning, refrigeration systems, fire retardants, and solvents for cleaning products.

HFCs were found to have high global warming potential, a measure of how much heat the greenhouse traps in the atmosphere.

HFCs are responsible for only 1 percent of global warming, but a study published in 2013 showed that an accelerated global HFC phasedown can prevent a 0.5-degree Celsius of global warming by 2100.

This makes the HFC phasedown important to achieve the 1.5-degree Celsius target under the Paris Agreement, the campaigners said.

"The call is for phase down, not phase out. We are doing this gradually," Galicha said.

He added that in the Philippines, the civil society is working with the Philippine Ozone Desk under the Department of Environment and Natural Resources' Environmental Management Bureau to conduct the information campaign and lobby for accession.

Galicha said they have to obtain certificates of accession from the departments of trade, energy, and science and technology, as well as other concerned government agencies.

"These will be collated by the Department of Foreign Affairs and will be submitted to the Office of the President. The President will then send it to the Senate, which will approve the accession. The document will then be sent back to the President," he explained.

After President Rodrigo Duterte decides to sign the accession, the document will be sent to the United Nations through a Philippine representative, Galicha added.

Panay News, Philippines, 25 June 2018

Latin America and Caribbean






3. Caribbean ozone officers network meet on Montreal Protocol implementation

KINGSTOWN, 1 June 2018 — UN Environment's OzonAction in collaboration with the Ministry of Finance, Economic Planning, Sustainable Development and Information Technology of Saint Vincent and the Grenadines, hosted the Thematic Network Meeting of National Ozone Officers of the English-speaking Caribbean and Haiti from 30th May to 1st June 2018, in Kingstown, Saint Vincent and the Grenadines.

The focus of the meeting was to address, among other important matters, the design and establishment of Electronic Licensing Systems that will enhance countries´ implementation of their licensing and quota systems, monitoring of illegal trade and transition into the phase down of hydrofluorocarbons (HFCs) as called for under the Kigali Amendment to the Montreal Protocol. The phase-down of HFCs under the Protocol could contribute to the avoidance of up to 0.5°C of global warming by the end of the century,

The Meeting recognized the three countries that have already ratified the Kigali Amendment from the Region, namely Trinidad and Tobago, Barbados and Grenada and other countries were encouraged to take the necessary steps at the national level to ratify the Kigali Amendment as early as possible.

The meeting also strengthened and enhanced the capacities of Governments to achieve and sustain their HCFCs phase-out commitments under the Montreal Protocol and reviewed existing HCFCs policy and legislative frameworks to determine what is needed to meet the requirements under the Kigali Amendment. It is expected that this will assist Governments in the Caribbean, as Article 5 Parties. to achieve future HCFC and HFC reduction targets.

Participants at the meeting included National Ozone Officers and Assistants, as well as Customs Officers from 13 Caribbean Countries: Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago (Bureau of Standard Officer). Also in attendance were representatives from regional and international agencies including the Ozone Secretariat, the United Nations Development Programme (UNDP), the United States Environmental Protection Agency (US EPA) and the Organization of Eastern Caribbean States (OECS) Commission.

Contact:

Marco A. Pinzon, Montreal Protocol Coordinator (Caribbean)
UN Environment, OzonAction Montreal Protocol, Office for Latin America and the Caribbean

Donnalyn Charles, Programme Officer, UN Environment, OzonAction Montreal Protocol, Office for Latin America and the Caribbean

UN Environment, OzonAction, June 2018

North America

4. ‘It takes a village to raise a good HVAC&R technician’



Lori Schiavo of RSES joined other panellists at ATMO America’s ‘Contractors and Training Panel’ in arguing that the whole HVAC&R industry needs to help solve the natural refrigerants training gap issue.

At ATMOsphere America last week, Lori Schiavo, executive vice-president of the Refrigeration Service Engineers Society (RSES), called on the whole HVAC&R industry to help solve the natural refrigerants training gap issue during the ‘Contractors and Training Panel’.

To resolve training shortages, Schiavo – who has worked for the U.S. HVAC&R training authority since 2007 – urged manufacturers, industry organisations, contractor companies, training centres, wholesalers, distributors, unions and community colleges to get involved in running and promoting programs.

She also hailed the potential of online methods such as e-learning and webinars, but warned that these could only go so far.

New training guides

“It takes a village to raise a good HVACR technician,” Schiavo told the natural refrigerants conference in Long Beach, Calif. (12-14 June).

RSES has tried to help the situation by providing its own guide to hydrocarbons training with an online test component. “The course is broken down into four parts: Standards and Regulations; Refrigerant Properties and Safety System Component Compatibility; Servicing Procedures and The Refrigeration Cycle Cylinder Storage and Transport,” according to the organization’s website.

Employers play an important role in engaging technicians in training, she believes. “The three most fundamental things to offer to your technician are to give them time back to allow them to train, to give them some rewards, and to give them access to the most recent information, memberships, seminars and conference like this one here,” she notes.

Steve Gnas, president of Discovery Designs Refrigeration, urged industry to see training not as a “lineal cure where they progress” to the next step but as part of an on-going job.

This is a challenge for the industry. “As a contractor it’s an expense. Every hour that I [train someone] I need to sell to my client, so it needs to be worth it,” Gnas said.

Don't fail to train

He points out that failing to train can lead to serious ramifications for a business, causing them to fall behind with current technology and heralding the risk of installations not being done properly. “As society has changed over the years, so has our need for training,” he said.

Bryan Beitler, vice-president and chief engineer of Coolsys (a division of Source Refrigeration, which installed the first ammonia/CO_2 system at an Albertsons store in Carpinteria, Calif.), agreed. “If we’re not elevating their skills, we can’t send them out to the client,” he said.

Less training can mean technicians are less efficient, Beitler believes, meaning they will spend more time on service calls – therefore answering fewer other calls a day, resulting in a less profitable business in the long run.

“If I can’t hire a technician that at least doesn’t have a bit of knowledge on CO_2, ammonia and hydrocarbons as their baggage that they bring along, then we did not do our job," said Beitler, whose company also won ‘Best Contractor’ for its Source Refrigeration division at the Accelerate America awards at ATMO America last week.

At its Anaheim, Calif. headquarters, Source is beginning to offer natural refrigerant training. It recently installed a subcritical CO_2/synthetic refrigeration system at its training centre, using equipment from an abandoned store, in a grocery style training area in Anaheim. It is set to begin operating soon.

Technicians will be trained on how to install, start up and operate the system, which includes a liquid pump that not too many technicians are familiar with; the system may also be used as a guide to transcritical CO_2operations. Propane self-contained equipment training, Beitler added, will come soon. “Natural refrigerants aren’t going away, the opposite is going to happen, so they’re something we’ve got to learn how to work with," he believes.

Encourage young people to enter HVAC&R

Although training programs from companies including Source, Hillphoenix and Danfoss are available, more work needs to be done to encourage young people to enter the HVAC&R sector in the first place, said Discovery Designs Refrigeration’s Gnas.

“So where do we find new people? One of the things that we know has worked very well is relatives whose family members are already in the industry. People who grew up in the industry, they know the situation and they are used to the circumstances,” he said.

Military veterans who can receive money from the U.S. government to help them finish apprenticeships, or professionals in other sectors like mechanics could be other sources of new blood for HVAC&R.

Gnas argued that the younger generation, once they had started working for a company, could take advantage of online training like YouTube as they were more used to learning this way.

Yet this may not be without problems either, he warned. “Certainly the constraint that they cannot be on their cell phones all day (while on the job) is a big issue (for the young generation),” he noted.

hydrocarbons21, 21 June 2018, By: Charlotte McLaughlin

Europe & Central Asia



5. Europe and Central Asia meeting of Montreal Protocol and refrigeration and air-conditioning (RAC) experts

Valencia, Spain, 18 June 2018 – Acquainting Ozone Officers and managers of refrigeration associations from Europe and Central Asia with ozone-layer and climate friendly technologies using natural refrigerants. It is the third time, that the Regional Ozone Network for Europe and Central Asia (ECA network) organizes its annual network meeting in parallel to an international refrigeration conference.

This time it takes place in parallel to the 13th Gustaf Lorentzen Conference on Natural Refrigerants which is organized by the International Institute of Refrigeration (IIR) and the Polytechnic University in Valencia, Spain.

Previously, ECA meetings with ozone officers and managers of national refrigeration associations took place in parallel to the 48th SMEITS/KGH International HVAC&R Congress and Exhibition in Belgrade, Serbia in December 2016 and the 7th Refrigeration Conference on Ammonia and Carbon Dioxide Technologies in Ohrid, Macedonia FYR in May 2017.

This allows the refrigeration experts from ECA network countries and countries with economies in transition to have first-hand access to latest technology developments, to network with international experts and exchange their experience between themselves and with the national ozone officers. National refrigeration associations

have been involved in ECA meetings since 2009 and the ECA network supported the creation of the associations in Bosnia and Herzegovina, Croatia and Macedonia FYR.

This new approach proves to be cost-efficient and is in line with the mandate of UN Environment's OzonAction Compliance Assistance Programme (CAP) to build the capacity of ozone officers and to strengthen national refrigeration associations to facilitate the implementation of the Montreal Protocol.

All participants of the ECA meeting were registered for the UN Environment / ASHRAE e-learning course "Refrigerants Literacy" and encouraged to either complete that course or the Real Alternatives course which is available in most EU languages and in Russian. Several participants completed at least one of the courses and others will do in the near future. The successful "students" will be featured in OzonAction's website.

During the first 2,5 days of the meeting, the refrigeration experts will attend the IIR conference and the ozone officers only the key note speeches. The conference organizer offered special rates for the refrigeration experts from developing countries and ozone officers are invited to listen to the key note speeches free-of-charge. The last 1,5 days of the ECA meeting will be joint sessions with refrigeration experts and ozone officers to review the role of refrigeration associations in Montreal Protocol implementation and to elaborate national action plans for the association. The last day of the ECA meeting will be concluded by the visit of a modern supermarket in Castellon using carbon dioxide refrigeration with ejector technology which operates efficiently in warm climates. Several network countries have high temperatures during summer e.g. Turkmenistan is considered a country with high ambient temperature.

The participants include the ozone officers and managers of national refrigeration associations from the 11 ECA network countries (Albania, Armenia, Bosnia and Herzegovina, Georgia, Kyrgyzstan, Macedonia FYR, Moldova, Montenegro, Serbia, Turkey and Turkmenistan) as well as countries with economies in transition (Belarus, Russia and Ukraine). In addition, representatives of the Ozone Secretariat, the implementing agencies UNDP, UN Environment and UNIDO and bilateral partners from Croatia and Romania attend the meeting.

The meeting also includes an assessment of the needs and priorities of the ECA network countries which will help to design the network activities in 2019. Beside the ECA / K-CEP workshop for ozone officers and national energy policy makers which has already been decided, options include the twinning with another regional network or a network meeting in parallel with yet another international refrigeration conference.

Contact: Halvart Koeppen, Programme Officer, OzonAction Montreal Protocol

UN Environment, OzonAction, June 2018



6. Europe and Central Asia meeting of Montreal Protocol, Refrigerants literacy and real alternatives online courses

VALENCIA, 20 June 2018 – Refrigerant Literacy and Real Alternatives online courses to strengthen the knowledge of ozone officers and managers of refrigeration associations from Europe and Central Asian countries

Participants of the annual meeting of the Regional Ozone Network for Europe and Central Asia (ECA network) in Valencia, which took place in parallel to the 13th Gustaf Lorentzen Conference on Natural Refrigerants, were invited to complete at least one of the online courses on refrigerant management and technology options.

An impressive number of them followed the call and completed the UN Environment / ASHRAE Refrigerants Literacy or the Real Alternatives course.

Both courses are fee-of-charge. The Refrigerant Literacy course includes an online assessment and successful candidates can directly print their certificates. The Real Alternatives course can be completed online but the issuance of the certificate requires a face-to-face assessment.

Congratulation to the successful experts!

Contact: Halvart Koeppen, Programme Officer, OzonAction Montreal Protocol

[**Photo**: From left to right: Mr. Andac Yakut from Turkey, Ms. Claudia-Sorina Dumitru from Romania, Ms. Bojana Radeski and Mr. Nemanja Dzinic from Serbia, Mr Vasil Eftimov and Ms. Emilija Kjupeva-Nedelkova from Macedonia FYR, Ms. Azra Rogovic-Grubic from Bosnia and Herzegovina, Ms. Tatjana Boljevic from Montenegro, Ms. Almira Kapetanovic from Bosnia and Herzegovina, Mr. Halvart Koeppen of UN Environment OzonAction, Mr. Bashim Allamyradov from Turkmenistan and Mr. Arben Lici from Albania.]

UN Environment, OzonAction, June 2018

7. Facing the low GWP challenge



The choice of low Global Warming Potential (GWP) alternatives for large refrigeration systems needs to widen to help the food processing industry...

The need to make the switch to low GWP refrigerants to meet F-gas phasedown requirements has received a lot of media attention. It forms part of the latest revisions of the F-gas regulations which aim to reduce the use of fluorinated gases. With refrigeration playing such a key role in the food processing industry some producers and suppliers have already taken the message on board but others are still left with some big decisions to make.

Unless you are a refrigeration expert, it is not easy to be sure you are making the right choice for your system. This year's 37% cut in the quota for the production of virgin refrigerants is affecting supplies. Prices for the go-to refrigerant R404A have risen steeply as the amount of virgin refrigerant available on the market is reduced.

So far most of the research into alternatives with a low GWP has centred on gases more suited to smaller refrigeration systems, focusing on blended refrigerants which work well if you are maintaining or fitting systems in convenience stores, restaurants and installations of a similar scale.

However, if you are working with larger, low temperature systems found in food processing plants there are no easy answers. Flooded evaporators are more likely to be employed in larger systems where in the past single component gases like the now-banned R12 and R22 were used. They were relatively easy to install and maintain. R134A for high temperature applications, and R507 for medium and low temperature jobs, offered a way forward but their high GWP means that these HFC blends have a short shelf life.

In this respect the new blended low GWP refrigerants offer no real alternative for medium and low temperature applications because they can be difficult to manage. There is a risk of the refrigerant distilling and its components splitting into their original form.

Zeotropic refrigerants, with a mixture of different boiling points, may provide a solution in the long term but at present there are no low GWP HFC alternatives for low temperature applications in the industrial sector where flooded evaporators are in use.

Hydrocarbons like propane and propylene have in some circumstances provided cooling solutions, but they are more expensive to install – flameproof equipment is needed – and you have the added responsibilities of the ATEX regulations to consider.

The new class of low GWP HFO refrigerants like R1234ZE and R1234YF are still in the early stages of development and more work is required here if they are to be considered.

Ammonia offers a good choice for large systems operating on an industrial scale. It is a versatile, effective and efficient natural refrigerant which does not deplete the ozone layer and has excellent thermodynamic qualities, providing a wide temperature range.

It is a natural refrigerant with a good safety record and is already used in many applications in the meat, poultry and dairy industries. Ammonia – even in small quantities – has a recognisable odour which can be viewed as its greatest single safety asset. Further, improvements in technologies involving heat exchangers, compressor controls and low-pressure receivers have allowed the charge size to be reduced and this has lowered the risk of leaks. Because ammonia is one alternative that is already with us and it has a proven track record it is important to educate system designers, installers and end-users about the benefits of this green alternative. It could make everyone's life a lot easier in the long run.

Control Engineering Europe, 8 June 2018, By: Graham McDermott, director of Process Systems and Marine, J & E Hall

8. EPEE urges early EU ratification



EPEE has urged the EU Council Presidency to ratify the Kigali Amendment to phase down HFC refrigerants before the next Montreal Protocol meeting in July.

After Belgium became the 11th EU Member State to sign the agreement, EPEE has urged the Council Presidency to ratify the Amendment in time for the next meeting of the 40th Open Ended Working Group of the Parties to the Montreal Protocol taking place in Vienna from July 11.

“The EU has a unique opportunity to show global leadership in reducing HFC emissions. In order to send a strong signal to countries around the world who have not yet ratified the Kigali Amendment, we urge the Council Presidency to ratify it as a matter of priority,” said EPEE director general Andrea Voigt.

Earlier this month, Belgium became the 38th nation to sign the agreement, joining EU member states the UK, Bulgaria, France, Ireland, Finland, Germany, Luxembourg, Slovakia, Sweden and the Netherlands.

The current council presidency is made up of Estonia, Bulgaria and Austria.

CoolingPost, 20 June 2018

See also >>> EU’s HFC prices skyrocketing since start of F-Gas Regulation

Featured

OZONE SECRETARIAT

"Keep Cool and Carry On", Theme for World Ozone Day 2018

The theme is accompanied by the tagline: The Montreal Protocol



The theme for this year's World Ozone Day is a motivational rallying call urging all of us to carry on with the exemplary work of protecting the ozone layer and the climate under the Montreal Protocol.

The theme has two connotations – that our work of protecting the ozone layer also protects climate and that the Montreal Protocol is a “cool” treaty, as exemplified by its outstanding success.

Ozone Secretariat is inviting people to join in keeping our planet cool and celebrating the Montreal Protocol’s success in protecting the ozone layer and its contribution to combating climate warming by phasing out nearly 100% of controlled ozone-depleting substances that are also potent global-warming gases.

The Montreal Protocol is poised to contribute even more to the fight against global warming through the Kigali Amendment, which will enter into force on 1 January 2019.

The theme and tagline of this year’s World Ozone Day in all the six official UN languages are posted on our website for wider dissemination.

To support your World Ozone Day communication activities, the Secretariat has developed two posters in all the six official UN languages. Please download them from our website for dissemination in your commemorative activities.

As in previous years, the United Nations Secretary-General’s message for World Ozone Day and other materials will be shared prior to the day for further dissemination.

UN Environment, Ozone Secretariat, May 2018

Kigali Amendment: Thirty nine parties to the Montreal protocol have ratified *(as of 25 June 2018).*



• 40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol, 11-14 July 2018, Vienna, Austria

The documents for the forthcoming 40th meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (11 to 14 July 2018, Vienna), and the associated workshop on energy efficiency opportunities while phasing-down hydrofluorocarbons (9 and 10 July 2018) are available on our meeting portal and mobile app.

Please find the documents at the following links on the meeting portal:

• 40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol
• Workshop on energy efficiency opportunities while phasing-down hydrofluorocarbons (HFCs)

Mobile app
How to access the app:
Step 1: Download the 'UN Environment Events' app from your app store and install it on your device.
Step 2: Open the app and tap the event titled 'OEWG40 & Energy Efficiency Workshop' to download it.
Step 3: Once the download is complete, the app is available to use. Tap any icon on the app to browse and engage with the content.
The Secretariat will continue to update the meeting portal and mobile app with relevant documents and other material.

• Vienna Convention and Montreal Protocol Meetings: A Primer - Read/Download
• 29th Meeting of the Parties to the Montreal Protocol
• 28th Meeting of the Parties to the Montreal Protocol
• Final text of the Kigali Amendment to the Montreal Protocol available in all the six official UN languages (A C E F R S)
• OEWG 39: The 39th Session of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, preceded by the 58th meeting of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol, held on 9 July and a workshop on safety standards relevant to the use of low-GWP alternatives to HFCs, held on 10 July 2017.

- Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer - Addendum
- Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer

• Click here for further information.

• Browse through the Ozone Secretariat "In Focus" to learn about latest updates.

• Click here for Montreal Protocol Meetings Dates and Venues

The UN Environment Assessment Panels have been the pillars of the ozone protection regime since the very beginning of the implementation of the Montreal Protocol. Through provision of independent technical and scientific assessments and information, the Panels have helped the Parties reach informed decisions that have made the Montreal Protocol a world-recognized success.

UNEP initiated the process of setting up the assessment panels in 1988, pursuant to Article 6 of the Montreal Protocol, to assess the scientific issues of ozone depletion, environmental effects of ozone depletion, and the status of alternative substances and technologies and their economic implications.

Four panels, namely the panels for Scientific, Environmental Effects, Technology, and Economic Assessments were formally established and approved at the First Meeting of the Parties to the Montreal Protocol in 1989 where their first set of Terms of Reference were adopted. Shortly after the Second Meeting of the Parties in 1990, the Panels for Technical Assessment and the Panel for Economic Assessment were merged into one Panel called the Technology and Economic Assessment Panel (TEAP), which together with the Scientific Assessment Panel (SAP) and the Environmental Effects Assessment Panel (EEAP) make up the three assessment panels active today.

In accordance with Article 6 of the Montreal Protocol and subsequent decisions of the Parties, the three panels carry out a periodic assessment at least every 4 years. The first assessment reports were published in 1989 and since then major periodic assessments have been published by all three panels in 1991, 1994, 1998, 2002, 2006 and 2010. For each periodic assessment, the key findings of the panels are synthesized into a short report. The full SAP assessment report for 2014 was published in December 2014, while the EEAP assessment report for 2014 was published in January 2015.

PROGRESS & QUADRENNIAL ASSESSMENT REPORTS
- EEAP
- SAP
- TEAP

SYNTHESIS REPORTS
- 2014 assessments
- 2010 assessments
- 2006 assessments

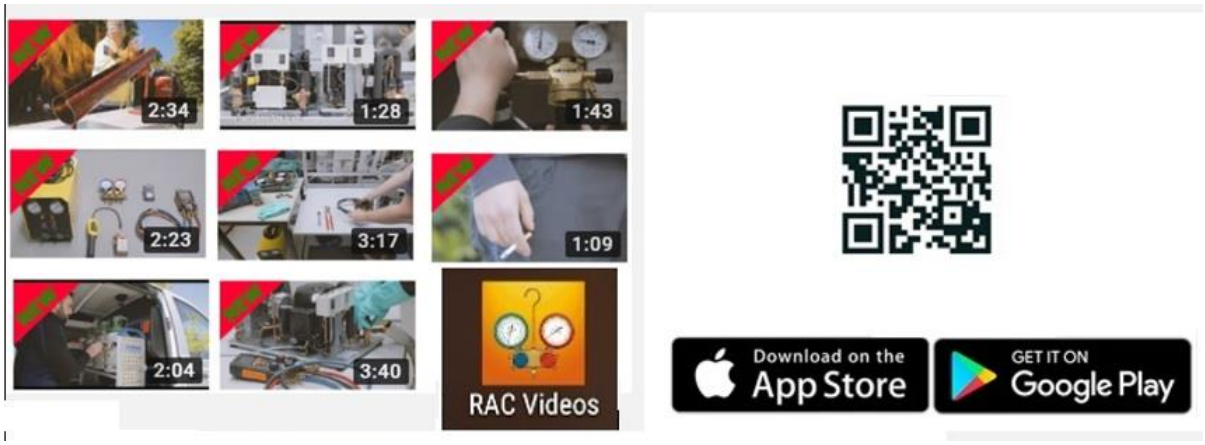
Assessment Panels List of Meetings

THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

- 81st meeting of the Executive Committee, Montreal, Canada, 18 to 22 June 2018
- 2018 Executive Committee Primer
- Report of the 80th meeting of the Executive Committee
- Report of the 79th meeting of the Executive Committee

Learn more

OZONACTION



New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants …

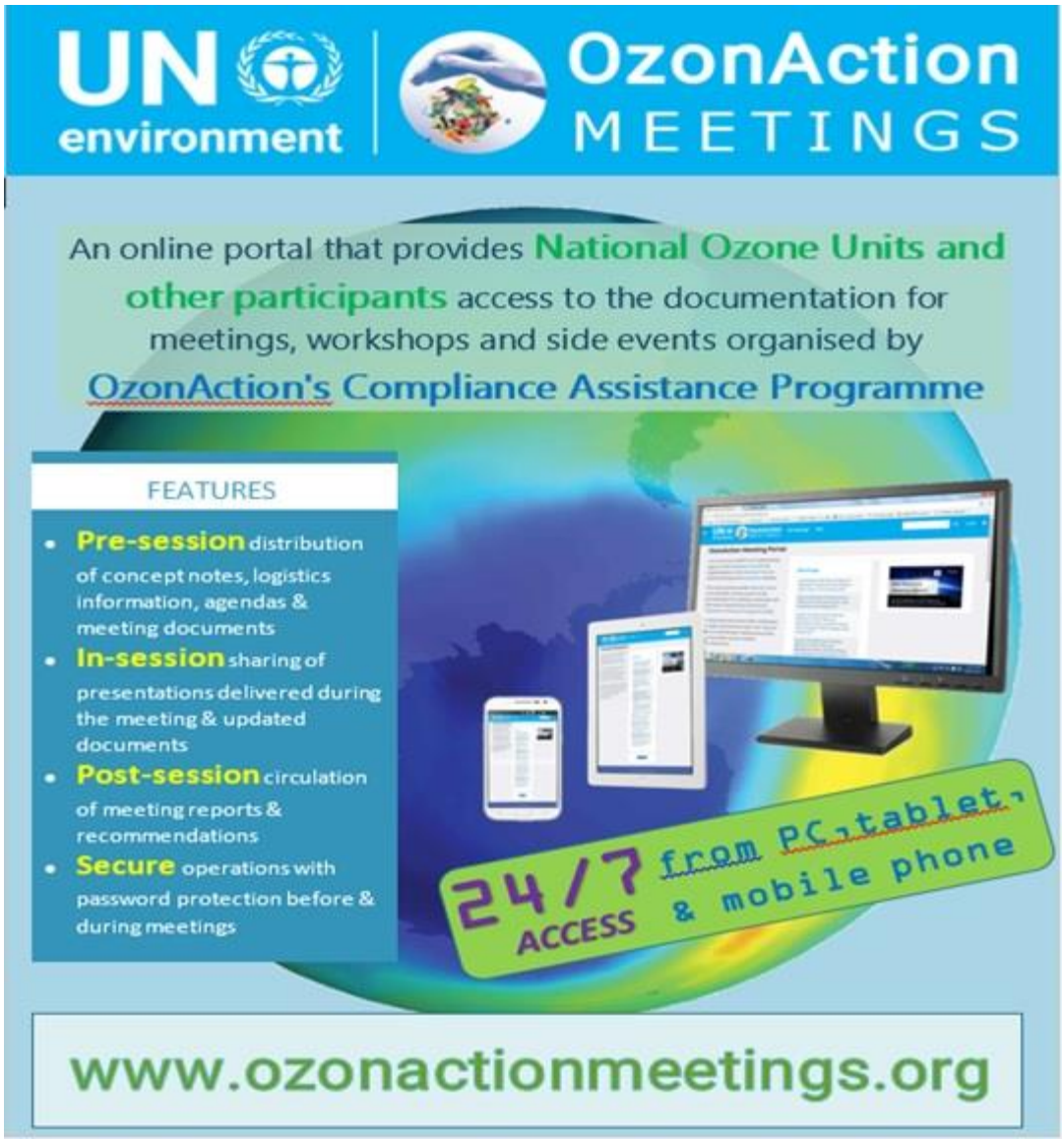
50,000 downloads and counting!

To install, search for “RAC Video” in the Google Playstore or Apple IOS store, or scan the QR code.

OzonAction launches initiative to highlight 'Women in the refrigeration and air-conditioning sector'

OzonAction, in cooperation with UN Women, is seeking to collect experiences and short ‘stories’ from women working in the refrigeration and air-conditioning (RAC) sector. From female service technicians to installers, from designers to trainers, from manufactures to RAC associations, UN Environment OzonAction are looking to highlight your experience...
"Women in the RAC Sector" flyer | Submission Form

Learn more UN Environment, OzonAction, March 2018



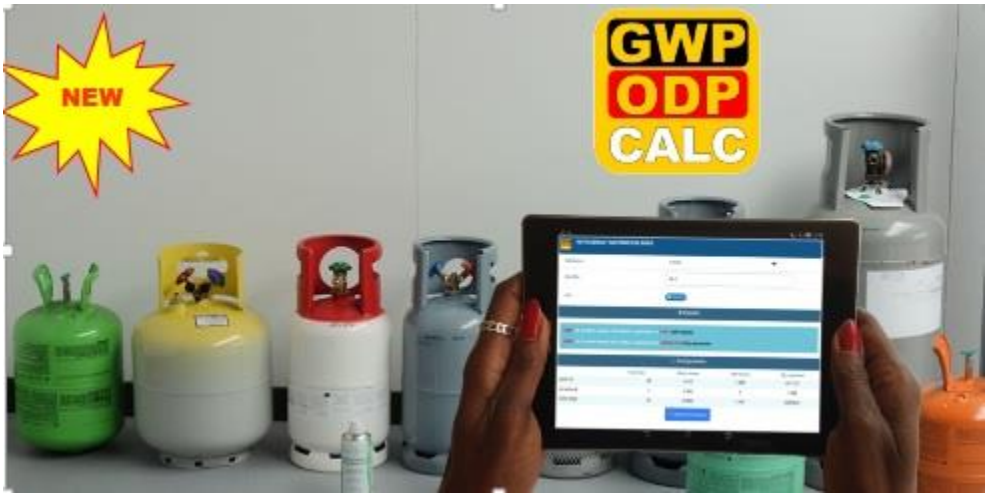
Visit the OzonAction Meetings Portal and learn more about our current, upcoming, and future events





OzonAction Scoop- A tri-annual newsletter by UN Environment, OzonAction under the Multilateral Fund for the Implementation of the Montreal Protocol.

Issue#**1** | Issue#**2**



The application allow you to easily convert ODP, CO_2-eq and metric quantities of refrigerants and other chemicals

• Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
• The calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO_2-equivalent tonnes (or kg) and display the corresponding converted values
• The app includes both single component substances and refrigerant blends
• The components of a mixture and their relative proportions (metric, ODP, CO_2-eq) are also displayed.

Available for free from the Apple IOS store and
Google PlayStore. Search for "GWP ODP CALC" in the PlayStore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses

OzonAction Smartphone Application WhatGas?
Available for free in the Google Play and Apple IOS Store
Scan the QR code or search for "UNEP", "OzonAction" or "WhatGas?"



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

OzonAction YouTube | See also: United Nations Treaty Collection

OzonAction Factsheets



Click here to access **OzonAction Series of Fact Sheets relevant to the Kigali Amendment.**

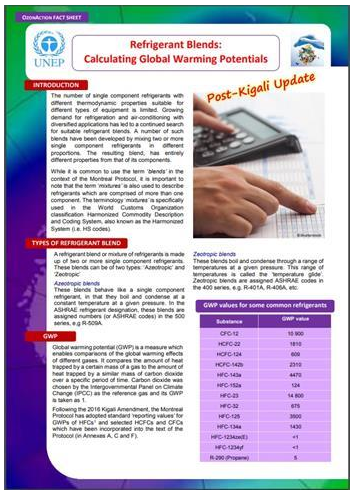


HS codes for HCFCs and certain other Ozone Depleting Substances ODS(post Kigali update)



The Kigali Amendment to the Montreal Protocol: HFC Phase-down - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluoro-carbons (HFCs) continues the historic legacy of the Montreal Protocol.

This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).



Refrigerant Blends: Calculating Global Warming Potentials (post-Kigali update)



Global Warming Potential (GWP) of Refrigerants: Why are Particular Values Used? (post-Kigali update).



Tools Commonly used by Refrigeration and Air-Conditioning Technicians



OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - 50,000 download 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)



OzonApp eDocs+ launched in Android Play Store and Apple Store.

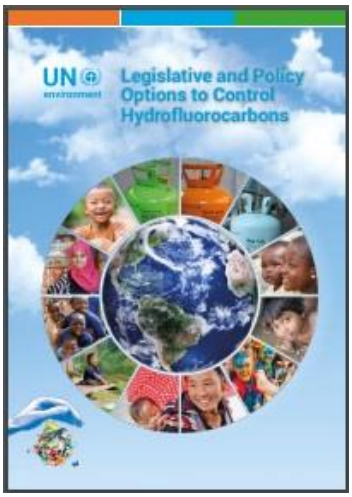
This new application launched by OzonAction on February 12, includes publications, videos, fact sheets and other awareness materials to help National Ozone Units (NOUs) and other stakeholders to build their capacity to implement the Montreal Protocol in a sustainable manner and at the same time to derive climate benefits.

OzonApp eDocs+ available in the Android Play Store and Apple Store/iTunes.
(Just search for “OzonAction”, or scan this QR code)

Publications



Twinning of National Ozone Officers and Energy Policymakers - Under the Kigali Cooling Efficiency Program (K-CEP), UN Environment is implementing a two-year "twinning" project to build the capacity of National Ozone Officers and national energy policymakers for linking energy efficiency and Montreal Protocol objectives in support of the Kigali Amendment.



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.

Events

2018

• EPA Sector Stakeholder Meeting: Regulating High GWP Refrigerants, Tuesday, July 17, 2018 10:00 AM - Wednesday, July 18, 2018 5:00 PM, EPA Headquarters, Washington, DC, USA

• 24th International Compressor Engineering Conference at Purdue
• 17th International Refrigeration and Air Conditioning Conference at Purdue
• 5th International High-Performance & Green Buildings Conference at Purdue
9-12 July 2018, West Lafayette, Indiana, USA

• International Conference on Emerging Technologies for Sustainable and Intelligent HVAC&R Systems, 27-28 July 2018, Kolkata, West Bengal, India

• Solar Heating and Cooling Forum, 9 August 2018, Brisbane, Qld, Australia

• **Booking now open** 1st IIR International Conference on the Application of HFO Refrigerants. 2-5 September 2018, Austin Court Conference Centre, Birmingham, United Kingdom.

• The Future of HVAC Conference 2018, 12–13 September, Melbourne, Australia.

• 3rd IIR Conference on Cold Application in Life Sciences 2018, 12-14 September 2018, St. Petersburg, Russia

• 3rd IIR Conference on Cold Application in Life Sciences 2018, 12-14 September 2018, St. Petersburg, Russia

• 8th International Conference on Magnetic Refrigeration at Room Temperature (Thermag VIII), 16-20 September 2018, Darmstadt, Germany

• Healthcare ColDays, 15 November 2018, Lyon, France,

See other IIR upcoming events

Reading



Twenty Questions and Answers About the Ozone Layer, presents complex science in a straightforward manner. It complements the 2014 Scientific Assessment Report of Ozone Depletion by WMO and the U.N. Environment Programme.

Lead Author:
Michaela I. Hegglin
Coauthors:
David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



Primer on Hydrofluorocarbons (HFCs) - IGSD -11 January 2018

Summary:
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.

The dictionary in numbers:
− more than 4,300 terms in English and French, including 800 synonyms,
− around 3,500 definitions in English and French,
− approximately 7,800 terms, synonyms and definitions
− content in 11 languages.

This international tool is the result of the work of nearly 200 experts, members of the IIR network, from around 30 countries throughout the world.

The dictionary's content covers all areas of refrigeration such as:
− basic principles (thermodynamics, transfer of heat and mass …)
− production of refrigeration (refrigerated systems, refrigerants…)

− refrigerated installations
− methods of chilling, refrigeration and freezing
− storage, transport and distribution
− refrigeration applications for perishable products and the agro-food industry
− air conditioning
− heat pumps
− cryogenics
− environment

Access the International Dictionary of Refrigeration on the IIR website



Refrigerants: There is still no vision for sustainable solutions
by Risto Ciconkov
Letter to the Editor, International Journal of Refrigeration

Abstract and highlights

Miscellaneous



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

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who" as part of the 30th Anniversary of the Montreal Protocol celebration.

The new website was launched during the 29th Meeting of the Parties to the Montreal Protocol, Montreal, Canada, 20-24 November 2017.

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 men and women 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, OzonAction

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

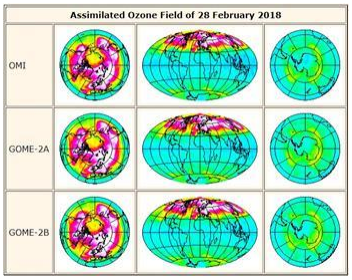


New *International Journal of Refrigeration* service for IIR members - As of January 2017, not only will IIR members continue to receive the hard copy of the journal but IIR membership will now also give members access to the complete archives of the International Journal of Refrigeration (IJR) online. 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.

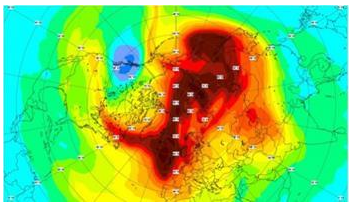
Enhanced content and functions
- Easily export references, citations and abstracts.
- Print, download or share articles with colleagues or peers.
- See which papers, published in Elsevier or elsewhere, have cited any selected article.
- Consult the research highlights overview of articles in volumes 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



TEMIS -- Near-real time global ozone field. The in near-real time delivered total ozone columns, derived from satellite observations, are input to a data assimilation program which provides global ozone fields for today and a forecast for the coming days.



Copernicus Atmosphere Monitoring Service. Since 7 February, CAMS has predicted the appearance of an ozone mini-hole over western Canada around 12-13 February. The 5-day forecast from the ECMWF Copernicus Atmosphere Monitoring Service (CAMS) showed the location of this ozone mini-hole and predicted its shape and size. This prediction was broadly consistent with other leading global atmospheric composition forecasting centres. Satellite observations acquired on 12 and 13 February data assimilation actually confirmed these predictions. "It is a nice way for us to show that our models really work and can accurately predict these kinds of events," says Mark Parrington, senior scientist for CAMS...

The 2018 Climate & Clean Air Awards are now open for nominations! For the 2nd consecutive year, we are calling on the SLCP community to recognise the projects and policies making an impact on climate change and air pollution.



AIRAH Awards 2018 nominations now open! The AIRAH Awards recognise the individuals, companies, research projects and products across the diverse specialist fields that make up the HVAC&R industry. Open to individuals, companies, corporate bodies, institutions and government authorities, the 2018 Awards will recognise work carried out during 2016/2017.



UNESCO recognises refrigeration pioneer - It's not often that HVAC&R makes the front page, but James Harrison, the founding father of refrigeration, was recently mentioned at ABC online news for his role in helping Geelong earn the status of UNESCO City of Design.

Harrison is credited as the inventor of the mechanical refrigeration process for creating ice – he patented his ether vapour-compression system in 1855.

But he is not the only historic designer who called Geelong home – it was also the birthplace of the Ford ute (designed by Lew Bandt and built in Geelong in 1934), the Hills Hoist (patented by Geelong blacksmith Gilbert Toyne in 1911), and most of Australia's decimal currency coins (designed by Geelong goldsmith and jeweller Stuart Devlin).

In the modern era, Geelong can also boast the Carbon Nexus Centre at Waurn Ponds, the Centre for Advanced Engineering Training and the Australian Future Fibres Research Innovation Centre.

Geelong slots into the UNESCO list between Dundee in Scotland and Graz in Austria, and takes its place alongside global design hubs such as Shanghai, Montreal and Berlin.

Current and previous OzoNews Issues, are available from OzonAction website



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Prepared by: Samira Korban-de Gobert, OzonAction
Reviewed by: Shamila Nair-Bedouelle, Head OzonAction Branch, and 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@unevironment.org

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