

“HCFC PHASE-OUT: A UNIQUE OPPORTUNITY”

UN Secretary Ban Ki Moon



The international community adopted the Montreal Protocol on Substances that Deplete the Ozone Layer to protect the earth from harmful ultraviolet radiation. In more than 24 years of successful implementation, the Protocol has been gradually strengthened to cover the phase-out of nearly 100 ozone-depleting substances. The latest adjustments were adopted in 2007 to accelerate the phase-out of hydrochlorofluorocarbons, or HCFCs.

HCFCs are both ozone-depleting substances and powerful greenhouse gases: the most commonly used HCFC is nearly 2,000 times more potent than carbon dioxide in adding to global warming. By agreeing to speed up the phase-out of HCFCs, Parties to the Montreal Protocol increased their already-substantial contributions to protecting the global climate system.

The level of climate benefits that can be achieved depends on what chemicals and technologies are chosen to replace HCFCs. The phase-out thus presents countries and industries with a unique opportunity to acquire cutting-edge technologies that not only eliminate ozone-depleting compounds but do so in a way that lowers energy costs and maximizes climate benefits. To facilitate this transition in developing countries, the Montreal Protocol’s Financial Mechanism is providing increased funding.

Parties to the Montreal Protocol are now considering further amendments, including proposals to bring hydrofluorocarbons, or HFCs, under the Protocol in a manner that would complement existing efforts under the UN Framework Convention on Climate Change and its Kyoto Protocol. HFCs do not deplete the ozone layer but are highly potent greenhouse gases, and their consumption has been increasing rapidly as they are being used to replace HCFCs.

I urge Parties and industries to seize the opportunity provided by the HCFC phase-out to leapfrog HFCs wherever possible. Only by limiting global climate change can we hope to achieve sustainable development for all

Source: www.un.org/en/events/ozoneday/



PREPARING FOR HCFC PHASE DOWN

Aminath Shaufa

What are HCFCs?

Hydro chlorofluorocarbons are (HCFCs) and HCFC-containing blends are man-made chemicals widely used as refrigerants, foam blowing and fire extinguishing agents, aerosol propellants, solvents and as feedstock in chemical production. Approximately 10% of global HCFC use is in the foam sector. The main HCFC used in this sector is HCFC-141b. HCFCs are also used in many foam blowing blends.

Why do HCFCs have to be replaced?

HCFCs are ozone-depleting substances, subject to worldwide production and consumption phase out schedules agreed under the international treaty known as the Montreal Protocol. HCFCs can deplete the Earth's protective stratospheric ozone layer, and they are also potent greenhouse gases which can seriously contribute to climate change.

What alternatives are available to replace HCFCs in the RAC sector?

Climate friendly (low GWP) alternatives are marked in red

Emerging climate friendly technologies----HFC1234yf

Equipment Type	Zero ODP Alternatives
Refrigeration	
Domestic Refrigerators	HFC-134a, HFC-413a, hydrocarbons
Stand alone Retail Food Equipment	HFC-134a, R-404a, hydrocarbons, CO2
Vending Machines	HFC-134a, hydrocarbons, Stirling and transcritical CO2 technology
Condensing Units	R404A, R-507A
Large Supermarket Systems	HFC-134a, R-404A, R-407C, R-417A, R-422B, distributed systems (using HFCs, HCs or CO2), indirect systems (using HFCs, ammonia, hydrocarbons or CO2), Two-stage cascading systems using CO2
Cold Storage	HFC-134a, R-404A, R-410A, R-507A, hydrocarbons, ammonia, CO2, distributed systems (using HFC, HCs or CO2), indirect systems (using HFCs, ammonia, hydrocarbons or CO2)

Refrigerated Transport	HFC-23, HFC-134a, R-404A, R-407C, R-410A, R-507A, ammonia, CO2, hydrocarbons
Industrial Process Refrigeration	HFC-134a, R-404A, R-507A, ammonia, CO2, water, distributed systems (using HFCs, HCs or CO2), indirect systems (using HFCs, ammonia, hydrocarbons or CO2,
Air Conditioning	
Heat Pump	HFC-143a, R-404A, R-407C, R-410A, hydrocarbons, ammonia, CO2
Unitary AC (ducted and non-ducted)	HFC-143a, R-404A, R-407C, R-410A, hydrocarbons, ammonia, CO2
Window Units	HFC-143a, R-407C, R-410A, R-417A, R-419A, R-422B, hydrocarbons, CO2
Packaged Terminal Air Conditioners (PTAC)	R-134a, R-404A, R-407C, R-410A, hydrocarbons, ammonia, CO2
Chillers	HFC-134a, HFC-245fa, R-407C, R-410A, ammonia, hydrocarbons

What steps should your company consider?

- If your equipment is old, consider replacing your existing HCFC technology with a new one that uses ozone- and climate-friendly alternatives —see chart
- Only select non-HCFC technology when purchasing new equipment
- Establish refrigerant emission controls
 - Use leakage detectors
 - Establish equipment leak checking schedules
 - Order immediate leak repairs by qualified/certified personnel
- Promote refrigerant recovery, recycling and reclamation
- Train/certify your personnel
- Introduce alternative technologies
- Keep equipment logbooks

What aspects should be considered when selecting an alternative technology?

- Technical aspects
 - Performance in your local conditions (temperature, humidity)
 - Size/weight
- Environmental aspects
 - Global Warming Potential (GWP) of the refrigerant
 - Equipment TEWI/LCCP
- Economic aspects
 - Annual energy consumption
 - Maintenance cost
 - Initial investment cost
- Safety aspects
 - Refrigeration flammability
 - Explosion risk

OZONE DEPLETION: DEVASTATION FOR LIFE ON EARTH

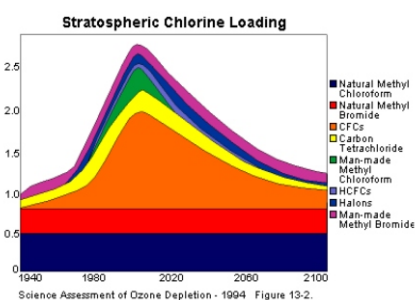
Ahmed Zain Zareer- Dharamavantha School

The ozone layer which is found in the stratosphere is a concentration of ozone molecules that filters the sun's ultraviolet radiation. If the ozone layer is depleted by human actions, the consequences on earth would be devastating. Hence the ozone layer has been in the lime light ,from mid -1980's and now, more than ever, as more and more signs of ozone depletion are experienced by earth dwellers.

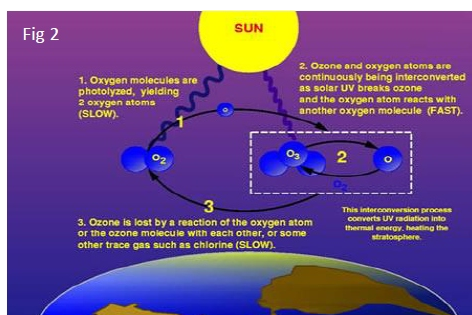
● Causes for Ozone Depletion

Recent studies have shown that several substances cause destruction to the ozone layer. However, the focal point of this vicious phenomenon is CFC and HCFC which were used widely as refrigerants, insulating foams, and solvents.

Down on earth CFCs and HCFCs are considered as substances that make life easier however, when they reach the stratosphere , a devastating reaction occurs which humans were blind to until recently. The ultraviolet radiation from the sun causes CFCs and HCFCs to split up and release chlorine atoms which react with ozone, destructing the ozone and depleting the ozone layer. It is found that a single chlorine atom can destroy more than 100,000 ozone molecules.



Although Ozone is constantly produced and destroyed in a natural cycle that is well balanced, the increment of stratospheric chlorine and bromine is disrupting that balance, making the ozone level to fall. This will cause devastation on the surface of the earth.



● Consequences On Life

Since ozone filters out harmful UVB radiation, reduced ozone means higher UVB levels at the surface. This is bad news for mankind as more UVB can cause skin cancer and increase the cases of cataracts. Furthermore, it will increase the rates of malaria and other infectious diseases. Moreover, the flora of the planet would be hit hard too bringing an imbalance to the food chain. On top of that the earth's climate will dramatically change. All this distortion on flora, fauna and environment due to ozone depletion will be catastrophic for the survival of life on the planet.

● Measures Taken

Ozone depletion is a problem that needs immediate action. Hence, many countries signed in the Montreal Protocol of phase-out CFCs and HCFCs. The Montreal Protocol was an important step in raising awareness of ozone depletion. Furthermore, the U.S Environmental Protection Agency (EPA) implements several other programs such as refrigerant recycling, product labeling, banning non essential uses of certain compounds and reviewing substitutes, in order to protect the ozone layer under the Title VI of the Clean Air Act. Small nations like Maldives, are taking CFC and HCFC phase-out seriously. Maldives have successfully banned CFC and targeting a 10% reduction of HCFC in 2015.

Fig 3:

Montreal Protocol		U.S HCFC Phase-Out	
Year to be Implemented	% Reduction in Consumption and Production, Using the Cap as a Baseline	Year To Be Implemented	Implementation of HCFC Phase-out through Clean Air Act Regulations
2004	35%	2003	No production and no importing of HCFC-141b
2010	75%	2010	HCFC-142b and HCFC-22, except for use in equipment manufactured before 1/1/2010
2015	90%	2015	No production and no importing of any HCFCs, except for use as refrigerants in equipment manufactured before 1/1/2020
2020	99.50%	2020	No production and no importing of HCFC-142b and HCFC-22
2030	100%	2030	No production and no importing of any HCFCs

Scientists believe that Ozone depletion is a monumental problem of global scale that they have started to solve. The Montreal Protocol that calls for a ban on CFC and HCFC has given a glimpse of hope to the recovery of Ozone layer. Thus, it is the responsibility of all the inhabitants of the earth to take this matter seriously.

Source: Reference:

Fig 1 = www.arap.org ;

Fig 2 = www.epa.org;

Fig 3 = www.epa.gov;

<http://epa.gov.mv>; <http://library.thinkquest.org>

HCFC PHASE OUT: UNIQUE OPPORTUNITY

Shaha Abdul Gafoor - Hiriya School

Remember that humongous hole in the ozone layer that everyone kept making a huge deal about? I am assuming that most of you wouldn't. It's not like everyone has all the time in the world to care about the existence of the ozone layer but if we did not, then I bet the probability of us humans existing in the near future would be very less. Let's just assume not caring about the environment would be the mark of our own phase out.

The ozone layer is a layer in the Earth's atmosphere which contains relatively high concentrations of ozone. This layer protects the Earth from sun's high frequency ultraviolet light, which is potentially damaging to the life forms on Earth. Nevertheless, due to the usage of harmful substances like CFC, it leads to the breakdown of the ozone molecules. The breakdown of the ozone results in the ozone molecules being unable to absorb the ultra violet radiation.

HCFC is a fluorocarbon that is replacing CFC as a refrigerant and propelled in the aerosol cans. It is considered to be less destructive to the ozone layer and also very cost effective compared to CFC. However, they still contribute to the depletion of the ozone layer so under the terms and condition of the Montreal Protocol, the consumption of HCFC will be phased out from most of the country. This is in order to protect the ozone layer.

With all of the destructive substances out of the way it becomes a unique opportunity for us to safeguard the ozone. When we safeguard the ozone we are safeguarding our families, our friends and surprisingly, ourselves as well. I reckon we should aware everyone about how big a deal this is because if we don't take the necessary precautions we would be doomed in the future. I know probably writing lots of articles about it wouldn't help much, unless we are willing to move our feet and try to make a change to save the world and ourselves. Nothing would change unless we make the change. As Gandhi said, you must be the change you want to see in the world!

MALDIVES CALLS SAARC COUNTRIES TO COMMIT AN AGREED AMOUNT OF GOVERNMENT REVENUE ON RENEWABLE ENERGY DEVELOPMENT

Minister of State Mr. Akram Kamaludeen has called member countries of SAARC to commit an agreed amount of the Government revenue on renewable energy development. Speaking at the Ninth SAARC Environment Ministers Meeting held in Thimpu, Bhutan, he further said that the Maldives is pleased that SAARC family are taking interest greater than ever before to increase the national share of renewable energy and that, policies and national strategies are being increasingly aligned to move away from fossil fuels. He also said that the Maldives hoped that the region as a whole will soon come out with a road map and an action plan on how renewable energy development can work in South Asia.

Stressing on the importance of such an initiative in the region, Minister of State Kamaludeen noted that if the SAARC region could come up with such an initiative, it would also give a clear message to the rest of the world to do the same.

The one day meeting will review the status of implementation of directives/decisions of the 16th SAARC Summit held in Thimphu in 2010 that are related to environment.

The delegation led by the Minister of State for Housing and Environment Mr. Akram Kamaluddeen includes officials from the Ministry of Housing and Environment and Ministry of Foreign Affairs. The Director of SAARC Coastal Zone Management Centre Dr. Mohamed Shiham also participated in the meeting.

MINISTER DELIVERS KEYNOTE ADDRESS

Minister of Housing and Environment Mr. Mohamed Aslam delivers a keynote address on “Climate Change and its Challenges to Small Island States” in Euro-Asia Eco Safety Conference held at Xi'an, China, 24 September 2011, organized by International Eco-Safety Cooperative Organization (IESCO).

In his address, Minister Aslam highlighted the plight of Small Island States in their battle against climate change. The Minister gave a detailed account of the challenges faced by the low-lying small island states like Maldives and urged the world to act now to fight against the climate change.

The main objective of this conference to provide a high-end dialogue platform for government institutions and non-governmental organizations, academic and financial institutions to discuss how to address the growing global resource scarcity and ecological crisis, to coordinate contradictions between developed countries and developing countries in food scarcity, energy scarcity, resource damage and environmental pollution.

More than 100 high level guests attended the conference including political party leaders, parliament heads and state leaders above vice ministerial level. Minister Aslam is an Executive Committee Member of IESCO.



AWARENESS WORKSHOP ON HCFC PHASE OUT HELD



An awareness workshop on HCFC Phase-out targeted to the public and private companies in the field of refrigeration and air conditioning were held on 22nd September 2011 at Traders Hotel. The workshop was organized and conducted by the Ministry of Housing and Environment. Director General of Department of Environment Mr. Mohamed Zahir welcomed all the participants. The workshop was inaugurated by the Minister of State for Housing and Environment, Dr. Mohamed Shareef.

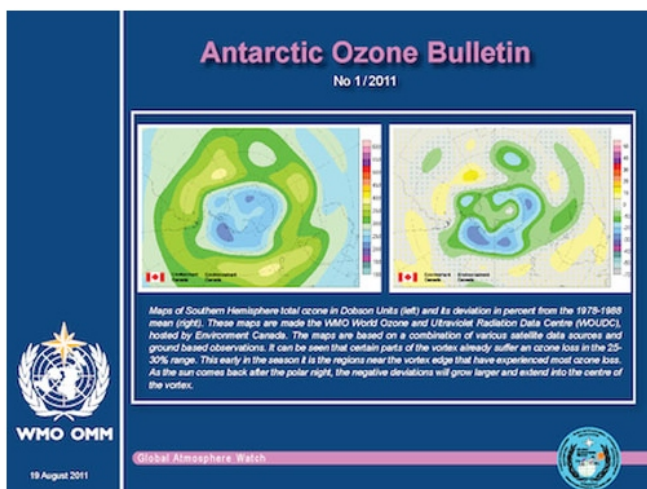


The one day workshop was mainly focused on informing the participants about the actions taken by the Maldives under the Montreal Protocol and the remaining challenges. The activities under HCFC Management Plan were discussed in detail giving them information about the activities which are planned for this year.

Available alternatives for HCFCs, global perspectives and commonly used HCFC alternatives in the Maldives were also discussed in the Workshop. At the ending ceremony certificates were given to the participants by Director General of Environment Protection Agency (EPA) Mr. Ibrahim Naeem.



UN AGENCY REPORTS FIRST SIGNS OF ANTARCTIC OZONE DEPLETION THIS YEAR



23 August 2011 –

Signs of ozone depletion are again appearing over the Antarctic, the United Nations reported today, adding that prevailing temperatures and polar stratospheric clouds indicate that the degree of ozone loss this year will most likely be about average in comparison to the past decade.

However, the World Meteorological Organization (WMO) noted that it is still too early to make a definitive statement on the level of depletion of ozone – which serves as a shield to protect life on Earth from harmful levels of ultraviolet rays – for 2011.

In Antarctica, the so-called ozone hole is an annually recurring winter/spring phenomenon due to the existence of extremely low temperatures in the stratosphere and the presence of ozone-depleting substances.

Despite international progress in cutting production and consumption of ozone-depleting chemicals, they have a long atmospheric lifetime and it will take several decades before their concentrations are back to pre-1980 levels, according to the WMO's first Antarctic Ozone Bulletin for this year.

In mid-August, the ozone hole area was normal compared to recent years – larger than in 2008 and 2010, but smaller than in 2009, according to the bulletin. As the sun returns to Antarctica after the polar night, it is expected that ozone destruction will speed up. The extent of ozone loss will to a large extent depend on meteorological conditions.

The depletion of the ozone layer is also due to a very cold winter in the stratosphere, which is the second major layer of the Earth's atmosphere, just above the troposphere.

WMO and the scientific community will use ozone observations from the ground, weather balloons and satellites, as well as meteorological data, to monitor the development of the ozone hole in the coming weeks and months.

The onset of ozone depletion varies considerably from one year to the next, depending on the position of the polar vortex and availability of daylight after the polar night.

Measurements with ground based instruments and with weather balloons show first signs of ozone depletion at some sites located close to the vortex edge.

As the sun returns to Antarctica after the polar night, it is expected that ozone destruction will speed up, according to the WMO bulletin.

source

<http://www.un.org/apps/news/story.asp?NewsID=39361&Cr=climate+change&Cr1=Source>

Layout & Design by: Mohamed Simah

Published by:
Environment Department,
Ministry of Housing and Environment,
1st Floor, Tinu Building, Ameenee Magu,
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