



environmental newsletter

MINISTRY OF ENVIRONMENT AND ENERGY

NO : 44

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OZONE EDITION



ENVIRONMENTAL NEWSLETTER
MINISTRY OF ENVIRONMENT AND ENERGY

Editors Note

After a year long absence, **Pemphis is back**; but this time it is going to be all about the reader. We are handing the steering wheel to our readers. The days of one way traffic is over and there wont be any set routes. We are going uncharted, so therefore, we welcome our readers to get involved.

With the comeback of Pemphis; we have decided to give it a new face. Send us your logo designs. **We are re-branding.**

It is now open for our readers to send in their articles, photos, quick facts, etc.

Hope you would all enjoy the new Pemphis...:)

Feedbacks, Comments, Articles, Photos, Etc:
environment@environment.gov.mv

“And We made the sky a protected ceiling, but they, from its signs, are turning away.”
Al Anbiya 32

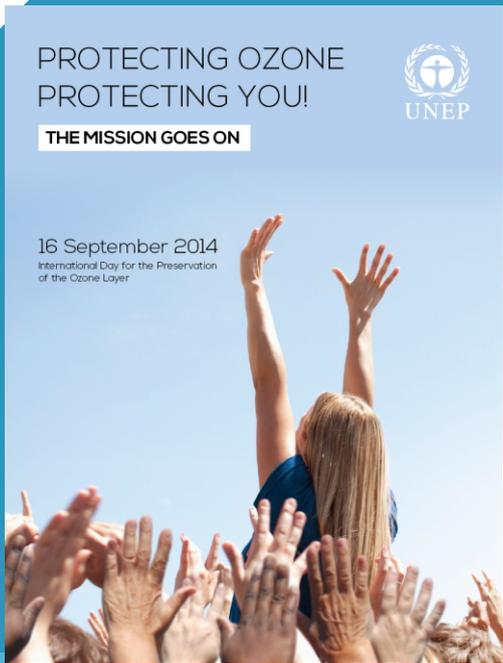
**UN Secretary General:
Ban Ki-moon**

“Let us take inspiration from our efforts to preserve the ozone layer. The Montreal Protocol has shown that decisive action by the international community, including the private sector, can achieve transformative results for the common good. Let us learn from this example and apply its lesson to the urgent task of addressing the climate challenge.”



As most ozone depleting chemicals are also green house gases, Montreal Protocol has reduced greenhouse gas emissions equivalent to more than 135 billion tonnes of carbon dioxide.

MALDIVES CELEBRATES WORLD OZONE DAY



Inauguration of RAC Association of Maldives



Minister of Environment and Energy addressing at the Ozone Day special ceremony



Launching of the Recovery and Reclamation Facility

The Ozone Story

SAVE THE OZONE LAYER



1928
Scientists Synthesizes CFC

1973
Lovelock detects CFC in the atmosphere

1974
Molina & Rowland discovers CFC's can deteriorate Ozone Layer
 $Cl+O_3 \rightarrow ClO+O_2$
 $ClO+O \rightarrow Cl+O_2$

1975
Scientists discover Bromine used in fire extinguishers & pesticides are Ozone Depleting Substances

1985
Survey team discovers Antarctic Ozone Hole

1987
24 countries sign the Montreal Protocol on substances that Deplete the Ozone Layer

1989
Developed Countries in Montreal Protocol freeze production and consumption of CFC's at 1986 levels

1991
Scientists agree that CFC's are depleting the stratospheric ozone layer in the northern and southern hemisphere

2002
Developing Countries of Montreal Protocol freeze methyl bromide production at 1995-1998 average level

2004
Developed countries reduce consumption of HCFCs by 35% from baseline levels

2006
Recorded the biggest ever ozone hole

2010
Developed countries reduce consumption of HCFC by 65% from baseline levels

2015
Developed countries reduce consumption of HCFCs by 90% of baseline levels

2030
Developed countries scheduled to phaseout ODS

2040
Developing countries of Montreal Protocol scheduled to completely phase out HCFCs

2060-2075
Earliest time frame for Ozone layer to recover

Maldives signs Montreal Protocol
1988

2008
Maldives becomes the first country to phase

2015
Maldives to impose import ban on HCFC utilizing

2011
Maldives set limits on the import, sale and use of HCFC and HCFC

Maldives scheduled to completely phaseout HCFC
2020

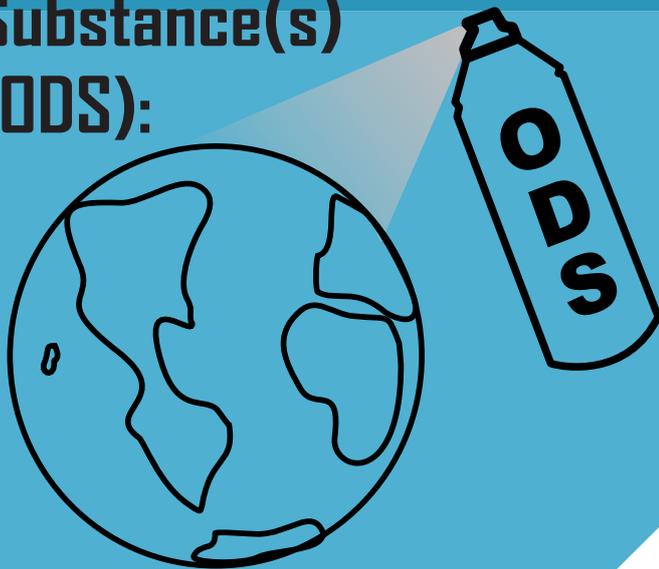
Montreal Protocol

"Montreal Protocol on Substances that Deplete the Ozone Layer" came in to existence in 1987 with the aim to reduce the abundance of ozone depleting substance and thereby protect the earth's delicate protective ozone layer.

It has been hailed as the single most successful international agreement to date as it have achieved "universal" acceptance with the ratification of all the UN member nations.

In the two decades since the birth of Montreal Protocol, countries have discontinued consumption and production of 97% of all Ozone Depleting Substances (ODS).

Ozone Depleting Substance(s) (ODS):



Ozone Depleting substances are described as compounds which contributes to stratospheric ozone depletion. ODS are generally very stable substances in the lower atmosphere (troposphere), but degrades in the stratosphere under intense UV light and causes ozone depletion.

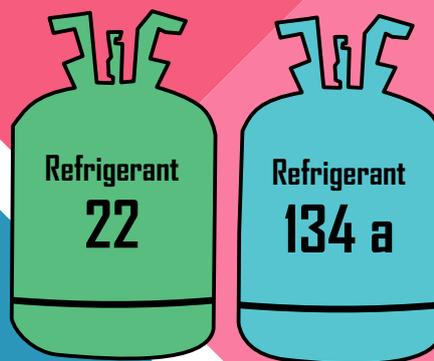
These substances are still in use in some coolants, foaming agents, fire-extinguishers, solvents, pesticides, and aerosol propellants

Without the Montreal Protocol: atmospheric levels of ozone depleting substances could have increased tenfold by 2050.



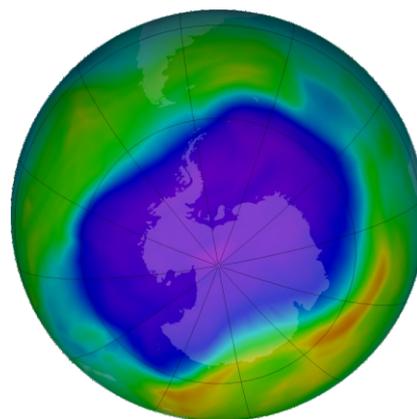
OZONE DEPLETING SUBSTANCES

Some of the common Ozone Depleting Substances are:



- Hydro-chlorofluorocarbons
- Halons
- Methyl bromide
- Carbon tetrachloride
- Hydro-bromofluorocarbons
- Chlorobromo-methane
- Methyl Chloroform

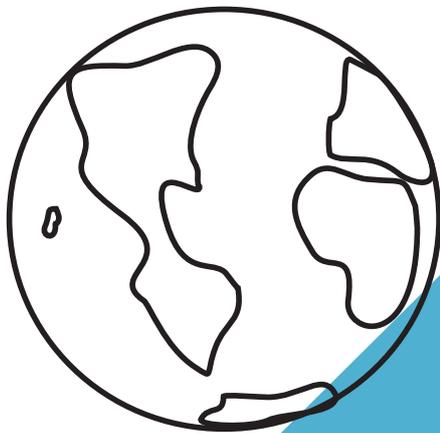
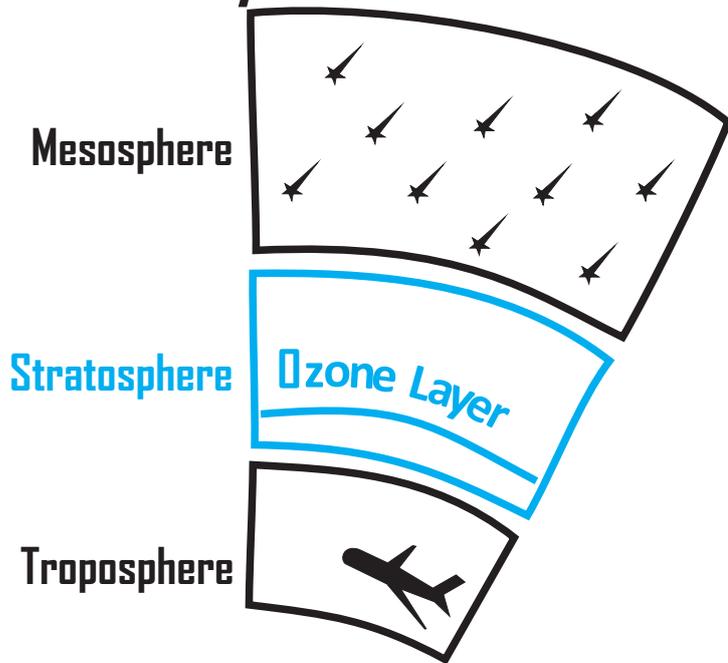
Biggest Ozone Hole:



Satellite imagery of the largest Ozone hole ever was recorded on 24th September 2006 over the Antarctic Pole.

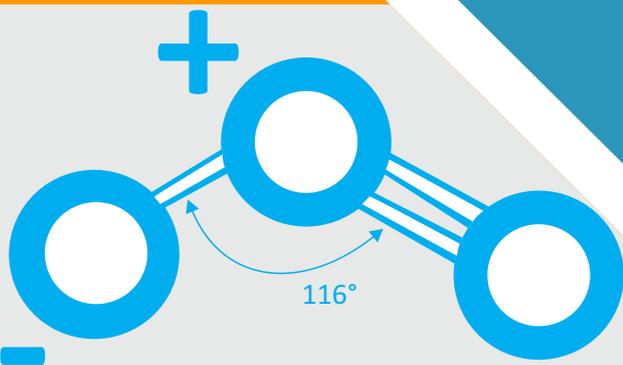
The purple and blue colors shows the least concentration of ozone and the yellows and reds are shows the higher concentrations of ozone. NASA imagery.

Ozone Layer

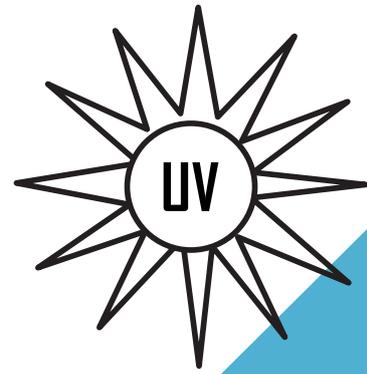


A layer of high ozone concentration is located in the lower portion of the stratosphere, from approximately 20 to 30 km above the earth.

The ozone layer can be described as the earth's protective layer which shields us from sun's harmful ultraviolet (UV) rays.



Ozone:
a tri-atomic gas composing of 3 oxygen atoms



CATEGORIES OF UV RAYS

Sun's UV rays

Sun's UV rays are categorized into 3, based upon its wavelength.

UV-A:

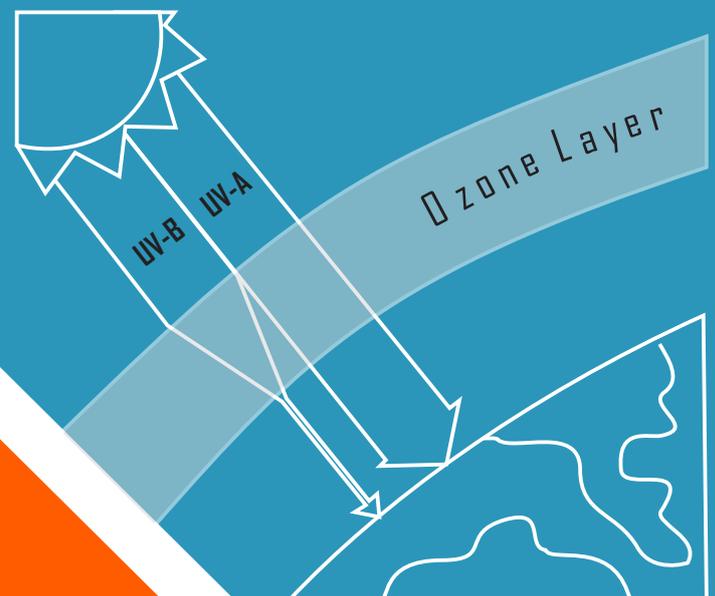
The least hazardous form of UV radiation. 5% of UV A is absorbed by the Ozone layer.

UV-B:

Harmful rays which causes sunburns, increases DNA and cellular damage. 95% of UV-B rays are absorbed by the Ozone Layer.

UV-C:

The most harmful form of UV radiation, but no measurable amount of UV-C rays reaches the Earth as the ozone layer completely absorbs it.



STEPS IN THE DEPLETION OF THE STRATOSPHERIC OZONE

1. Emissions: Halogen source gases are emitted at the Earth's surface by human activities and natural

2. Accumulation: These gases accumulate in the atmosphere and gets distributed throughout the lower atmosphere.

3. Transport: These gases then gets transported to the stratosphere by air motions.

4. Conversion: Most of this gases gets converted to reactive halogen gases.

5. Chemical Reaction: These reactive halogen gases cause chemical depletion of stratospheric ozone.

6. Removal: Air Containing reactive halogen gases returns to the troposphere and these gases are removed from air by moisture in clouds and rain.

Montreal Protocol have averted damage to human eyes and immune systems, and protected wildlife and agriculture

Halogen Source Gases/ODS

- CFCs
- Carbon Tetrachloride
- Methyl Chloride
- Halon
- HCFCs
- Mehtyl Bromide
- Methyl Chloroform

Chemical Conversion
Intense UV from the Sun

Reactive Halogen Gases

- Hydrogen Bromide
- Bromine Nitrate
- Hydrogen Chloride
- Chlorine Nitrate
- Chlorine Monoxide
- Bromine Monoxide
- Bromine atoms
- Chlorine Atoms



With the full implementation of the Protocol's provisions, the global ozone layer should return to pre-1980 levels by the middle of this century.

THORIQ IBRAHIM, MINISTER OF ENVIRONMENT AND ENERGY



Mr. Thoriq has more than 17 years experience in the field of building services engineering design, supervision & project management of construction projects and M&E building maintenance services.

Being the first Graduate Building Services Engineer in the Maldives, Mr. Thoriq has involved in designing the Building Services Systems for most of the public buildings, private buildings and tourist resorts in the Maldives during the last 17 years.

After completing Masters in Building Science Course at National University of Singapore (NUS) on Nov 2001 he joined a Singapore based international multi- disciplinary consultancy company called Black & Veatch (SEA) Ltd. He was attached as an M&E design engineer. Mr. Thoriq also gained experience on site by working as an assistant resident M&E Engineer for the upgrading of Chestnut Avenue Water Works, Singapore.

Mr. Thoriq returned to work in the Maldives on July 04. Some of the major design work he has under taken since returning to Maldives was the design of M&E services for the Dusit Thani Maldives at B. Muhdhoo, Maamigili Airport, W Maldives Resort at Fesdhu, Proposed Regent Resort in the Maldives, Proposed Renaissance Maldives, Proposed JW Marriott Maldives, Proposed Bvlgari Resort. Mr. Thoriq was also the Project Director representing Maldivian Government during the reconstruction of Houses in 9 Islands that were destroyed during the tsunami that hit Maldives in Dec 04.

Mr. Thoriq was appointed as the Minister of Environment and Energy in November 2013.

OZONE REGULATIONS



THE REGULATION

The Regulation for the Management and Control of HCFC and HCFC Blends came into effect from 1 January 2011. This regulation was formulated as a guideline to reduce and limit the import, use and sale of HCFC and HCFC blends starting from 2011 and bring a complete ban on import, sale and use of HCFC and HCFC blends by 2020.

THE QUOTA & REGISTRATION

The Ministry publishes the list of people who may import HCFCs and HCFC blends and a national annual import quota for HCFCs and HCFC blends before 31 December of every calendar year.

Sale and purchase of HCFCs and HCFC blends

The sale of HCFC and HCFC blends will only be approved after submitting the form to the Ministry

BREACH OF LAW

If anyone who import, sell and provide service using HCFCs and HCFC blends violate any tenants of this regulation, they shall be penalized.

It is estimated Montreal Protocol will have prevented potential 2 million cases of skin cancer annually by 2030.





Meet this month's Writers & Contributors.

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