

World Ozone Day and our commitments



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September 16 every year is observed as "World Ozone Day". The celebration of this day is made to pay our homage to the ozone layer, that saves our earth from the harmful ultra-violet radiation of the Sun.

The life on the Earth , depends on the energy provided by the Sun in the form of various radiations.

- Out of total energy received by the Earth, 35% will be reflected back to the space by the clouds, dust-particles and ice particles present in the atmosphere.
- 14% of the energy , which comes in the form of ultra violet radiation gets absorbed by the ozone layer, thus saving the earth from the harmful effects like over warming of the Earth or diseases like cancer
- 34% of the energy is radiated back from the Earth in the form of direct solar radiation and 17% radiated back from the Earth in the form of terrestrial radiation.

The part of the energy radiated back from the Earth unabsorbed is called "Albedo". Average Albedo ranges between 29% to 34%. Because of the artificial cover provided by the green house gases the Earth surface is unable to reflect the total energy thus gets heated. So lesser the Albedo more will be the temperature on the Earth and viceversa.

Besides this the tarnishing of ozone layer provides the way to ultra violet rays to enter in the Earth's atmosphere which can cause great destruction , catastrophies (famines ,droughts etc.) and diseases like cancer.

The fact that the density of ozone layer reduced considerably making the situation more horrified. (from 1956 to 1970 the density of the ozone layer was nearly 280 to 325 doveson which in 1994 got reduced to mere 94 doveson. The density has been on a decline since then.)

The gases which are responsible for increasing the Earth temperature artificially are called "green house gases " which includes:- carbon di-oxide, methane, chloro floro carbon (CFC), sulphur herxa-floride, nitrous oxide, perflorocarbon. These gases are called green house gases because they increase the temperature in the glass house made artificially to provide higher temperature in colder areas which in turn helps plants that are native to warmer climates, to grow in the hilly areas.

The gases like CFC, or carbon di-oxide have been used in the modern appliances like air-conditioners, refrigerators, fire extinguishers etc. So its looks like where there is more industrialisation there is greater chance of causing harm to the ozone layer.

But the reality is unbelievable and horrifying. Unbelievable because the ozone hole was discovered in the polar regions where there is negligible

industrialisation and horrifying because this reality can cause more destruction in less time. The reason behind this reality is the polar stratosphere clouds provide basis for chlorine molecules (present in the CFC) to act freely in the colder regions (as in polar regions) and in the presence of sunlight in the Antarctica region the chlorine molecules attacks on the ozone molecules (O₃) and kill them in the process. More damaging fact is this molecule could have a life of 45 years to 250 years. This is also causing the glaciers to melt.

The recent report of the Inter-governmental Panel On Climate Change (IPCC) states that Earth's temperature has increased by 0.74% in the past hundred years. Its effects are disastrous like:

- Unexpected increase in the sea level that can submerge low lying regions including UK
- The melting of glaciers like Himadri in India, which will first result in floods and then a long lasting drought
- Exposure to ultra-violet rays can up the risk of cancers
- Unexpected climatic changes

USA which pretends itself as a global leader, is also the biggest producer of these harmful green-house gases (nearly 30%) but hasn't signed the "Kyoto Protocol" - a legally binding global treaty for reducing the emission of these gases.

To efficiently deal with this current fearsome situation, we have to take stringent steps. Some are:

1. Save trees as they save life by inhaling harmful gas carbon-di-oxide.
2. more sustainable behaviour in our daily lives like saving energy at every step.

3. To use technologies which are environment-friendly, like bio-fertilizers.
4. The expansion of carbon trading by the developed countries from developing countries.
5. Globalize the technologies to the under developed nations that supports the climate.

Let us act now before it is too late.

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editor

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