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OZONE LAYER DEPLETION AND IT'S ENVIRONMENTAL IMPACTS

CASE STUDY/INSIGHT

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The ozone layer is a thin layer of the Earth's stratosphere that absorbs almost all of the sun's harmful ultraviolet (UV) radiation. It has the potential to absorb around 97-99% of the harmful UV radiations coming from the sun that can damage life on earth. If the ozone layer was absent, millions of people would develop diseases and may have weakened immune systems.

Ozone layer depletion is the thinning of the ozone layer present in the atmosphere. This happens when the chlorine and bromine atoms in the atmosphere come in contact with ozone and destroy the ozone molecules. One chlorine can destroy 100,000 molecules of ozone. Some compounds release chlorine and bromine on exposure to high UV light, which then contributes to the ozone layer depletion. Such compounds are known as Ozone Depleting Substances (ODS). The main ODS are chlorofluorocarbons, carbon tetrachloride, methyl bromide and hydro chlorofluorocarbons.

The depletion of Ozone layer has detrimental effect on the ecosystem. Human beings will be directly exposed to the harmful UV radiation from the sun due to the depletion of the ozone layer which will cause serious health issues such as skin diseases, cancer, sunburns, cataract, quick ageing and a weak immune system. Similarly, strong UV rays may lead to minimal growth, flowering and photosynthesis in plants and skin and eye cancer in animals.

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Various programmes have been launched by the United Nations and country governments to prevent the ozone depletion. The Montreal Protocol, is a first global agreement made by the 46 countries to protect the ozone layer by phasing out the production and consumption of ODS and minimizing their concentration in the atmosphere. On October 15, 2016, signatory countries to the Montreal Protocol adopted the Kigali Amendment to reduce the production and consumption of hydro fluorocarbons (HFCs) worldwide and aimed to create market certainty to new technology that is better for the environment, without compromising the performance. These HFCs were used as replacements for a batch of ozone-depleting substances eliminated by the original Montreal Protocol. Although they do not deplete the ozone layer, they are known to be powerful greenhouse gases and, thus, contributors to climate change