



## 29th World Ozone Day

**For Prelims:** [World Ozone Day](#), Vienna Convention, [Montreal Protocol](#), Ozone Depleting Substances, [ICAP](#), Tropospheric Ozone, Kigali Amendment.

**For Mains:** India's Achievements in Montreal Protocol Implementation

**Source:** [PIB](#)

### Why in News?

The **Ministry of Environment, Forest and Climate Change (MoEF&CC)** recently marked the **29<sup>th</sup> World Ozone Day**, an annual event dedicated to raising awareness about the **critical issue of ozone layer depletion** and the global efforts to combat it.

### What is World Ozone Day?

#### ▪ About Ozone and Related Convention:

- The **ozone layer**, located in the [stratosphere](#) between **10 and 40 kilometers above Earth's surface**, shields us from harmful UV radiation.
  - This protective layer, known as **stratospheric ozone or good ozone**, prevents **adverse health effects like cataracts and skin cancer** and safeguards agriculture, forestry, and marine life.
  - However, **man-made Ozone Depleting Substances** have caused **ozone depletion in the stratosphere**.
- The international community recognized the need for action, **leading to the Vienna Convention in 1985** and the **subsequent Montreal Protocol in 1987**.

#### ▪ World Ozone Day:

- **World Ozone Day** is observed on the **16<sup>th</sup> of September** each year, commemorates the signing of the [Montreal Protocol in 1987](#), a significant international treaty aimed at phasing out the production and consumption of Ozone Depleting Substances (ODS).
  - **Theme 2023:** "Montreal Protocol: Fixing the Ozone Layer and Reducing Climate Change"

### What are India's Achievements in Montreal Protocol Implementation?

- **India, a signatory since June 1992**, has made significant strides in implementing the Montreal Protocol:
  - **Phase-out Success:** India successfully phased out **ODS like Chlorofluorocarbons, Carbon Tetrachloride, Halons, Methyl Bromide, and Methyl Chloroform** for controlled uses by **1<sup>st</sup> January, 2010**.
  - **Hydrochlorofluorocarbons (HCFCs) Phase-out:** HCFCs are currently being phased out,

with Stage-I completed from 2012 to 2016 and **Stage-II in progress until the end of 2024.**

- **Achieving Reduction Targets:** India exceeded its target, achieving a **44% reduction in HCFCs by 1st January, 2020**, compared to the baseline's 35%.
- **The India Cooling Action Plan (ICAP):** Launched in **March 2019**, [ICAP](#) focuses on **reducing cooling demand, transitioning to alternative refrigerants**, enhancing energy efficiency, and technological advancement.
  - It aims to maximize socio-economic and environmental benefits through synergies with existing government programs.

## Note

The **inclusion of [Hydrofluorocarbons \(HFCs\)](#) in the Montreal Protocol led to the Kigali Amendment**, with India ratifying it in September 2021. India's phasedown of HFC production and consumption, **starting from 2032**, aligns with the amendment's goals.

## What is Tropospheric Ozone?

- **Tropospheric (or ground-level) ozone or bad ozone** is a **short-lived climate pollutant** that remains in the **atmosphere for only hours to weeks.**
  - It **does not have any direct emissions sources**, rather it is a compound formed by the interaction of sunlight with **volatile organic compounds (VOCs)** – including [methane](#) – and **nitrogen oxides (NOX)** emitted largely by human activities.
- Strategies to prevent the formation of tropospheric ozone are primarily based on **methane reductions and cutting the levels of atmospheric pollution arising from cars, power plants and other sources.**
  - The **Gothenburg Protocol was established in 1999 to address pollutants that cause acidification and ground-level ozone.**
    - It sets limits on air pollutants including **sulfur dioxide, nitrogen oxide, ammonia and volatile organic compounds** that are hazardous to human health and the environment.
    - It was updated in **2012 to include particulate matter (PM) and black carbon** (as a component of PM) and to **include new commitments for 2020.**

## UPSC Civil Services Examination, Previous Year Question (PYQ)

**Q1. Which one of the following is associated with the issue of control and phasing out of the use of ozone depleting substances? (2015)**

- (a) Bretton Woods Conference
- (b) Montreal Protocol
- (c) Kyoto Protocol
- (d) Nagoya Protocol

**Ans: (b)**

**Q2. Consider the following statements: (2012)**

1. Chlorofluorocarbons, known as ozone-depleting substances, are used
2. in the production of plastic foams
3. in the production of tubeless tyres
4. in cleaning certain electronic components
5. as pressurizing agents in aerosol cans

**Which of the statements given above is/are correct?**

- (a) 1, 2 and 3 only
- (b) 4 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

**Ans: (c)**

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