



Non CO2 Pollutants

For Prelims: Pollution, Global warming, IPCC, COP26, CO₂ and Non-CO₂ pollutants, Decarbonation

For Mains: Pollution, Global warming, IPCC, COP26, Decarbonisation, Environmental degradation

Why in News?

According to a new study, world needs to target both non-CO₂ pollutants and CO₂ pollutants to achieve climate targets.

- Global temperatures are likely to exceed 1.5 degrees Celsius over pre-industrial levels by 2035 and 2°C by 2050 if the focus is merely on decarbonisation efforts.

What are Non-CO₂ Pollutants?

- **About:** The Non-CO₂ Pollutants include **methane, black carbon, hydrofluorocarbons (HFC), tropospheric ozone and nitrous oxide.**
 - **Methane:** Methane is a potent greenhouse gas. It contributes to the formation of ozone.
 - **Black Carbon:** Black carbon is a **major component of PM2.5** and a potent warming agent in the atmosphere, and contributes to regional environmental disruption and accelerates glacier melting.
 - **Hydrofluorocarbons (HFC):** Hydrofluorocarbons (HFCs) are greenhouse gases (GHGs) commonly used in refrigeration, air-conditioning (AC), building insulation, fire extinguishing systems, and aerosols.
 - **Tropospheric ozone** is formed by the interaction of sunlight, particularly ultraviolet light, **with hydrocarbons and nitrogen oxides**, which are emitted by automobile tailpipes and smokestacks.
 - **Nitrous oxide:** **Nitrous oxide** is a greenhouse gas which is 300 times more potent than carbon dioxide (CO₂). A major proportion of the N₂O emissions came from the agricultural sector.
- **Sources:** These gases are emitted from a broad range of sectors and sources, namely:
 - Methane is mostly emitted from extraction, distribution and combustion of fossil fuel, industrial processes, enteric fermentation, rice cultivation, manure management, other agricultural sources, and the waste sector.
 - N₂O is mostly emitted from industrial processes, agricultural soils, manure management and wastewater.
 - F-gases are mostly emitted from industrial processes.
- **Contribution in Global Warming:** The share of non-CO₂ pollutants contributing to global warming is almost as much as carbon dioxide.
 - IPCC WGI reports have shown that the contribution of **CO₂ and non-CO₂ greenhouse** gases to global heating was 52-57% and 43-48 %, respectively.

What is the Issue?

- The **Working Group III report of the [Intergovernmental Panel for Climate Change \(IPCC\)](#)** deals with mitigating climate change, focuses on **CO₂** and a few greenhouse gasses, but **excludes other non- CO₂ pollutants**.
- Warming from non- CO₂ greenhouse gasses and black carbon soot was close to 80%.
- Without tackling non- CO₂ pollutants, these gasses will continue to trap heat and keep the warming above 1.5°C, as there are not many cooling aerosols to mask the warming.

What are the Recent Initiatives to Tackle Non-CO₂ pollutants?

- The **[Glasgow Climate Pact](#)**, an agreement signed during the 2021 United Nations Climate Change Conference (CoP26), recognised the need to consider further actions to reduce non-carbon dioxide greenhouse gas emissions, including methane, by 2030.
 - **[Global Methane Pledge](#)**: The US and the European Union launched the Global Methane Pledge at the COP26 in Glasgow. More than 100 countries have committed to cut methane emissions by 30% by 2030.
 - India **has not signed up** for the Global Methane Pledge
- **[Indian Council of Agricultural Research \(ICAR\)](#)** has developed an anti-methanogenic feed supplement '**Harit Dhara**' (HD), which can cut down cattle methane emissions by 17-20%.

Way Forward

- Uncertainties around measuring non-CO₂ pollutants such as methane and aerosols need to be addressed. The knowledge about their sources and mitigation methods needs to become mainstream.
- The study also raises other questions. Speaking of methane alone, there is also the political question of who reduces methane: Coal-consuming and rice-producing countries in the Global South, or oil and gas-consuming countries in the North. A global agreement for this is required.

UPSC Civil Services Examination, Previous Year Question

Q. Which of the following are some important pollutants released by steel industry in India? (2014)

1. Oxides of sulphur
2. Oxides of nitrogen
3. Carbon monoxide
4. Carbon dioxide

Select the correct answer using the code given below:

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

Ans: (d)

Exp:

- Steel industry creates pollution as it uses coal and Iron ore whose combustion releases various Polycyclic Aromatic Hydrocarbons (PAH) compounds and oxides into the air.
- In steel furnace, coke reacts with iron ore, releasing iron and generating major environmental pollutants.
- The pollutants released from steel producing units are:
 - Carbon Monoxide (CO), hence, 3 is correct.
 - Carbon Dioxide (CO₂), hence, 4 is correct.

- Oxides of Sulphur (SO_x), hence, 1 is correct.
 - Oxides of Nitrogen (NO_x), hence, 2 is correct.
 - PM 2.5,
 - Waste Water,
 - Hazardous waste,
 - Solid waste.
- However, technological interventions in the form of air filters, water filters and other water saving, power saving and closed container can reduce emissions. Therefore, option (d) is the correct answer.

Source: DTE

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