



## Global Methane Pledge: GMCCA Forum

**For Prelims:** Climate and Clean Air Coalition, Global Methane Initiative, Methane, Greenhouse Gases, India Greenhouse Gas Program.

**For Mains:** Global Methane Pledge and Concern Related to Methane.

### Why in News?

Global Methane, Climate and Clean Air (GMCCA) Forum 2022 is being held in Washington, DC, USA to discuss **opportunities to protect the climate** and improve air quality with a special focus on [methane](#) by adhering to the [Global Methane Pledge](#).

### What is the Agenda of the Forum?

- The Forum is a joint event sponsored by the **Global Methane Initiative (GMI)** and the **UNEP-convened [Climate and Clean Air Coalition \(CCAC\)](#)**.
  - **GMI** is an **international public-private partnership** focused on reducing barriers to the **recovery and use of methane** as a clean energy source. It provides **technical support to deploy methane-to-energy projects** around the world that enable Partner Countries to launch methane recovery and use projects.
  - India is a **partner country of GMI**.
- High-level plenary sessions will be held on **global efforts to reduce methane and other short-lived climate pollutants**.
- The forum will outline **policy, political and scientific arguments for global ambition on methane action**. They also **aim to define a path forward**.

### What is the Global Methane Pledge?

- **About:**
  - The Global Methane Pledge was launched at [COP \(Conference of Parties\) 26](#) in **November 2021 to catalyse action to reduce methane emissions**.
  - It was led by the **United States and the European Union**.
  - It has 111 country participants who together are **responsible for 45% of global human-caused methane emissions**.
    - India, which is not a part of the Global Methane Pledge, is **among the top five methane emitters globally**. Most emissions can be traced back to agriculture.
  - By joining the Pledge, **countries commit to work together in order to collectively reduce methane emissions** by at least 30% below 2020 levels by 2030.
- **Concern:**
  - Methane has contributed to about **one-third of the current anthropogenic greenhouse gas-driven warming**.
  - Methane enters the atmosphere due to **leaks in oil and gas industries**, rearing livestock and the decomposition of waste in landfills.
  - Currently, only 2 % of global climate finance goes to methane.

- If the Global Methane Pledge is not adhered to, Methane emissions will **likely increase by 13 % by 2030.**
- **Top twelve emitters of methane with breakdown by sector, 2021:**

## What is Methane?

- **About:**
  - Methane is a gas that is **found in small quantities in Earth's atmosphere.** Methane is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms (CH<sub>4</sub>). Methane is **powerful [greenhouse gas](#).** It is flammable, and is used as a fuel worldwide.
  - Methane is produced by **the breakdown or decay of organic material and can be introduced into the atmosphere** by either natural processes – such as the decay of plant material in wetlands, the seepage of gas from underground deposits or the digestion of food by **cattle - or human activities - such as oil and gas production, rice farming or waste management.**
- **Impact:**
  - Methane is **84 times more potent than carbon and doesn't last** as long in the atmosphere before it breaks down. This makes it a critical target for reducing global warming more quickly while simultaneously working to reduce other greenhouse gases.
  - It is **responsible for creating ground-level [ozone](#),** a dangerous air pollutant.

## What are the Indian Initiatives to Combat Air Pollution?

- [Harit Dhara.](#)
- [India Greenhouse Gas Program.](#)
- [National Action Plan on Climate Change](#)
- [Bharat Stage-IV \(BS-IV\) to Bharat Stage-VI \(BS-VI\) emission norms.](#)

## Way Forward

- Mitigating methane and other short-lived climate pollutants **is essential to achieving decarbonisation goals.**
- Developing national **action plans or strategies that identify specific actions to encourage emissions reduction,** define timelines and assess needed resources;
- Proposing new **policies or regulations aimed at methane emissions,** including measures like leak detection and repair programmes, technology and equipment standards, limits on flaring and venting, and measurement and reporting requirements;
- Adopting national reduction targets, whether economy-wide or sectoral, **to establish a political commitment, signal expectations and enable better planning.**
- Participating in a super-emitter rapid response system based on satellite detections, which would establish communication channels to ensure **large emissions events are addressed in a timely manner.**
- Directing funding towards research and development on abatement and measurement technologies and support for **verifiable mitigation projects through grants,** targeted finance or other incentives.

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

**Q. Which of the following statements is/are correct about the deposits of 'methane hydrate'? (2019)**

1. Global warming might trigger the release of methane gas from these deposits.
2. Large deposits of 'methane hydrate' are found in Arctic Tundra and under the sea floor.
3. Methane in atmosphere oxidizes to carbon dioxide after a decade or two.

**Select the correct answer using the code given below.**

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

**Ans: (d)**

**Exp:**

- Methane hydrate is a crystalline solid that consists of a methane molecule surrounded by a cage of interlocking water molecules. It is an "ice" that only occurs naturally in subsurface deposits where temperature and pressure conditions are favourable for its formation.
- Regions with suitable temperature and pressure conditions for the formation and stability of methane hydrate- sediment and sedimentary rock units below the Arctic permafrost; sedimentary deposits along continental margins; deep-water sediments of inland lakes and seas; and, under Antarctic ice. **Hence, statement 2 is correct.**
- Methane hydrates, the sensitive sediments, can rapidly dissociate with an increase in temperature or a decrease in pressure. The dissociation produces free methane and water, which can be triggered by global warming. **Hence, statement 1 is correct.**
- Methane is removed from the atmosphere in about 9 to 12-year period by oxidation reaction where it is converted into Carbon Dioxide. **Hence, statement 3 is correct.**
- **Therefore, option (d) is the correct answer.**

---

**Q. Consider the following: (2019)**

1. Carbon monoxide
2. Methane
3. Ozone
4. Sulphur dioxide

**Which of the above are released into atmosphere due to the burning of crop/biomass residue?**

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

**Ans: (d)**

**Source: DTE**