



Increased Emissions of N₂O

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Why in News

According to a recent research paper, **human emissions of nitrous oxide (N₂O)** have **increased by 30% between 1980 and 2016.**

The research was conducted through an international collaboration between the **International Nitrogen Initiative (INI)** and the **Global Carbon Project of Future Earth**, a partner of the **World Climate Research Programme.**

Key Points

- **Nitrous Oxide (N₂O):**
 - It is a **greenhouse gas** (GHG) **300 times more potent than carbon dioxide (CO₂).**
 - It has the **third-highest concentration, after CO₂ and methane (CH₄),** in Earth's atmosphere among GHGs responsible for global warming.
 - N₂O is also the **only remaining threat to the ozone (O₃) layer,** for it accumulates in the atmosphere over a long period of time, just like CO₂.
 - It can **live in the atmosphere for up to 125 years.**
 - Its global concentration levels have increased from **270 parts per billion (ppb)** in 1750 to **331 ppb in 2018,** a jump of 20%.

The growth has been the **quickest in the past five decades because of human emissions.**

- **Research and the Study:**

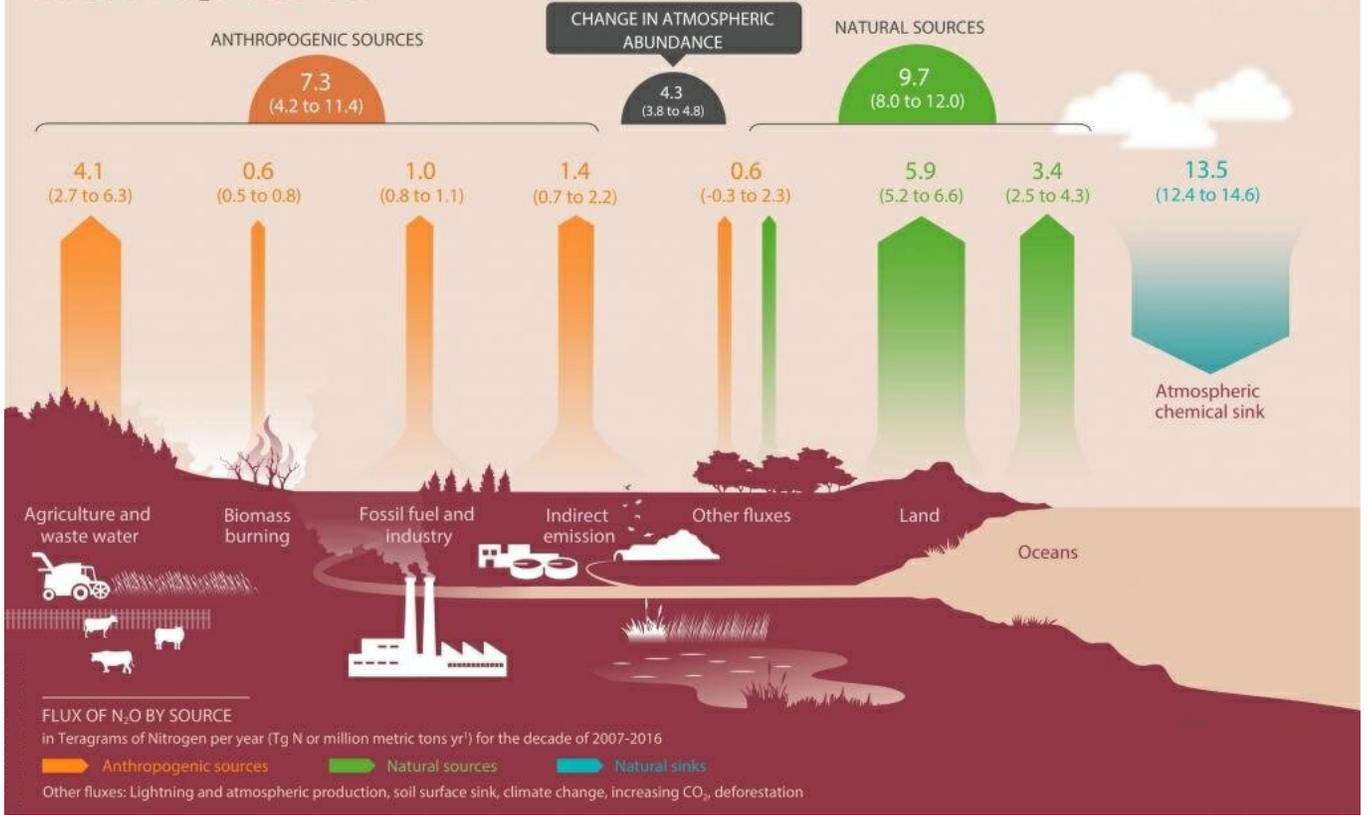
- This is the **most comprehensive study** of global N₂O emissions ever published, as it **combines both natural and anthropogenic** (man-made) sources.
- The study found that **43% of the total emissions came from human sources** and **most N₂O emissions came from emerging countries** like India, China and Brazil.
- Increase in its emissions means that the **climatic burden on the atmosphere is increasing from non-carbon sources** as well, while the major focus of global climate change negotiations is currently centred on carbon, its emissions and mitigation.
- It also highlighted the dichotomy of the **climate crisis and global food security**.
 - A major proportion of the N₂O emissions in the last four decades came **from the agricultural sector**, mainly because of the use of **nitrogen-based fertilisers**.
 - The **growing demand** for food and feed for animals will **further increase its global emissions**, leading to a direct **conflict between the way countries are feeding people and stabilising the climate**.

- **Suggestions:**

- There are **well-established practices and technologies** like **crop and manure management**, the **use of bio-fertilisers**, to mitigate N₂O emissions which **need to be utilised to their full extent**.
- **Revised industrial and agricultural policies** at the global level will reduce such emissions considerably.
- **Reducing GHGs emissions** will also have the **co-benefits** of reduced **air and water pollution**.
- There is a **need to bring the non-carbon sources under the major global climate change negotiations**.
- It is possible to slow down N₂O emissions if countries implement the **United Nations Global Campaign on Sustainable Nitrogen Management, 2019** held in **Colombo, Sri Lanka**.

The focus of the event was to finalise the **Colombo Declaration**, a follow up **on the UNEA 4 Resolution on Sustainable Nitrogen Management** which aims to further the dialogue on Nitrogen management.

GLOBAL N₂O BUDGET



Source: DTE