



# Increased Emissions of N<sub>2</sub>O

## Why in News

According to a recent research paper, **human emissions of [nitrous oxide](#) (N<sub>2</sub>O) 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 (N<sub>2</sub>O):

- It is a **[greenhouse gas](#)** (GHG) **300 times more potent than carbon dioxide** (CO<sub>2</sub>).
- It has the **third-highest concentration, after CO<sub>2</sub> and [methane](#) (CH<sub>4</sub>)**, in Earth's atmosphere among GHGs responsible for global warming.
- N<sub>2</sub>O is also the **only remaining threat to the [ozone](#) (O<sub>3</sub>) layer**, for it accumulates in the atmosphere over a long period of time, just like CO<sub>2</sub>.
- 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 N<sub>2</sub>O 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 N<sub>2</sub>O 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](#)**.

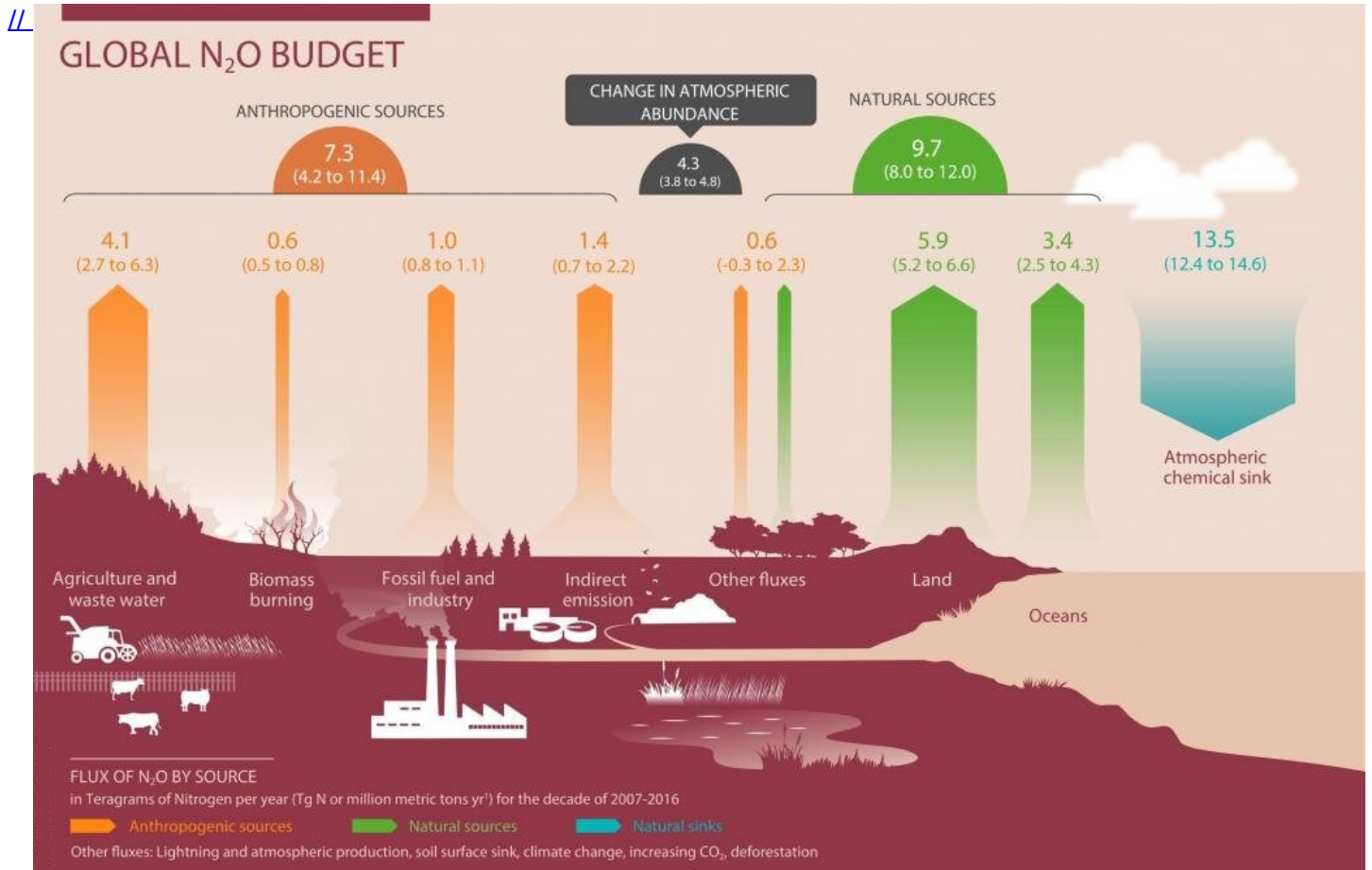
- A major proportion of the N<sub>2</sub>O emissions in the last four decades came **from the agricultural sector**, mainly because of the use of **[nitrogen-based fertilisers](#)**.
- The **growing demand** for food and feed for animals will **further increase its global emissions**, leading to a direct **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 N<sub>2</sub>O 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 N<sub>2</sub>O 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.



Source: DTE

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