Increased Emissions of N2O

Why in News

According to a recent research paper, **human emissions of** nitrous oxide (N_2O) 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_2O):**
  - It is a **greenhouse gas** (GHG) **300 times more potent than carbon dioxide** (CO_2).
  - It has the **third-highest concentration, after CO_2 and** methane (CH_4), in Earth's atmosphere among GHGs responsible for global warming.
  - N_2O is also the **only remaining threat to the** ozone (O_3) **layer,** for it accumulates in the atmosphere over a long period of time, just like CO_2.
  - 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_2O 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_2O 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_2O 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_2O 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_2O 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.

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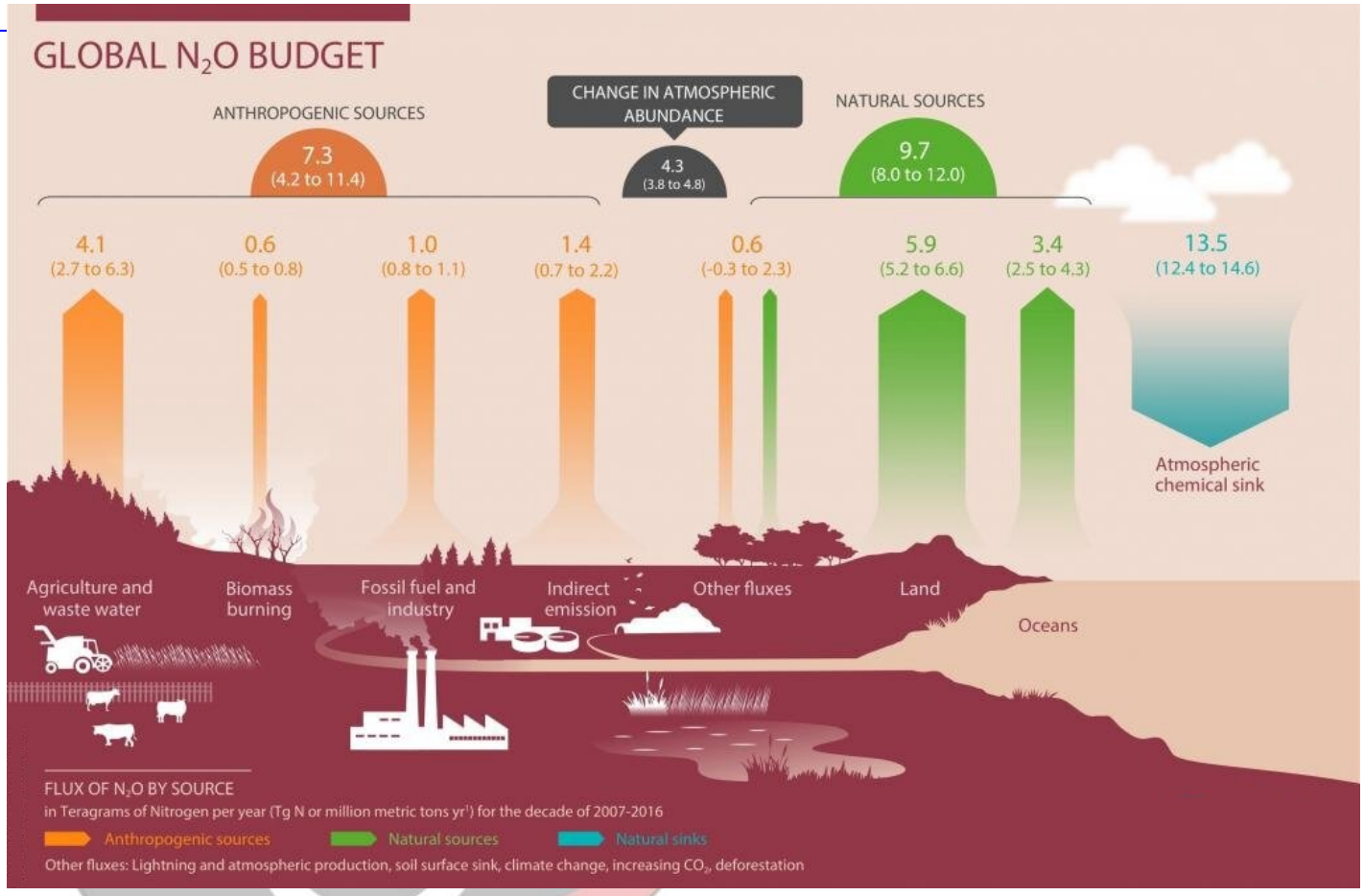

Source: DTE