



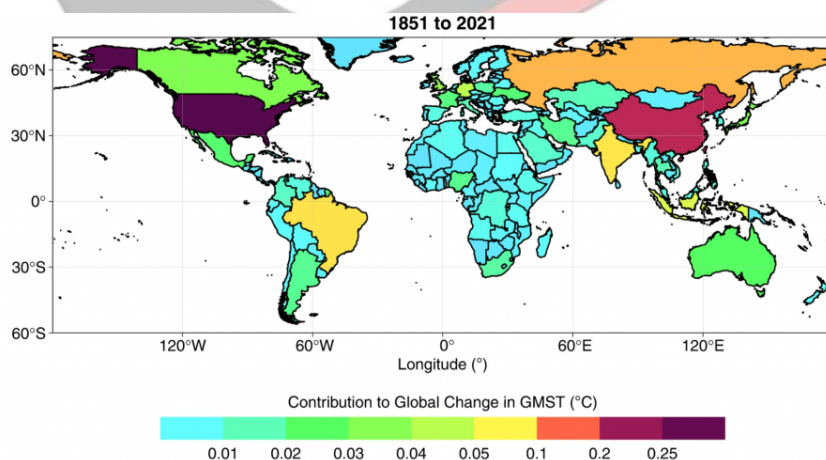
# India Ranks Fifth in National Contribution to Warming

## Why in News?

Recently, the research published in the journal "Scientific Data" ranked **India fifth among the top 10 contributors to [global warming](#)**.

## What are the Key Highlights of the Report?

- **Top Contributor:**
  - The United States topped the list with its emissions causing 0.28°C (17.3%) of rise in temperature.
  - China stood second and Russia took third place.
- **India's Position:**
  - Since 2005, **India climbed to the fifth spot** from the 10<sup>th</sup>.
  - India is responsible for 0.08 degrees Celsius of warming from the 1850s through 2021.
  - India's emissions of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) from 1851-2021 have resulted in 0.04°C, 0.03°C and 0.006°C of global warming over pre-industrial levels, respectively.
- **Cause of Warming:**
  - The land-use and forestry sector is a significant contributor in half the countries.
  - CO<sub>2</sub> emissions from [land use, land-use change and forestry \(LULUCF\)](#) in Brazil led to **0.04°C of warming**.
  - Also, the LULUCF sector accounted for 38% of the total warming from CH<sub>4</sub> emissions and 72% from N<sub>2</sub>O emissions between 1851-2021.
  - The report highlighted emissions linked to historical deforestation and agricultural expansion.
  - Fossil fuel remains the biggest contributor. Since 1992, the additional warming caused by global fossil fuel emissions has been **over four times greater than the additional warming caused by land-use change**.



## What are Greenhouse Gases?

- A **greenhouse gas** (GHG) is a gas that absorbs and emits radiant energy at thermal infrared wavelengths, causing the greenhouse effect.
- The primary GHGs in Earth's atmosphere are water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>).

### UPSC Civil Services Examination, Previous Year Questions (PYQs)

**Q. In the context of which of the following do some scientists suggest the use of cirrus cloud thinning technique and the injection of sulphate aerosol into stratosphere? (2019)**

- (a) Creating the artificial rains in some regions
- (b) Reducing the frequency and intensity of tropical cyclones
- (c) Reducing the adverse effects of solar wind on the Earth
- (d) Reducing the global warming

**Ans: (d)**

**Source: DTE**

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