

UPSC Daily Current Affairs| Prelimbits 21-07-2025

Complex Greenhouse Gas dynamics in the Central Himalayas

Prelims - Current events of National & International importance and General issues on Environmental ecology, Biodiversity & climate change

Why in News?

Recently, scientists revealed the data on Greenhouse Gas (GHG) emissions around the Himalayan region.

- **Data gathered by** - Aryabhata Research Institute of Observational Sciences (ARIES), an autonomous research institute under the Department of Science & Technology (DST).
- **Data collection site** - High-altitude research site in Nainital for over 5 years.
- **Key findings** - Greenhouse gas concentrations in the Central Himalayas are generally higher than those at other remote background sites.
- However, these levels remain lower than those typically found in urban and semi-urban settings.
- **Contributing Factors** - Natural processes and human activities together shape greenhouse gases.
- **Key Green-house gases** - Carbon dioxide (CO₂) and methane (CH₄), and carbon monoxide (CO) in the Central Himalayan region.
- **Daily Variations** - Carbon dioxide reaches its lowest levels during daylight hours due to active photosynthesis.
- Methane and carbon monoxide tend to peak during the day as mountain winds transport pollutants upward from lower elevations.
- **Seasonal Variations** - Carbon dioxide concentrations rise in spring, coinciding with increased biomass burning and limited vegetation cover.
- Methane levels are highest in autumn, likely linked to agricultural activities such as rice cultivation.
- Carbon monoxide peaks in late spring, suggesting a strong influence from regional pollution transport during this period.
- **Long-term trends** - The trends point to a steady rise in both carbon dioxide (2.66 ppm per year) and methane (9.53 ppb per year).
- These trends are even higher than those at **Mauna Loa (a background site)**, underscoring the growing impact of anthropogenic emissions in the region.
- In contrast, carbon monoxide shows a gradual decline (3.15 ppb per year), possibly reflecting improvements in combustion efficiency or changes in regional emission sources.

- **Significance** - These comprehensive, high-resolution observations provide an essential baseline for validating satellite data, refining emissions inventories and improving atmospheric models.
- To disentangle the effects of biospheric uptake, regional emissions, and complex meteorological patterns that shape the region's air quality and climate.

Reference

[PIB| Complex Greenhouse Gas dynamics in the Central Himalayas](#)

Grandala Bird

Prelims - Current events of National & International importance | General issues on Environmental ecology, Bio-diversity & climate change.

Why in News?

Recently, a rare 'Grandala' Electric-Blue Bird was spotted in Sainj Valley, Himachal Pradesh.

- Grandala is the only species within the genus Grandala.
- **Scientific name** - Grandala coelicolor.
- **Family** - Turdidae.
- **Size** - Medium-sized, measuring approximately 25-27 cm in length and weighing between 38-52 grams.
- **Plumage** - Males are a deep blue with black wings, while females are brownish with white stripes and a grey-blue rump.
- **Distinctive Features** - Males have a black throat patch. In flight, a white patch on the wing covers is visible.
- It has a clear sexual dichromatism or easy distinction between male and female birds.
- **Behaviour** - They are social and always seen in flocks.

The sight of a flock of Grandalas in flight has been described as a "hypnotic effect" and compared to a tree "suddenly in bloom" when they alight on bare branches.

- **Habitat** - They prefer alpine and subalpine regions, including rocky outcrops, scrublands, and alpine meadows at elevations typically between 3,000 to 5,000 meters.
- They also inhabit fruit orchards and descend to lower elevations during winter.
- **Distribution** - Found primarily in the low to mid-altitudes of the Himalayas, including areas within India (Kashmir to Arunachal Pradesh), Nepal, Bhutan, Myanmar, Tibet, and other parts of China.
- **Primary Diet** - Grandalas are arboreal insectivores, feeding on various insects, larvae,

nymphs, caterpillars, moths, and seeds.

- **Breeding** - Building nests on cliff faces with materials like sticks, moss, and feathers.
- **Conservation status** - IUCN - Least Concern.



Reference

1. [TIMESNOW| Rare Grandala species spotted in the Himalayas](#)
2. [TOI| Meet the electric blue bird of the Himalayas](#)

India's first Tribal Genome Project

Prelims: Current events of national and international importance | Science and Technology

Why in News?

Gujarat has become the first Indian State to launch a genome sequencing initiative focused exclusively on tribal communities.

- **Aim** - To improve healthcare for tribal communities by creating a dedicated genomic database.
- **Title** - "Creation of Reference Genome Database for Tribal Population in Gujarat".
- It is to sequence the genomes of 2,000 people belonging to tribal communities across

17 districts in the State.

- **Implementation agency** - Gujarat Biotechnology Research Centre (GBRC).
- **Funding** - Part of the 2025-26 State budget.
- **Detecting genetic disorders** - The initiative will focus on early detection and targeted treatment of genetic disorders such as sickle cell anaemia, thalassaemia, and certain hereditary cancers.
- **Facilitate personalized medicine** - By understanding the specific genetic variations within these communities, the project aims to enable early diagnosis and targeted treatment of diseases.
- **Bridge the gap between traditional knowledge and modern science** - The initiative seeks to integrate traditional knowledge with advancements in genomic research to improve tribal health.
- **Create a reference genome database** - The project will build a comprehensive repository of genetic markers and data specific to India's diverse tribal populations, which can be used for future research and public health planning.

Reference

[The Hindu| India's first Tribal Genome Project](#)

WHO's Policy Shift Against Tobacco Harm Reduction

Prelims: Current Events of National and International Importance

Why in News?

WHO's recent shift opposes tobacco harm reduction, deviating from earlier endorsements of safer alternatives, not only contradicts decades of evidence but 'disproportionately harms countries like India.

- **Earlier framework** - The World Health Organization (WHO) had previously balanced prevention, cessation, and harm reduction, recognizing benefits from alternatives like e-cigarettes.
- **Present WHO recommendation** - The WHO now strongly prioritizes a "cessation-only" approach, urging that people quit all forms of tobacco and nicotine use rather than transition to safer alternatives.
- **CAPHRA Objection** - The Coalition of Asia Pacific Tobacco Harm Reduction Advocates (CAPHRA) flags the significant risks, especially in the Indian context.

CHAPRA

- It is an alliance between the Tobacco Harm Reduction Advocates and their respective organizations in the Asia Pacific Region.
- **Aim** - To educate, advocate and represent the right of adult alternative nicotine consumers to access and use of products that reduce harm from tobacco use.

- CHAPRA recently released a “white paper” noting that *Nicotine is not what causes cancer or heart disease. It's the **toxic smoke from burning tobacco that kills.***
- **Disproportionate impact** - CAPHRA argues that a prohibitionist approach will disproportionately harm countries like India, with high smoking rates and diverse tobacco use.
- **E-cigarettes and other ENDS** - WHO's stance on electronic nicotine delivery systems (ENDS) is a major point of contention.
- While some studies suggest they are less harmful than smoking, WHO remains cautious and concerned about their potential risks.
- **Gateway effect** - The concern that e-cigarettes may lead to smoking remains a significant factor in the WHO's approach.
- **Industry influence** - Some critics suggest that the tobacco industry has exploited the concept of harm reduction to promote its products.

Concerns

- **Usage diversity** - Over 200 million use smokeless tobacco, and millions smoke bidis; informal networks dominate the market.
- **Economic lifeline** - The tobacco sector maintains around 45 million jobs, many belonging to farmers, small businesses, and rural women.
- **Vulnerable Groups** - The policy shift risks harming the most economically and socially vulnerable populations.

Reference

[The Hindu| WHO's Policy Shift Against Tobacco Harm Reduction](#)