

UPSC Daily Current Affairs| Prelim Bits 13-01-2025

Nitrogen Contamination in Groundwater

An assessment of India's groundwater by the Central Ground Water Board (CGWB) found that several States are grappling with a serious problem of nitrate contamination.

- **Concerns** - The number of districts with excessive nitrate in their groundwater rose from 359 in 2017 to 440 in 2023.
- Nearly 56% of India's districts having excessive nitrate in ground water, defined as having more than 45 mg/l (milligram per litre).
- **Nitrogen in groundwater** - Although nitrate is the main form in which nitrogen occurs in groundwater, dissolved nitrogen also occurs in the form of
 - Ammonium (NH_4^+)
 - Ammonia (NH_3)
 - Nitrite (NO_2^-)
 - Nitrogen (N_2)
 - Nitrous oxide (N_2O)
 - Organic nitrogen.
- **Vulnerable areas** - Rajasthan, Karnataka and Tamil Nadu.
- Maharashtra, Telangana, Andhra Pradesh and Madhya Pradesh also show notable levels of nitrate contamination.
- **Impact human health** - It leads to methemoglobinemia, or a reduced ability of red blood cells to carry oxygen.
- **Impact environment** - Once the nitrates in the groundwater rise to the surface and become part of lakes & ponds, algal blooms emerge.

Other Major chemical contaminants of Groundwater

- **Contaminants** - Arsenic, iron, fluoride and uranium.
- **Fluoride** - It exceeds the permissible limit in Rajasthan, Haryana, Karnataka, Andhra Pradesh and Telangana.
- **Uranium** - It exceeds 100 ppb (parts per billion) in Rajasthan and Punjab.

India's degree of groundwater extraction is 60.4%, or roughly the same as it has been through the years since 2009. About 73% of the blocks are in the 'safe' zone, meaning that they are replenished enough to compensate for water drawn out.

Piezometers measure groundwater levels and transmit the information digitally to a centralised location.

Reference

Related News – [Groundwater Depletion in India](#)

Global Importance of Greenland

US President-elect Donald Trump has expressed interest in acquiring Greenland.

- **Greenland** – It is world's largest island.
- It is a semiautonomous territory of Denmark, a longtime U.S. ally and a founding member of NATO.



- **Environmental importance** – It holds enough ice that if it all melts, the world's seas would rise by 7.4 meters.
- Melting of ice would reshape coastlines across the globe and potentially shift weather patterns.
- It plays a role in the dramatic freeze that two-thirds of the United States is currently experiencing.

*In 2012, weather patterns over Greenland helped steer **Superstorm Sandy** into New York and New Jersey in the United States.*

- It also changes patterns in the jet stream, which brings storms across the globe and dictates daily weather.
- **Role in AMOC Ocean current** – It serves as the engine & on/off switch for Atlantic Meridional Overturning Circulation (AMOC) that influences Earth's climate like hurricane and winter storms.
- **Economic importance** – It has valuable rare earth minerals needed for

telecommunications, as well as uranium, billions of untapped barrels of oil and a vast supply of natural gas.

- **Concerns** - It is warming 4 times faster than the rest of the globe.
- Since 1992, Greenland has lost about 182 billion tons of ice each year, with losses hitting 489 billion tons a year in 2019.
- AMOC is slowing down because more fresh water is being dumped into the ocean by melting ice in Greenland.
- It is also changing color as it melts from the white of ice, which reflects sunlight, heat and energy away from the planet, to the blue and green of the ocean and land, which absorb much more energy.

Greenland is also home to a large U.S. military base.

Reference

[The Hindu| Importance of Greenland](#)

Related News - [US aid to Greenland](#)

Amrit Bharat Trains 2.0

The Ministry of Railways announced the launch of Amrit Bharat Trains Version 2.0.

*The **1st version of Amrit Bharat trains** was introduced in January 2024.*

- **Objectives** - To cater to low and middle-income families, offering a comfortable experience.
- To enhance comfort without increasing ticket costs significantly.
- **Manufacturing** - 50 of these upgraded trains will be manufactured at the Integral Coach Factory (ICF) over the next 2 years.
- **Key Features** - The upgraded trains boast 12 notable enhancements.
 - **Semi-automatic couplers** - For smoother train operations.
 - **Modular toilets** - Improved hygiene & space optimization.
 - **Ergonomic seats and berths** - For added comfort.
 - **Emergency talk-back systems** - To ensure passenger safety.
 - **Continuous lighting systems** - For better visibility.
 - **Advanced pantry car designs** - To improve food service efficiency.
- **Affordable Travel for Low & Middle-Income Families** - To provide affordable, long-distance travel with features like
 - Charging points
 - Mobile holders
 - Water bottle slots even in general coaches.
- **Significance** - The upgraded trains are expected to set new benchmarks in the nation's rail transport system.

Pamban Bridge adheres to RDSO (Research Designs and Standards Organisation) standards and includes recommendations from international experts. It has received clearance from the Commissioner of Railway Safety.

Reference

[Financial Express| Rollout of Amrit Bharat 2.0 Trains](#)

One Liners 13-01-2025

Social Issues

Chintan Shivir 2025

- It is a *national review conference*, a platform to foster dialogue and cooperation between different stakeholders.
- **Hosted by** - *Ministry of Women and Child Development*.
- **Objective** - To review the work of the Ministry and evolve an action plan to implement the "Vision 2047".
- To discuss challenges hindering the development and welfare of women and children across the nation and *devise optimal solutions*.

Environment

Bharat Cleantech Manufacturing Platform

- **Launched at** - Bharat Climate Forum 2025 in New Delhi.
- **Aim** - To *enhance India's cleantech value chains* in the solar, wind, hydrogen, and battery storage sectors.
- **Role** - It will provide an opportunity for the Indian firms to *collaborate, to co-innovate* and will help provide a platform for financing, to share ideas, technologies and resources.
- **Significance** - It will help India become an attractive business case and a global *leader in the sustainability and cleantech* sector.

Science

UN Committee of Experts on Big Data and Data Science (UN-CEBD)

- **Aim** - To further investigate the benefits and challenges of Big Data, including the potential *for monitoring and reporting* on the sustainable development goals (SDGs).
- **India** - It has *joined* the prestigious committee recently.
- It is a step toward *revolutionizing statistical production* and dissemination, ultimately contributing to a more resilient and data-informed world.
- It helps in aligning India's domestic advancements in big data & data science with international goals.

Miscellaneous

100 years of Srinagar Meteorology Centre

- **Functions under** – Ministry of Earth Sciences.
- **Recognition** – It is recognized as a *Centennial Centre* by the World Meteorological Organization (WMO).
- Recently, Government announced about the establishment of a Regional Meteorological Centre in Jammu.

Places in News

- **Rottneest Island** – It is *in Australia*, where a seaplane crashed with 3 people getting seriously injured and 3 others remain missing.
- **Ramree Island** – It is located *in Myanmar*, an area controlled by the ethnic Arakan Army in western Rakhine state.



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