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 (NH4+)
  - Ammonia (NH3)
  - Nitrite (NO2-)
  - Nitrogen (N2)
  - Nitrous oxide (N2O)
  - 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

[The Hindu| Assessment of Groundwater Contamination in India]

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

• **Rottnest 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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