

NEWS TODAY

Climate Change May Shift Earth's Poles by Up to 27 Meters

A new study has found that Earth's geographic poles may shift their positions due to alarming levels of ice melt caused by climate change.

- Geographical poles are the points at which the Earth's axis of rotation intersects the surface.
- The motion of the Earth's rotational pole with respect to the crust is called polar motion.

Why Poles are Shifting?

- Earth's rotation is not perfectly stable. It wobbles due to changes in how mass is spread across the planet.
- These wobbles can come from:
 - ⊕ Fluctuations in atmospheric pressure, or ocean currents
 - ⊕ Core- mantle dynamic
 - ⊕ Fusion of glacial caps and glaciers
 - ◆ According to the study, melting ice and shifting ocean mass could cause the North and South Poles to move by 12 to 27 meters by 2100.
 - ◆ The leading cause is ice loss in Greenland and Antarctica, followed by smaller glaciers.

Effects of Shifting Poles

- **Navigation Problems:** Shifting poles can affect satellites and space telescopes, which depend on Earth's rotation for accurate positioning.
- **Longer Days:** Melting ice moves mass from the poles to the equator, making Earth slightly more flattened.
 - ⊕ This slows down its spin, causing longer days.
 - ◆ Since 2000, days have been getting longer by 1.33 milliseconds every 100 years, faster than in the past century.

India's first Fast-Breeder Nuclear Reactor (500 MWe) set for commissioning by 2026

Located at Kalpakkam in Tamil Nadu, this will mark the beginning of the second stage of India's three-stage nuclear power programme.

About Fast Breeder Reactor

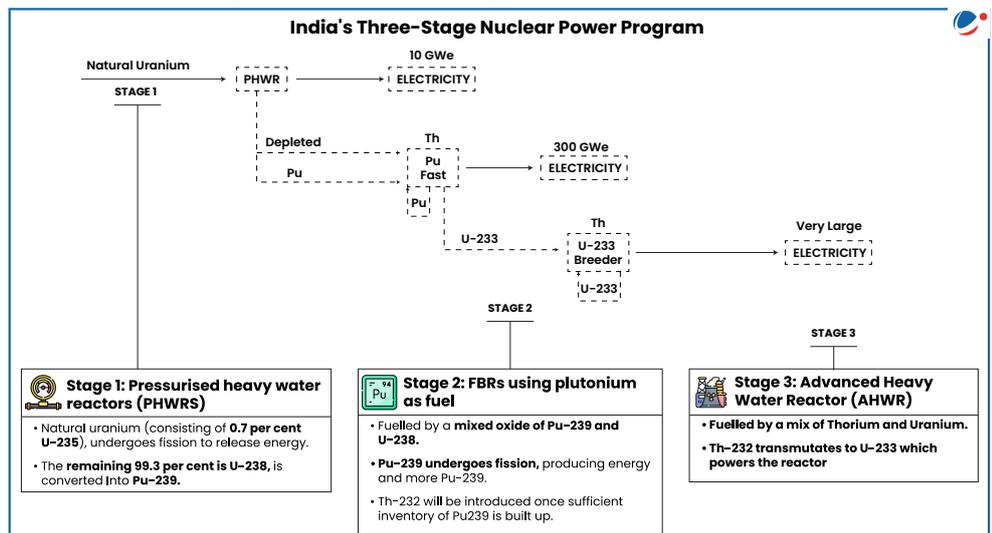
- **Genesis:** In 2003, government established Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) to construct and operate Prototype Fast Breeder Reactor (PFBR).
 - ⊕ Earlier first stage was implemented by Nuclear Power Corporation of India Limited (NPCIL).
- **Functioning:**
 - ⊕ It uses indigenously produced Uranium-Plutonium Mixed Oxide (MOX) fuel and utilizes liquid sodium as a coolant.
 - ⊕ Uranium-238 "blanket" surrounding fuel core will undergo nuclear transmutation to produce more fuel, thus earning the name 'Breeder'.

Significance of FBR

- **Paves way for third stage:** It also marks use of Thorium-232 (a non fissile material), which creates fissile Uranium-233 to be used as fuel in third stage.
- **Technological Advancement:** India becomes second country after Russia with a commercial FBR.
- **Reduced Nuclear Waste:** Uses spent fuel from Stage-I.
- **Utilization of Thorium Reserve:** Paves the way for the full utilization of India's abundant thorium reserves.

India's 3 stage Nuclear Power Programme:

- **Dr Homi J Bhabha (Father of India's nuclear programme)** devised a three-stage nuclear power programme in the 1950s to make the most of India's limited uranium reserves and abundant thorium reserves.



Two South African cheetahs released in Gandhi Sagar Sanctuary

Cheetahs have been relocated to **Gandhi Sagar Sanctuary in Mandsaur district of Madhya Pradesh** from Kuno National Park (M.P).

➤ These Cheetahs were originally brought to the Kuno National Park from South Africa in **February 2023 under Project Cheetah**.

About Project Cheetah

➤ It is a **landmark wildlife conservation** initiative launched in **2022**.

➤ **Aim:** At reintroducing cheetahs to India after their extinction in the late **1940s and early 1950s**.

➤ **Implementing agency:** National Tiger Conservation Authority (NTCA)

➤ **Technical Assistance:** Provided by Wildlife Institute of India (WII)

➤ **Cheetah Project Steering Committee:** Established by **NTCA** in 2023 to oversee, evaluate, and advise on implementation of Project Cheetah.

⊕ **NTCA** is a **statutory body** under Ministry of Environment, Forests and Climate Change constituted under enabling provisions of Wildlife (Protection) Act, 1972, as amended in **2006**.

➤ **Prime Objectives:**

⊕ To **establish breeding cheetah** populations in safe habitats across its historical range.

⊕ To use cheetah as a **charismatic flagship** and **umbrella species** to garner resources for restoring open forest and savanna systems.

⊕ To use the ensuing opportunity for **eco-development and ecotourism** to enhance local community livelihoods.

About Cheetah

➤ World's **fastest Mammal** and the only large carnivore to be extinct in India (1952).

➤ Protected under **Appendix 1 of CITES**.

➤ Unlike **other big cats (lions, tigers, leopards, and jaguars)** cheetahs don't roar.

➤ **Geographical range:**

⊕ **Asia:** Found only in arid regions of eastern Iran and India (**After Reintroduction**).

⊕ **Africa:** Found in grasslands, scrublands and open forests across the continent, especially in Botswana, Namibia and South Africa.

➤ **Two Species of Cheetahs exists :**

⊕ **African Cheetah** (IUCN Status- Vulnerable).

⊕ **Asiatic Cheetah** (IUCN Status- Critically Endangered).

RBI Governor highlights issues in India's Financial Markets functioning amidst Shifting Global Tides

Financial markets are marketplace for **raising capital and trading financial assets** like **bonds, stocks, foreign exchange, and derivatives**.

Issues with Financial markets in India

➤ **Government securities (G-Secs) Market:**

⊕ **Lack of Diversity: Liquidity** is concentrated in **few securities**, thinning out for longer maturities.

⊕ **Secondary market trading is dominated by banks and Primary Dealers**, with a low Turnover Ratio (Annual turnover to outstanding stock of securities).

➤ **Money Market:**

⊕ **Call Money Market: Dwindling liquidity** in call money market.

◆ **'Call Money'** is borrowing or lending of funds for **1 day**.

⊕ **Term Money Market: Over-reliance on overnight market and lack of development** of a risk-free term structure vital for **benchmarking prices of interest rate products**.

◆ **'Term Money'** refers to borrowing/lending of funds for a period **exceeding 14 days**.

⊕ **Asymmetries between different money market rates: E.g.** in the call money rate, the market repo rate and Tri Party Repo Dealing System (TREPS) rate.

◆ A tri-party repo is a **repurchase agreement (repo) where a third party acts as an intermediary between borrower and lender**, managing aspects like collateral selection, payment, and settlement.

➤ **Foreign Exchange (FX) Market: Divergence** in pricing for the **small and large customers** and **non-compliance** with regulatory mandates ensuring **transparency**.

➤ **Derivatives Market: Remains small in absolute terms and relative to GDP** with **Lack of diversity and limited liquidity**.

Way Forward

➤ Development of a **Secured Overnight Rupee Rate (SORR)** based on the **secured overnight market in derivative markets**.

➤ **Increase retail participation** in the G-Sec market. E.g. **'RBI Retail Direct'** facility.

➤ **Proactive role of banks** to transmit RBI's liquidity measures to the broader market.

UNESCO designated 16 new Global Geoparks as Global Geoparks Network (GGN)

During the 10th Anniversary of **UNESCO Global Geoparks (UGGPs)**, 16 new sites across 11 countries were added to the GGN.

- GGN is a **non-profit International Association founded under UNESCO**.
- It establishes **ethical standards** that must be adopted by Global Geoparks.

Major Geoparks added to GGN

- **Kanbula (China)**: Located on the edge of the **Qinghai-Tibet Plateau**, it features the **ancient Maixiu volcanoes**, which are exceptionally well-preserved, and the Yellow River.
- **Mt Paektu (North Korea)**: It was the location of one of the **largest eruptions in recorded history** (Millennium Eruption around 1000 CE).
- **North Riyadh (Saudi Arabia)**: Obaiharan Valley (Wadi Obaiharan), located at the base of Tuwaiq Mountain, is a lush reserve that supports the region's water supply.
 - ⊕ Valley is also **home to ancient coral reef systems**.

UNESCO Global Geoparks (UGGP)

- **Genesis**: Introduced in 2015 as a key component of the **International Geosciences and Geoparks Programme (IGGP)**.
- **Geoparks**: UGGPs are **single, unified geographical areas** where **landscapes of international geological significance** are managed with a holistic concept of
 - ⊕ **protection,**
 - ⊕ **education and**
 - ⊕ **sustainable development.**
- **Management**: Managed by a body having a **legal existence recognised under national legislation**.
- **Reassessment Period**: UGGP status is not permanent; it is reassessed **every four years**.
- **Mandatory Networking**: Membership of the GGN is obligatory for UGGPs.
- **Current Status**: There are **229 UNESCO Global Geoparks in 50 countries (none in India)**.

NITI Aayog Member Calls for Adopting GM Crops for Self-Sufficiency in Edible Oils

About GM Crops

- GM Crops are the **Genetically modified organisms (GMOs)**, i.e. their **genetic material (DNA) has been altered artificially** for desirable features like robustness, pest resistance among other.
 - ⊕ **Transgenics** are a subset of GMO where **one or more DNA sequences from another species** have been introduced artificially
 - ◆ E.g., **Bt. Cotton**- contains a gene from a bacterium.
- **Adoption Status in India**
 - ⊕ In India, Bt cotton is the only GM crop approved for cultivation.
 - ⊕ In 2022, the **Centre conditionally approved herbicide-tolerant GM mustard (DMH-11) for release into the environment**.
 - ◆ However, this approval is currently **under review by the Supreme Court**. The SC has called for evolving National Policy on GM Crops.

Why is the Adoption of GM Edible Oil Crop needed?

- **Rising Consumption, Lagging Production**: Per capita edible oil consumption has surged to **19.7 kg/year**, outpacing domestic production.
 - ⊕ Growing population and urbanisation will further boost the demand.
- **High Import Dependence**: Imports now cover **55–60% of India's edible oil demand**. This rising dependence poses **risks to food security and economic stability**.
- **Short-Lived Self-Sufficiency**: India achieved oilseed self-sufficiency during the **Yellow Revolution** in the early 1990s, but it did not last long.

Adoption of genome editing is one of the strategies of National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds) launched to increase **domestic edible oil production to 25.45 million tonnes by 2030-31**.

Also In News



BrahMos Missile

India has dispatched a second batch of batteries of **BrahMos Missile system to the Philippines**.

About BrahMos

- **Jointly developed** by India and Russia.
- A **long-range supersonic cruise missile** that can be launched from **land, sea and air**.
- **Two-stage system**:
 - ⊕ **1st stage (Solid propellant booster)**: Gives the initial supersonic speed.
 - ⊕ **2nd stage (Liquid ramjet)**: Takes the missile closer to **3 Mach** speed in cruise phase.
- **Range**: Up to **290 km**
- **Special Capabilities**
 - ⊕ **"Fire and Forget" technology**,
 - ⊕ Shorter flight times lead to lower target dispersion and quicker engagement
 - ⊕ Pin point accuracy.



EVolutionS Programme

Government provided grants for EV startups under Project EVolutionS. **About Electric Vehicle Solutions led by Startups (EVolutionS) Programme**

- Launched by the **Department of Science and Technology (DST), Ministry of Science & Technology**.
 - ⊕ Implemented in **collaboration with Ministry of Heavy Industry (MHI)** and Automotive Component Manufacturing Association of India (ACMA).
- **Objective**: To aid selected startups in pilot demonstration, testing, validation of components and establishing industry connects for **speedy translation of EV solutions to market**.
- It covers **components for electric two-, three- and four-wheelers** (including L5, e-rickshaw and e-cart), e-buses and EV public charging infrastructure.
- Startups that have demonstrated indigenous capability in developing materials/components will get a **grant of ₹50 lakh, including ₹30 lakh in the form of equity-linked instruments**.



Aryabhata Satellite

India's first satellite, Aryabhata, completed 50 years.

About Aryabhata Satellite

- Built by ISRO to conduct experiments in **X-ray astronomy, aeronomics, and solar physics.**
- Named after the **ancient Indian mathematician and astronomer.**
- Launched in 1975, by Soviet Kosmos-3M rocket from **Volgograd Launch Station** (present **Russia**).
- Made India the **11th country in the world to send a satellite into orbit.**



Comprehensive Remote Sensing Observation on Crop Progress (CROP)

ISRO satellite CROP estimated wheat Crop Area and production in India.

- It has estimated that the total wheat production from 8 major wheat growing States of India would be **122.724 million tonnes** as on March 31, 2025.

About CROP

- It is a semi-automated, scalable framework, developed by **National Remote Sensing Centre (NRSC)/ISRO.**
- It enables the **near real-time monitoring of crop sowing and harvesting** during the Rabi season across India.
- It **uses** Optical and Synthetic Aperture Radar (SAR) remote sensing datasets from **EOS-04 (RISAT-1A), EOS-06 (Oceansat-3), and Resourcesat-2A,** for the Rabi season, 2024-25.



Kokborok

Kokborok Sahitya Parishad sought inclusion of Kokborok language in the Eighth Schedule of the Constitution.

About Kokborok Language:

- The word "Kokborok" comes from "Kok," meaning "verbal," and "Borok," meaning "people" or "human."
- It is the language of **Borok people** who are **geographically known as Tripuris.**
- It is the **mother tongue** of communities namely **Debbarma (Tripuri) Reang, Jamatia, Noatia, Kalai, Rupini, Murasing, Uchoi etc.**
- It is recognised as **one of the State languages of Tripura.**
- It is part of the **Sino-Tibetan language family.**
- It is classified as **Vulnerable by the UNESCO Atlas of the World's Languages in Danger.**



Scarborough Shoals

China alleged intrusion by the **Philippines** in the contentious **Scarborough Shoal** waters of the **South China Sea (SCS).**

- **SCS** is a **marginal sea** in the **western Pacific Ocean** bordering Brunei Darussalam, Malaysia, Indonesia, the Philippines, Singapore, Thailand, Vietnam and China.

About Scarborough Shoals

- **Scarborough** is the **largest atoll** in the South China Sea, located about 220kms to west of Philippines.
- It is located inside **Exclusive Economic Zone (EEZ) of Philippines** but has been claimed by **China** as its ancestral territory (demarcated by **nine-dash line**) since the 13th century.
- **Other disputed islands in SCS:** Paracel and Spratly island.



Exercise Desert Flag-10

Indian Air Force is participating in **Exercise Desert Flag-10.**

- It is a premier **multinational air combat exercise** being hosted by the **United Arab Emirates (UAE).**



Trademarked Building In India

The Arts College building of Osmania University (OU), Hyderabad, Telangana, has become the **third structure in India to receive a trademark for its exterior design.**

- The first two were the **Taj Mahal Palace Hotel and the Bombay Stock Exchange.**

Benefits of Trademarking

- Gives OU **exclusive rights to use the building's image for commercial purposes** and protection from unauthorised copying.
- Helps preserve the **unique architectural identity.**

Architectural Significance of the building

- Built in December 1939, the building reflects the **Osman Shahi architectural style.**
 - ⊕ The Architecture is a blend of **Qutub Shahi and Mughal styles, with influences from Kakatiyan temples, Ajanta, and Ellora.**
- Uniquely, it **lacks a dome**, unlike other Nizam-era structures.

Place in News



Brazil (Capital: Brasilia)

15th BRICS Agriculture Ministers' Meeting held in Brazil.

Political Features:

- It is the largest country in **South America** and the **fifth largest nation** in the world.
- **Faces Atlantic Ocean** and shares **inland borders with every South American country except Chile and Ecuador**

Geographical Features:

- Both the **Equator and the Tropic of Capricorn** pass through it.
- **Major River:** Amazon has the world's largest **river system** and the world's **largest remaining virgin rainforest.**
- **Climate:** Humid tropical and subtropical climate except for a **drier area** in the Northeast.
- **Mining:** World's **top producer of niobium** and **second-largest producer of iron ore, manganese, tantalite, and bauxite.**

