

# FORTUNE Prelims Precise

December 2024





FORTUNE IAS

# Toppers in Top 100



**P K Sidharth Ramkumar**  
2024



**Meera K**  
2021



**Sidharth B**  
2017



**Ayan Jain**  
2024



**Dilip K Kainikkara**  
2022



**Hamna Mariyam**  
2017



**Sreelakshmi Ram**  
2019



**Vishnu Sasikumar**  
2024



**Anand**  
2016



**Arya V M**  
2023



**Archana P P**  
2024



**Safna Nazarudeen**  
2020



**Renjina Mary V**  
2019



**Dr. Arun S Nair**  
2020



**Alfred O V**  
2022



**Hari Kallikkat**  
2018



**Benjo P Jose**  
2024



**Aparna M B**  
2021



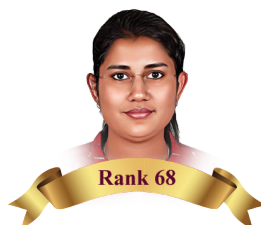
**Dheenah Dastageer**  
2021



**Akhil V Menon**  
2022



**Arjun Mohan**  
2019



**Kasturi Sha**  
2024



**Fabi Rasheed**  
2024



**Malini S**  
2023



**Devi Nandana**  
2020



**Annie George**  
2024



**Kiran P B**  
2022

# Preface

Fortune IAS Academy presents '**Prelims Precise**', a monthly current affairs magazine through which we make prelims current affairs revision precise and effective.

This magazine is a comprehensive resource that condenses the significant news of each month into distinct sections such as polity and governance, economic development, science & technology, among others.

Each content is organised with the why in news context followed by its explanation.

Fortune Prelims Precise is available to all Prelims cum Mains batch students (2024) as part of the course study material. **It can be purchased from Fortune IAS Academy for Rs. 75 per issue.**

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# Polity & Governance

## Pro-Active Governance and Timely Implementation (PRAGATI)

- An Oxford study has spotlighted PRAGATI as a game-changer in **India's digital governance landscape**.
- **PRAGATI (Pro-Active Governance and Timely Implementation)** is a digital platform launched in 2015 by the Government of India to enhance governance and accelerate project implementation.
- It integrates **video conferencing, geo-spatial mapping, and data management tools** to facilitate direct communication between the Prime Minister's Office (PMO), Central Ministries, and State Governments.
- The platform's impact has helped **complete long-delayed projects like segments of National Highway 8 in Maharashtra**, the Chenab Bridge in Jammu and Kashmir, which is now the world's highest rail bridge.
- PRAGATI is modelled on **SWAGAT**, a digital platform started by the Gujarat government to address people's grievances.

## No-Confidence Against Rajya Sabha Chairman

- The Opposition filed a motion of no-confidence against Rajya Sabha Chairperson Jagdeep Dhankhar, marking a first in India's parliamentary history.
- It was, however, rejected by the Vice-chairperson of Rajya Sabha on procedural grounds.
- The process for removing the Vice President, who is also the Rajya Sabha Chairperson, is outlined in **Article 67(b)**.

### Procedure:

- Rajya Sabha must pass a resolution for removal by an **Effective Majority** (more than 50% of the effective strength, excluding vacant seats).
- The resolution must be "agreed to" by the Lok Sabha with a **Simple Majority** (50% of members present and voting).

### Effective Majority Example:

- For a Rajya Sabha strength of 245 with 45 vacancies, effective strength is 200. An effective majority requires **101 votes**.

### Notice Period:

- At least **14 days' notice** is required to move the resolution.
- No Vice President has been removed through this process so far.

## Protected Area Permit (PAP)

- The **Union Home Ministry** has re-imposed the **Protected Area Regime or Protected Area Permit (PAP)** in **Manipur, Mizoram and Nagaland** due to security reasons.
- Protected Areas are defined under **Foreigners (Protected Areas) Order, 1958** that lie beyond an inner line permit (also defined in the same order) and international border.
- Foreigners must now obtain a **Protected Area Permit (PAP)** to visit these areas.
- PAP was **lifted in these states in 2011** to boost tourism.
- Permits are valid for **10 days**, extendable, and issued by the Union Home Ministry or state authorities.

Currently, Arunachal Pradesh, Sikkim, Manipur, Mizoram, Nagaland, and parts of Jammu & Kashmir, Ladakh, Rajasthan, Himachal Pradesh, and Uttarakhand have protected areas.

## Good Governance Day

- Good Governance Day was observed on **December 25** to honor former Prime Minister **Atal Bihari Vajpayee's birth anniversary**.
- It seeks to promote government accountability, effective administration, and good governance among civil servants.
- The **Good Governance Index** of Department of Administration Reforms and Public Grievances (DARPG) defines good governance as efficient decision-making and implementation prioritizing citizen welfare.

- This year being Vajpayee's 100th birth anniversary a '**Viksit Panchayat Karmayogi**' initiative was launched.
- The initiative leverages e-learning platforms, AI-powered chatbots, and mobile apps to bridge knowledge gaps and enhance service delivery.

### Dr K Radhakrishnan committee

- A **seven-member panel headed by former ISRO chairman K Radhakrishnan** has made a set of 101 recommendations to the **Ministry of Education** for conducting national level entrance exams in a "transparent, smooth and fair" manner.
- The panel was constituted by the Ministry after the NEET-UG paper leak.

#### Key Recommendations:

- ➔ It is observed that the NTA has stretched its capacity by taking on **recruitment exams in addition to entrance tests**. The panel recommended that the **NTA focus primarily on entrance exams** until it builds more capacity.
- ➔ It proposed **involving state and district authorities, forming coordination committees** with officials from NTA, NIC, police, and the Intelligence Bureau to ensure fair exams, secure testing centers, and safe transportation of question papers.
- ➔ To improve the testing process, it suggested **multi-session exams over several days and a "Digi-Exam" system** for candidate verification using biometrics, similar to DigiYatra.

### Interception Rules

- The Department of Telecommunications (DoT) has notified the **Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024** under the **Telecommunications Act, 2023**.
- These rules allow interception of messages by enforcement and security agencies under specific conditions:

#### Authorised Authorities:

- ☞ Union Home Secretary and State Home Department Secretaries can order interceptions.
- ☞ In "unavoidable circumstances," an officer of Joint Secretary rank or higher may issue such orders.

#### Criteria for Interception:

- ☞ Section 20(2) of the Act permits interception during public emergencies or for public safety, sovereignty, defence, public order, and foreign relations.

#### Emergency Provisions:

- ☞ Senior officers of authorised agencies (central or state) may order interception in remote areas or for operational reasons.
- ☞ Such orders must be submitted to the competent authority within **three working days** and confirmed within **seven working days**; otherwise, interception must cease.

### SC Expands Power of NIA

- The Supreme Court recently expanded the National Investigation Agency's (NIA's) powers of investigation.
- The Court said that the NIA has the **power to investigate offences "connected" to the main Scheduled Offence** that is already under investigation — even if the **connected offence was committed by a separate person** who is not an accused in the Scheduled Offence.
- **The National Investigation Agency Act, 2008 (NIA Act)** includes a list or "Schedule" of laws that contain offences that the NIA may investigate.
  - ☞ For instance, offences under the Unlawful Activities (Prevention) Act, 1967 (UAPA) and the Anti-Hijacking Act, 1982 among others.
- **Under Section 8 of the NIA Act**, the NIA is allowed to investigate **non-Scheduled Offences if it can show that there is a "connection" with the Scheduled Offence** under investigation.



## German vote of confidence

- German **Chancellor Olaf Scholz** lost a vote of confidence in the German Parliament's lower house, the Bundestag.
- The **three-party coalition government** in Germany fell into a minority in November with one partner moving into the opposition.
- However, Olaf Scholz continued in his **Chancellor (effectively Prime Minister) position**, since the German ruling coalition can only be replaced by a constructive vote of no confidence.
- The **constructive vote of no confidence (CVNC)** is a variation on the motion of no confidence that allows a parliament to withdraw confidence from a head of government only if there is a **positive majority** for a prospective successor.
- CVNC has been part of **German Basic law (Constitution)** to **prevent political instability**.
- While a vote of confidence is initiated by the German Chancellor, CVNC is introduced by the lower house, ie, opposition.
- Following this, the **German President** would
- dissolve the Bundestag within 21 days and call new elections.



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## Urban Infrastructure Development Fund (UIDF)

- Government has set up the Urban Infrastructure Development Fund (UIDF) through use of **priority sector lending** shortfall for creating **urban infrastructure in Tier 2 and Tier 3 cities**.
- UIDF aims to **supplement the efforts of the State Governments** for urban infrastructure development works.
- It will be implemented through **Public/State Agencies, Municipal Corporations and Urban Local Bodies**, by providing a stable and predictable source of financing.
- The Fund will be managed by the **National Housing Bank**.
- Eligible Activities for availing loans under the UIDF are **aligned with the Missions and programmes of the Ministry of Housing and Urban Affairs**.
  - ➔ It focuses on **basic services like sewage and Solid Waste Management, water supply and sanitation**, construction and improvement of drains/storm water drains.
- The minimum size of a project is Rs. 5 crores (Rs. 1 crore for North-East & Hilly States) and the maximum size is Rs. 100 crore.

## Anna Chakra & SCAN (Subsidy Claim Application for NFSA)

- The Central Government has launched '**Anna Chakra**' and the **SCAN portal** to modernize the Public Distribution System (PDS).
- **Anna chakra** is a **PDS supply chain optimization tool** by the Department of Food and Public Distribution (DFPD).
- Developed with the **World Food Programme (WFP)** and **IIT-Delhi**.
- Uses advanced algorithms to optimize routes, ensuring efficient food grain movement.
- **Subsidy Claim Application for NFSA (SCAN Portal)** is a single-window platform for states to submit subsidy claims from the Centre.

- Ensures **automated workflow for claim submission**, scrutiny, and approval by DFPD, expediting subsidy settlements.

## MuleHunter.AI

- The Reserve Bank of India (RBI) has introduced **MuleHunter.AI**, an **Artificial Intelligence/ Machine Learning (AI/ML)** based model to combat mule accounts used in financial fraud.
- It is developed by the **Reserve Bank Innovation Hub (RBIH)**, which is a subsidiary of Reserve Bank.
- This model enables detection of mule bank accounts in an **efficient manner** by recognising patterns, cross-border tracking and continuous alerts and improvements..
- **Mule accounts** are acquired by criminals from individuals, often from low-income or less tech-savvy groups.
- The criminals use **financial incentives, job offers, social engineering or even coercive measures** to acquire such accounts for illegal activities.
- The term "money mule" refers to **innocent victims whose accounts are used to launder money**, making them targets of investigations while the real criminals evade detection.

## Land Pooling Scheme

- The Government of Andhra Pradesh introduced **Voluntary Land Pooling** for developing **Amaravati**, its new capital city.
- **Land pooling** is a process where landowners voluntarily contribute their land to a government or development authority for urban planning or infrastructure development.
- In **return, they receive developed plots or compensation** based on the value of the land they contributed.
- This method is **often used in large-scale urban projects** to facilitate organized development without forcibly acquiring land.
- It helps in creating planned urban spaces while addressing the concerns of landowners.

- The initiative in Amaravati, which pooled 34,390 acres of farmland out of the notified 45,625 acres, marked a **historic move where small and large farmers contributed** to a public cause.

## RBI Governor Appointment

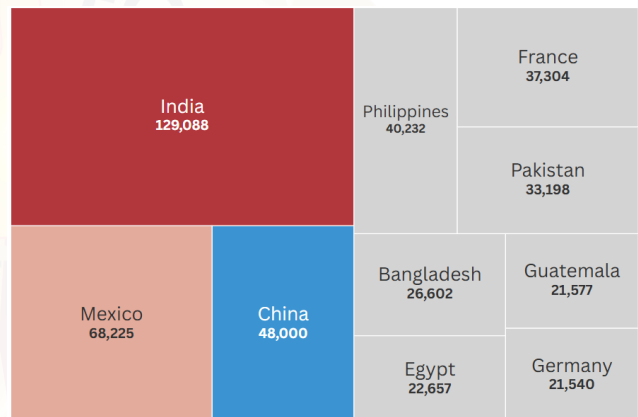
- Sanjay Malhotra IAS, Revenue secretary has been appointed as the new RBI Governor for the next three years.
- Malhotra is the 15th civil servant and **26th governor of the RBI**.
- RBI Governor is appointed as per the **section 8 of the RBI Act, 1934** by the central government.
- No qualifications** are mentioned but the appointment is limited to 5 year tenure but with possibility of reappointment.
- Financial Sector Regulatory Appointment Search Committee**, consisting Cabinet Secretary, current RBI Governor, Financial Services Secretary and two independent members, prepares a list of people eligible to hold the post.
- A **shortlist** is sent to the Cabinet Committee on Appointments, led by the Prime Minister who then appoints the Governor.

## Jalvahak Scheme

- The Union government launched the 'Jalvahak' scheme to promote **cargo movement via inland waterways**.
- It covers National Waterways 1 (Ganga), 2 (Brahmaputra), and 16 (Barak).
- The scheme offers up to **35% reimbursement** on operating costs for transporting goods over **300 km by waterways**.
- Valid for **three years**, it aims to optimize supply chains and ensure timely delivery.
- It is implemented by the **Inland Waterways Authority of India (IWAI)** and **Inland & Coastal Shipping Ltd (ICSL)**, a Shipping Corporation of India subsidiary.

## India Tops Global Remittances for 2024

- In 2024, India received **\$129.1 billion in remittances**, the highest ever for any country in a year according to World Bank experts..
- It represents 14.3% of global remittances, the highest share since 2000.
- India's share has exceeded 10% for most years since 2000 and **doubled Mexico's share (7.5%) in 2024**.
- Remittances, money sent home by individuals working abroad, have **grown rapidly post-pandemic** and now surpass Foreign Direct Investment (FDI) in low- and middle-income countries.
- Over the last decade, remittances increased by 57%, while FDI declined by 41% in these nations.



## Kisan Pehchaan Patra

- The **Ministry of Agriculture and Farmers' Welfare (MoA&FW)** has asked the states to organise camps to ensure a faster generation of Farmer ID.
- Farmer ID**, also known as Kisan Pehchaan Patra, is an Aadhaar-based unique digital identity.
- The ID is linked dynamically **to the state's land records** bearing information such as demographics, crops sown and ownership details.
- The database created through the Farmer ID will be known as **Farmer' registry** — one of the three registries under the **Agri Stack component** of the **Digital Agriculture Mission**.

- The government aims to create digital identities for 11 crore farmers by 2026-27.
- Centre will provide states an **incentive of up to Rs 15,000 per camp** to encourage states to organise field-level camps and mobilise local administration and an **additional incentive of Rs. 10 per Farmer ID** will also be provided to the states.
- These financial incentives will be provided from the budget of the **Pradhan Mantri Kisan Samman Nidhi (PM-Kisan)** scheme.

## C-PACE

- The central government informed the Lok Sabha that corporate exits are now happening in 70-90 days under the C-PACE.
- The Centre for Processing Accelerated Corporate Exit (C-PACE) was launched by the **Ministry of Corporate Affairs** to speed up the **voluntary winding up** of companies.
- Located at the **Indian Institute of Corporate Affairs (IICA) in Gurgaon, Haryana**, C-PACE aims to facilitate 'Ease of Doing Business' by reducing the need for physical interactions and re-engineering the process.
- The initiative **allows corporate exits to occur within 70-90 days**, benefiting stakeholders with hassle-free filing and timely removal of companies from the Register.
- C-PACE operates under the **Registrar of Companies** as per **Section 396 of the Companies Act, 2013**.

## Monetary Policy Committee Meeting Highlights

- The six-member Monetary Policy Committee headed by the RBI governor convened this month.
- MPC decided to maintain the monetary policy stance at '**Neutral**', showing its dual focus on inflation and growth.

### RBI MPC Highlights:

- ◆ **Policy Measures:** The Committee to **keep the benchmark repo rate unchanged** at 6.5%.

🗨️ The panel slashed the **cash reserve ratio (CRR) by 50 basis points (bps) to 4%**.

- ◆ **GDP Growth Estimates:** FY25 GDP growth estimates cut to 6.6% from 7.2% earlier.

- ◆ **CPI Inflation Forecast:** FY25 CPI inflation target raised to 4.8% from 4.5%.

- ◆ **Additional Measures:** Introduction of the **Secured Overnight Rupee Rate (SORR)**, Framework for Responsible and Ethical Enablement of Artificial Intelligence (**FREE-AI**) in the Financial Sector, and Launch of '**Connect 2 Regulate**' among others.

🗨️ '**Connect 2 Regulate**' is a part of ongoing RBI@90 commemorative events and this initiative will enable stakeholders to submit their ideas, concept notes, and case studies on regulatory topics.

## Variable Rate Repo auction

- The Indian banking system saw a liquidity deficit in December which made RBI conduct **Variable Repo Rate (VRR) auction**.
- **Variable Repo Rate Auctions (VRR)** are a liquidity tool used by the RBI to provide short-term funds to banks at market-determined interest rates through a competitive bidding process.
- Banks bid competitively, and the auction determines the final rate, which can be **higher than, equal to, or very close to the repo rate**, depending on market demand.
- The term "variable" means the rate is not fixed.
  - ◆ It adjusts over time, often **in response to changes in the economy, inflation, or monetary policies**.

## Secured Overnight Rupee Rate (SORR)

- SORR is a **proposed benchmark interbank interest rate** for short-term loans between major banks in India.
- Banks borrow from each other for different purposes and the rates of such borrowing is a determinant of loan rates for its customers.
- In India, this interbank borrowing rate called **Mumbai Interbank Outright Rate (MIBOR)** is calculated and published by the **Financial Benchmarks India Private Limited (FBIL)**.



- The problem with MIBOR is that it is largely based on inputs from banks themselves and includes even unsecured (without any security) inter-bank loans.
- Such manipulations like that happened in **London Interbank Offered Rate (LIBOR)** makes MIBOR vulnerable.
- The new benchmark will be based on the secured money market transactions - both market repo and tri party repo (TREPS).

📌 **Repo**, short for **Repurchase Agreement**, is a financial instrument used in money markets (short-term loans) where one party sells securities (like government bonds) to another with an agreement to repurchase them at a later date and a predetermined price.

📌 It is essentially a short-term borrowing arrangement

**TREPS** - It is a repurchase agreement (repo) transaction in which a third party, typically a clearing bank or a central depository, acts as an intermediary to facilitate the transaction between the borrower and the lender. The clearing bank ensures the proper management of collateral, its safekeeping, and the settlement of the repo transaction

## International Relations

### Most Favoured Nation Status

- **Switzerland** has announced that it will suspend the **most favoured nation (MFN) clause** in its Double Taxation Avoidance Agreement (DTAA) with India, starting from January 1, 2025.
- This is following an October 2023 Indian Supreme Court ruling that MFN benefits **require notification under the Income Tax Act of India**.
- Switzerland had been giving Indian firms having investments in Switzerland a favourable **withholding tax** rate (at 5%) but India had not been reciprocating it for Swiss companies investing in India, who continue to pay 10% as withholding tax to the Indian government.
- Since India was **yet to formally notify** the reciprocating MFN for Swiss companies in India, Switzerland has suspended their MFN status for India.

### The Most-Favored-Nation (MFN) Clause

- ★ **MFN** is a principle in international trade and diplomacy that ensures non-discriminatory treatment among nations.
- ★ It requires a country to provide the **same favorable treatment**—such as reduced tariffs, tax benefits, or other concessions—to one trading partner as it does to any other.
- ★ MFN is also a fundamental pillar of the World Trade Organization where members have to accord the most favourable tariff and regulatory treatment given to the product of **any one Member at the time of import or export of “like products” to all other Members**.
- ★ There is **no requirement under MFN that the trade concession be reciprocal**
- ★ **Some exceptions:** For example, countries can **set up a free trade agreement** that applies only to goods traded within the group — discriminating against goods from outside. Or they can **give developing countries special access** to their markets.



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 PARVATHY GOPAKUMAR AIR 282	 SWATHI S BABU AIR 522	 DEVIKRISHNA P AIR 559	 OORMILA J S AIR 561
 MRIDUL DARSAN AIR 630	 SAYANTH K AIR 701	 ANUSHA R CHANDRAN AIR 791	 SWATHY S AIR 827
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## The 2024 Global Report on Trafficking in Persons

- The Report on Trafficking in Persons as mandated by the UN General Assembly through the 2010 **UN Global Plan of Action to Combat Trafficking** in Persons was released.
- The 2023 report is the eighth edition first published in 2009.
- The report covers 156 countries and analyzes trafficking cases from 2019 to 2023.
- Globally, **trafficking victim detection increased by 25%** in 2022 compared to 2019, with forced labor, sexual exploitation, and forced criminality being the most common forms.
- The number of detected child victims rose by 31%, representing 38% of all victims.

### Indian Scenario:

India **reported 10,659 human trafficking cases** between 2018 and 2022, with **26,840 arrests**, averaging 5,000 per year.

However, **only 1,031 convictions** were made (**4.8% of arrests**), while 4,936 were acquitted.

**Maharashtra** had the highest number of cases (1,392), followed by **Telangana** and **Andhra Pradesh**.

**Source states** include West Bengal and Assam, while Maharashtra and Karnataka are key destination states.

**India ratified the UN Trafficking Protocol in 2011**, and **Article 23 of the Constitution** prohibits human trafficking and forced labor.

- The program has an **annual cap of 65,000 visas**, plus **20,000 additional visas** for individuals with advanced US degrees.
- Since 2015, Indians have accounted for **over 70% of approved H-1B petitions**, with Chinese nationals a distant second at 12-13%.

## Convention Against Cybercrime

- The **United Nations General Assembly** adopted a new convention to combat cybercrime after five years of negotiations.
- The UN Convention against Cybercrime establishes a **comprehensive framework** and focuses on tackling issues such as illegal access and interception of electronic data, online child sexual abuse and grooming, and money laundering.
- It will **open for signature in Vietnam in 2025** and enter into force **90 days after being ratified by the 40th signatory**.
- This will be the **first legally binding UN instrument** on cyber issues.
- Unlike the **2001 Budapest Convention** (which India did not sign), which focuses on criminalizing offences and cross-border cooperation, the UN Convention takes a broader approach, emphasizing prevention and support for developing nations.

## Fall of Bashar Al Assad

- Bashar al-Assad has stepped down as Syria's president, **ending his 24-year rule** and his family's iron-fist dynasty that began in 1971.
- Assad's regime, marked by domestic oppression, torture, and violent crackdowns, including the use of chemical weapons **during the 2011 uprising**, led to the 13-year Syrian Civil War.
- Despite ongoing calls for a UN-led political process, Assad rejected engagement, and the **civil war reignited in 2024** amid conflicts in Gaza and Lebanon.
- On November 27, 2024, rebel factions, led by **Hayat Tahrir al-Sham**, launched **Operation Deterrence of Aggression** supported by the allied Turkish-backed faction.

## H1B Visa

- Former US President Donald Trump's return to politics has reignited the **H-1B visa debate**.
- The program, **started in 1990**, allows US employers to hire **skilled immigrant workers** with at least a bachelor's degree.
- H-1B visas are **issued for up to six years**, after which holders must leave the US for 12 months or apply for permanent residence.

## Martial Law in South Korea

- South Korea's President Yoon Suk Yeol **declared martial law**, a first since the country became a democracy in 1987.
- Lawmakers deemed the declaration unconstitutional, and the opposition led a **successful impeachment vote** against the president.
- Yoon is suspended, pending a **constitutional court ruling within six months**, with a potential election required within 60 days if he is removed.
- **Article 34** of the Indian constitution allows the **suspension of fundamental rights** in certain cases where martial law is enforced by the military.
- However, India **does not have a provision** for declaring martial law and has never been formally invoked in India

## "The Crossroads of Peace" Initiative

- The second **India-Iran-Armenia Trilateral Consultations** were held in New Delhi, where Armenia presented its "Crossroads of Peace" initiative.
- This **regional transport proposal** aims to connect Armenia with Turkey, Azerbaijan, Iran, and Georgia by developing infrastructure such as roads, railways, pipelines, and electricity lines.
- The initiative seeks to enhance the flow of goods, energy, and people, **connecting the Caspian Sea to the Mediterranean and the Persian Gulf to the Black Sea** through improved transportation links.



## History & Culture

### Notre-Dame Cathedral



- The **medieval era cathedral was reopened** in **France** after 5 years since an accidental fire burned down part of it.
- Notre-Dame Cathedral, referred to as **Notre Dame de Paris** ("Our Lady of Paris") is dedicated to the **Virgin Mary, mother of Jesus**.
- It is located on an **island in the Seine River in Paris, France**
- Constructed over the course of two centuries, from the **12th to the 14th** it represents the progression from **Romanesque to Gothic architecture**.
- It suffered damages during the **French Revolution (1789)** and also hosted **Napoleon's** coronation as Emperor in 1804.
- **As opposed to churches**, which are general places of worship for Christians, cathedrals also have the seat of a bishop.

### Nazca Lines

- Hundreds of ancient geoglyphs, including the famous **Nazca Lines**, have been discovered in Peru with the help of AI.
- **Geoglyphs** are large designs made on the ground by arranging or removing natural materials like rocks or soil to create visible patterns



- These mysterious carvings, **created around 2,000 years ago by the Nazca people**, depict plants, animals like parrots, cats, and killer whales, and human-like figures.
- Ranging from 9 to 90 meters in size, they were **first identified in the 1920s**.
- The **Nazca people**, known for their vibrant pottery, textiles, and geoglyphs, **thrived in Peru's arid southern desert from 200 BC to AD 650**.



### The Hornbill Festival



- The **Hornbill Festival 2024**, themed “Cultural Connect,” took place from December 1–10 at Kisama Heritage Village, Nagaland.
- **Launched in 2000**, this annual event celebrates Nagaland’s rich cultural heritage, blending tradition and modernity.
- Named after the **Hornbill, a symbol of boldness in Naga folklore**, the festival features activities like Naga wrestling, archery, food stalls, fashion shows, and concerts.
- Known as the “Festival of Festivals,” it highlights the traditions of **Nagaland’s 17 major tribes**.
- While Nagaland’s state bird is the **Blyth’s Tragopan**, the **great hornbill** is the state bird of Kerala and Arunachal Pradesh.

### Panchamasali Lingayats

- Panchamasali Lingayats in **Karnataka** are in the path of reservation protests.
- The Panchamasalis are the **largest sub-caste of the Lingayat community**, which follows the teachings of **12th-century philosopher Basavanna**.
- A treasurer in the **court of King Bijjala II**, Basavanna **rejected Brahmin rituals** and temple worship.
- Interestingly, there are today **99 sub-sects within the Lingayats**, whose main goal was once the eradication of the caste system.
- Lingayats **bury their dead** in a sitting, meditative position called **Padmasan**.
- They carry their **Ishta Linga** around their necks and believe in a formless shiva.

### Kummi



- Over 300 women performed the **Kummi dance** in Madurai, as a protest against Tungsten mining.
- This ancient village dance of Tamil Nadu **originated before the use of musical instruments** and derives its name from “Komma,” meaning **“dance with clapping hands.”**
- Typically, women form a circle, clap rhythmically, and imitate activities like harvesting, while men may participate in some variations by forming an outer circle with sticks.
- The dance is performed to the accompaniment of **“Kummi songs”** and is commonly showcased during festivals like **Pongal**, celebrating the harvest season.

## National Geo-heritage Site

- The National Green Tribunal (NGT) has asked the **Geological Survey of India (GSI)** to address concerns about the deteriorating condition of the **Varkala cliff**, a national geo-heritage site of Kerala.
- The **GSI designates and protects geo-heritage sites** across India, which include geological monuments and landscapes that showcase geological processes.
- The designation is based on discussions with State governments and approval from **Ministry of Mines**.
- India has **92 such sites**, some of which are UNESCO World Heritage sites.
- GSI also promotes geo-tourism and awareness about preserving these natural wonders.

### Geological Survey of India (GSI)

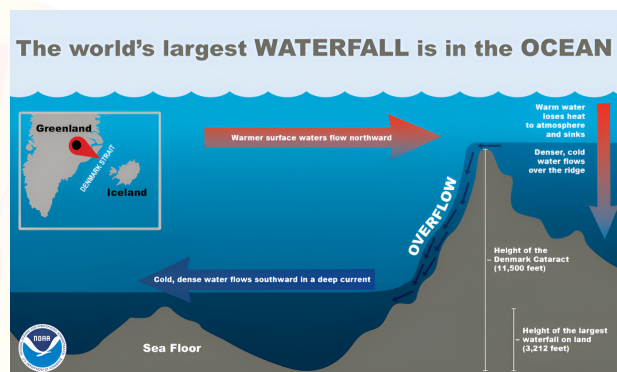
- GSI was established under **Geological Survey of India Act, 1851**, to locate coal deposits for the Railways, and is now a key repository of geoscientific data.
- It conducts **surveys, mineral assessments, and multidisciplinary studies**, focusing on **critical mineral exploration, landslide early warning systems, and enhancing surveying** through spatial databases and remote sensing.
- GSI is an attached office of the **Ministry of Mines**, with its headquarters in Kolkata and regional offices nationwide.

## Ocean Anoxic Event 1a (OAE 1a)

- A recent study of **rocks and fossils from Mount Ashibetsu, Japan**, has helped refine the timing of **Ocean Anoxic Event 1a (OAE 1a)**.
- OAE 1a is an extreme environmental disruption that **choked oxygen (anoxia) from Earth's oceans** to cause significant extinction, especially among plankton.
- It was supposed to have occurred during the **Mesozoic Era** (aka the "Age of Reptiles", lasting from 251.9 to 66 million years ago).

- OAE 1a, caused by massive undersea volcanic eruptions**, led to increased CO<sub>2</sub>, global warming, and ocean anoxia.
- The volcanic activity **created carbonic acid**, which dissolved sea creatures' shells and worsened oxygen depletion.
- Now, Researchers have **pinpointed that OAE 1a occurred 119.5 million years ago**, lasting just over 1.1 million years.

## Denmark Strait Cataract



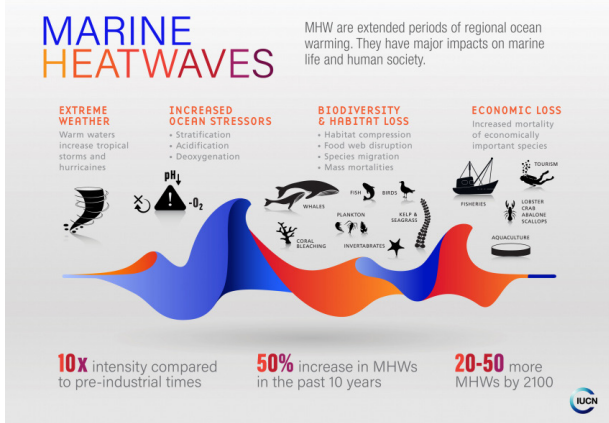
- The Denmark Strait cataract, the **largest waterfall on Earth**, has a vertical drop of 11,500 feet, over three times the height of Angel Falls of Venezuela.
- A cataract is typically a large waterfall or a rapid drop of water over a steep incline.
- Denmark Strait cataract is an underwater phenomenon, spanning 480 kilometers **between Greenland and Iceland**, is hidden beneath the Arctic waters.
- It was formed between 17,500 and 11,500 years ago by glaciers.
- Despite being invisible to the naked eye, the cataract plays a crucial role in global ocean circulation, driving the thermohaline circulation, or the ocean's conveyor belt.

## Marine Heatwave (MHW)

- The 2014-2016 Pacific marine heatwave caused the **largest documented vertebrate die-off**, wiping out over four million **Alaska Common Murres** (*Uria aalge*), representing more than half of the population.
- Common Murres are seabirds** that feed on small fish and krill by diving up to 200 meters.



- Marine heatwaves (MHWs) are prolonged periods of unusually warm ocean water that can harm ecosystems, causing coral bleaching and kelp forest declines.
- MHWs have **increased by 50%** in the past decade, becoming longer and more severe, often influenced by climate drivers like El Niño-La Niña.



## Environment & Ecology

### Atma Nirbhar Clean Plant Programme (CPP)

- India and the **Asian Development Bank (ADB)** signed a \$98 million loan agreement to boost horticulture productivity under the **Atma Nirbhar Clean Plant Programme (CPP)**.
- CPP aims to provide **disease-free, high-quality planting material for horticultural crops**, enhancing yields, quality, and climate resilience.
- The program will be implemented by National Horticulture Mission along with **Indian Council of Agricultural Research (ICAR)** at an **estimated cost of ₹2,200 crore (2024-30)**, and is co-funded by ADB (50%).
- It involves establishing 9 **Clean Plant Centres (CPCs)** in **ICAR** institutes, establishing robust **Certification System** in planting material production and **infrastructure support to large-scale nurseries**.

### 'High-risk' Food Category

- The FSSAI has **classified packaged drinking water and mineral water** as high-risk foods following amendments to the Food Safety and Standards Regulations, 2011.
- The packaged drinking water industry needed mandatory **dual certification** from both the Bureau of Indian Standards and FSSAI.
- The BIS clause was removed from the regulations to streamline the compliance burden of the industry.
- This reclassification **ensures stricter safety checks, including mandatory annual inspections** and third-party food safety audits for manufacturers.
- While **not indicating that the products are unsafe**, the move subjects them to more stringent regulatory oversight to prevent contamination.
- The **high-risk food categories including** animal products, food with specified nutritional use etc., are also foods that are at the highest risk of contamination



## India State of Forest Report (ISFR) 2023

- The “India State of Forest Report 2023” (ISFR 2023), 18th such report in the series, was recently revealed by the **Minister for Environment, Forest, and Climate Change**.
- The ISFR is brought out by the **Forest Survey of India (FSI) on a biennial basis** since 1987.
- FSI report is based on interpretation of **Remote Sensing satellite data and field based National Forest Inventory (NFI)**.
- The forests are primarily **categorized** into three types based on canopy density:
  - **Very Dense** Forests (canopy density over 70%),
  - **Moderately Dense** Forests (canopy density between 40-70%)
  - **Open Forests** (canopy density between 10-40%).
  - Areas with canopy density below 10% are classified as “**scrubs**”

### Key Findings:

- ▶ The total **Forest and Tree cover is 25.17%** of the geographical area of the country.
- ▶ **Forest cover (21.76%)**: Includes all lands with a tree canopy density exceeding 10% and covering at least one hectare, irrespective of land use or ownership.
- ▶ **Tree cover (3.41%)**: Refers to smaller tree patches outside officially designated forest areas, usually less than one hectare in size
- ▶ Compared to 2021, there is an **increase of 1445 sq km in the total forest and tree cover** of the country.
- ▶ **Area wise**: States having **largest forest cover** area are **Madhya Pradesh** (77,073 sq km) followed by Arunachal Pradesh (65,882 sq km) and Chhattisgarh (55,812 sq km).
- ▶ **Percentage of forest cover**: With respect to total geographical area, Lakshadweep (91.33%) has the highest forest cover followed by Mizoram (85.34%) and Andaman & Nicobar Island (81.62%).
- ▶ **States with maximum increase in forest and tree cover**: **Chhattisgarh** (684 sq km) followed by Uttar Pradesh (559 sq km), Odisha (559 sq km) and Rajasthan (394 sq km).

## Forest Survey of India (FSI)

- 🏛️ FSI is an organisation under the **Ministry of Environment & Forests**.
- 🏛️ Its principal mandate is to conduct **survey and assessment of forest resources** in the country.
- 🏛️ It was started as an organization called **Pre-Investment Survey of Forest Resources (PISFR)** in 1965 by the Government of India with the **sponsorship of FAO and UNDP**.
- 🏛️ It was **re-organized as Forest Survey of India in 1981**.

## Green Steel

- India has become the first nation to officially define “**green steel**”, in an effort to decarbonise the steel industry.
- Green Steel is defined in terms of its emissions intensity with a **threshold of less than 2.2 tonnes of CO2 emissions** per tonne of finished steel.
- A **star-rating system** evaluates emissions, with five stars for steel emitting under 1.6 tonnes of CO2.
- **National Institute of Secondary Steel Technology** under **Ministry of Steel** will be the certification agency.
- The Ministry of Steel is in the process of launching the **National Mission on Green Steel (NMGS)** and the **Green Steel Public Procurement Policy (GSPPP)**.
- India already has a **National Steel Policy 2017** targeting a production capacity of 300 million tonnes by 2030-31.

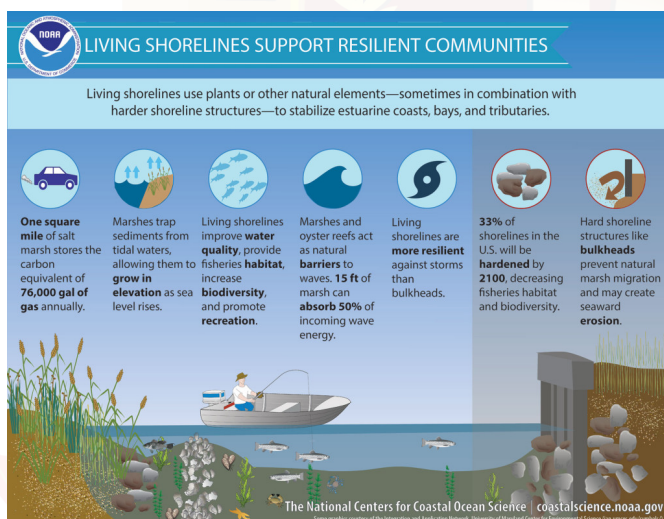
## Aravalli Green Wall Project (AGWP)

- AGWP aims to combat desertification and land degradation in the Aravalli mountain ranges, covering **Haryana, Rajasthan, Gujarat, and Delhi**.
- It is on the lines of the “Great Green Wall” running through the width of Africa, from Dakar (Senegal) to Djibouti.

- The project, launched in 2023, spans **6 million hectares**, to prevent eastward expansion of Thar Desert.
- It is an ambitious plan to **create a 1,400km long and 5km wide green belt** buffer around the Aravali Mountain range
- It focuses on planting native trees and shrubs on degraded land, restoring water bodies, and promoting agroforestry.
- It seeks to **enhance local livelihoods** while aiding carbon sequestration and mitigating climate change

## Coastal Hardening

- A study in **Nature** reveals that 33% of the world's sandy beaches have hardened, with the Bay of Bengal leading at 84% **coastal hardening**.
- Coastal hardening is the process of **building human-made structures on or near the ocean**, replacing natural coastlines with hard materials.
- These structures can include seawalls, roads, buildings, and other infrastructure.
- Following the Bay of Bengal, **western and central Europe** have 68% hardening, while the Mediterranean has 65%.



## Science & Technology

### Tinnitus

- Researchers at IIT Bombay have developed an affordable **tinnitus matching device**.
- Tinnitus, often caused by **acoustic trauma or age-related wear**, is a **condition** where individuals perceive sound without external stimuli.
- Tinnitus condition is commonly described as ringing in the ears and **affects over 740 million adults** globally,
- It results in severe sleep disturbance, depression, anxiety, negative impact on mental health, irritability, impacting social life.
- A **tinnitus matching device** helps identify the sound frequency and intensity perceived in tinnitus, enabling customized sound therapies to alleviate symptoms and improve quality of life.
- The device is **Internet of Things (IoT)** and **Internet of Medical Things (IoMT)** enabled at the clinic level and is indigenous and affordable.

### Tungsten mining

- The Centre's decision to allow tungsten mining in Tamil Nadu's **Madurai district** has sparked protests.
- Tungsten (W), is a rare metal and has the highest melting point (3,410°C) of known elements, extreme hardness, and high conductivity.
- Tungsten is crucial for aerospace, defense, medical, and green energy technologies.
- It is also known as **wolfram**, with resources primarily in Karnataka (41%), Rajasthan (27%), Andhra Pradesh (17%), and Maharashtra (11%).
- **China is the largest producer** of tungsten in the world, accounting for over 80% of global production.

- **Nayakkarpatti** in Madurai holds reserves of scheelite, the primary ore of tungsten
- Protests are mainly due to the inclusion of **Arittapatti village**, a biodiversity hotspot and a notified biodiversity heritage site, that has cave temples, Jain symbols, Tamil Brahmi scripts, Panchapandavar beds and is a habitat for rare species.

## Nano Bubble Technology

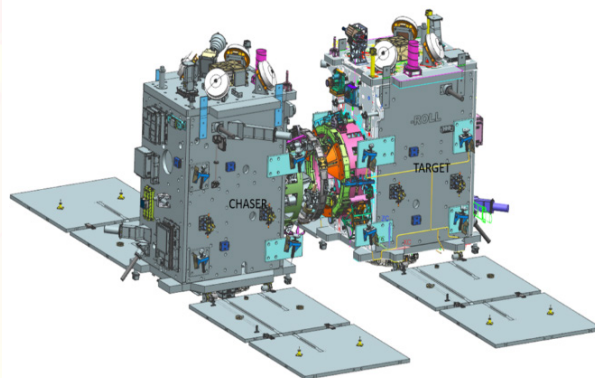
- The Government launched 'Nano Bubble Technology' at **Delhi's National Zoological Park** to improve water quality for aquatic animals.
- The technology **removes algae and similar growths**, preventing foul odors and discoloration.
- Nano bubble technology **involves creating tiny gas bubbles**, typically 70-120 nanometers in size, that are much smaller than a grain of salt.
- These bubbles are **neutrally buoyant**, meaning they can stay suspended in liquids like water for an extended period without rising to the surface.
- Nano bubbles have a strong **negative surface charge**, preventing them from merging and allowing them to effectively separate particles, oils, fats, and other contaminants from liquids.
- They are **hydrophobic**, meaning they repel water, which helps them lift organic and inorganic materials from surfaces.
- This technology is used in **applications** like water purification, cleaning, and improving the health of aquatic environments.

## Light echo

- Researchers have developed a new **method to study black holes** using their effect on light.
- When light passes near a black hole, its path bends, causing some **light to reach Earth at different times**.
- This results in light echoes, where two beams from the same source arrive at different points, with the second beam being an echo of the first.

- The **way light circles around a black hole** depends on its mass, radius, and, if spinning, its angular momentum.
- Scientists can use these light echoes to **determine the masses and spins of black holes**, as predicted by Einstein's general theory of relativity.

## SpaDeX Mission



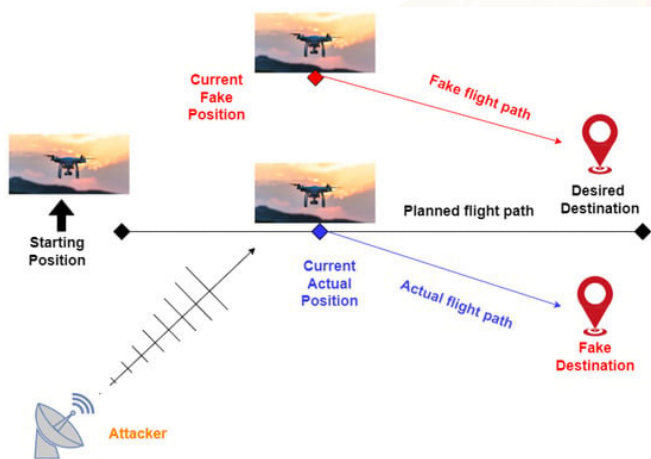
- India's Space Docking Experiment (SPADEX), launched by ISRO on **PSLV-C60**, positions India among global leaders in space docking technology.
- The mission aims to **develop and demonstrate rendezvous, docking, and undocking technology** for two small spacecraft in low-Earth orbit.
- The **Chaser spacecraft** is designed to autonomously rendezvous with and dock with the **Target spacecraft** in orbit.
- It also includes the **transfer of electric power** between docked spacecraft, spacecraft control, and payload operations after undocking.
- These capabilities are **key for future missions** like satellite servicing, space station operations, and interplanetary exploration.
- With this, India joins the **U.S., Russia, and China** in the elite group capable of spacecraft docking.

## GPS Spoofing

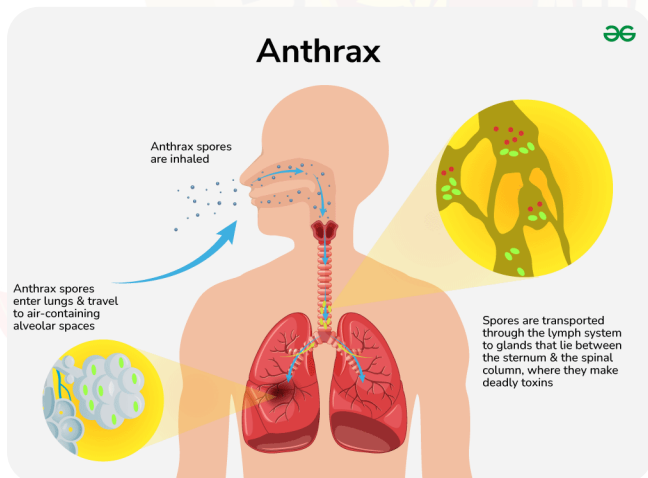
- GPS spoofing has been cited as a possible reason for the **Azerbaijan Airlines crash**.



- Instances of **GPS interference and spoofing on passenger aircraft** has been reportedly rising, particularly over conflict zones, including India's borders with Pakistan.
- 'Spoofing' involves **sending false GPS signals to mislead** navigation systems.
- It is often used in **modern warfare**, including against drones.
- GPS spoofing can **cause navigation errors**, such as incorrect speed displays or false terrain warnings.
- In case of GPS failure pilots can rely on the Inertial **Navigation System (INS)** that uses accelerometers and gyroscopes to calculate the aircraft's position based on its previous location, velocity, and altitude.



## Anthrax Disease



- A 30-year-old female elephant at **Kundukere Range Bandipur Tiger Reserve, Karnataka** died due to suspected anthrax.
- Anthrax is a serious illness caused by the **bacterium Bacillus anthracis**.

- Anthrax spores are highly resistant and can persist in soil, causing disease years after an outbreak.
- Wet weather or deep tilling can bring the spores to the surface.
- It primarily **affects livestock and wild game** and is a zoonosis, meaning it can **spread from animals to humans**.
- Skin infections are the most common form of human anthrax.
- Though it's **not transmitted person-to-person**, lesions may be contagious.
- Anthrax can be prevented with **vaccines** and treated with **antibiotics**.

## Kaveri engine



- The Kaveri engine, developed by the **Gas Turbine Research Establishment (GTRE)** under DRDO, is cleared for inflight testing.
- Initially started in the **1980s to power the Light Combat Aircraft (LCA) Tejas**, the project faced setbacks due to sanctions after the 1998 Pokhran tests.
- Revived in 2016, the focus shifted to developing a **dry version of the engine** for India's indigenous unmanned combat aerial vehicles (UCAVs) like Ghatak.
- **Enhancements**, including improved dry thrust and a new fan design, aim to make the engine compatible with future stealth aircraft.
- The "dry version" of an engine refers to a **variant of a jet engine** that does not have an afterburner.
- An **afterburner** is a component in some jet engines that adds additional fuel to the exhaust stream to provide extra thrust, but this increases fuel consumption and heat.

## Kisan Kavach

- The Government introduced **Kisan Kavach**, India's first anti-pesticide bodysuit, to protect farmers from pesticide exposure.
- Developed by the **Biotechnology Research and Innovation Council** in collaboration with **inStem**, Bangalore, the suit includes a full-body suit, mask, headshield, and gloves.
- Priced at ₹4,000, it is **washable, reusable**, and lasts up to two years (150 washes).
- The fabric **neutralizes pesticides using nucleophilic-mediated hydrolysis**, where a nucleophile bonds to cotton fibers to neutralize harmful chemicals.
- A nucleophile is an **electron donor** (has an electron pair available for bonding) that bonds to an atom other than hydrogen.

## Jupiter's Moon Io

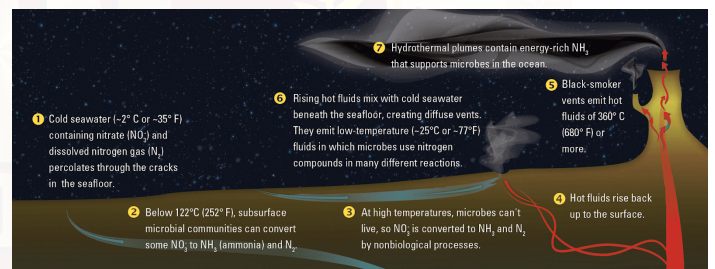
- NASA's **Juno mission** has revealed that the volcanoes on **Jupiter's moon Io** are likely powered by individual chambers of hot magma, not a single ocean of magma.
- Io, the **most volcanically active body** in the solar system, hosts about 400 volcanoes, erupting lava and plumes continuously.
- Its volcanic activity is driven by gravitational forces from **Jupiter** and neighboring moons **Europa** and **Ganymede**. Io also features lakes of molten silicate lava, and its eruptions are visible from Earth.

- Indian oceanographers have captured an image of an **active hydrothermal vent** 4,500 meters below the Indian Ocean's surface.
- This discovery is part of the **Deep Ocean Mission** by the Ministry of Earth Sciences, which explores potential for mineral resources.
- Hydrothermal vents**, typically located near tectonic plates, are underwater springs where **cold seawater (around 2°C)** interacts with magma beneath the seabed in tectonically active areas.
- As the **cold water seeps through cracks and fissures** in the ocean's crust, it mixes with the hot magma, becoming superheated to temperatures as high as 370°C.
- This heated water then rises as plumes, rich in minerals and gases, through chimneys and vents.

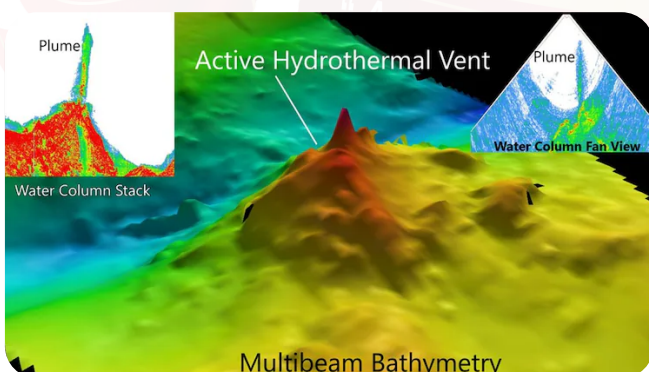
👉 **Chimneys** are tower-like mineral formations created as hot, mineral-rich water cools and deposits minerals.

👉 **Vents** are cracks in the ocean floor through which hot water and gases escape, ranging from small holes to large openings.

- These vents support unique ecosystems, providing nutrients for organisms like tubeworms and bacteria that thrive in extreme conditions.



## Hydrothermal Exploration Programme

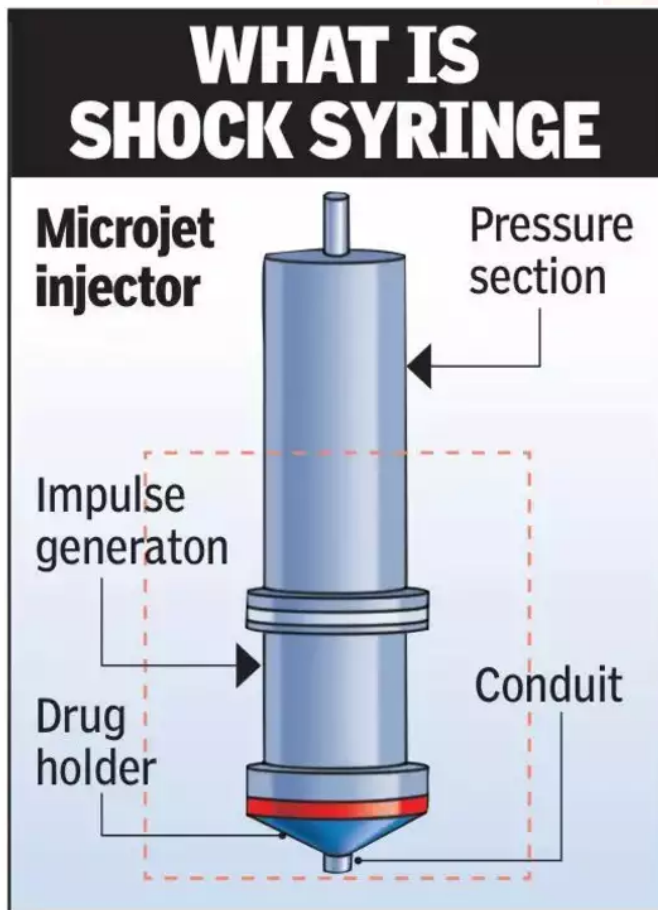


## Shock-Syringe

- Researchers at **IIT-Bombay** develop needle-free shock syringes for painless treatments.
- These syringes don't rely on piercing the skin with a sharp tip rather, **high-energy pressure waves (shock waves)**.
- The device features a **micro shock tube with three sections**: driver, driven, and drug holder, creating a shockwave-driven microjet for drug delivery.



- **Pressurized nitrogen** in the driver section propels liquid drugs into a high-speed microjet.
- This **microjet** travels nearly twice the speed of a commercial airplane at takeoff, which then **penetrates the skin** via the syringe nozzle.
- **Benefits** include faster immunisation drives, prevent the occurrence of bloodborne diseases caused by needle-stick injuries, perform multiple drug delivery shots, reliability and cost-effectiveness.





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# Defence

## Tartus and Khmeimim

- Russia has been pulling out its military installations from its bases in Syria following the fall of Bashar-Al Assad regime in Syria.
- Russia** had established a deep-water naval facility at Tartus and air base at Khmeimim airbase in Syria since the cold war era.
- They served as a **counterbalance to NATO** and for its power projection in the middle East and North Africa region.

### Russia at Risk of Losing Major Military Facilities in Syria

Russia's Khmeimim air base near Latakia and its Tartus naval base are key to its ability to project power into the Middle East and logistically support Russian paramilitaries in Africa. Russia secured full control over both facilities for 49 years as a result of agreements concluded in 2017.



- INS Tushil was built in Russia as part of **the Krivak III-class frigates under Project 1135.6**
- It is the **7th in the series** after **three Talwar-class** and **three Teg-class frigates** and the first of two follow-on ships being built in Russia.
- The second, **Tamal**, is expected in 2025.
- Powered by an advanced **gas turbine propulsion system**, it can achieve speeds over 30 knots.
- Designed for blue water operations, it is armed with advanced weapons like Brahmos supersonic cruise missiles and Shtil Surface-to-Air Missiles.

## Voronezh Airborne Early Warning Radar System



- India plans to procure **Russia's Voronezh radar system** for **\$4 billion** to enhance missile defense and surveillance.
- The deal includes over **50% domestic manufacturing**, supporting 'Make in India'.
- The Voronezh radar, with a **range of over 8,000 km**, can detect various aerial threats, including ballistic missiles and stealth aircraft.
- Compact and energy-efficient, it can **track nearly 500 targets simultaneously**, strengthening India's defense capabilities

## INS Tushil



- INS Tushil, the latest **multi-role stealth-guided missile frigate**, was commissioned into the Indian Navy.
- The term "**frigate**" refers to a class of medium-sized warships that are highly versatile and capable of engaging in operations across multiple domains (air, surface, underwater).

## Exercises

Exercise	Countries Involved	Force	Important Features
<b>AGNI WARRIOR</b>	Singapore & India	Army	Held at Field Firing Ranges, Devlali (Maharashtra)
<b>CINBAX</b>	Cambodia & India	Army	The 1st edition of Joint Table Top Exercise held at Foreign Training Node, Pune
<b>Harimau Shakti</b>	Malaysia & India	Army	The 4th edition was held at Bentong camp, Pahang district, Malaysia.
<b>SURYA KIRAN</b>	Nepal & India	Army	The 18th edition of Battalion Level Joint Military Exercise held in Nepal.
<b>SLINEX 24</b>	Sri Lanka & India	Navy	Held at Visakhapatnam under the aegis of the Eastern Naval Command.
<b>Desert Knight</b>	India, France, and the UAE	Air Force	An air combat exercise over the Arabian Sea conducted southwest of Karachi to boost military interoperability and enhance defence ties.
<b>AGNI WARRIOR (XAW-2024)</b>	India & Singapore	Army	The 13th edition of Military Exercise was held at Field Firing Ranges, Devlali (Maharashtra).

"Achieve your Dreams with Fortune"

## Miscellaneous

### 400 Million Dreams

- The **Economic Advisory Council to the Prime Minister (EAC-PM)** reports that domestic migration in India is slowing, with the total number of migrants declining.
- The EAC-PM used data from the **Indian Railway Unreserved Ticketing System (UTS)**, **TRAI mobile roaming data**, and **district-level banking data** to estimate migration.
- Uttar Pradesh, Maharashtra, Andhra Pradesh, Bihar, and West Bengal account for 48% of outbound migrants, while Maharashtra, Uttar Pradesh, Andhra Pradesh, West Bengal, and Tamil Nadu make up 48% of incoming migrants.
- The Northeast shows little outward migration, except from Assam, with most movement being to neighboring states.

#### TRACKING INTERNAL MIGRATION



**Overall non-suburban unreserved second class passenger numbers in 2023 are 11.78% lower.**

MIGRANTS IN INDIA (in cr)	
2011*	45.57
2023**	40.2

**Report hypothesises** that lower migration is due to availability of improved public services and economic opportunities

**Telecom data** suggests April-June is the high period for movement with November-December witnessing secondary highs

MIGRATION RATE (%)	
2011*	37.64
2023**	28.88

\*Based on 2011 census data, \*\* EAC-PM paper estimates

Source: EAC-PM working paper titled '400 Million Dreams!'

### Chronic Pulmonary Aspergillosis (CPA)

- An AIIMS study has shown that a common fungal infection called Chronic pulmonary aspergillosis (CPA) can be fatal for lung disease patients.
- CPA is a **severe fungal infection** that affects about 32% of people with prior lung damage, leading to a 5-year mortality rate if infected.

- Caused by **Aspergillus** mold spores, CPA leads to lung scarring and symptoms like fatigue, weight loss, breathlessness, and coughing blood.
- While **harmless to most**, it poses a risk to those with existing lung conditions.
- Treatment with **antifungal drugs or surgery** can improve symptoms and reduce the risk of death.
- Worldwide, CPA claims 340,000 lives annually.

### Global One-Stop Centres & Indian Community Welfare Fund (ICWF)

- The **Ministry of External Affairs (MEA)** launched **Global One-Stop Centres (OSCs)** in nine locations to support distressed Indian women abroad.
- The initiative, approved by the **Ministry of Women and Child Development**, aims to provide comprehensive assistance to women in vulnerable situations, addressing their immediate needs and offering critical support.
- Additionally, the **Indian Community Welfare Fund (ICWF)** provides support for:
  - Assisting **distressed Indian nationals** (boarding, lodging, air passage, etc.)
  - Community welfare** and consular service improvements
  - Legal support** for Indian women abandoned by their husbands.

### Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

- Recent studies have reclassified **Non-Alcoholic Fatty Liver Disease (NAFLD)** as Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD).
- It seeks to emphasise its link to metabolic issues like obesity, type 2 diabetes, and high cholesterol.
- Unlike the **previous focus on alcohol consumption**, MASLD identifies metabolic dysfunction as the main cause.
- Abdominal obesity is a major risk factor, making individuals 2-3 times more likely to develop the condition.



- Affecting 25% of people globally, **MASLD rates rise to 50-70% in those with type 2 diabetes or obesity.**
- Non-invasive tests, such as FibroScan, MRI, ultrasound, and blood tests, have improved diagnosis.
- A healthy diet can help manage MASLD.

### Network Readiness Index (NRI) 2024

- India secured **49th rank in the Network Readiness Index 2024 (NRI 2024).**
- It is an improvement of **11 places compared to last year** where India scored the 60th rank.
- The Report maps the **network-based readiness landscape of 133 economies** based on their performances in four different pillars: Technology, People, Governance, and Impact, covering a total of 54 variables.
- The report has been published by the **Portulans Institute, an independent non-profit research** and educational institute based in Washington DC.
- India secured **1st rank in 'AI scientific publications', 'AI talent concentration' and 'ICT services exports'.**
- India has ranked 2nd in the group of **lower-middle-income countries after Vietnam.**

### Dinga Dinga

- In **Uganda's Bundibugyo district**, around 300 people have been affected by a strange disease called Dinga Dinga
- It causes severe **tremors resembling dance-like movements.**
- Women and girls are mainly impacted by **Dinga Dinga**, which translates to "shaking like dancing."
- Symptoms include uncontrollable shaking, fever, weakness, and difficulty walking.
- While most recover within a week with treatment, the **exact cause remains unknown.**
- The condition has been compared to the historic **Dancing Plague of 1518**, which occurred in France, where people danced uncontrollably for days due to an unknown cause

### Archaea

- Recent studies on **archaea** highlight their **toxin-antitoxin (TA) systems**, which help them survive harsh conditions.
- Archaea are **among the oldest life forms**, thriving in **extreme environments** like hot springs and deep-sea vents.
- TA systems involve a **toxin** that disrupts cellular processes and an **antitoxin** that neutralizes it, offering protection under stress.
- Archaea are part of the **three main domains of life**, along with bacteria and eukaryotes
- Archaea, like **bacteria**, are **single-celled organisms** without nuclei, but they differ from bacteria in their **cell wall** composition and metabolism.
- **Eukaryotes**, unlike archaea and bacteria, have nuclei and can form multicellular organisms.

## Places in News

### Madhav National Park



- The technical committee of the **National Tiger Conservation Authority (NTCA)** approved the proposal to designate Madhav National Park in Madhya Pradesh's Shivpuri district as a **Tiger Reserve (TR)**.
- This will be the **eighth tiger reserve** of Madhya Pradesh.
- The National Park is situated on the northern fringe of the Central Highlands of India forming a part of the **Upper Vindhyan Hills**.
- This was notified as a **National Park in 1958**.
- Sakhya Sagar and Madhav Sagar** are the two lakes in the southern part of the park.
- ★ **Marsh Crocodiles** are in abundance in Sakhya Sagar lake.
- Madhya Pradesh has 785 tigers**, the highest in the country followed by Karnataka (563) and Uttarakhand (560).

### Cities in Syria falls to rebels

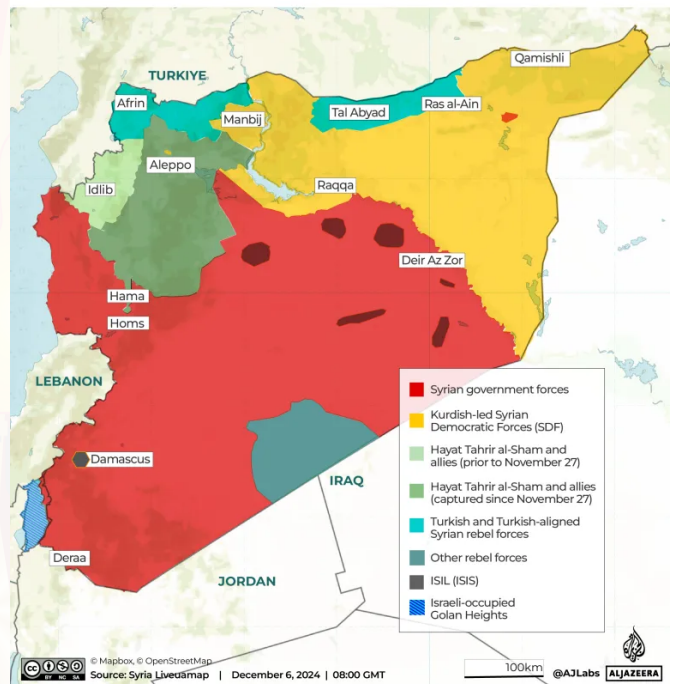
- Fall of important Syrian cities to rebel forces were reported in the media

- Rebels conquered Syria's second largest city **Aleppo** as well as **Darra**, dubbed "the cradle of the revolution" after activists accused the government of detaining and torturing a group of boys for scribbling anti-Assad graffiti on their school walls in 2011.
- The rebels led by Hayat Tahrir al-Sham (HTS) started from their stronghold at **Idlib**, in northwest Syria and captured **Hama and Homs** to cut off the Bashar Al Assad regime from the coastal access.

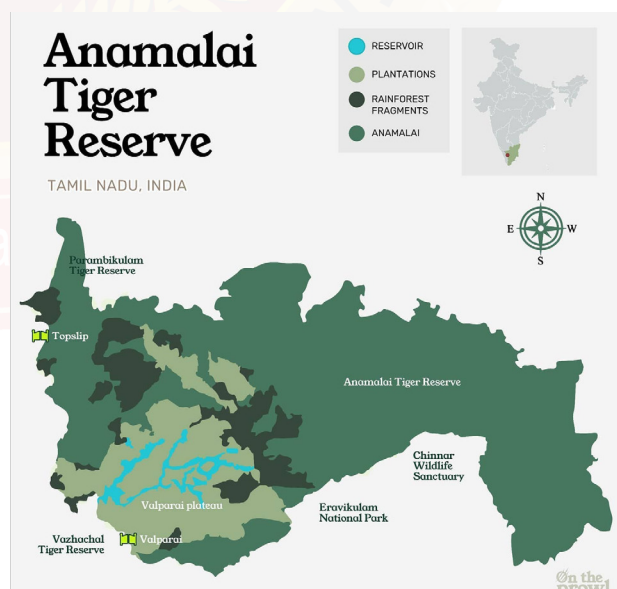
#### MIDDLE EAST

### Who controls what in Syria?

Syrian rebels captured the city of Hama on Thursday, a major victory in a week-old lightning advance across northern Syria and a devastating new blow to President Bashar al-Assad.



### Anamalai Tiger Reserve (ATR)



- Coimbatore District Collector accorded community forest rights under the **Forest Rights Act, 2006**, to three tribal settlements in the **Anamalai Tiger Reserve (ATR)**.
- ATR is located on the **southern side of the South Western Ghat** landscape.
- It was declared as a Tiger reserve in the year 2007.
- It is surrounded by **Parambikulam Tiger Reserve** on the East, **Chinnar Wildlife Sanctuary and Eravikulam National Park** on the South Western side.
- The Kariyan shola, Grass hills and Manjampatti of Anamalai Tiger Reserve has been identified as a **World Heritage Site by UNESCO**.
- The important **mammals** include: Asiatic elephant (*Elephas maximus*), Sambar (*Rusa unicolor*), Barking deer (*Muntiacus muntjac*), Gaur (*Bos garus*), Nilgiri tahr (*Hemitragus hylocrius*), Lion Tailed Macaque (*Macaca silenus*), & Nilgiri langur (*Trachypithecus johnii*).

- The Ken-Betwa Link Canal will be 221 km in length, including a 2-km tunnel.
- It is the first project under the **National Perspective Plan for interlinking of rivers**, which was prepared in 1980.
- The Project is expected to **address drinking and irrigation water needs of at least 10 districts of Madhya Pradesh** and various districts of **Uttar Pradesh in Bundelkhand**
- The project is also aimed at **generating more than 100 MW of hydropower** and 27 MW of solar energy.
- The project will involve large-scale deforestation and submergence inside the heart of the **Panna National Park and Tiger Reserve**.

### Ken-Betwa River Linking Project (KBLP)



Source: NWDA

- The Prime Minister laid the foundation stone for the **Ken-Betwa river-linking project** in Madhya Pradesh's Khajuraho.
- The KBLP envisages transferring **water from the Ken river to the Betwa river**, both tributaries of the Yamuna.

### Masali



- Masali in **Gujarat's Banaskantha district** has become the country's **first "border solar village"**.
- This achievement is after solar rooftop work in all 199 houses there was completed under the **Pradhan Mantri Surya Ghar Muft Bijli Yojana**.
- The village has a population of 800 and is situated just **40 kilometres from the border with Pakistan**.
- Pradhan Mantri Surya Ghar Muft Bijli Yojana is the **world's largest domestic rooftop solar initiative**.
- It aims to provide solar power to one crore households by March 2027.

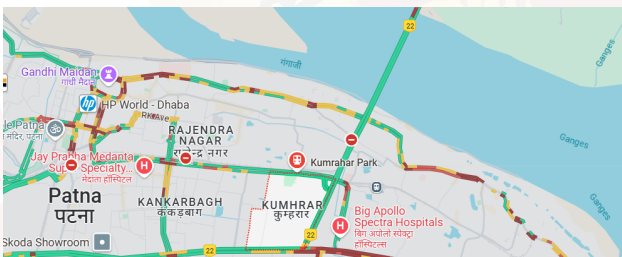


## Golan Heights



- Israel's government has approved a plan to increase the number of settlers in the illegally occupied Golan Heights.
- The Golan Heights is a **rocky plateau in south-western Syria**, about 60 km south-west of Damascus and covers about 1,000 sq km.
- **Israel seized the Golan Heights from Syria** in the closing stages of the **1967 Six-Day War**
- **Syria tried unsuccessfully to retake the Golan Heights** during the 1973 Middle East war.
- **Both countries signed an Armistice in 1974** and a UN observer force has been in place on the ceasefire line since 1974.
- However, Israel unilaterally annexed the Golan Heights in 1981.

## Kumhrar



- The **Archaeological Survey of India (ASI)** has commenced the process of unravelling a portion of the **'80-pillared assembly hall'** at **Kumhrar**.
- Experts believe that this hall was where Emperor Ashoka is said to have called the **third Buddhist Council**.

- **Kumhrar is an area in Patna** where the remains of the ancient city of Pataliputra, the capital of the Mauryan Empire, were uncovered.
- Archaeological finds here, **dating back to 600 BCE**, shed light on the history of the city and its rulers, including **Ajatasattu, Chandragupta Maurya, and Ashoka**.
- The site contains remnants from four distinct historical periods, ranging from 600 BCE to 600CE.

## Kerch Strait

### Crimean bridge across the Kerch Strait



- Two Russian oil tankers have been badly damaged in the Black Sea, causing an oil spill.
- The Kerch Strait in Eastern Europe is 3.1 kilometres to 15 kilometres wide and up to 18 metres deep.
- The Kerch Strait separates the **Russian-occupied Crimean Peninsula from Russia** and is an important global shipping route, providing passage from the **inland Sea of Azov to the Black Sea**.
- It has also been a key point of **conflict between Russia and Ukraine** after Moscow annexed the peninsula in 2014.

## Nicaragua



- India, Nicaragua sign agreements to implement **Quick Impact Projects (QIPs)**.
- Nicaragua is the largest country in Central America.
- The country is bordered by **Honduras to the north and Costa Rica to the south**.
- The Pacific Ocean provides the border to the west, and the eastern border of the country is on the Caribbean Sea.
- Along the eastern coast, the area **called the Mosquito Coast** receives the most annual rainfall in Central America: 100 to 250 inches

## Slovenia



- India and Slovenia have announced a **Programme of Cooperation (2024–2029)** to enhance scientific and technological ties.
- Slovenia, a **Central European nation**, borders Austria, Hungary, Croatia, and the Mediterranean.
- It features **diverse landscapes**, including the Alps, Dinaric Alps, Pannonian lowlands, and Mediterranean coast.
- Slovenia was the first **former Yugoslav republic** to join the EU in May 2004, shortly after joining NATO.

## Species in News

### Red-breasted Flycatcher



- Telangana witnessed the sighting of a rare bird, the Red-Breasted Flycatcher, at **Ameenpur Lake, Hyderabad**.
- The **Red-Breasted Flycatcher (Ficedula parva)** is a small bird, measuring just 12 centimetres.
- Every year, it undertakes an incredible migration from **Eastern Europe to South Asia, seeking warmer winters and abundant food**.
- Males have a **reddish-orange throat** that extends till the upper breast, whereas the females are overall brown.
- Both have creamy-white underparts.

### Subabul Tree





- Researchers have identified the **seed pods of Subabul (*Leucaena leucocephala*)** as having potential to manage insulin resistance in type II diabetes.
- Subabul, a fast-growing **leguminous tree** introduced to India from Hawaii in the 1980s for dryland forestry, thrives in **low-rainfall areas**.
- *Leucaena* provides **medium-density wood, high-protein fodder from its leaves and fixes nitrogen** in the roots which help the soil.
- Its leaves and immature seeds, rich in protein (29%) and fiber, are **consumed raw or cooked in soups** and salads by various ethnic communities.
- It is considered as one of the **100 worst invasive species** by the Invasive Species Specialist Group of the **IUCN Species Survival Commission**.
- This is mainly due to its **rapid growth, adaptability and allelopathy** (releases certain chemicals that inhibit the growth of nearby plants)

### The Little Gull



- The **Little Gull, native to Eurasia**, was spotted for the first time in the National Capital Region at **Chandu wetlands near Sultanpur National Park**.
- Experts think that the **birds may have lost their way** due to disorientation from storms or congenital issues with their internal magnetic compass.
- Little Gulls, the **smallest gull species** in the world, breed in marshy wetlands of the Palearctic region, including Scandinavia, the Baltic Sea, and East Siberia, and migrate to coastal waters in winter.
- The species is classified as **“Least Concern”** by the IUCN Red List.

### Laysan Albatross



- The world's **oldest known wild bird**, a 74-year-old Laysan albatross (*Phoebastria immutabilis*) named Wisdom, has laid an egg.
- Tagged in 1956, Wisdom has returned annually to **Midway Atoll in the Pacific** since 2006 to nest, often with her mate, Akeakamai.
- Laysan albatrosses are known for their exceptional longevity, form lifelong bonds and **typically lay one egg per year**.
- **Midway Atoll**, part of the Hawaiian archipelago but an unincorporated US territory, hosts the largest albatross colony in the world.
- **Highly skilled gliders**, they spend most of their life at sea, returning to land only to breed.
- Found primarily in the North Pacific Ocean, they are listed as **Near Threatened** by the IUCN.

### Bald Eagle





- The Bald Eagle (*Haliaeetus leucocephalus*) has been declared the **national bird of the USA**, appearing on the Great Seal since 1782.
- **Indigenous to North America**, these majestic birds have white heads (hence the name ‘bald’) contrasting with their brown bodies.
- Primarily **piscivorous (fish-eating) but also scavenges** and steals food from other birds.
- Builds large nests **called eyries**, often reused and expanded annually, making them some of the largest bird nests recorded
- Once endangered due to habitat loss, hunting, and DDT pesticide use, it is now listed as **“Least Concern” by the IUCN** due to conservation efforts.

### Helmeted Water Toad



- A giant frog species that hopped alongside dinosaurs and is considered a **“living fossil”** is **now losing ground in its native Chile** as climate change and human intervention damage its habitat.
- The Helmeted Water Toad or *Calyptocephalella Gayi*, is **one of the largest frogs in the world**, growing up to over 30 cm (1 foot) in length and weighing up to 1 kg (2.2 lbs).
- The Helmeted Water Toad’s environment spans from the **northern region of Coquimbo (northern Chile) to the southern island of Chiloe (west coast of Chile)**.
- Its population is suspected to have declined by **at least 30% since 1990** and it is listed as **“Vulnerable” on the IUCN Red List**.

### The Gympie-Gympie



- The Gympie-Gympie (*Dendrocnide Moroides*), **native to Australia**, is considered the **most toxic plant globally** due to its excruciating sting.
- Found in rainforest areas of **Australasia and Indonesia**, it is covered with hair-like needles filled with a **powerful neurotoxin**.
- This toxin **targets pain receptors** and disrupts nerve functions, causing excruciating pain that can last for an extended period.
- Despite being a plant, its toxins are a defensive mechanism and **behave similarly to venom** from creatures like spiders and cone snails.

### Red Pandas



- West Bengal welcomed two red pandas, Vishal and Koshi, from the Netherlands to the **Padmaja Naidu Himalayan Zoological Park (PNZP) in Darjeeling**.
- This is aimed at enhancing genetic diversity in the country’s most successful red panda breeding program.
- The red panda (*Ailurus fulgens*), native to the **eastern Himalayas and southwestern China**, is listed as **Endangered** by the IUCN.
- Red pandas are technically carnivores, but they’ve adapted to feed almost exclusively on bamboo.

- The two currently recognised **subspecies**, the Himalayan and the Chinese red panda, genetically diverged about 250,000 years ago.
- PNZP, established in 1958, started its **conservation breeding program in 1986**, and currently hosts seven males, 12 females, and two cubs.

## Indian Pangolins

### PANGOLIN SPECIES

#### Asia



**Sunda pangolin**  
*Manis javanica*  
Also found in Singapore!  
**Critically Endangered**



**Chinese pangolin**  
*Manis pentadactyla*  
**Critically Endangered**



**Indian pangolin**  
*Manis crassicaudata*  
**Endangered**



**Philippine pangolin**  
*Manis culionensis*  
**Critically Endangered**

#### Africa



**Black-bellied pangolin**  
*Phataginus tetradactyla*  
**Vulnerable**



**White-bellied pangolin**  
*Phataginus tricuspis*  
**Endangered**



**Giant Ground pangolin**  
*Smutsia gigantea*  
**Endangered**



**Temminck's Ground pangolin**  
*Smutsia temminckii*  
**Vulnerable**

- Recent poaching cases in Telangana have raised concerns about pangolin smuggling.
- The **Indian pangolin (Manis crassicaudata)**, listed as **Endangered** by the IUCN Red List, is one of eight pangolin species worldwide.
- Protected under Schedule 1 of the **Wildlife Protection Act, 1972** and **CITES**, the Indian Pangolin is widely distributed in India, except the arid region, high Himalayas and the North-East.
- India is also home to the **critically endangered Chinese Pangolin (Manis pentadactyla)** that ranges through Assam and Eastern Himalayas.
- Known for its protective **armored scales** (only known mammal), the pangolin curls into a ball when threatened, making it vulnerable to poachers.
- These toothless and nocturnal mammals are targeted for its meat, scales used in traditional medicine, and for exotic coats.

## Feral Horses



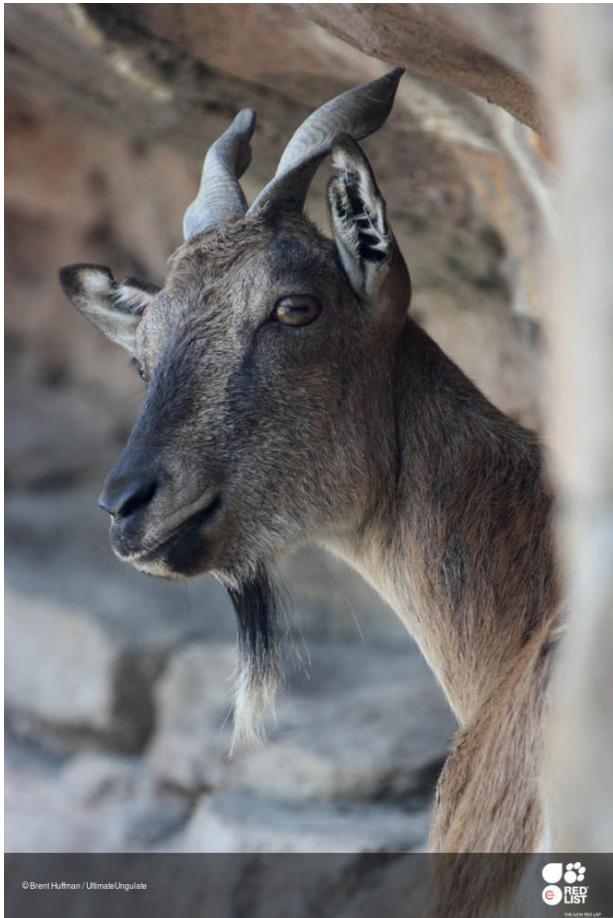
- The National Green Tribunal (NGT) has brought attention to the **feral horses** in Dibru-Saikhowa National Park, Assam.
- A **feral horse** is a domestic horse that has escaped, strayed, or been released into the wild and is now living independently
- The Dibru Saikhowa National Park in Assam is the **only place in India** to find **feral horses (Equus caballus)**.
- These horses are believed to be **descendants of war horses from World War II**, while other theories suggest they could be descendants of **China's Przewalski's horses**.
- The horses face threats from smuggling and dwindling grazing grounds and habitat.
- Feral horses are different from wild horses that haven't descended from domesticated horses.

## Markhor

- An injured male markhor, **Pakistan's national animal**, was rescued near Kashmir's **Kazinag National Park**.
- **Native to Central and South Asia**, including Pakistan, Afghanistan, and India, the markhor (*Capra falconeri*) is a large wild goat listed as **Near Threatened** by the IUCN.
- Its name means "snake eater" in Pashto and Persian.
- Standing 95–102 cm at the shoulder, it has long, **corkscrew-shaped horns** (up to 160 cm) and a reddish-brown summer coat that turns gray and silky in winter.



- The United Nations General Assembly declared **24 May as the International Day of the Markhor**



### Murder Hornets



- **The Northern giant hornet**, nicknamed the “murder hornet”, has been eradicated in the United States, the Department of Agriculture said recently.

- The hornets (*Vespa mandarinia*) can be **2 inches long** and are an **invasive species from Asia**.
- The Hornet is native to **subtropical and temperate mountainous regions of Asia**, including northern India, the Korean peninsula, and Japan.
- They first came under the spotlight in 2013 when they **killed at least 42 people in China**, and seriously injured 1,675.
- The species poses a **significant threat to insects and native pollinators**.
  - Murder hornets can kill an **entire bee hive of honeybees in just 90 minutes**.
  - The hornets then defend the hive as their own, taking the brood to feed their own young.
- Northern giant hornets **can sting through most beekeeper suits**, delivering almost seven times the amount of venom as a honey bee.
  - ★ Moreover, they have the ability to sting multiple times.





## Keywords

1. **Bromalites:** By studying ancient **dinosaur faeces (coprolites)** and **fossilised food remains (bromalites)**, new research has traced the eating habits of dinosaurs over 30 million years, shedding light on their rise to dominance during the Triassic Period..
2. **Gait Analysis:** It is a noninvasive procedure that **evaluates how a person moves**, usually while walking or running, to identify any abnormalities in their locomotion. It's also known as **motion analysis**. It was used to arrest the accused of raping a 7-month-old in Bengal.
3. **Dragnet surveillance:** It refers to **large-scale data collection**, targeting not just suspects but entire populations. This indiscriminate approach raises **privacy concerns** due to its broad scope, akin to a fishing net designed to catch criminals.
4. **Kessler Syndrome:** Refers to a theoretical scenario in which the density of objects in **low Earth orbit (LEO)** becomes high enough that **collisions** between these objects create a **cascade of debris**. This debris then increases the likelihood of further collisions, leading to more debris, and this cycle can rapidly escalate.
5. **Hydroponic Farming:** Hydroponics is the technique of growing plants using a **water-based nutrient solution** instead of soil, with optional growing media like **vermiculite or coconut coir**. In hydroponics, plants receive all necessary nutrients from the water solution, eliminating the need for soil..
6. **Glass Child Syndrome:** It refers to the experience of a **sibling** growing up with a special needs sibling, often **feeling overlooked** and emotionally neglected as parents focus on the child with **special needs**, leaving the "glass child" feeling invisible and unmet. It is not a medical condition or diagnosis.
7. **Hybrid Aerogel:** The Indian scientists have developed a novel hybrid aerogel capable of easily **extracting gold from electronic waste**. A hydrogel is a **polymer network** that absorbs and retains large amounts of water, used in **applications** like wound care, drug delivery, and contact lenses due to its moisture-retaining and cushioning properties..
8. **Lithium Triangle:** is a region of the **Andes that is rich in lithium reserves** with more than 75% of the world's supply encompassed by the borders of **Argentina, Bolivia, and Chile**. The lithium in the triangle is concentrated in various salt pans that exist along the Atacama Desert and neighboring arid areas.
9. **Super Aged Society:** South Korea has become a Super Aged Society and this means over 20% of the population is 65 and older. The UN classifies countries with more than 7% of the population 65 or older as an **"aging society,"** those with over 14% as an **"aged society"** and those with more than 20% as a **"super-aged" society**.
10. **Mirror Bacteria:** Recent developments in synthetic biology have raised alarms among scientists regarding the creation of "mirror bacteria," which refers to **synthetic organisms** with molecular structures that are the **opposite of those found in nature**.

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Ernakulam



**Safna Nazarudeen IAS**  
Sub Collector (SDM)  
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