Factly Weekly

Compilation

2025

For UPSC CSE Prelims Exam

2nd Week

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INDEX

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News: The second edition of SheLeads workshop was recently inaugurated.

About SheLeads Programme

- **It is a flagship Initiative** organised by the **UN Women India Country Office** to advance gender equality in public and political leadership.
- **Objective** – Equip women with **skills, networks, and capacity** to lead effectively in governance and development.
- **Aim:** Aimed at promoting gender equality in public and political leadership by empowering women leaders to contest the Lok Sabha and State Assembly elections.

About UN Women

- **About UN Women** – It is a United Nations (UN) dedicated organization focused on promoting **gender equality** and **women's empowerment**.
- **Establishment** – Created in **July 2010** by the UN General Assembly.
- **Key Roles**:
  - **Policy Support** – Assist inter-governmental bodies like the **Commission on the Status of Women** in developing policies, global standards, and norms.
  - **Implementation Assistance** – Help member states implement these standards by providing technical and financial support on request.
  - **Partnership Building** – Forge strong collaborations with **civil society** to advance gender equality and women's rights.

Starfish

News: Scientists have discovered that a bacterium caused the 2013 starfish die-off, which killed about 5 billion sea stars by causing sea star wasting disease, where their limbs fall off and bodies break down.

About Starfish

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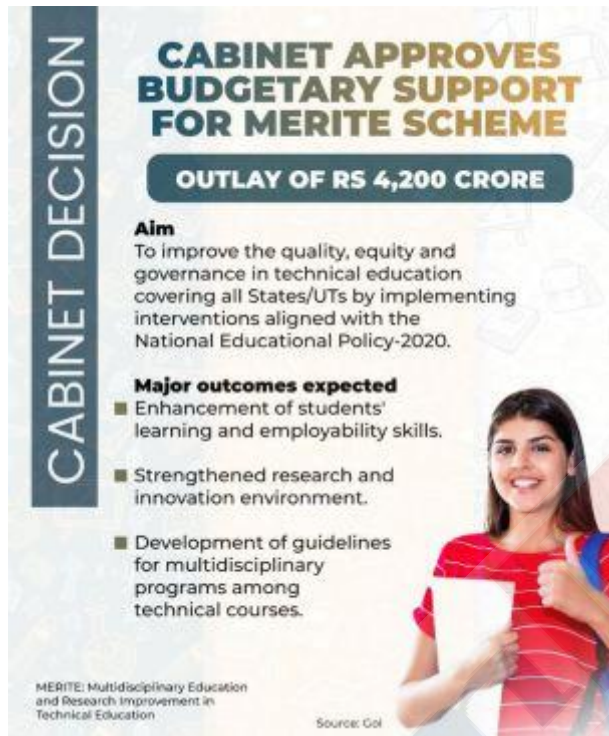Visit academy.forumias.com for our mentor based courses.
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Source – National Geographic

- Starfish are marine animals belonging to the echinoderm group, commonly called "sea stars" due to their distinctive star-shaped body.
- **Feeding:** They are primarily predators, preying on invertebrates like mussels and clams.
- **Regeneration:** Many species possess the ability to regenerate lost or damaged arms.
- **Circulatory System:** They lack blood; instead, seawater circulates through their water vascular system to transport nutrients and oxygen.
- **Habitat** – They are **benthic in nature.** They are **found in all marine environments, from intertidal zones to depths of 6,000 m.**

MERITE Scheme

News: The Union Cabinet has approved the proposal for implementation of the 'Multidisciplinary Education and Research Improvement in Technical Education' (MERITE) Scheme in 275 technical institutions comprising 175 engineering institutions and 100 polytechnics.

About MERITE Scheme

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Source – PIB

- It is a key initiative aimed at **enhancing the quality, equity and governance of the participating technical institutions.**
- **Full Name:** Multidisciplinary Education and Research improvement in Technical Education (MERITE) Scheme
- **Objective:** The objective of the scheme is to **improve the quality, equity and governance** in **technical education** covering all States/UTs by implementing interventions aligned with the National Educational Policy-2020 (NEP-2020).
- **Collaboration:** The scheme has been **formulated** in collaboration with the **World Bank**.
- **Nodal Ministry:** Ministry of Education
- **Type:** Central Sector Scheme
- **Budget and timeline:** The scheme will has a total **financial implication of Rs.4200** crore for a period from **2025-26 to 2029-30.**
  - Out of Rs.4200 crore, there will be an **external assistance of Rs.2100 crore from World Bank as loan.**
- **Beneficiaries**
  - It will be implemented in in 275 technical institutions comprising 175 engineering institutions and 100 polytechnics.
  - An estimated **275 Government/ Government-aided technical institutions** are expected to be selected and supported under the scheme.
  - This will include selected National Institutes of Technology (NITs), State Engineering Institutions, Polytechnics and Affiliating Technical Universities (ATUs).
  - The State/ UT departments handling technical education sector will also be supported through MERITE scheme.
  - About 7.5 Lakh Students will be benefitted from the Scheme.
- **Benefits**

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- ○ Digitalization strategies in participating States/ UTs,
- ○ Development of guidelines for multidisciplinary programs among technical courses,
- ○ Increase in learning and employability skills of students,
- ○ Increase in transition rate of students across student groups,
- ○ Strengthened research and innovation environment,
- ○ Better quality assurance and governance mechanisms resulting in long term benefits,
- ○ Increase in accreditation and better Technical Education Institution – level Quality Assurance,
- ○ Relevant, labour market-aligned curriculums and blended courses developed and rolled out and
- ○ Development of future academic administrators especially women faculty.

RBI Grants AU Small Finance Bank Universal License, First in a Decade

News: The Reserve Bank of India has granted AU Small Finance Bank a universal banking license, the first in a decade, potentially paving the way for other small finance banks to transition.

RBI Grants AU Small Finance Bank Universal License, First in a Decade

Source – CNBC TV

- The license was given under the **RBI's 'on tap' licensing guidelines** and the **framework for the voluntary conversion of small finance banks to universal banks.**
- **Eligibility criteria:**
  - ○ The **listed** small finance banks with **minimum net worth of Rs 1,000 crore at the end of the previous quarter** are eligible to apply for a transition.
  - ○ They also need to have a **minimum 15% capital to risk-weighted assets ratio** and **net profits in the preceding two financial years.**
  - ○ **NPAs:** Their **gross non-performing assets** has to be **less than or equal to 3%** for **two preceding financial years** while the **net non-performing assets** has to be **less than or equal to 1%** for two preceding financial years.
  - ○ They should also meet the **prescribed CRAR requirements** for SFBs.
- **Importance:** The universal bank status will allow AU Bank to offer a wide range of financial services and products under one roof without many restrictions unlike a small finance bank.

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- **Past examples:** The last time RBI granted universal banking license to **Bandhan Bank and IDFC Bank (now IDFC First Bank) was in April 2014.**

About Small Finance Banks

- Small Finance Banks are **specialized financial institutions** set up to foster **financial inclusion** by delivering **basic banking services** to underserved and unbanked segments of the population.
- **Genesis:** Announced in the Union **Budget of 2014-15**
- **Key Features of SFBs:**
  - **Regulated by RBI:** Function under the **Banking Regulation Act, 1949,** and other relevant laws.
  - **Basic Banking Services:** Offer savings accounts, current accounts, fixed deposits (FDs), recurring deposits (RDs), and loans.
  - **Scheduled Bank Status:** Granted upon meeting eligibility criteria under the RBI Act, 1934.
  - **Priority Sector Focus:** Required to allocate at least 60% of ANBC to PSL sectors like agriculture and MSMEs.
  - **Capital Requirement:** Must have a minimum paid-up capital of ₹200 crore.
  - **No Subsidiaries:** Not allowed to set up subsidiaries for non-banking financial services

Key Facts about Nauru

News: The remote Pacific nation Nauru is selling passports to fund climate action has approved but received just six applicants since early this year.

Key Facts about Nauru

Source – Britannica

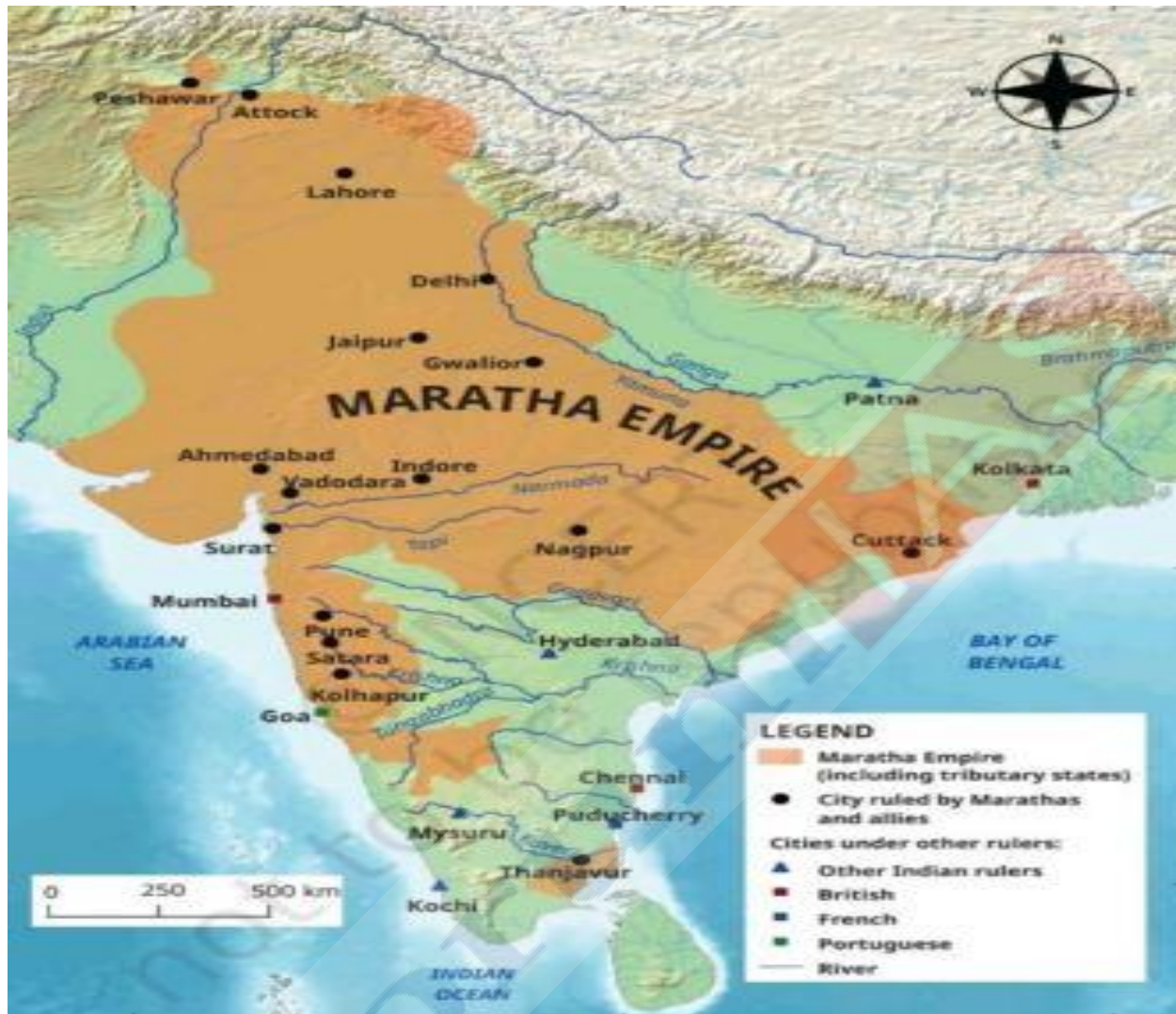- **Location:** It is a tiny island located in north-east of Australia, **42 km south of the equator**.

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- It lies within the **Micronesia sub-region of Oceania**, with its **nearest neighbour** being **Banaba (part of Kiribati)** about 300 km to the east.
- It was **formerly** known as **Pleasant Island**.
- **Reef system:** A **coral reef** surrounds the entire island which is **dotted with pinnacles**. Hence, there **no specific port located** at the coast of the country.
- **Geology:** It is a **phosphate-rock island** with rich deposits near the surface.
- **Highest point:** The **Command Ridge** is the highest point at **71 m** above sea level.
- **Climate**: Its climate is **hot and very humid year-round** because of its **proximity** to the equator and the ocean.
- **Smallest island country:** It is the **third-smallest country** in the world, after Vatican City and Monaco, with an area of **only 21 sq. km**.
  - So, it is the **smallest island nation** in the world.
- **International co-operation:** It is a member of the **United Nations**, the **Commonwealth** of Nations, and the **Organisation of African, Caribbean and Pacific States**.
- **Governance system:** It is a **republic** with a **parliamentary system** of government.
  - The **president** is both **head of state and head of government** and is dependent on **parliamentary confidence** to remain president.
- **Water source:** The **Buada Lagoon**, located inland, is a **rare freshwater resource** but is an **endorheic basin** (not connected to the sea).

Maratha Empire

News: A map showing the extent of the Maratha Empire in 1759 in the new NCERT Class 8 social science textbook has run into a controversy. **Maratha Empire history and rulers**

About Maratha Empire

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Source – NCERT

- The Marathas emerged as a formidable power in the **17th century** in the Deccan region (modern-day Maharashtra).
- **Founder: Chhatrapati Shivaji Maharaj (1630–1680),** who established **Hindavi Swarajya** by challenging Mughal and Bijapur rule.
- **Geographical extent: Initially** centered in **Maharashtra**, the Maratha influence expanded to parts of **Karnataka, Madhya Pradesh, and beyond**.
- **Coronation and title:** Shivaji assumed the title **Chhatrapati in 1674 at Raigad Fort,** marking the **formal establishment** of the Maratha Empire.

Marathas after Chhatrapati Shivaji Maharaj

- **Shivaji had two sons – Sambhaji and Rajaram**.
- **Sambhaji's reign**
  - After Shivaji's death, **Sambhaji became the Chhatrapati**.
  - The Marathas were then the **only obstacle to total Mughal control** of the Deccan.
  - **Aurangzeb invaded** the Deccan and **conquered** the Bijapur (or Adil Shahi) and Golconda (or Qutb Shahi) Sultanates.

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- ○ He then **captured Sambhaji** and, after torturing him brutally, **executed**
- ○ After this, he **captured Raigad**, the Maratha capital.
- **Rajaram's reign**
  - ○ After Sambhaji, **Rajaram became the Chhatrapati** and fled to Gingee (in present-day Tamil Nadu).
  - ○ Aurangzeb was **unable** to leave the Deccan and **died** without having succeeded in subduing the Marathas.
- **Decentralized empire**
  - ○ The centralised state from Shivaji's time gave way to a more **decentralised structure**, still nominally **centred around the Chhatrapati**, but with the **chiefs wielding more power**.
  - ○ In particular, the **Peshwa** (a Persian term for **'prime minister'**) wielded great influence, even over the Chhatrapati himself.
  - ○ In particular, **Peshwa Bajirao I** and his son **Nanasaheb Peshwa were** instrumental in the pan-Indian expansion of the Marathas.

Important Battles of the Maratha Dynasty

Battles	Descriptions
Battle of Pratapgarh (1659)	Fought between Marathas and Adilshahi forces
Battle of Kolhapur (1659)	Fought between the Maratha king Shivaji and the Adilshahi forces
Battle of Surat (1664)	Fought between Maratha ruler Chhatrapati Shivaji Maharaj and Inayat Khan, a Mughal captain.
Battle of Purandar (1665)	Fought between the Maratha and the Mughal Empire
Battle of Salher (1672)	Fought between the Maratha Empire and the Mughal Empire
Battle of Sangamner (1679)	Fought between the Mughal Empire and Maratha Empire. This was the last battle fought by Shivaji.
First Anglo-Maratha War (1775-82)	The war ended with the Treaty of Salbai 1782.
Second Anglo-Maratha War (1803-05)	**Treaty of Bassein (1802)** – Signed between Peshwa Baji Rao II and the British East India Company. Treaty of Deogaon (1803) – Signed between Raghuji Bhonsle II of Nagpur and Sir Arthur Wellesley of the British East India Company

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Third Anglo-Maratha War (1817-19)	Some important treaties were signed. These were: Treaty of Poona (with the Peshwa), Treaty of Gwalior (with Sindhia), Treaty of Mandasor (with Holkar).

Civilian administration

- Shivaji instituted a relatively **centralised administration** for his kingdom.
- He **abolished the hereditary posts** (generally practiced under the Sultans or the Mughals) and land assignments and **paid a salary** to every government official out of the state treasury.
- Many officials were periodically **transferred** as well, ensuring that they would not have enough power to dictate terms to the king.
- Shivaji also gave **pensions to widows** of soldiers who died in battles, even offering **military posts to their sons,** thus demonstrating his care for the soldiers and their families.
- **Council of ministers:** To assist the king, there was a council of state ministers known as **ashtaptadhana**:
  - Peshwa (Prime Minister): He was the head of both civil and military affairs.
  - Mazumdar (auditor): He looked into the income and expenditure of the state.
  - Wakins: He was the in-charge of king's private affairs.
  - Dabir : Foreign secretary
  - Sumis (superintendent): He used to take care of all the official correspondences.
  - Pandit Rao: Ecclesiastical head
  - Senapati: Commander in chief
  - Nyayadhish: Chief Justice
- **Tex system:** The Marathas often levied taxes called **chauth (25 per cent)** and **sardeshmukhi (an additional 10 per cent to chauth)** from provinces that were **not directly under them**, including places in the **Deccan and north India**.
- In return, the **Marathas protected** those provinces and did not intervene in their internal administration.
- The **Mughals also approved of this arrangement** through various treaties, and over time, some of these provinces became a part of the Maratha Empire.

Judicial system

- The Marathas had an **efficient judicial system**, remarkable for its moderation in using **capital punishment (the death penalty).**
- The **panchayat** was a **local gathering of officials and prominent men**, and the **main body that delivered justice**.
- An **appeal** could be made to a **Maratha chief** in case of an unsatisfactory verdict.
- Additionally, in various prominent **towns** such as **Pune, Indore, etc**., the **kotwāl or the police** was also deployed to ensure law and order within the city.

Military administration

- The Maratha armed forces were **divided into three parts – infantry, cavalry and navy.**
- **Cavalry:** The cavalry was made up of **two types of soldiers –**
  - **the bārgīrs**, whose horses and equipment were paid for by the state,
  - the **shiledārs**, whose horses and equipment were paid for by the soldiers themselves.

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- In the 18th century, the Marathas also noticed the superiority of **European style disciplined troops and artillery**, and they tried to raise and recruit such troops.
  - In particular, **Mahadji Shinde** had a large European-style army.
- **Swords and lances** were the **preferred weapons** of the Marathas. However, they also used **guns** in sizable numbers.
- **Rockets** were used in military campaigns from the **days of Shivaji himself**, and by **1770, metal tube rockets** were also being used.
- The **forts** were initially the **mainstay of Maratha power**.
  - **Shivaji** controlled and built a **considerable number of forts**, as they were essential to strategically control important routes and shelter the army when engaging in guerrilla warfare.

Trade networks

- **Shivaji** encouraged **trade** and actively participated in maritime **foreign trade** himself.
- He and his officials had their **own ships**, which they regularly sent to ports as far away as **Mocha in Yemen, Muscat in Oman, and Malacca in Malaysia**.
- Some of these ships carried cargo like **gold, textiles**, etc.
- **Roads** were constructed and maintained.
- In places such as **Odisha** in the 18th century, a network of **ferries** was maintained for riverine transport.
- **Bridges** were built over rivers and small streams.

The Maratha legacy

- The Maratha rule **challenged Mughal dominance** and establis**hed the largest Indian empire before the British took over** the Subcontinent, controlling much of central and northern India.
- They set up a **new way of governing** with an efficient administration, and also revived the local Hindu **traditions without religious discrimination**.
- Their brave fight against oppressive rule and foreign power was driven by the fiery ideal of **Swarājya**.
- Later it inspired many Indians to believe they could govern themselves, planting the early seeds for **India's freedom movement**.

FAO Food Price Index (FFPI)

News: According to Food and Agriculture Organization's (FAO) Food Price Index, Global food commodity prices rose for the second month in a row in July 2025.

About FAO Food Price Index (FFPI)

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Source – FAO

- It is a **food price index** by the **Food and Agriculture Organization (FAO)** of the United Nations.
- It measures **international price movements** of a basket of food commodities over time, in **nominal and real terms**.
- **Commodity coverage**
  - The Index encompasses **24 basic food commodities** that are globally traded.
  - These commodities are **grouped into five major groups** – **cereals, dairy products, vegetable oils, sugar and meat,** for which a **respective price index is calculated**.
- **Aggregation:** The five commodity group price indices are **combined** by weighting them with the **average export shares** of each of the groups for **2014-2016.**
- These **trade weights** are sourced from the **FAOSTAT database**.
- **Prices:** In total **95 commodity quotations** (export, spot, prices), all **expressed in terms of US Dollars,** are included in the FPI.
- **Base period**: 2014-2016
- **Index form: Laspeyres**
- **Frequency and span: Monthly from January 1990** and **annual from 1961**
- **Deflator:** World Bank's Manufactures Unit Value Index (MUV).

About Food and Agriculture Organization's (FAO)
- The Food and Agriculture Organization (FAO) is a **specialized agency of the United Nations** that leads **international efforts to defeat hunger.**
- **Foundation:** It was founded on **16 October 1945.**
- **Goal:** Its goal is to achieve **food security for all** and make sure that people have regular access to enough high-quality food to lead active, healthy lives.
- **Members: 195 members** – 194 countries and the European Union, FAO works in over 130 countries worldwide.
  - **India** is also a member.
- **Headquarters:** Its headquarters is in **Rome, Italy.**

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S.H.I.N.E. initiative

News: The Indian Council of Medical Research (ICMR), in collaboration with the Department of Health Research (DHR), organized the nationwide **ICMR-SHINE (Science & Health Innovation for the Nextgen Explorers)** outreach programme.

About S.H.I.N.E. (Science, Health and Innovation for Nextgen Explorers) initiative

- **Organizers**: Conducted by the Indian Council of Medical Research (ICMR) and the Department of Health Research (DHR).
- **Purpose**: Aligns with Prime Minister Narendra Modi's call for students to *"spend one day as a scientist."*
- **Focus Areas**: Introduction to biomedical and health research; showcasing ICMR's contributions to public health.
- **Goals**:
    - Ignite scientific curiosity in young learners.
    - Foster innovation.
    - Encourage careers in science and public health.
    - Support India's vision for **"Viksit Bharat" by 2047**
- **Participation:**
    - 13,150 students from grades 9–12.
    - Represented over 300 schools.
    - Covered 39 districts in 16 states and union territories.
- **Activities Included**:
    - Guided laboratory tours.
    - Research exhibitions and poster walks.
    - Video presentations and live demonstrations.
    - Interaction with scientists about their work and career paths.

mRNA Vaccine

News: Recently, the U.S. Department of Health and Human Services announced that Health Secretary Robert F. Kennedy Jr. had canceled $500 million worth of grants and contracts for mRNA vaccine development.

About mRNA Vaccine

- An mRNA vaccine uses messenger RNA to provide instructions for the body's cells to produce a harmless fragment of a pathogen.
- This approach does not introduce the actual pathogen but instead trains the immune system to recognize and fight it.

How mRNA Vaccines Work

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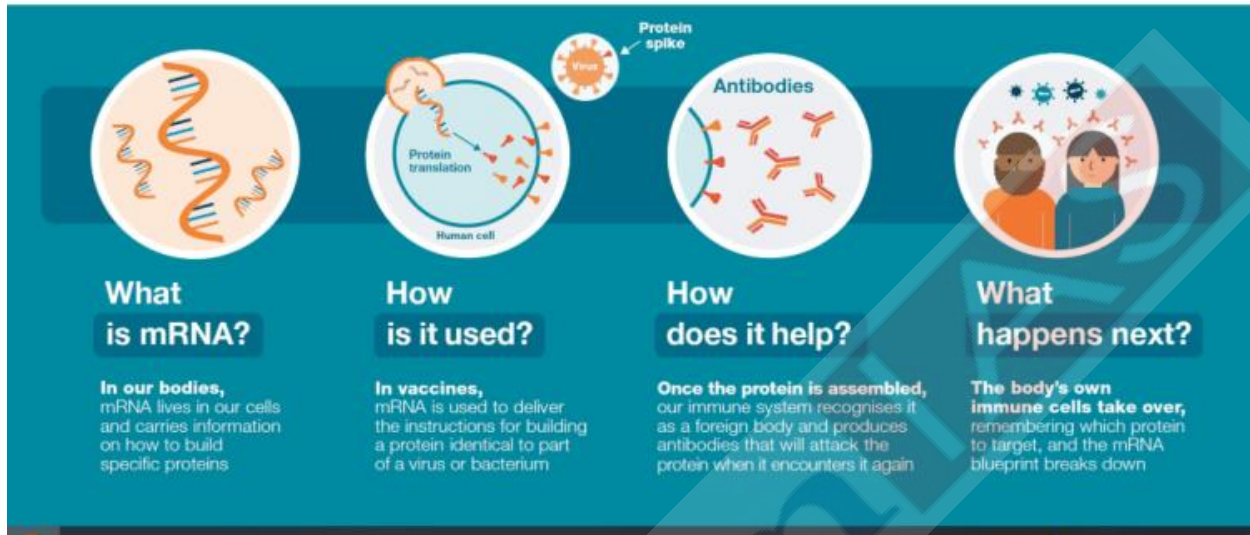
Source- UK Health Security Agency

- The mRNA is enclosed in lipid nanoparticles, which protect it and help it enter human cells.
- The vaccine is injected into a muscle, where the lipid nanoparticles fuse with cells and release the mRNA.
- Inside the cell's cytoplasm, ribosomes read the mRNA instructions and produce the specific pathogen fragment, such as the spike protein in COVID-19.
- The produced protein fragment is displayed on the cell's surface for the immune system to detect.
- The immune system recognizes the fragment as foreign and produces antibodies and memory cells to provide long-term protection.
- The mRNA is temporary and breaks down naturally after it has delivered its instructions, without affecting the body's DNA.

India's First Animal Stem Cell Biobank

News: Union Minister of State for Science & Technology has inaugurated the nation's first 'Animal Stem Cell Biobank'.

About India's First Animal Stem Cell Biobank

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Source – AIR News

- It is a **state-of-the-art facility** that will **store and preserve** high-quality **stem cells from various animal species.**
- **Setup at:** The facility is set-up at the **National Institute of Animal Biotechnology (NIAB) at, Hyderabad.**
  - The NIAB is a premier institute under the **Department of Biotechnology's Biotechnology Research Innovation Council (BRIC).**
- **Collaboration:** The Biobank is developed in **partnership with HiMedia Laboratories**.
- **Significance**
  - The biobank would provide **quality-controlled animal stem cells** and indigenous, cost-effective **cell culture media** to veterinary clinics, research institutions, hospitals, and industry.
  - This first-of-its-kind resource would **accelerate advances in veterinary medicine**, **regenerative therapies,** and **animal cell-based smart protein production.** This will reduce dependence on imports and fostering the country's biomanufacturing capacity.

Note:
- The Ministry also launched **five new veterinary diagnostic tools** aimed at **transforming animal health** management under **the 'One Health' approach**.
- These tools are –
  - **BruDIVA:** A diagnostic test that distinguishes between animals infected with brucellosis and those vaccinated to track and control the disease more effectively.
  - **Udder Care:** An affordable, field-friendly kit for early detection of mastitis, a common udder infection in dairy cattle which reduces milk production and quality.
  - **CureCheck:** A portable device for rapid antibiotic sensitivity testing in livestock infections such as mastitis providing results in under two hours.

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- ○ **Toxo Antibody Rapid Test:** A simple, on-the-spot test for detecting toxoplasmosis, a parasitic disease affecting both humans and animals causing abortions and stillbirths in livestock.
- ○ **RapiChex JE NS1 Test:** A rapid, point-of-care diagnostic kit for Japanese Encephalitis, a mosquito-borne viral disease affecting humans and animals.

Nasha Mukt Bharat Abhiyaan (NMBA)

News: An event was held on occasion of completion of 5 years of Nasha Mukt Bharat Abhiyaan (NMBA), by Department of Social Justice & Empowerment on 8th August 2025.

About Nasha Mukt Bharat Abhiyaan (NMBA)

Figure 1.Source – PIB

- It is a **nationwide campaign** addressing **substance abuse through prevention, treatment, and rehabilitation.**
- **Aim:** It aims to **foster a healthy, disciplined, and drug-free youth population**, thereby contributing to the broader goal of national development and social well-being.
- **Launched on:** Launched on 15 August 2020
- **Nodal Ministry:** Ministry of Social Justice and Empowerment
- **Strategy adopted:** NMBA employs a three-pronged strategy –
  - ○ **Supply Control:** Managed by the Narcotics Control Bureau.
  - ○ **Demand Reduction & Awareness:** Led by the Ministry of Social Justice and Empowerment through extensive outreach and awareness activities.
  - ○ **Treatment & Rehabilitation:** Provided by the Ministry of Health and Family Welfare.
- **Background:** It is a key initiative under the **National Action Plan for Drug Demand Reduction (NAPDDR).**
  - ○ The Ministry of Social Justice and Empowerment launched the **National Action Plan for Drug Demand Reduction (NAPDDR) in 2018**.
  - ○ It was according to the obligation of State under **Article 47 of the Constitution** under the Directive Principles of State Policy.
  - ○ **Aim:** The NAPDDR aims to **address the growing challenge of substance abuse** through a comprehensive framework focused on preventive education, awareness generation, counselling, treatment, and rehabilitation.
- **Coverage:** It was **initially implemented in 272 high-risk districts**, but it is expanded to encompass **all districts nationwide**
  - ○ These districts were identified through the **National Survey on Substance Use and inputs from the Narcotics Control Bureau (NCB).**
- **Stakeholders and target groups**

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Source – PIB

● **Key activities to be done**

Source – PIB

100th Anniversary of the Kakori Train Action

News: Prime Minister Narendra Modi paid tributes to the revolutionaries of Kakori incident on its 100th anniversary.

100th Anniversary of the Kakori Train Action

Source – Rail Museum

- The Kakori Train Action took place on **August 9th, 1925.**
- **Incident:** On 9th August, the revolutionaries of **Hindustan Republican Association (HRA)** stopped the **Number 8 down train near Kakori** (in Uttar Pradesh) and **looted the money** from the guard cabin belonging to the British Government Treasury.
- **Objective:** The objectives of this robbery were to **fund the HRA** with the money of British administration **taxed from the Indians** and to **protest** against the British administration collecting a lot of tax from the Indian people.
- **Revolutionaries involved:** There were total of 10 revolutionaries directly involved in this action.
    - **Ram Prasad Bismil**, who hatched the robbery plan, was joined in its execution by Ashfaqullah Khan, Rajendra Lahiri, Chandrashekhar Azad, Sachindra Nath Bakshi, Keshab Chakravarthy, Manmathnath Gupta, Murari Sharma, Mukundi Lal and Banwari Lal.
- **Outcome**
    - The British authorities were enraged, undertaking a **violent crackdown** and soon arresting many members of the HRA.
    - **Death sentences: Ram Prasad Bismil, Roshan Singh, Rajendra Nath Lahiri and Ashfaqullah Khan** were sentenced to death while the others got varying jail terms, including a **deportation to the infamous Kala Pani** (Cellular Jail in Port Blair) for five of them.
        - On December 17, 1927, **Lahiri** was hanged at **Gonda jail**.
        - On December 19, 1927, **Ashfaqullah, Roshan and Bismil** too were put to death — **Ashfaqullah at Faizabad jail**, **Roshan at Naini (Allahabad) jail** and **Bismil at Gorakhpur jail.**
        - **Bismil** is said to have famously sung **Sarfaroshi ki tamanna ab hamare dil mein hai; Dekhna hai zor kitna baju-e katil mein hai.**
        - The **only major leader** of HRA at this time who **evaded** arrest was **Chandrashekhar Azad**.

United Nations Conference on Landlocked Developing Countries (LLDC3)

News: The Third United Nations Conference on Landlocked Developing Countries (LLDC3) opened on 5 August 2025 in Awaza, Turkmenistan.

About United Nations Conference on Landlocked Developing Countries (LLDC3)

Source: TOI

- This is a high-level event is convened once every ten years to address the specific challenges faced by 32 landlocked developing nations.
- The conference brought together world leaders, international policymakers, and key stakeholders to chart a path for sustainable growth and integration of LLDCs into the global economy.
- **Theme of LLDC3:** *"Driving Progress through Partnerships"*

Objectives

- The conference aims to coordinate international efforts to overcome structural and geographical challenges faced by LLDCs.
- It seeks to improve trade and infrastructure connectivity, particularly for nations without direct access to seaports.
- A major focus is on promoting smarter investment frameworks and flexible transport corridors that enhance the movement of goods and services across regions.
- It addresses disproportionate barriers to economic diversification, resilience, and infrastructure development that LLDCs face.

Significance

- LLDC3 serves as a crucial platform for the global community to reaffirm its commitment to inclusive and sustainable development for landlocked nations.
- The 32 LLDCs collectively represent over 600 million people but face unique development challenges due to their lack of direct access to maritime trade routes.
- By uniting political will, technical expertise, and financial resources, the conference sets a roadmap for enhancing connectivity, resilience, and prosperity for LLDCs through 2034.

Dengue

News: A new study published identified **envelope dimer epitope (EDE)-like antibodies** as a key determinant of broad, cross-serotype immunity against dengue virus (DENV).

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About Dengue

Source: Learn Science at Scitable

● Dengue is a vector borne disease caused by the dengue virus and transmitted to humans through the **bite of infected *Aedes* mosquitoes, mainly *Aedes aegypti*.**

● The dengue virus (DEN) **comprises four distinct serotypes** (DEN-1, DEN-2, DEN-3 and DEN-4) which belongs to the genus Flavivirus of the family Flaviviridae.

● The disease is **common in tropical and subtropical regions**, especially in urban and semi-urban areas.

● **Symptoms:** Mild dengue symptoms include high fever (up to 40°C), severe headache, pain behind the eyes, muscle and joint pain, rash, nausea, vomiting, and swollen glands.

● **Transmission:** Dengue is mainly transmitted to humans through the bite of infected female *Aedes aegypti* mosquitoes.

○ Rarely, transmission can occur through maternal transfer during pregnancy, blood transfusions, or organ transplants.

○ Human-to-mosquito transmission can happen from two days before symptoms appear until two days after the fever resolves.

● **Risk Factors:** Unplanned urbanisation, dense populations, poor water storage, and inadequate waste management foster mosquito breeding, while rising temperatures and heavy rainfall from climate change aid their survival and spread.

Mines and Minerals (Development and Regulation) Amendment Bill, 2025

News: The Lok Sabha has passed the Mines and Minerals (Development and Regulation) Amendment Bill, 2025.

About Mines and Minerals (Development and Regulation) Amendment Bill, 2025

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Source – ET

- This Bill seeks to **further liberalize, modernize, and make more dynamic** India's mineral sector, particularly with a **focus on critical and strategic minerals**.
- It introduces **several reforms** to the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act, 1957),** aligning the legal framework with current economic and technological realities.

Key Amendments

- **Inclusion of other minerals in a mining lease: Under the Act**, a mining **lease** is granted for a **specific mineral**.
    - The **Bill** provides that **lease holders may apply to the state government** for **adding** other minerals to an existing lease.
    - For **inclusion of critical and strategic minerals**, and other specified minerals, **no additional amount needs to be paid**.
        - These include minerals such as **lithium, graphite, nickel, cobalt, gold, and silver**.
    - **For inclusion of a minor mineral**, the **state government** may decide the **royalty** and other **payments**.
        - Minor minerals include **building stones, gravel, sand, and other minerals declared as minor minerals by the central government.**
    - **For inclusion of major minerals to minor mineral leases**, the **central government** will prescribe **conditions** through Rules.

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- ○ **An atomic mineral** above a specified grade **cannot be included** in a mining lease granted for non-atomic minerals.
- **Removal of limit on sale for captive mines:** Under the **Act**, **captive mines** are allowed to **sell up to 50% of minerals produced in a year**, after meeting end-use requirements.
  - ○ The **Bill removes the limit** on sale of minerals.
  - ○ The Bill also **empowers state governments** to allow **sale of mineral dumps stacked** in the leased area.
  - ○ The Bill provides that **lease holders may apply to the state government** for **adding** other minerals to an existing lease.
- **Expanded scope of National Mineral Exploration Trust:** The **Bill widens the scope** of the National Mineral Exploration Trust (**established under the Act**) to **also fund development of mines and minerals.**
  - ○ The Bill also **renames** the Trust as the **National Mineral Exploration and Development Trust.**
  - ○ The **Bill increases** the rate of **contribution** into the **Trust** to **3%** of the royalty from 2% earlier in the Act.
- **Inclusion of contiguous area in mining lease for deep-seated minerals:** The **Bill** allows for a **one-time extension of the area** under a mining or composite lease.
  - ○ This will be **applicable for deep-seated minerals**.
    - ○ **Deep-seated minerals** are minerals which occur at a **depth of more than 200 m** from the surface of land.
- **Mineral exchanges:** The **Bill** provides for **establishing an authority to register and regulate mineral exchanges.**
  - ○ **Definition:** The Bill defines mineral exchange as a **registered electronic trading platform or marketplace for trading minerals and metals.**
  - ○ The **central government will frame Rules** regarding mineral exchanges.

Wallacean Hominids

News: Scientists have found a series of stone tools on Indonesia's Sulawesi island they say may be evidence of humans living 1.5 million years ago on islands between Asia and Australia, the earliest known humans in the Wallacea region.

About Wallacean Hominids

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Source – DD News

- Wallacean hominids refer to **prehistoric human populations** that inhabited the **islands of Wallacea in eastern Indonesia.**
- **Findings of new discovery**
    - Archaeologists from Australia and Indonesia found **small, chipped tools, used to cut little animals and carve rocks**, under the soil in the **region of Soppeng in South Sulawesi**.
    - **Timings: Radioactive tracing** of these **tools and the teeth of animals** found around the site were dated at up **to 1.48 million years ago.**
- **Significance:** The findings could transform **theories of early human migrations**.
    - The **earliest Wallacean humans**, prehistoric persons known as **Homo erectus**, were thought to have only **settled in Indonesia's Flores island and Philippines' Luzon island around 1.02 million years ago**, proving the **significance of the Sulawesi findings** in theories of migration.
- **Abaout Wallacea**
    - It is a **region in Eastern Indonesia** including several islands such as **Sulawesi, Lombok, Flores, Timor, Sumbawa.**
    - The region lies **between Borneo and Java and Australia and New Guinea.**
    - **Named after:** The region is named for the **naturalist Alfred Russel Wallace** who studied the **fauna and flora of the area**.

UNDP Equator Initiative Award

News: A self-help group (SHG) from a small village in Kundgol taluk of Dharwad district has bagged the 'Equator Initiative Award' given by the United Nations Development Programme (UNDP).

About UNDP Equator Initiative Award

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Source – UNDP

- **Organized by:** The Equator Prize is organized by the **Equator Initiative** within the **United Nations Development Programme (UNDP).**
- **Purpose:** It is presented annually to honour nature-based solutions led by indigenous people and local communities that promote sustainable development and ecological resilience.
- The Award is also referred to as the **Nobel Prize for Biodiversity Conservation**.
- The Award is announced on **International Day of the World's Indigenous Peoples**.
  - This Day is observed on **9 August each year** to raise awareness and protect the rights of the world's indigenous population.
- **Prize:** The award includes a cash prize of **$10,000 (approximately ₹8.5 lakh).**
- **2025 Award:** This year's award selection was based on the theme – **"Women and Youth Leadership for Nature-Based Climate Action".**
  - **Bibi Fatima Women's SHG** is the **sole group from India to win** the award.
  - The **other winners** are from Argentina, Brazil, Ecuador, Indonesia, Kenya, Papua New Guinea, Peru, and Tanzania.
  - The women's group had made **remarkable achievements** in areas of implementing **eco-friendly farming practices** in rainfed lands, managing community **seed banks**, ensuring food and nutrition **security**, promoting **millet** cultivation and running a millet processing unit, to value addition and marketing.

Perito Moreno Glacier

News: The Perito Moreno Glacier in Argentina is in the spotlight as it faces rapid disintegration due to rising global temperatures, raising fresh concerns over climate change and its impact on major freshwater reserves.

About Perito Moreno Glacier

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Source: Peregrine Travel Centre

- The Perito Moreno Glacier, also known as the 'White Giant', is located near the city of El Calafate in the Santa Cruz Province of Argentina.
- It is situated in the Andes Mountains in South America.
- The glacier lies within Los Glaciares National Park, which is a UNESCO World Heritage Site.
- The glacier was formed during the last Ice Age, approximately 18,000 years ago.
- It is estimated to be 30 kilometres long.
- The glacier has a towering height of around 60 metres above the water level.
- Due to its enormous size, the Perito Moreno Glacier serves as a major source of freshwater for Argentina.
- It is considered one of the few remaining large glaciers that still show forward movement in certain areas.

About Ice Calving Phenomenon
- The Perito Moreno Glacier is now among the many glaciers across the globe that are disappearing at a faster rate due to rising temperatures.
- Since at least 1917, the glacier has witnessed numerous large-scale ice calving events caused by its forward movement.
- During calving, colossal blocks of ice break away from the glacier and fall into the water, creating a thunderous sound.
- These spectacular events have become a popular tourist attraction, drawing visitors from around the world.

National Anubhav Awards

News: The National Anubhav Awards, 2025 mark a decade of achievements since the inception of the Anubhav portal in 2015.

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About National Anubhav Awards:
- **Launch & Vision**: Initiated by the **Department of Pension & Pensioners' Welfare (DoPPW)** to document India's administrative history through memoirs of retired employees.
- **Eligibility**: Employees retiring in the next 8 months or retired within the last 3 years can submit write-ups; these are published by the respective ministry/department and evaluated by DoPPW.
- **Awards Structure**: Initially 5 National Anubhav Awards (2015); now 15 total awards annually (5 Anubhav Awards + 10 Anubhav Jury Awards) since 2023.
- Each ANUBHAV Awardee will receive a medal, certificate, and ₹10,000, while a Jury Certificate winner will get a medal and certificate.

Tato-II Hydroelectric Project

News: The CCEA has cleared an investment of ₹8,146.21 crore for building the 700 MW Tato-II Hydroelectric Project in Shi Yomi district, Arunachal Pradesh. Tato-II Hydroelectric Project

Tato-II Hydroelectric Project
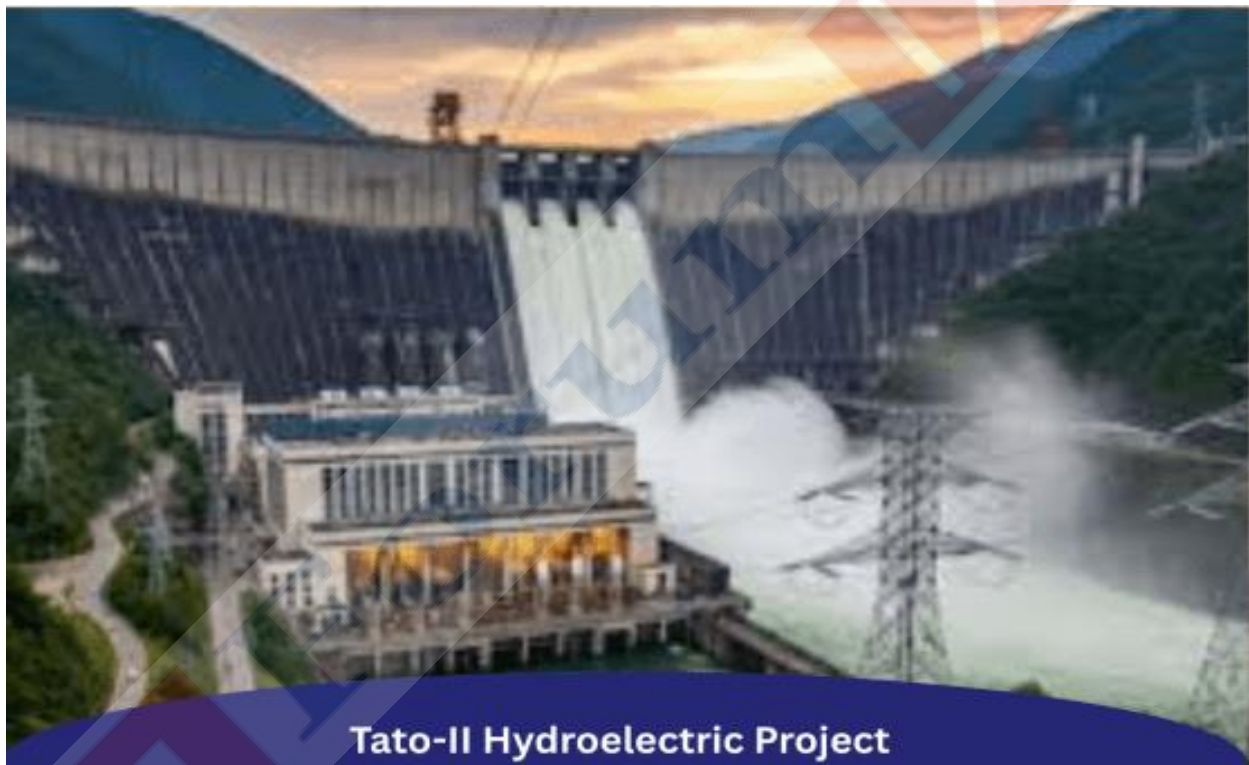
About Tato-II Hydroelectric Project
- The **Tato-II Hydroelectric Project** is a 700 MW run-of-river hydroelectric project located on the Siyom River in Arunachal Pradesh.
- It will have a reservoir capacity of **56 million cubic meters** and will be equipped with **four turbines**, each having a nameplate capacity of **175 MW**.
- The project is expected to generate **2,738.06 million units of electricity annually**, which will significantly improve the power supply in Arunachal Pradesh and contribute to balancing the national power grid.
- As part of the benefits to the host state, Arunachal Pradesh will receive **12% free power**, along with an additional **1% free power** earmarked for the **Local Area Development Fund (LADF)**.

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- The project will be implemented through a **joint venture between the North Eastern Electric Power Corporation Ltd (NEEPCO)** and the **Government of Arunachal Pradesh**.

Elders Group

News: The Elders, a global group of retired statespersons, for the first time described the situation in Gaza as an "unfolding genocide," warning that Israel's ongoing obstruction of humanitarian aid has triggered a "famine."

About Elders Group

- The Elders was **founded in 2007** by **Nelson Mandela** as an independent group of global leaders.
- The organisation works **to promote peace, justice, human rights, and a sustainable planet.**
- **Vision:** The Elders envision a world where all people live in peace, conscious of their common humanity and shared responsibilities for each other, the planet, and future generations. T**hey aspire to a world with universal respect for human rights and the elimination of poverty.**
- The Elders are **supported by members of the Advisory Council.** These members **contribute through donations and generous assistance.**

Areas of Work

- The Elders focus on existential threats that require collective global action.
- Their priority issues include the climate crisis, pandemics, and the risks posed by nuclear weapons.
- They also address conflict, recognising it as both a direct threat and a factor that increases vulnerability to other crises.
- Through their work, they aim to build trust, promote dialogue, and foster long-term solutions that benefit humanity and the planet.

Section 152 of Bharatiya Nyaya Sanhita (BNS)

News: The Supreme Court has asked if "potentiality of abuse" by the state of Section 152 of the Bharatiya Nyaya Sanhita (BNS), which punishes "acts endangering sovereignty, unity and integrity of India", could be a ground to declare the law itself unconstitutional.

About Section 152 of Bharatiya Nyaya Sanhita (BNS)

Figure 2. Source – PIB

- Section 152 of the BNS, 2023 deals with **"acts endangering sovereignty, unity and integrity of India."**
- It **replaces section 124A ("sedition")** of the **Indian Penal Code**, with some key changes and points of continuity.
- **Key provisions**
  - **Acts covered:** It **criminalizes any act done purposely or knowingly** – by words (spoken or written), signs, visible representations, electronic communication, financial means, or otherwise, that:
  - Excites or attempts to excite secession or armed rebellion;
  - Incites or attempts to incite subversive activities;

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- ○ Encourages separatist activities;
- ○ Or otherwise endangers the sovereignty, unity, or integrity of India.
- ○ **Means of Commission:** The law is wide, covering not just physical acts, but also speech, writings, electronic media, and financial facilitation.
- ○ **Punishments**
  - ○ **Imprisonment and fine:** Life imprisonment or imprisonment which may extend up to 7 years and also liable to fine.
  - ○ **Cognizable and non-bailable:** The offence is cognizable and non-bailable, tried by a Court of Session.
- ● **Arguments in favour:** The new law addresses colonial hangover, **shifting focus from acts against government to acts undermining the nation's integrity and security.**
- ● **Argument against:** While the **BNS does not explicitly mention sedition**, the **vague language** and **broad scope of Section 152** could effectively **criminalize legitimate dissent and criticism**, much like its predecessor Section 124A of the Indian Penal Code, 1860.
- ● **Judicial review and debate:**
  - ○ Courts have **cautioned about the vagueness** of terms such as "**subversive activities**" and **risk of misuse**.
  - ○ The Courts have been emphasizing the **requirement of direct incitement and imminent threat for invocation of this law.**
- ● **Landmark cases**
  - ○ **Tejender Pal Singh v. State of Rajasthan (2024):** The Rajasthan High Court **quashed charges** under Section 152 for **lack of clear incitement to rebellion**, reinforcing the line between **legitimate dissent and criminal acts**.
  - ○ **Recently**, Supreme Court has said that the **acts which come within Section 152**, would be covered by the ratio of the **Kedar Nath Singh verdict** that **unless there is a clear threat to unity and sovereignty**, the **offence** [of sedition] need **not** be attracted.

Community Forest Rights (CFRs)

News: RTI reveals that thousands of forest rights titles have been reported missing from government records over the past 17 months in Chhattisgarh.

About Community Forest Rights (CFRs)

Figure 3.Source – TH

- ● Community Forest Rights (CFRs) are **collective rights** that **recognize and empower forest-dwelling communities**, especially scheduled tribes (**STs**) and other traditional forest dwellers (OTFDs), to **use, manage, conserve, and protect forest resources** within their **customary boundaries.**
- ● **Legal framework**
- ○ **Enabling law:** The CFRs are granted under the **Scheduled Tribes**

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and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, commonly called the **Forest Rights Act (FRA), 2006.**

- ○ **Provision:** The **Section 3(1)(i) of the FRA** vests the right **"to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use."**
  - ○ The **Gram Sabhas** (village assemblies) become the **legal authority** to govern these resources.
- ○ **Definitions in law:** 'Community Forest Resource' means **customary common forest land** within **traditional or customary boundaries** of the village, including reserved/protected forests, **national parks**, and sanctuaries to which the **community had traditional access.**

- ● **Features of CFRs**
  - ○ It allows **individuals and communities** to get various types of **titles over forest areas** which they live on, use for their livelihoods, or collect produce from.
  - ○ The titles are distributed after each application is cleared by **gram sabhas, sub-divisional level committees, and district-level committees.**
  - ○ As per the FRA, **once titles are granted**, they are **neither transferable nor alienable** but can **only be inherited**.
  - ○ The law **does provide** for **diversion** in specific cases, where community facilities are being planned or for government projects but **only** with the **consent** of the Gram Sabhas concerned.

- ● **Significance**
  - ○ CFRs ensure **sustainable livelihoods** of the community.
  - ○ These rights give the **authority to the Gram Sabha** to adopt local traditional practices of forest conservation and management within the community forest resource boundary.
  - ○ These rights also **underline the integral role** that forest dwellers play in the sustainability of forests and in the conservation of biodiversity.

India's 1st PPP model EO satellite constellation

News: The IN-SPACe under the Union Government's Department of Space, has announced the selection of a consortium led by Bengaluru-based PixxelSpace India (PSI) for developing India's first indigenous constellation of earth observing (EO) satellites under a public-private partnership (PPP) model.

India's 1st PPP model EO satellite constellation

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Source – Moneycontrol

- **Developed by:** The constellation will be developed by **a consortium** led by **Bengaluru-based PixxelSpace India (PSI)** along with **Piersight Space, Satsure Analytics India and Dhruva Space.**
- The consortium is **selected** by the **Indian National Space Promotion and Authorisation Centre (IN-SPACe),** under the Union Government's Department of Space.
- **Aim:** The consortium is aimed at **designing, building and operating India's first fully indigenous constellation of 12 state-of-the-art commercial EO satellites.**
- It is the **first such initiative** in the Indian space sector wherein a **private consortium** will invest **Rs 1,200 crore** for the **next five years** to launch a constellation of 12 state-of-the-art EO satellites.
- **PPP model**
  - **India** will provide **technical, strategic and policy support**.
  - The **private firms** will **own and operate** the EO system, including the satellite manufacturing, ground infrastructure, commercialization of data services and launch from India.
- **Equipment:** The satellites will be equipped with panchromatic, multispectral, hyperspectral, and microwave synthetic aperture radar (SAR) sensors.
- **Services to be provided**
  - The constellation will deliver **Analysis Ready Data (ARD)** and **Value-Added Services (VAS)** for **applications** in –
    - climate change monitoring,
    - disaster management,
    - agriculture,
    - infrastructure,
    - marine surveillance,
    - national security and
    - urban planning
- **Significance**
  - It will also cater to the rising demand of high-quality geospatial intelligence.
  - The generation of high-resolution, indigenous satellite data will reduce reliance on foreign sources.

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- ○ This will not just strengthen India's position in the global space market, but will also ensure data sovereignty.

SabhaSaar AI tool

News: The Centre is set to unveil an artificial intelligence (AI)-powered tool SabhaSaar to automatically generate minutes of meetings of gram sabhas. **Applications of SabhaSaar AI in real life**

About SabhaSaar AI tool

Source – Ministry of Panchayati Raj

- **'SabhaSaar'** leverages the **power of AI** to generate **structured minutes of meetings** from gram sabha videos and audio recordings.
- **Launch:** It was rolled out in **Tripura** on **Independence Day, August 15,** and thereafter made available to other states.
- **Launched by:** Ministry of Panchayati Raj
- **Working**
  - ○ Panchayat officials can use their **e-GramSwaraj login** credentials to **upload** video/audio recordings on 'SabhaSaar'.
  - ○ It is **built on Bhashini,** an **AI-powered language translation platform** launched by the government to **bridge literacy, language, and digital divides**.
  - ○ The **tool** generates **transcription** from a video or audio, **translates** it into a chosen output language and prepares a **summary**.
  - ○ It enables transcription in all major Indian languages like **Hindi, Bengali, Tamil, Telugu, Marathi and Gujarati, in addition to English.**
- **Importance**
  - ○ It will bring **uniformity in minutes** of the gram sabha meetings across the country.
  - ○ 'SabhaSaar' is ideal for panchayats, administrative bodies, and rural development projects as it **streamlines documentation and empowers stakeholders** with instant access to meeting insights.

Panchayat NIRNAY portal

- The **Panchayati Raj Ministry** has launched a **Panchayat NIRNAY portal** to ensure that gram sabhas meet regularly and function transparently.
- It is a **real-time monitoring system** that deals with their meetings.
- A **gram sabha** is supposed to **meet at least four days** (January 26, May 1, August 15, and October 2) in **a year**.

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Cheque Truncation System (CTS)

News: The Reserve Bank of India (RBI) has decided on the transition of the Cheque Truncation System (CTS) from the current approach of batch processing to continuous clearing with settlement on realisation in two phases.

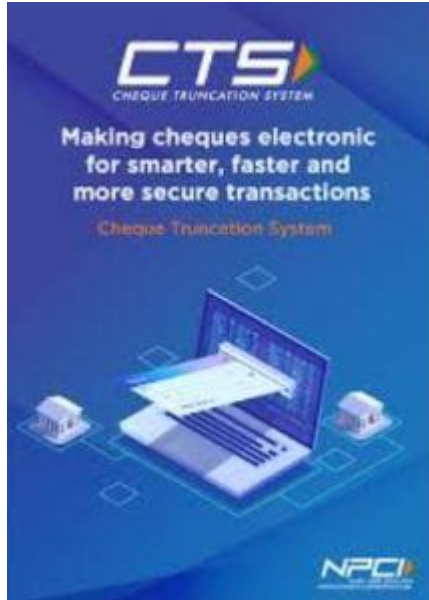**About Cheque Truncation System (CTS)**

Figure 4. Source – NPCI

● The CTS is an **online image-based cheque clearing system** introduced by the Reserve Bank of India (RBI).

● The **cheque images** and **Magnetic Ink Character Recognition (MICR)** data are **captured at the collecting bank** branch and **transmitted electronically**.

○ So, it **stops the physical movement of cheques**.

● **Advantages:** This system **speeds up cheque processing**, **reduces the risk of fraud**, and **improves banking efficiency** across India.

● **Current cheque clearing process**

○ At **present**, the CTS **processes** cheques with a **clearing cycle of up to two working days**.

○ Banks **collect and scan cheques** before sending them for processing in designated batches, resulting in a **T+1 day clearance period** in most cases.

● **New continuous clearing mechanism**

○ Under the **new system,** banks will **scan, present and process cheques on a continuous basis** during business hours.

○ The clearing **cycle** will be **reduced to a few hours**, with cheques presented between **10:00 AM and 4:00 PM being processed in real time** within the presentation window.

○ For each cheque presented, the **drawee bank** will provide either a **positive confirmation** for honoured cheques or a **negative confirmation** for dishonoured ones.

● **Implementation in two phases:** RBI has announced a phased rollout of the system:

○ **Phase 1 (October 4, 2025 to January 2, 2026):** Drawee banks must confirm cheques presented on them by the end of the confirmation session at 7:00 PM. Cheques without confirmation will be deemed approved for settlement.

○ **Phase 2 (From January 3, 2026):** The item expiry time will change to T+3 clear hours. For example, cheques presented at 10:00 AM must be confirmed b

● **Post-settlement payment release**

○ Once the settlement is complete, the **clearing house will share confirmation results** with the **presenting bank**.

○ The **presenting bank must release funds to customers immediately**, and **no later than one hour after settlement**, subject to standard safeguards.

● **Objective of the new system:** The continuous clearing initiative is **aimed at**:

○ Enhancing customer convenience

○ Reducing settlement risks for banks and participants

○ Improving operational efficiency across the banking system

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Blue Pinkgill Mushrooms (Entoloma hochstetteri)

News: A burst of rare and colourful Blue Pinkgill Mushrooms has been documented in the Kagaznagar forest division of the Komaram Bheem Asifabad district in Telangana.

About Blue Pinkgill Mushrooms (Entoloma hochstetteri)

Figure 5.Source – TNIE

● It is also known as the **sky-blue mushroom**, or **werewere-kokako** in **Maori folklore**.

● It is a **blue coloured mushroom**, whoose **colour** is derived from rare **azulene pigments**.

● Its **gills** gradually **turn pink** with **maturing**

● **Ecological role:** It plays an important ecological role, likely involved in **decomposing organic matter** and aiding **nutrient cycling**.

● **Habitat:** It is a species **native to New Zealand** and famously featured on the country's $50 note.

○ **In India:** It has been spotted blooming in the **Kadamba Reserve Forest** and other locations across the **Kagaznagar forest division** of the **Komaram Bheem Asifabad district in Telangana.**

● **Fruiting conditions**: It favors **moist forest beds**, especially during the **monsoon**, making habitat conservation vital for its survival.

Ideonella sakaiensis

News: Researchers have discovered microbes such as *Ideonella sakaiensis* that show the potential to break down PET plastic.

About Ideonella sakaiensis

● Ideonella sakaiensis belongs to the genus **Ideonella** and the family **Comamonadaceae**.

● It is a unique bacterium that can degrade and consume plastic, specifically **polyethylene terephthalate (PET)**, by using it as both a carbon and energy source.

● Ideonella sakaiensis was initially isolated from **PET-contaminated soil**, which suggests that its natural habitat is the environment where plastic waste is present.

● It thrives in **oxygen-rich moist soil** and is also found in **sewage sludge**. This indicates that it adapts well to areas enriched with **plastic wastes**.

Characteristics

● Ideonella sakaiensis is a **Gram-negative, rod-shaped** bacterium.

● It is **motile** and moves with the help of a single polar flagellum, making it a **monotrichous bacterium**.

● It does not produce spores and is **non-pigment-producing**.

● It produces two enzymes that make it capable of degrading plastic.

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- The first enzyme, **PETase**, breaks down PET into **mono(2-hydroxyethyl) terephthalic acid (MHET)**.
- The second enzyme, **MHETase**, further breaks down MHET into **terephthalic acid (TPA)** and **ethylene glycol (EG)**.
- Both of these compounds are environmentally safe and can be used as a **carbon and energy source** by Ideonella sakaiensis itself as well as by other organisms.

- Ideonella sakaiensis represents a **biological solution to plastic pollution**, particularly for PET plastics that are widely used in bottles, packaging, and textiles.
- Its ability to break down PET into harmless components makes it a potential tool for **industrial-scale biodegradation** and **plastic recycling**.

Key Facts about Singapore

News: India and Singapore recently finalised around ten agreements. Pacts were signed on areas including on connectivity, digitalisation, healthcare and medicine, skills development and advanced technology.
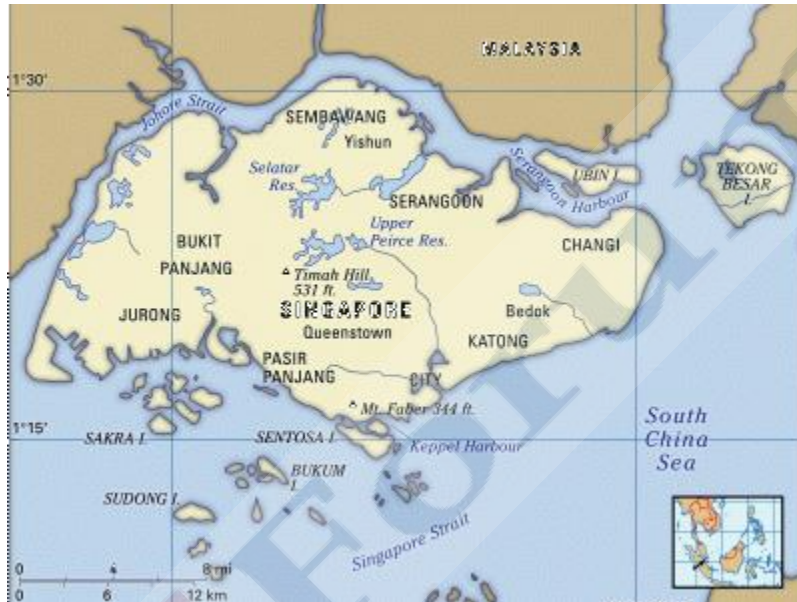
About Singapore

Figure 6.Source: Britannica

- **Location:** Singapore is a city-state located at the **southern tip of the Malay Peninsula, a**bout 137 kilometres north of the Equator.
- It consists of the main **diamond-shaped Singapore Island and about 60 smaller islets.**
- The main island is **separated from Malaysia by the Johor Strait and from Indonesia by the Singapore Strait.**
- **Highest point:** The highest point is Timah Hill at 162 metres, while most of the island lies below 15 metres above sea level.
- **Four official languages are recognised:** English, Mandarin Chinese, Malay, and Tamil.

- Singapore is a **unitary parliamentary democracy** based on the Westminster system.
- Singapore is the **largest port in Southeast Asia** and **one of the busiest in the world.**
- It is member country of Association of Southeast Asian Nations (ASEAN)

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