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01 CHINESE INFRASTRUCTURE PROJECTS ON THE BRAHMAPUTRA RIVER

BRAHMAPUTRA RIVER SYSTEM

- The **Brahmaputra River System** is one of the **largest river systems in South Asia**.

- It flows through **Tibet (China), India**, and **Bangladesh**.

- Known for its **vast catchment**, **high sediment load**, and **frequent floods**.
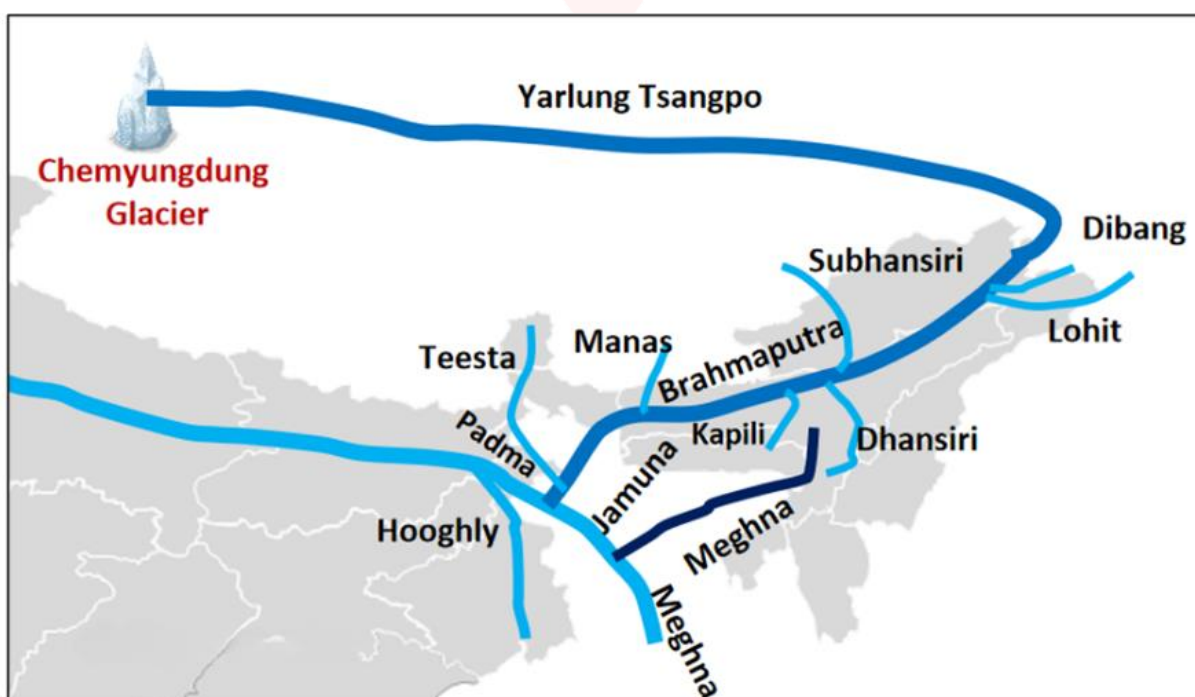
ORIGIN AND COURSE

- **Origin**: Chemayungdung Glacier in the Kailash range near **Mansarov--ar Lake**, in the **Tibet Plateau** (approx. 5,150 m elevation).

- In Tibet, called **Tsangpo (Yarlung Tsangpo)**.

- Flows **eastward** in Tibet for about **1,625 km**.

- Takes a sharp **U-turn at Namcha Barwa** (known as the **"Great Bend"**).

- Enters Arunachal Pradesh (India) as **Dihang (or Siang)**.

- After merging with **Dibang** and **Lohit**, it becomes **Brahmaputra** in Assam.

- Flows westward across Assam (approx. 720 km), forming a **wide alluvial valley**.

- Enters **Bangladesh** as **Jamuna River**.

- Joins **Ganga (Padma)** and empties into the **Bay of Bengal** via the **Meghna River**.

TOTAL LENGTH

- Total length: approx. **2,900 km**.
    - **Tibet (China)**: ~1,625 km
    - **India**: ~918 km
    - **Bangladesh**: ~337 km

DIFFERENT NAMES OF BRAHMAPUTRA RIVER

Region	Name
Tibet	Tsangpo (meaning 'The Purifier')
China	Yarlung Zangbo, Jiangin
Assam Valley	Dihang or Siang, South of Sadiya: Brahmaputra
Bangladesh	Jamuna River
	Padma River: Combined Waters of Ganga and Brahmaputra
	Meghana: From the confluence of Padma and Meghna

MAJOR LEFT BANK TRIBUTARIES (IN INDIA)

These tributaries join from the **northern side (left side when facing downstream)**:

- **Subansiri** – largest tributary; originates in Tibet.

- **Kameng**

- **Manas** – originates in Bhutan; known for hydroelectric potential.

- **Beki**

- **Dhansiri (North)**

- **Rangit**

- **Teesta** – major river from Sikkim; joins Jamuna in Bangladesh.
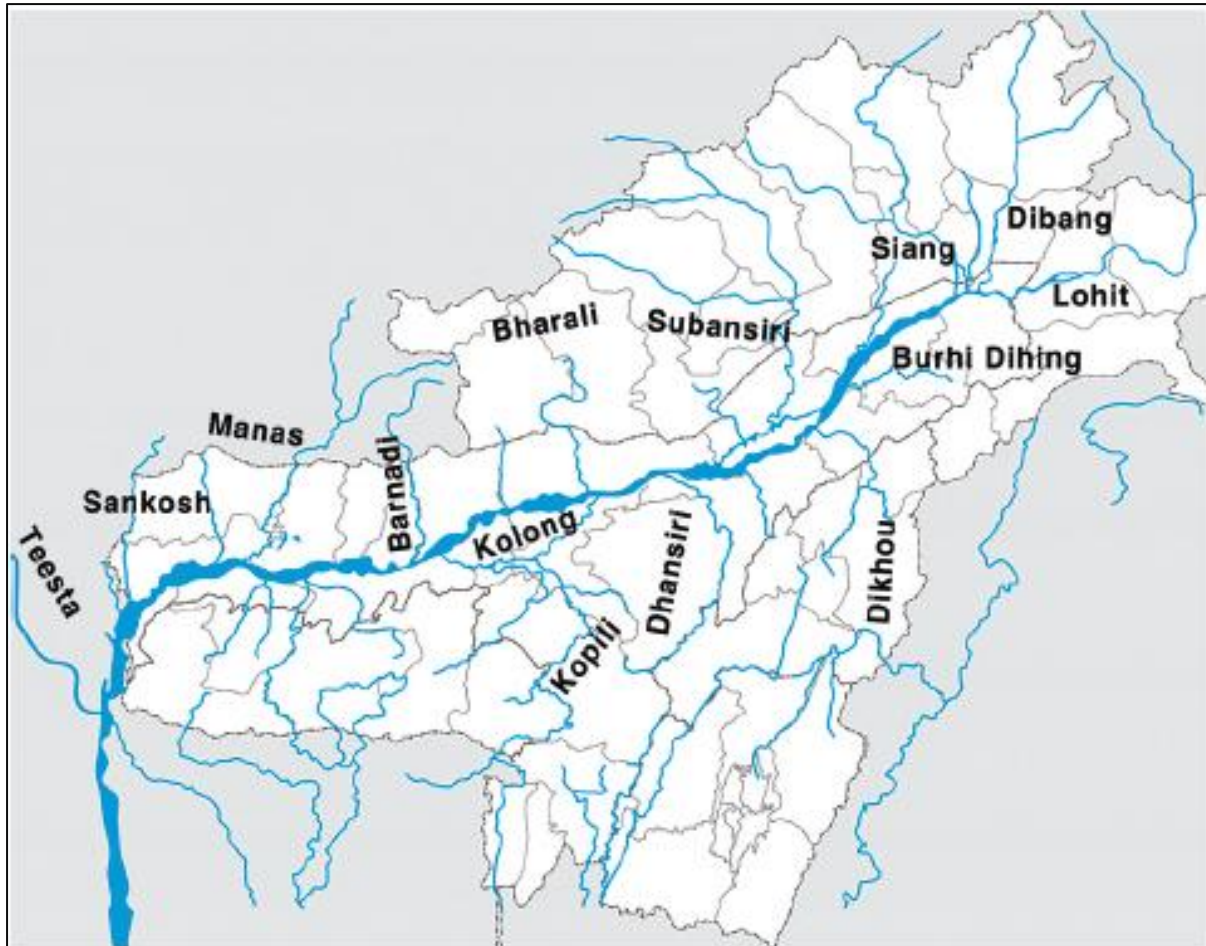
MAJOR RIGHT BANK TRIBUTARIES (IN INDIA)

These tributaries join from the **southern side (right side when facing downstream)**:

- **Burhi Dihing**
- **Dhansiri (South)**
- **Kopili**
- **Digaru**
- **Krishna River (not to be confused with Peninsular Krishna)**
- **Jia Bharali**

DRAINAGE BASIN

- Total drainage area: **5,80,000 sq km** approx.
    - Tibet: 50%
    - India: 34%
    - Bangladesh: 8%
    - Bhutan: 8%
- Supports **dense population**, **agriculture**, and **biodiversity**.

The biggest and smallest river islands in the world, Majuli and Umananda, are in the Brahmaputra River in the state of Assam.

FEATURES

- Carries one of the **highest sediment loads** globally.
- Causes **devastating floods** annually in Assam.
- Forms **majuli**, the **world's largest river island** (now shrinking due to erosion).
- Creates rich **alluvial soil** – fertile for crops like rice and jute.
- Known for its **braided channels** and **meandering paths**.

HYDEL POWER PROJECTS ON BRAHMAPUTRA RIVER SYSTEM

States	Hydel Power Projects
Arunachal Pradesh	Tawang, Subansiri, Ranganadi, Paki, Papumpap, Dhinkrong, Upper Lohit, Damway, Kameng.
Sikkim	Rangit Hydel Power Project, Tista Hydel Power Project.
Assam	Kopili Hydel Power Project
Meghalaya	New Umtru Hydel Power Project

Nagaland	Doyang Hydel Power Project
Manipur	Loktak Hydel Power Project Tipaimukh Hydel Power Project
Mizoram	Tuibai Hydel Power Project, Tuirial Hydel Power Project, Dhaleshwari Hydel Power Project

HOW COULD CHINESE DAMS AFFECT THE BRAHMAPUTRA IN INDIA?

REDUCED WATER FLOW TO INDIA

- China's dams, such as the **Zangmu Dam** (operational since 2015), and planned **super dam at Medog**, may **divert water** for hydropower, reducing flow into Arunachal Pradesh and Assam.

- **Example**: During lean seasons (winter), India has observed **reduced flow** in the Siang River, impacting agriculture and drinking water in Arunachal.

SUDDEN FLOODS FROM DAM RELEASES

- Sudden release of water due to **spillway operations** or dam failures can cause **flash floods** downstream.

- **Example**: In **June 2000**, a landslide-induced dam in Tibet burst, releasing massive water into Arunachal Pradesh, killing over 30 people and causing heavy destruction.

IMPACT ON ECOSYSTEMS AND LIVELIHOODS

- Dams can **change sediment flow**, affecting **fertility** of floodplains in Assam and endangering wetlands.

- **Example**: The shrinking of **Majuli Island** (world's largest river island) is linked to changes in river flow and siltation.

GEOPOLITICAL PRESSURE

- Upstream control gives China **strategic leverage**, especially during diplomatic tensions.

- In border standoffs like **Doklam (2017)** and **Galwan (2020)**, concerns were raised about China's **potential use of water as a weapon**.

INDIA'S RESPONSE

- India is fast-tracking projects like the **Upper Siang Hydropower Project**.

- Diplomatic efforts are ongoing through **India-China Expert Level Mechanism (ELM)** for data-sharing.

CONCLUSION

Chinese dams on the Brahmaputra pose **multi-dimensional threats** to India—**environmental, strategic, and humanitarian**. India must strengthen **diplomatic engagement**, **infrastructure** and **early warning systems** to protect its water security.

02 | DEMAND FOR COMPULSORY LICENSING FOR RARE DISEASE

A growing number of rare disease patients in India are urging the government to invoke the compulsory licensing provision under the **Indian Patents Act, 1970.**

WHAT ARE RARE DISEASES?

Rare diseases, also known as **orphan diseases**, are conditions that affect a **small percentage of the population**.

According to the **World Health Organization (WHO)**, a disease is considered rare when it affects **fewer than 1 in 10,000 people**.

In India, the definition includes diseases affecting **fewer than 1 in 2,500 individuals**.
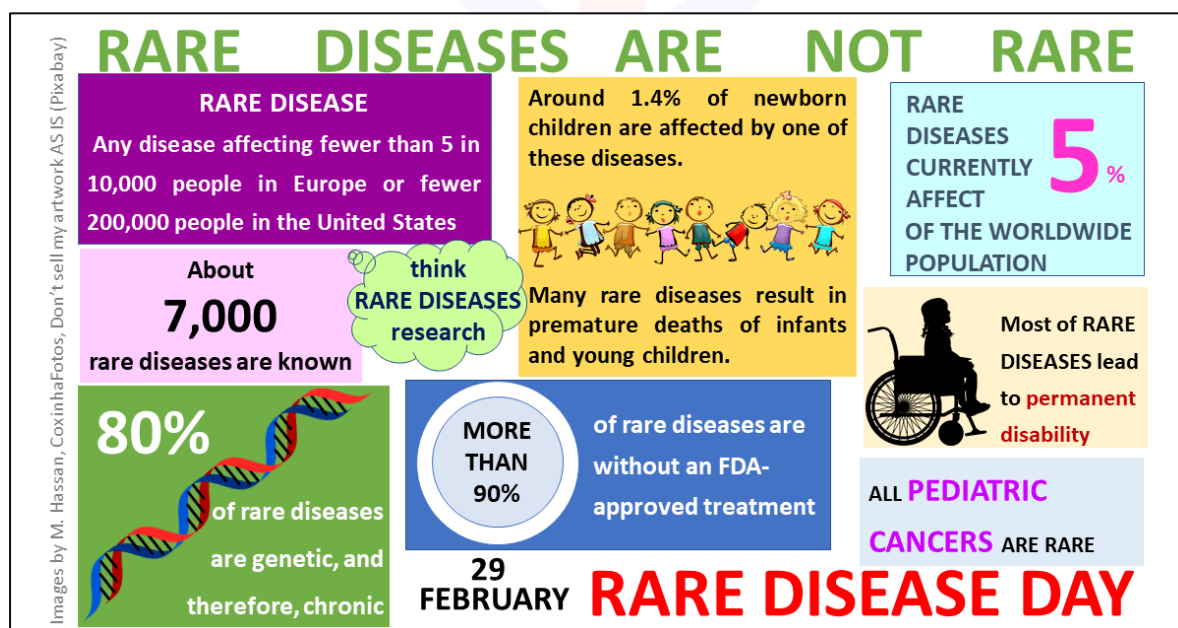
There are over **7,000 known rare diseases**, and most are **genetic in origin**, often chronic, progressive, and life-threatening.

Around **72% of rare diseases are genetic**, and **70% start in childhood**.

Many lack effective treatment and are **underdiagnosed** due to limited awareness, research, and access to diagnostic facilities.

EXAMPLES:

- **Duchenne Muscular Dystrophy (DMD)** – causes severe muscle weakness.

- **Spinal Muscular Atrophy (SMA)** – affects the nervous system controlling voluntary muscles.

- **Gaucher's Disease** – a metabolic disorder causing organ enlargement.

- **Hutchinson-Gilford Progeria Syndrome** – leads to rapid aging in children.

WHAT IS NATIONAL POLICY FOR RARE DISEASES?

National Policy for Rare Diseases notified on **30 March 2021**, was introduced by the Ministry of Health & Family Welfare to address India's burden of **6,000–8,000 rare diseases**, most of which are **genetic and chronically debilitating**.

National Policy for Rare Diseases 2021 approved
Ministry of Health and Family Welfare
Government of India

- Provides for financial support upto Rs 20L to individuals with certain rare diseases that require one-time treatment.
- Assistance to be extended to not just BPL families, but to about 40% of the population who are covered under Pradhan Mantri Jan Arogya Yojana
- The financial support will be provided under the umbrella scheme of Rastriya Arogya Nidhi & not PM-JAY

The policy classifies rare diseases into **three groups**:

- **Group 1**: Diseases requiring **one-time curative intervention** (e.g., enzyme replacement, transplants).

- **Group 2**: Conditions needing **long-term, low-cost therapies** (e.g., nutritional supplements).

- **Group 3**: Diseases with **lifelong, high-cost treatments** where patient selection is key.

FINANCIAL SUPPORT INCLUDES:

- Up to **₹20 lakh per patient** under **Rashtriya Arogya Nidhi** for **Group 1**—accessible to about **40% of the population**, not just BPL families.

- States may fund **Group 2** cases.

- A **voluntary crowdfunding platform** will help raise funds for **Group 3**.

THE POLICY ALSO PROMOTES:

- **8 Centres of Excellence**, each receiving **₹5 crore** for diagnostics.

- A national hospital-based **registry** and **central consortium (NCRD)** for research and local drug development.

> **Example:** The **Centre of Excellence at IPGMER Kolkata** recently established a **bone marrow transplant facility for MPS-1/2** leveraging the **₹50 lakh per-patient** NPRD funding. Yet funding has already been exhausted for some patients.

MORE ABOUT NEWS:

Compulsory licensing is a legal tool under **Section 84 of the Indian Patents Act, 1970**, which allows the government or any third party to manufacture a patented product or use a patented process **without the consent of the patent owner** in certain conditions. It aims to protect **public health and access to affordable medicines.**

A compulsory license in India can be granted **three years** after a patent is issued if:

- The patented invention is not available to the public at a reasonable price.

- The reasonable requirements of the public are not being satisfied.

- The invention is not being worked on in the territory of India.

LEGAL POLICY LANDSCAPE

- **Patent Law Amendments:** India's 1970 Patents Act originally allowed only **process patents**, enabling generic drug manufacturing.

  o Hence, India became the **"pharmacy of the world"** by producing affordable medicines.

- **Safeguards Against Monopoly Abuse:** India's law includes **anti-evergreening provisions (Section 3(d))** to prevent companies from extending monopoly through minor modifications.

  o It also allows for **pre- and post-grant opposition** to patents.

TRIPS AGREEMENT AND FLEXIBILITIES

- India became a member of the World Trade Organization (WTO) and was required to align its intellectual property laws with the **TRIPS Agreement (Trade-Related Aspects of Intellectual Property Rights)**, which came into effect in **1995.**

  o The TRIPS Agreement provides for the compulsory licensing (CL).

- **India amended its Patents Act in 2005,** allowing for both product and process patents in the pharmaceutical sector.

  o These patents are now valid for a period of **20 years** from the date of filing.

- **The Doha Declaration** on TRIPS and Public Health (2001) further clarified that:

  o Countries may issue a compulsory license in the interest of **public health emergencies,** although the presence of an emergency is **not a mandatory condition.**

  o Each country has the **sovereign right to determine the grounds** on which it can issue a compulsory license.

- o The patent holder must be compensated through the payment of **"adequate remuneration,"** the amount of which is to be determined by the issuing country based on the economic value of the license.

- **A waiver in 2003**, later made permanent in **2017,** allowed countries to **import affordable drugs produced under CL** from other nations.

  - o This created a legal route for cross-border access to affordable medicines.

03	INDIA–TÜRKIYE RELATIONS

India is carefully balancing its trade relations with Türkiye (Turkey), ensuring that economic advantages are not compromised despite geopolitical concerns.

INDIA–TURKEY RELATIONS

HISTORICAL & DIPLOMATIC RELATIONS

- India and Turkey established diplomatic ties in **1948**, soon after India's independence.

- India has an embassy in **Ankara** and a consulate in **Istanbul**; Turkey has an embassy in **New Delhi** and a consulate in **Mumbai**.

- Relations have seen both cooperation and tension due to **Turkey's support for Pakistan on Kashmir**.

KEY BILATERAL AGREEMENTS

- **Agreement on Economic & Technical Cooperation (1978)** – Framework for trade and technical collaboration.

- **Double Taxation Avoidance Agreement (1996)** – Prevents double taxation of companies operating in both countries.

- **Cultural Exchange Programme (CEP)** – Promotes cultural, artistic, and academic exchanges.

- **Air Services Agreement** – Enables direct flights between both countries.

- **Customs Cooperation Agreement (2015)** – Enhances coordination between customs departments for smoother trade.

- **Agreement on Mutual Legal Assistance in Criminal Matters (2011)** – Facilitates legal cooperation in criminal investigations.

- **MoU on Cooperation in Renewable Energy** – Encourages investment in solar and wind energy sectors.

TRADE RELATIONS (EXPORTS & IMPORTS)

- Bilateral trade stood at **$10.7 billion in 2022-23**, with a trade surplus in India's favor.

- **India's Exports to Turkey**:

  - **Mineral fuels**, **automobile parts**, **organic chemicals**, **iron & steel**, **pharmaceuticals**.

  - Example: India exported **refined petroleum and iron ore** worth over $2.5 billion.

- **India's Imports from Turkey**:

  - **Machinery**, **marble**, **chemicals**, **processed minerals**, **ferrous waste and scrap**.

  - **Example:** India imports **Boron compounds** and **crude minerals** for industrial use.

- **Investment and Business Ties**

  - **Indian investment in Turkey**: ~$300 million, with companies like **Tata Motors**, **Mahindra**, **Wipro**, **Infosys** present in IT and manufacturing sectors.

  - **Turkish investment in India**: ~$150 million, with companies like **Arçelik**, **Zorlu Energy**, **Limak Group** active in energy and infrastructure.

- o **India–Turkey Business Council** established under **FICCI-DEIK** for promoting B2B collaboration.

- **Defence and Strategic Cooperation**

  - o Limited defence cooperation: includes **port calls by Indian Navy ships**, **participation in defence expos**, and **training programs**.

  - o Turkey's growing ties with **Pakistan** and critical stance on **Jammu & Kashmir** have impacted strategic trust.

- **Multilateral and Global Cooperation**

  - o Both countries are members of **G20**, **WTO**, and **United Nations**.

  - o India and Turkey support **sustainable development, climate action**, and **counter-terrorism** at international forums.

  - o Turkey supported **India's G20 presidency in 2023**, improving diplomatic tone.

- **Cultural and Educational Exchange**

  - o Bollywood films and Indian cuisine are popular in Turkish cities.

- o India's **ICCR scholarships** attract Turkish students in fields like Yoga, Hindi, and Ayurveda.

- o Turkey promotes **Hindi and Sanskrit** in its universities, supporting people-to-people links.

- **Tourism and Civil Aviation**

  - o Over **30,000 Indian tourists** visited Turkey in 2022; Turkey is popular for weddings and film shoots.

  - o **Turkish Airlines** and **Air India** operate direct flights between **Delhi/Mumbai and Istanbul**.

  - o Turkey also offers **visa-on-arrival/e-visa** options to Indian travelers under specific conditions.

- **Science, Tech & Renewable Energy Cooperation**

  - o India and Turkey have held joint workshops on **space technology**, **AI**, and **renewable energy**.

  - o Turkey has shown interest in India's **solar power mission** and **digital public infrastructure models**.

- Türkiye is currently the 8th largest destination of Indian engineering merchandise.
- India is the 3rd top supplier to Turkey after Russia and UAE for aluminium and its products, 10th supplier for electrical machinery & equipment and 11th supplier for medical & surgical equipment and pharmaceutical machinery.
- In the last five fiscal years, India's engineering exports to Turkey increased by 24%.

CURRENT TRADE STATISTICS

- India has a **trade surplus of $2.73 billion** with Turkey, primarily driven by **engineering goods, electronics, and chemicals.**

- In FY25, **India's exports to Turkey totaled $5.72 billion**, with engineering exports accounting for over 50% of the total.

- Turkey had **increased petroleum product imports from India** following the **Ukraine war,** but it has seen a **significant decline** in FY25.

- However, Turkey's exports to India remain limited to fruits, nuts, gold, and marble.

CHALLENGES IN INDIA–TURKEY RELATIONS

- **Kashmir Issue**: Turkey has repeatedly raised the **Kashmir issue at the UN and OIC**, often siding with **Pakistan**, which India sees as interference in its internal affairs.

- **Turkey-Pakistan Strategic Alliance**: Turkey maintains **close military and diplomatic ties with Pakistan**, including joint military exercises, defence deals, and support at international platforms.

- **Erdoğan's Remarks**: Turkish President **Recep Tayyip Erdoğan** made controversial statements about **Kashmir (2017, 2019, and 2020)**, drawing strong diplomatic protests from India.

- **Nagorno-Karabakh Conflict**: Turkey openly supported **Azerbaijan against Armenia** in the 2020 war. India was cautious due to its friendly ties with Armenia.

- **Islamist Tilt in Turkish Foreign Policy**: Under Erdoğan, Turkey has shown **pan-Islamic overtones**, including support for **radical Islamist groups**, which conflicts with India's secular and diverse ethos.

- **FATF Support to Pakistan**: Turkey reportedly backed Pakistan in the **Financial Action Task Force (FATF),** weakening global pressure on terror financing.

- **Limited Defence & Strategic Cooperation**: Due to trust deficits, defence cooperation is minimal despite potential.

- **Absence of Comprehensive Trade Pact**: No **Free Trade Agreement (FTA)** or **CEPA**, limiting economic potential.

04 NEW BASE YEAR FOR GDP, CPI, IIP FROM EARLY 2026

As per the Ministry of Statistics and Programme Implementation (MoSPI), Gross Domestic Product (GDP), Index of Industrial Production (IIP) and Consumer Price Index (CPI) will see a new base from next year onwards.

MORE ABOUT NEWS

- In 2024, MoSPI has set up a **26-member Advisory Committee on National Accounts Statistics** to decide the base year for GDP data.

- **Biswanath Goldar** has been appointed as its chairman.

- **For GDP,** the new series is scheduled to be released **on February 27, 2026 with financial year 2022-23 as base year.**

- **For IIP,** 2022 -23 has been tentatively identified as the revised base. **IIP on revised base would be released from 2026-27.**

- For CPI, **2024 has been identified as the revised base year** as the item basket and the weightage of the items would be decided based on the **NSO's Household Consumer Expenditure Survey (HCES) conducted in 2023-24.**

- The new CPI series is expected to be published from the **first quarter of 2026.**

WHAT IS BASE YEAR?

- A base year is a **benchmark year** used for **comparison in economic and statistical calculations.**

- It provides a **reference point** against which **current values of indicators like GDP, CPI, and IIP are measured** to track real changes over time.

- **Significance:**
  - It allows us to **remove the effect of inflation** and see real growth.
  - Helps in creating **index numbers** (like CPI = 100 in base year).

o Ensures that the **data reflects the current structure of the economy,** consumption patterns, and prices.

WHAT IS NEED FOR THE CHANGE OF THE BASE YEAR?

- It is usually changed every 7–10 years to reflect:
    - o New consumption patterns;
    - o Changes in economic structure;
    - o Introduction of new goods and services.
- Ensures data remains relevant and accurate.
- This will give a clearer picture about the state of the economy which will help the government to design its economic policies.

WHAT IS GDP – GROSS DOMESTIC PRODUCT?

- **GDP** is the **total monetary value** of all final goods and services produced within a country's borders in a specific time period.
- It is the **most comprehensive measure** of a nation's overall economic activity.
- Calculated by the **National Statistical Office (NSO)** under the **Ministry of Statistics and Programme Implementation (MoSPI).**
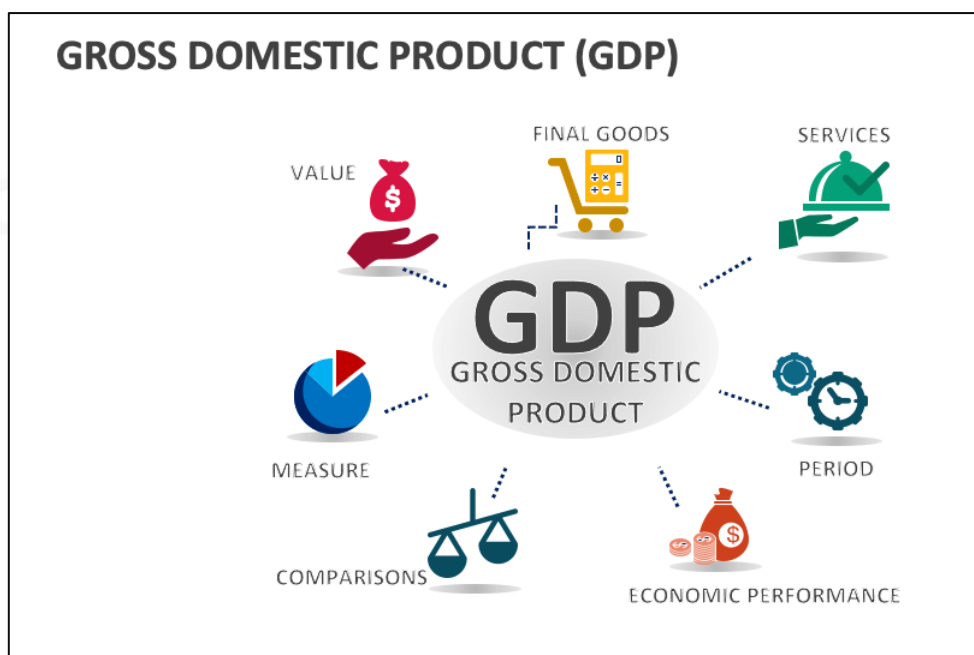
- Expressed as **Nominal GDP** (at current prices) and **Real GDP** (adjusted for inflation).

- India also reports **GDP growth rate** quarterly and annually.

- It includes contributions from three sectors: **Agriculture**, **Industry**, and **Services**.

- **Formula:** GDP = C + I + G + (X – M) (C = Consumption, I = Investment, G = Govt spending, X = Exports, M = Imports)

- GDP helps in **policy decisions**, **budget planning**, and **international economic comparison**.

- As of 2024, India is the **5th largest economy** globally by nominal GDP.

- A rising GDP indicates economic growth and higher living standards.

WHAT IS CPI – CONSUMER PRICE INDEX?

- **CPI** measures the **change in retail prices** of a fixed basket of goods and services consumed by an average urban/rural household.

- It is a major indicator of **inflation** in India.

- Calculated and released monthly by the **NSO**, MoSPI.

- Items included: **food & beverages, housing, fuel & light, clothing, transport, health**, etc.

- There are **four types of CPI**:

  - CPI for Industrial Workers (CPI-IW)

  - CPI for Agricultural Labourers (CPI-AL)

  - CPI for Rural Labourers (CPI-RL)

  - **CPI Combined (Rural + Urban)** – used for monetary policy.

- **Base year** for CPI Combined: **2012 = 100**

- The **RBI uses CPI (Combined)** as the basis for **inflation targeting** under its **Monetary Policy Framework** (4% ± 2%).

- CPI helps the government manage **wages, pensions, subsidies**, and **monetary policies**.

- A rising CPI indicates **increased cost of living**.

WHAT IS IIP – INDEX OF INDUSTRIAL PRODUCTION?

- **IIP** measures the **level of industrial activity** in the economy.

- It captures changes in the **volume of production** in three sectors:

    o **Manufacturing (77.6%)**

    o **Electricity (7.9%)**

    o **Mining (14.4%)**

- Released **monthly by NSO**, using **2011–12 as the base year**.

- Serves as a **short-term indicator** of industrial growth and business cycles.

- Used by policymakers, investors, and businesses to **forecast GDP trends**.

- It includes **407 items** in the manufacturing sector, **29 in mining**, and **1 in electricity**.

- An increase in IIP suggests **positive industrial growth**, while a decline signals **economic slowdown**.

- Used to assess the **performance of Make in India**, **core sectors**, and **manufacturing targets**.

- IIP is more **volatile and high-frequency** compared to GDP data.

- It also influences the **Index of Eight Core Industries**, which has a 40.27% weight in the IIP.

05 KERALA WANTS CENTRE TO AMEND THE WILDLIFE PROTECTION ACT

The Kerala government has urged the Union Ministry of Environment, Forests and Climate Change to amend the Wildlife (Protection) Act, 1972 (WLPA), so it can be allowed to kill wild animals that foray into human habitats.

KERALA'S DEMANDS TO THE UNION GOVERNMENT

- **Amend WLPA, 1972** to allow culling of "man-eating" or dangerous wild animals without excessive procedural delays.

- **Declare Wild Boars as Vermin under Section 62** of the Act, permitting their hunting in designated areas for a limited time.

- **Remove Bonnet Macaques from Schedule I,** thus allowing wildlife authorities to take direct action like capture and relocation.

WHAT IS WILD LIFE (PROTECTION) ACT, 1972?

- Enacted in **1972** to provide comprehensive protection to **wild animals, birds, and plants** across India.

- Applicable throughout **India**, including **Jammu & Kashmir** (after abrogation of Article 370 in 2019).

- Establishes **Schedules I to VI** that categorize species based on the degree of protection:
  - **Schedule I & II**: Highest protection (e.g., tigers, elephants).
  - **Schedule III & IV**: Protected but with lesser penalties.
  - **Schedule V**: **Vermin (e.g., common crow, rats) – can be hunted.**
  - **Schedule VI**: Protected plants (e.g., Red Vanda).

- Provides for the creation of **National Parks, Wildlife Sanctuaries**, and **Tiger Reserves**.

- Regulates **hunting, poaching, trade, and possession** of wildlife.

- Amended in **2002, 2006**, and **2022** to strengthen enforcement and align with **CITES (Convention on International Trade in Endangered Species)**.

- Violations can lead to **imprisonment up to 7 years and heavy fines**.

WHAT IS THE PROCEDURE TO DECLARE VERMIN?

- **State Government's Request:** A state government can request the Central Government to declare a wild animal as vermin if it is causing significant issues like property damage, crop damage, or posing a threat to human life or livestock.
- **Central Government Notification:** The Central Government can, by notification, declare a wild animal (except those in Schedule I and Part II of Schedule II) as vermin for a specific area and time period.
- **Loss of Protection:** Once declared vermin, the animal loses its protection under the Wildlife Protection Act and can be hunted or culled without penalty.

## REASONS FOR INCREASE IN HUMAN–WILDLIFE CONFLICT IN KERALA

- **Habitat Loss & Fragmentation**: Expanding highways, rail lines, and towns near forest zones (like **Wayanad, Palakkad**) have broken traditional animal corridors, leading elephants to stray into villages.

- **Agricultural Expansion near Forest Edges**: Cultivation of high-value crops (like **pineapple and jackfruit** in **Malappuram** and **Thrissur**)

attracts elephants, monkeys, and wild boars, causing frequent crop raids.

- **Deforestation & Quarrying Activities**: Illegal **quarrying in Idukki and Pathanamthitta** has reduced forest cover, displacing leopards and elephants into human habitats.

- **Climate Change & Water Scarcity**: Erratic monsoons and drying forest streams have led elephants in **Attappady** and **Silent Valley** to venture into human settlements for water.

- **Invasive Species**: Species like **wild boars** have increased rapidly and damage crops, especially in **Wayanad**, due to lack of natural predators and abundant food.

- **Unregulated Eco-Tourism**: Tourism pressure near protected areas like **Periyar Tiger Reserve** disturbs animal movements and leads to stress-induced aggression.
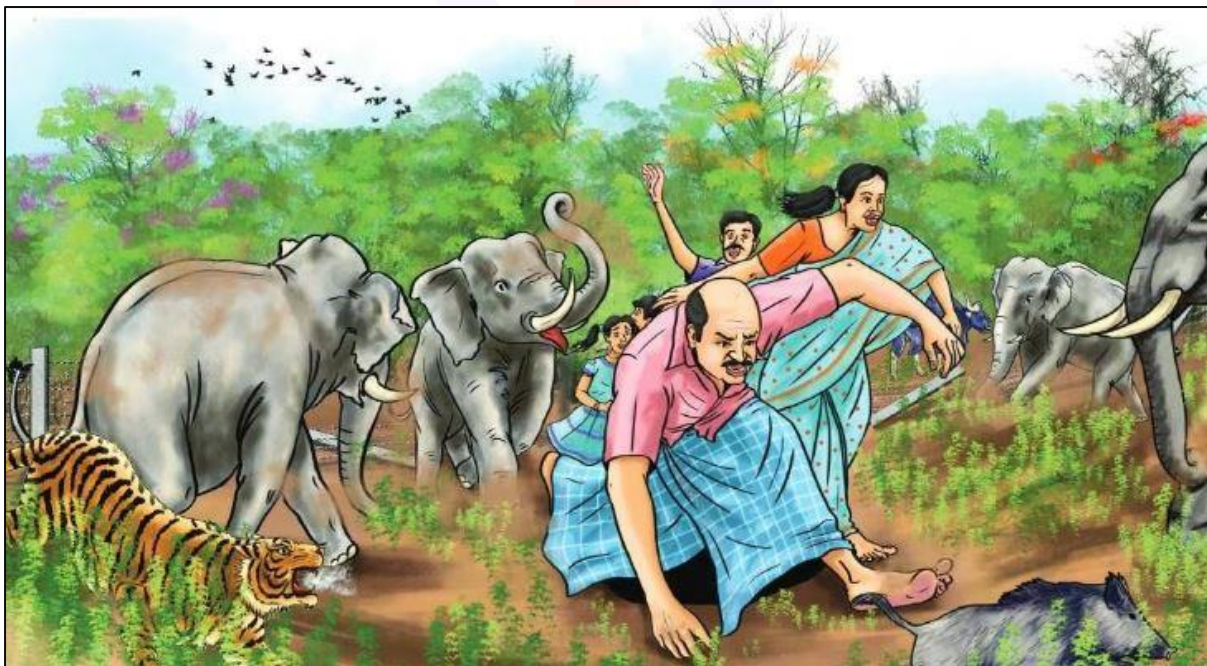
06   BLUE NDCS

France and Brazil launched a landmark international initiative **Blue Nationally Determined Contributions (NDC) Challenge.**

WHAT ARE BLUE NATIONALLY DETERMINED CONTRIBUTIONS (BLUE NDCS)?

Blue NDCs refer to the integration of **ocean-based climate actions** into a country's **Nationally Determined Contributions (NDCs)** under the **Paris Agreement**.

- **Focus Areas**: They address **marine conservation, sustainable fisheries, blue carbon ecosystems** (like mangroves, seagrasses, and saltmarshes), and **ocean-based renewable energy**.

- **Blue Carbon Role**: Ecosystems such as **mangroves and seagrasses** absorb and store large amounts of CO_2, contributing to **climate mitigation**.

- **Global Importance**: Oceans absorb about **30% of global CO_2 emissions** and **90% of excess heat** from global warming, making ocean action vital.

- **UN and IOC Support**: The concept is supported by the **UNESCO-IOC**, **UNFCCC**, and other ocean alliances to ensure **climate-resilient coastal development**.

WHAT ARE NATIONALLY DETERMINED CONTRIBUTIONS (NDCS)?

NDCs are **national climate action plans** that outline each country's targets for **reducing greenhouse gas (GHG) emissions** and adapting to climate change under the **Paris Agreement (2015)**.

- **Legal Framework**: Under **Article 4** of the Paris Agreement, all parties are required to prepare, communicate, and maintain successive NDCs every **5 years**.

- **Objective**: The goal is to limit global warming to **well below 2°C**, ideally **1.5°C**, above pre-industrial levels.

- **Content of NDCs**: Includes emission reduction targets, adaptation strategies, financial needs, technology transfer, and capacity building measures.
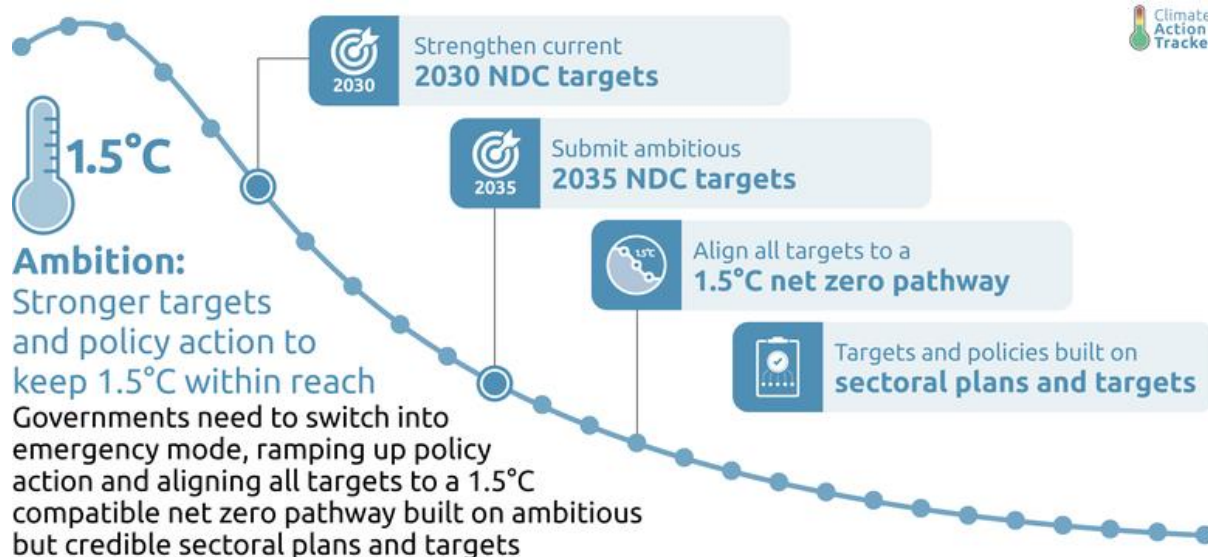
INDIA'S NDCS (UPDATED 2022):

- Reduce emissions intensity of GDP by **45%** from 2005 levels by **2030**.

- Achieve **50% cumulative electric power capacity from non-fossil sources** by 2030.

- Create an additional **carbon sink of 2.5 to 3 billion tonnes of CO_2** through forest cover.

GLOBAL IMPORTANCE:

- NDCs are non-binding but politically significant, helping track progress in the Global Stock take every five years.

WHAT IS SIGNIFICANCE OF OCEANS IN CLIMATE ACTION?

- **Carbon Sequestration:** Oceans absorb over 25% of global CO_2 emissions and 90% of excess heat generated by human activity, making them critical in mitigating climate change.

- **Blue Carbon Ecosystems:** Coastal ecosystems like mangroves, seagrasses, and salt marshes store carbon at a rate up to five times higher than terrestrial forests.

- **Biodiversity:** Oceans are home to a vast diversity of life forms, and protecting marine ecosystems is essential for maintaining biodiversity, which in turn ensures the resilience of the ecosystem to climate impacts.

- **Livelihood and Food Security:** Oceans support over 3 billion people worldwide who depend on marine resources for food, livelihoods, and economic activities.

WHAT ARE THE INITIATIVES TAKEN FOR OCEAN CONSERVATION?

- **Ocean Cleanup Project:** Launched in 2013, The Ocean Cleanup is a non-profit organization focused on developing advanced technologies to remove plastic pollution from the ocean.

- **United Nations Decade of Ocean Science for Sustainable Development (2021-2030):** Aims to promote ocean science as a key tool for sustainable development, environmental protection, and climate action.

- **High Seas Treaty (Agreement on Biodiversity Beyond National Jurisdiction – BBNJ Agreement):** Adopted in 2023, this landmark legally binding agreement aims to protect marine biodiversity in international waters.

- **Blue Carbon Initiatives:** It refers to the carbon captured by coastal and marine ecosystems such as mangroves, seagrasses, and salt marshes.

- **National Marine Protected Areas (MPAs) Network:** It aims to conserve critical marine and coastal habitats like coral reefs, mangroves, and seagrasses.

- **Integrated Coastal Zone Management (ICZM):** To address the challenges of coastal ecosystem degradation, including erosion, overfishing, and pollution.

07	AXIOM-4 MISSION

The launch of the Axiom-4 mission has been postponed again due to a technical issue with SpaceX's Falcon 9 rocket.

WHAT IS AXIOM-4 (AX-4) MISSION?

The **Axiom-4 (Ax-4)** mission is the **fourth private astronaut mission** to the **International Space Station (ISS)**, launched by **Axiom Space**, a U.S.-based private aerospace company. It was launched aboard **SpaceX's Falcon 9 rocket** using the **Crew Dragon capsule**, from **NASA's Kennedy Space Center** in **January 2024**.

The mission is part of Axiom's broader plan to **develop the world's first commercial space station**, which will eventually replace the ISS.

KEY FACTS:

- **Crew**: The Ax-4 mission carried **four astronauts**, including **European Space Agency (ESA)** reserve astronaut **Marcus Wandt** (Sweden), marking ESA's first astronaut on a commercial mission.

- The crew spent **about 14 days** on the ISS conducting **scientific research, technology demonstrations**, and **STEM outreach**.

- This mission supports the future integration of Axiom's own space modules, planned to be attached to the ISS by **2026**, and later become **independent**.

SIGNIFICANCE:

- Promotes **commercial human spaceflight** and international cooperation.

- Enables countries without national space programs to participate in **low Earth orbit research**.

- Advances the goal of transitioning from a **government-led space station (ISS)** to a **commercial low-Earth orbit economy**.

WHAT IS FALCON 9?

It is a **partially reusable two-stage rocket** developed by **SpaceX**, the private aerospace company founded by **Elon Musk**. It is designed to transport both **crew and cargo** to **Low Earth Orbit (LEO)** and beyond.

KEY FEATURES:

- **Height**: ~70 meters

- **Payload Capacity**: Up to **22,800 kg to LEO**

- **Propellant**: Liquid oxygen (LOX) and rocket-grade kerosene (RP-1)

- **Reusability**: The **first stage** can land vertically and be reused, significantly reducing launch costs.

- **Engines**: Powered by **9 Merlin engines** in the first stage and 1 in the second stage.

- **First launch**: June 2010

- **Latest version**: Falcon 9 Block 5 (optimized for reuse)

MISSIONS:

- Launches satellites, Dragon capsules for **NASA resupply missions**, and **crewed missions** like Axiom and Crew Dragon.

- Played a vital role in launching **Starlink satellites**, building SpaceX's satellite internet network.

SIGNIFICANCE:

- Falcon 9 is the world's most frequently used launch vehicle, revolutionizing spaceflight through cost-effective reusability and private sector leadership.

WHAT IS INTERNATIONAL SPACE STATION (ISS)?

The **International Space Station (ISS)** is a **modular space laboratory** orbiting Earth at ~400 km altitude. It is a joint project of **NASA (USA), Roscosmos (Russia), ESA (Europe), JAXA (Japan), and CSA (Canada)**.

KEY FACTS:

- **Launched**: First module in 1998; continuously inhabited since 2000.

- **Structure**: Over **15 pressurized modules**, solar arrays, laboratories, and living quarters.

- **Crew**: Hosts **6-7 astronauts** from around the world for long-duration missions.

- **Orbits Earth** every **90 minutes**, completing ~16 orbits/day.

PURPOSE:

- Conducts cutting-edge **scientific research** in microgravity: biology, physics, medicine, climate science.
- Platform for **international cooperation**, space technology testing, and private missions like **Axiom flights**.

FUTURE:

- The ISS is expected to be operational until 2030, after which commercial space stations may take over its functions.
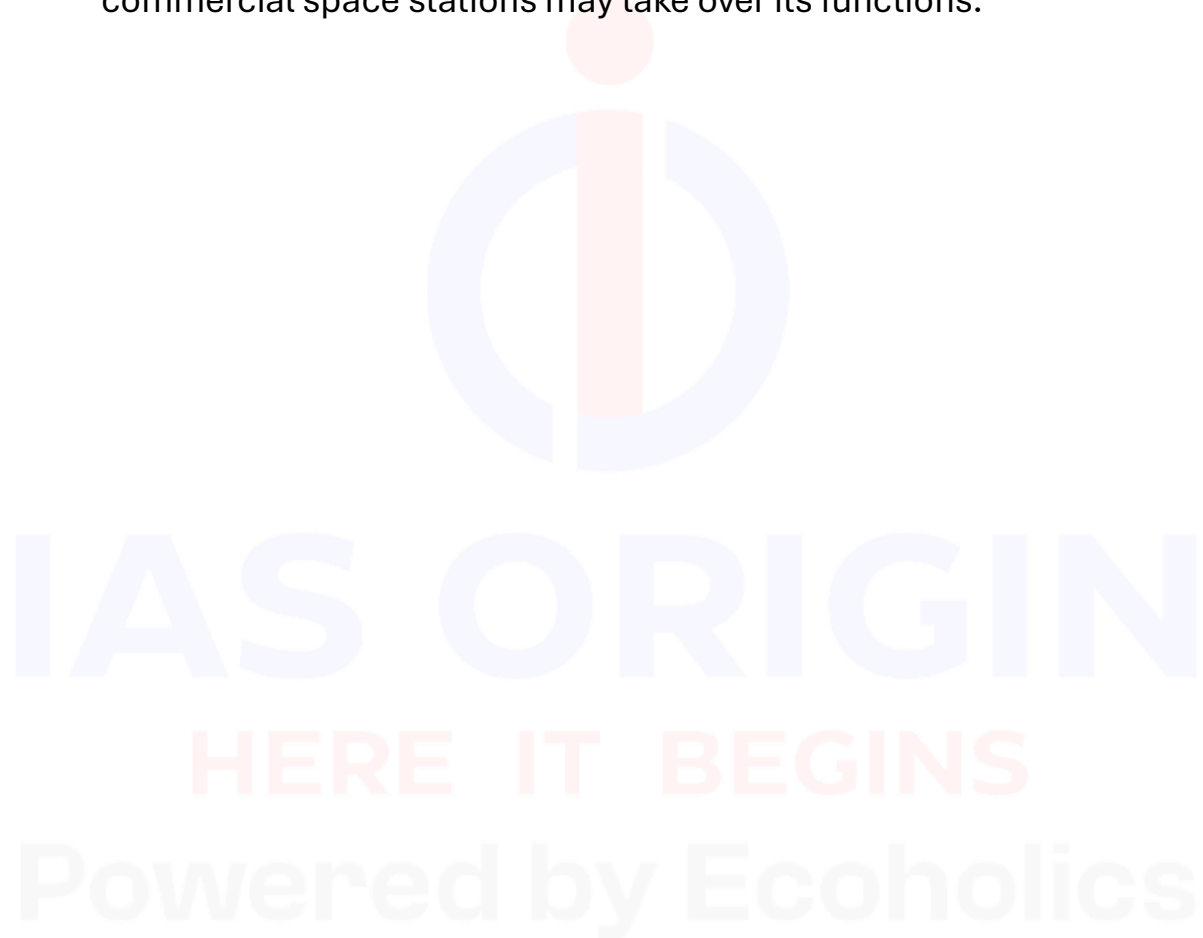
08   OCEAN ACIDIFICATION

A recent study has revealed that ocean acidification has breached its planetary boundary, posing grave threats to marine ecosystems and global climate stability.

WHAT IS OCEAN ACIDIFICATION?

Ocean acidification refers to the ongoing decrease in the **pH of the Earth's oceans** caused by the uptake of **carbon dioxide ($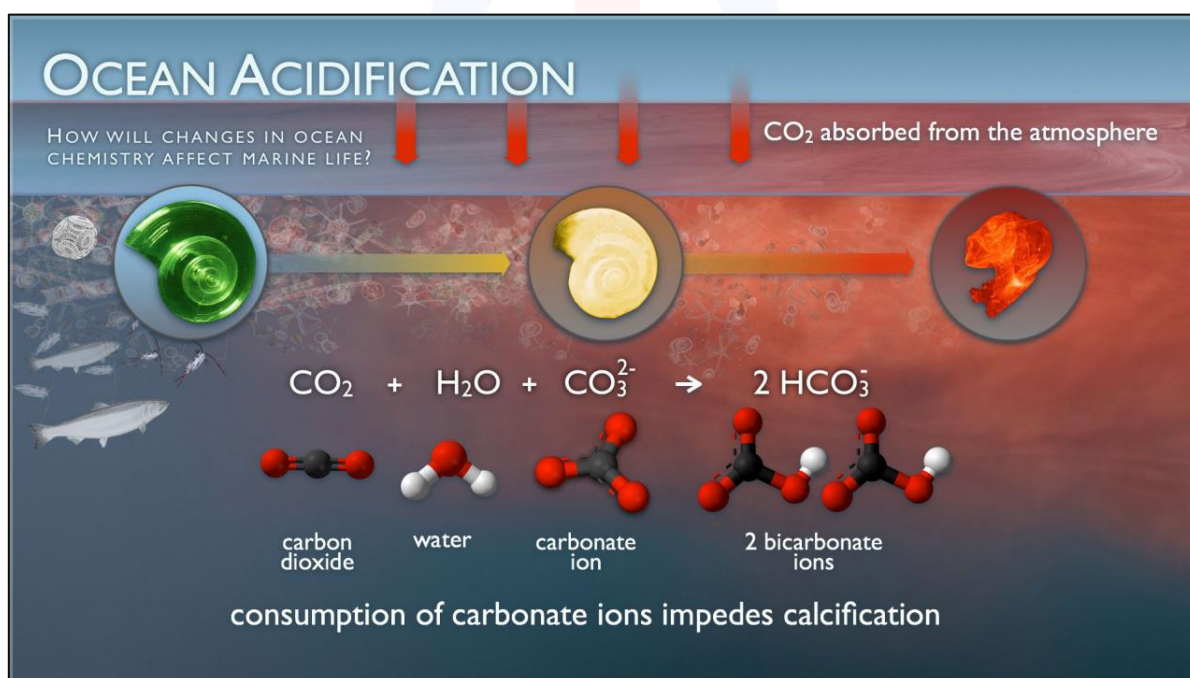CO_2$)** from the atmosphere. Since the **Industrial Revolution**, oceans have absorbed about **30% of atmospheric CO_2**. When CO_2 dissolves in seawater, it forms **carbonic acid**, which lowers the water's pH, making it more acidic.

OCEAN ACIDIFICATION

HOW WILL CHANGES IN OCEAN CHEMISTRY AFFECT MARINE LIFE?

CO_2 absorbed from the atmosphere

$$CO_2 + H_2O + CO_3^{2-} \rightarrow 2\ HCO_3^-$$

carbon dioxide   water   carbonate ion   2 bicarbonate ions

consumption of carbonate ions impedes calcification

KEY FACTS:

- The average ocean pH has dropped from **8.2 to around 8.1**, a **26% increase in acidity** since the 1800s.

- Acidification reduces the availability of **carbonate ions**, essential for **coral reefs**, **shellfish**, and **plankton** to build their shells and skeletons.

- It disrupts marine food chains, fisheries, and coastal economies.

EXAMPLE:

- The **Great Barrier Reef** in Australia has suffered severe coral bleaching and weakened skeletons due to acidification and warming.

- Ocean acidification is often called the "**evil twin of climate change**" due to its silent but harmful impact on marine ecosystems.

WHAT ARE THE IMPACTS OF OCEAN ACIDIFICATION?

- **Weakened Marine Organisms**: Acidification reduces **carbonate ions**, essential for shell-building marine organisms like **corals, oysters, clams, and plankton**. Their shells and skeletons become thinner and more fragile.

- **Coral Reef Degradation**: Coral reefs such as the **Great Barrier Reef (Australia)** face bleaching and structural weakening, impacting biodiversity and marine tourism.

- **Disruption of Marine Food Chains**: **Zooplankton and phyto-plankton**, which form the base of the marine food web, are affected. This disrupts fish populations and marine predators, including humans who rely on seafood.

- **Loss of Fisheries and Livelihoods**: Countries like **India, Bangladesh, and island nations** face declining fish stocks, threatening food security and the economy of coastal communities.

- **Ocean Biodiversity Decline**: Acidic conditions harm sensitive species, reducing species diversity and causing ecological imbalance in marine ecosystems.

- **Physiological Stress in Fish**: Fish may face **reduced sensory abilities**, slower growth, and reproductive issues due to acidified waters.

- **Coastal Protection Loss**: Coral reefs act as natural barriers against storms. Their degradation increases the vulnerability of coastlines to erosion and floods.

- **Example**: In the **U.S. Pacific Northwest**, oyster hatcheries have seen mass die-offs due to increased acidity, prompting scientific and policy responses.

WHAT ARE INITIATIVES TAKEN TO TACKLE OCEAN ACIDIFICATION?

- **United Nations Sustainable Development Goal (SDG) 14.3**: Targets to **minimize and address the impacts of ocean acidification**, including through **enhanced scientific cooperation** at all levels by 2030.

- **UNESCO's Intergovernmental Oceanographic Commission (IOC)**: Leads the **Global Ocean Acidification Observing Network (GOA-ON)** to improve monitoring, data sharing, and capacity building across nations.

- **The Paris Agreement (2015)**: While not directly addressing acidification, it urges countries to reduce CO_2 **emissions**, which is the root cause of ocean acidification.

- **Ocean Acidification International Coordination Centre (OA-ICC)**: Hosted by the **International Atomic Energy Agency (IAEA)**, it supports research, international collaboration, and policy integration.

- **National and Regional Monitoring Initiatives**: Countries like **India**, **Norway**, **USA**, and **Australia** have established coastal monitoring systems to track ocean chemistry changes.

INDIA'S ROLE:

- India monitors ocean acidification through **INCOIS** and **NCPOR**, especially in the **Indian Ocean and Arabian Sea**.
- Supports blue economy initiatives that include **mangrove and seagrass restoration** for blue carbon capture.
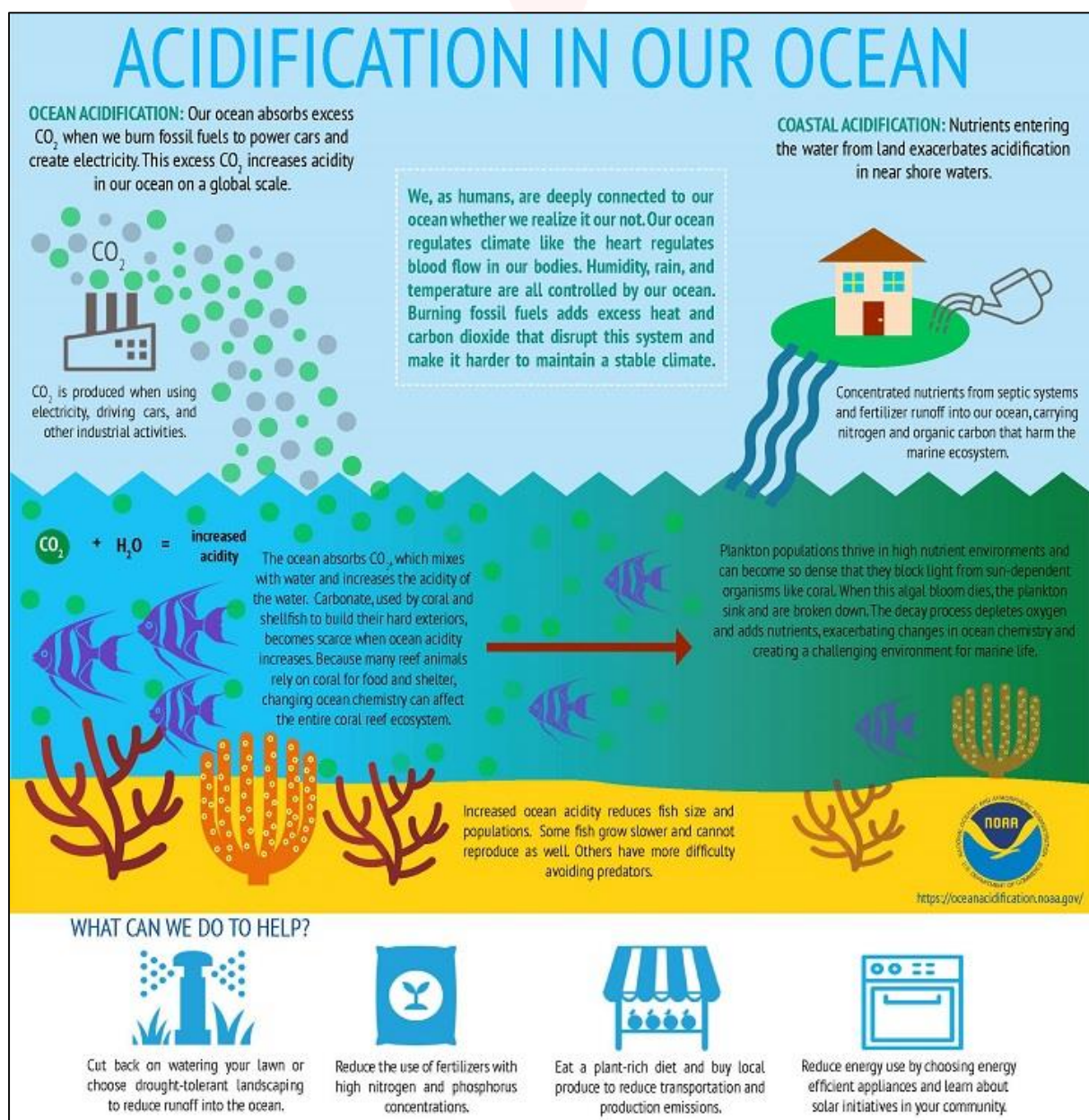
Blue Carbon Ecosystem Restoration: **Mangroves, seagrasses, and saltmarshes** absorb CO_2, mitigating acidification.

Projects in **Sundarbans (India)** and **Andaman-Nicobar Islands** focus on restoring these ecosystems.

- **Public-Private Partnerships**: Initiatives like **The Ocean Foundation's Blue Resilience Project** promote private investment in marine conservation.

- **Research and Innovation**: Universities and institutions globally are working on **alkalinity enhancement** and other marine geoengineering techniques to buffer ocean acidity.

- **Example**: The **GOA-ON Pier2Peer program** trains scientists in developing countries, including India and Africa, to improve acidification research and community resilience.

09	NINE YEARS OF PRADHAN MANTRI SURAKSHIT MATRITVA ABHIYAN

As of now, 6.19 crore pregnant women have been examined under Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA).

WHAT IS PRADHAN MANTRI SURAKSHIT MATRITVA ABHIYAN (PMSMA)?

INTRODUCTION

- **Launched by**: Ministry of Health and Family Welfare, Government of India

- **Launch date**: **June 9, 2016**

- **Aim**: To provide **comprehensive and quality antenatal care (ANC)** to **all pregnant women** on the **9th of every month**.

OBJECTIVES

- Ensure safe pregnancy and delivery through **timely detection, prevention, and management** of high-risk pregnancies.

- Reduce **maternal and neonatal mortality rates**.

- Promote universal access to **free, quality antenatal care** during pregnancy.

KEY FEATURES

- **Free health check-ups** for pregnant women in the **second and third trimesters**.

- Conducted on the **9th of every month** across government health facilities in **district hospitals, CHCs, PHCs**.

- **Private sector gynecologists**, radiologists, and specialists are encouraged to **volunteer under "I Pledge for 9" campaign**.

- ANC services include:

  - **Physical examination**

  - **Blood pressure and weight monitoring**

  - **Hemoglobin testing**

  - **Blood sugar level check**

  - **Urine test**

  - **Ultrasound (if required)**

  - **TT injection**

  - **Iron and folic acid supplementation**

  - **Nutrition and hygiene counseling**

- The PMSMA aligns with the broader goals of the **Reproductive, Maternal, Newborn, Child, and Adolescent Health plus Nutrition (RMNCAH+N) strategy** under the **National Health Mission (NHM).**

- This has led to a significant improvement in India's Maternal Mortality Ratio (MMR), which declined from 130 per lakh live births in 2014-16 to 80 per lakh live births in 2021-23 a notable reduction of 50 points.

TARGET GROUP

- All pregnant women, especially those who:

  - Are **between 4 and 9 months of pregnancy**

  - Have **not received regular ANC**

  - Live in **rural, underserved, or backward areas**

EXAMPLES OF IMPLEMENTATION

- **In Uttar Pradesh**, PMSMA helped identify high rates of **severe anemia**, leading to increased iron supplementation programs.

- In **Odisha**, integration of PMSMA with local ASHA workers improved ANC outreach in tribal areas.

EXTENDED PMSMA (E-PMSMA)

- **About:** Launched in 2022 to ensure tracing and tracking of High-Risk Pregnant (HRP) women till a safe delivery is achieved by provisioning financial incentivization for the identified HRP women.

- **Features:** Name-based line listing of HRPs.

  - Provision of additional PMSMA Session (Max 4 times in a month).

  - Individual tracking of HRP up to a healthy outcome (till 45th day after delivery).

  - SMS alert to beneficiary as well as to the ASHA for registration of HRP & follow-up visits.

INTEGRATION WITH NATIONAL HEALTH POLICIES

PMSMA complements other existing programs of the government like:

- **Janani Suraksha Yojana (JSY):** Launched to incentivize institutional deliveries through conditional cash transfers. This scheme has benefitted over 11.07 crore women as of March 2025.

- **Janani Shishu Suraksha Karyakram (JSSK):** Launched to promote free institutional delivery and neonatal care. More than 16.60 crore beneficiaries have been served since 2014–15.

- **LaQshya:** Initiative for improving quality of care in labour rooms.

- **Surakshit Matritva Aashwasan (SUMAN):** Launched to strengthen respectful and quality care for pregnant women. 90,015 SUMAN health facilities have been notified across the country by March 2025.

- **POSHAN Abhiyaan:** Launched to target the most vulnerable—children, adolescent girls, pregnant women, and lactating mothers—by revamping the nutrition services. As of present, there are 6.97 crore Poshan Pakhwadas across the country.

- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Launched to promote institutional delivery and ensuring maternal health, the scheme provides direct cash benefits of ₹5,000 to pregnant and lactating women.

COMPARISON OF MAJOR MATERNAL & CHILD HEALTH SCHEMES IN INDIA

Scheme	Ministry	Key Objective	Target Group	Key Benefits	Financial Incentive
Janani Suraksha Yojana (JSY)	Ministry of Health & Family Welfare (MoHFW)	Promote **institutional deliveries** to reduce maternal & neonatal mortality	Pregnant women (esp. BPL, SC/ST)	Free institutional delivery at govt. facility	₹1,000–₹1,400 for rural women (differs by state)
Janani Shishu Suraksha Karyakram (JSSK)	MoHFW	Provide **free maternal & neonatal care** services	Pregnant women & sick newborns (up to 1 year)	Free delivery (C-section too), free drugs, diagnostics, diet, transport	No direct cash incentive
LaQshya	MoHFW	Improve **quality of care** in labor rooms & maternity OTs	Labor rooms in public health facilities	Quality standards, training, audits, certifications	No financial incentive
SUMAN (Surakshit Matritva Aashwasan)	MoHFW	Assure **respectful, dignified & safe maternity care**	All pregnant women, mothers up to 6 months postpartum, and infants	Zero-expense care, grievance redressal, dignity in delivery	No direct cash
POSHAN Abhiyaan	Ministry of Women & Child Development (MWCD)	Reduce **malnutrition, stunting, anemia** in children, women, and adolescent girls	Children (0–6 yrs), Pregnant & Lactating Women (PLW), Adolescent girls	Nutrition support, growth tracking, counseling	No cash transfer

PMMVY (Pradhan Mantri Matru Vandana Yojana)	MWCD	Provide partial wage compensation during pregnancy	First-time pregnant & lactating mothers (age 19+)	₹5,000 paid in 3 installments for ANC, delivery, vaccination	₹5,000 (in 3 phases)

KEY TAKEAWAYS:

- **JSY & PMMVY** provide **cash benefits**, while **JSSK, SUMAN, and LaQshya** focus on **service delivery and quality**.

- **POSHAN Abhiyaan** focuses on **nutrition** rather than direct maternal healthcare.

- **LaQshya** is aimed at improving **hospital-based delivery care**, not individual entitlements.

- **SUMAN** is a **rights-based umbrella** scheme combining aspects of JSY, JSSK, and LaQshya.

10	FDI PARADOX: INDIA'S INVESTMENT CROSSROADS

The RBI's Annual Report 2024–25 shows gross FDI inflows rose by 13.7%, yet long-term net inflows have halved due to rising disinvestments. India's net FDI dropped to just $0.4 billion in 2024–25, down sharply from $44 billion in 2020–21.
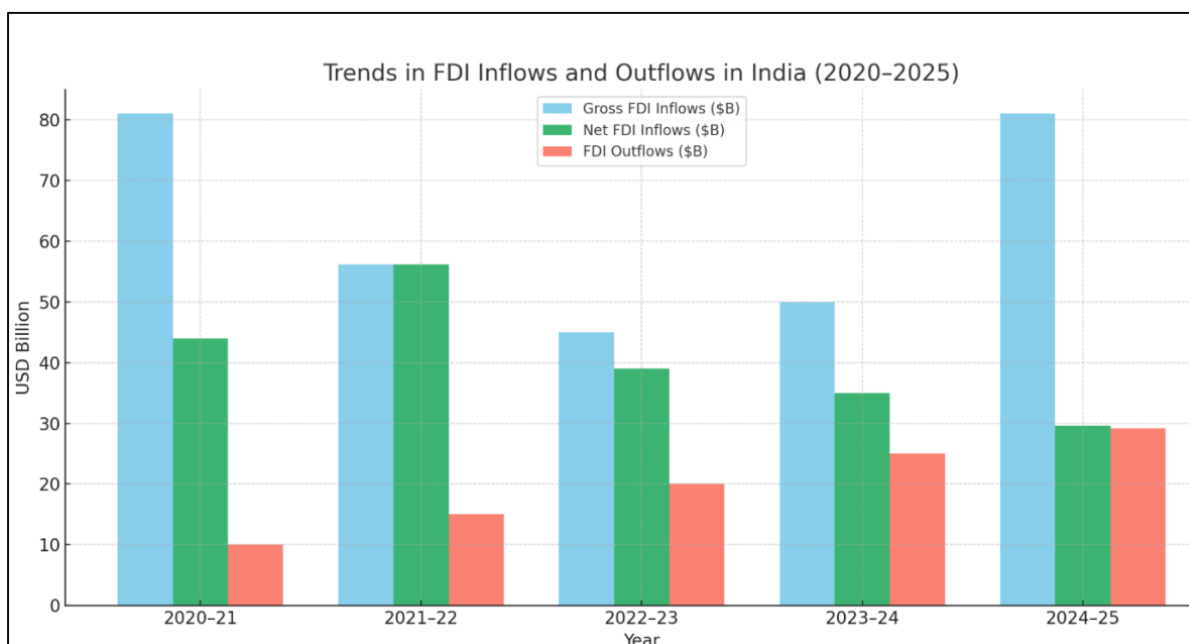
WHAT IS FOREIGN DIRECT INVESTMENT (FDI)?

It is when an individual or company from one country **invests directly in a business or asset in another country**, gaining **controlling ownership (usually 10% or more)**.

FORMS OF FDI:

- **Greenfield Investment**: Setting up a new business or factory.

- **Brownfield Investment**: Acquiring or merging with an existing business.

ROUTES IN INDIA:

- **Automatic Route**: No government approval required (e.g., 100% FDI in telecom infrastructure).

- **Government Route**: Prior approval needed (e.g., defense, media).

SECTORS ATTRACTING FDI IN INDIA (2023-24 DATA):

- **Services**

- **Computer Software & Hardware**

- **Telecommunications**

- **Construction**

- **Automobile**

Foreign Direct Investment

Pros

- Diversifies investors portfolios
- Promotes stable long term lending
- Provides financing to developing countries
- Provides technology to developing countries

Cons

- Not suitable for strategically important industries
- Investors may have less moral attachment
- Unethical access to local markets

TOP FDI SOURCES:

- **Singapore**, **Mauritius**, **USA**, **Netherlands**, and **Japan**.

IMPORTANCE OF FDI:

- Boosts **economic growth** and employment.

- Enhances **technology transfer and innovation**.

- Improves **infrastructure** and exports.

- Increases **global competitiveness** of domestic firms.

FDI LIMIT EXAMPLES:

- **Defense**: Up to 74% under automatic route.

- **Retail (single brand)**: Up to 100% (with conditions).

RECENT TRENDS IN FDI INFLOWS (AS PER RBI 2024–25 REPORT)

- **Sluggish Long-Term Growth:** Despite a 13.7% increase in gross inflows in 2024–25, average annual growth was only 0.3% in the last four years.

- **Rising Disinvestments:** Repatriation surged at 18.9% annually post-pandemic, leading to net FDI halving to $29.6 billion.

- **Distorted Composition:** Significant flows from Singapore (15%) and Mauritius (close to 10%) suggest dominance of **financial flows** over productive investments.

- **Manufacturing Decline:** Share of FDI in manufacturing dropped to 12%, down from peak levels.

- **Outward FDI Boom:** Indian FDI outflows rose to $29.2 billion in 2024–25, almost tripling in five years.

India's FDI landscape shows worrying signs of capital flight and low-quality inflows, raising structural concerns. Despite short-term growth, long-term investment stability is threatened by disinvestment surges and sectoral decline. Policymakers must pivot to reform-driven, high-quality FDI attraction to sustain economic resilience.

11   JAN MAN SURVEY

To mark 11 years of Prime Minister leadership, the NaMo App launched the 'Jan Man Survey', receiving over 5 lakh responses within 26 hours.

The survey allows citizens to share direct feedback on governance, national security, and development issues.

WHAT IS JAN MAN SURVEY?

The Jan Man Survey is a public opinion poll conducted by the **Lokniti–Centre for the Study of Developing Societies (CSDS),** often before and after major elections in India.

PURPOSE:

- To understand **voter behavior**, political preferences, leadership ratings, and key public issues.
- Provides insights into **democratic trends** in Indian society.

CONDUCTED BY:

- **Lokniti–CSDS**, a premier research institution in political science and public opinion.

- Surveys are carried out across multiple states with a large sample size to ensure accuracy.

METHODOLOGY:

- **Face-to-face interviews** with randomly selected voters.

- Covers both rural and urban areas across caste, religion, gender, and age groups.

KEY FINDINGS (EXAMPLE – 2024 LOK SABHA ELECTION):

- People rated **price rise**, **unemployment**, and **welfare schemes** as top concerns.

- Leadership image and local issues influenced voter preferences.

SIGNIFICANCE:

- Considered one of India's **most credible non-partisan electoral surveys**.

- Often quoted in national media and used by political analysts and parties.

- Enhances **direct democracy** by involving citizens in feedback loops.

- Encourages **digital participation** and fosters a culture of political accountability.

- Demonstrates high engagement, with **77% completing the full survey**, reflecting strong public interest.
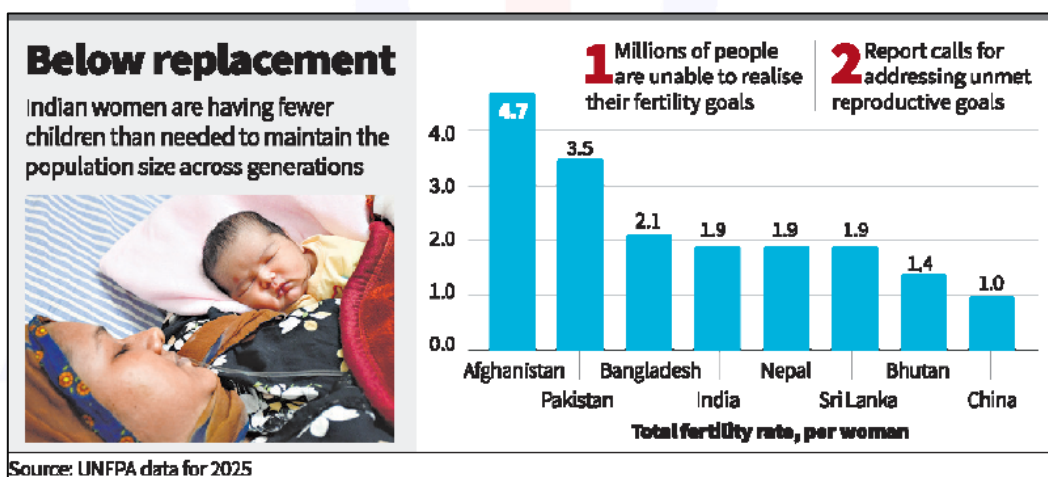
12	STATE OF THE WORLD POPULATION 2025 REPORT

India's population has reached 146.39 crore in April 2025 as per the UNFPA's "State of the World Population 2025" report, with Total Fertility Rate (TFR) dropping to 1.9, below the replacement level of 2.1.

KEY HIGHLIGHTS OF UNFPA STATE OF THE WORLD POPULATION 2025:

- **Global Population Trends:** World population stands at **8.2 billion**; growth has slowed but disparities remain between high-income and low-income countries.

- **Fertility Crisis Redefined:** The real crisis is **unmet fertility goals**—not just overpopulation or under population, but denial of reproductive choice.

Below replacement
Indian women are having fewer children than needed to maintain the population size across generations

1 Millions of people are unable to realise their fertility goals

2 Report calls for addressing unmet reproductive goals

Total fertility rate, per woman: Afghanistan 4.7, Pakistan 3.5, Bangladesh 2.1, India 1.9, Nepal 1.9, Sri Lanka 1.9, Bhutan 1.4, China 1.0

Source: UNFPA data for 2025

- **Reproductive Agency:** Emphasis on **individual rights** to decide freely on reproduction, contraception, and timing of childbirth.

- **Demographic Dividend:** Over **60% of the world's population is in the 15–64 age groups**, offering a productivity window.

- **Ageing Population Concern:** Global elderly population (65+) is growing rapidly, requiring focused health and pension reforms.

- **Youth Bulge in LMICs: Low- and middle-income countries** (like India, Nigeria) have large youth populations with untapped potential.

- **Gender & Fertility Gaps:** Women's education and autonomy significantly influence fertility patterns and gaps persist in access to healthcare & contraception.

WHAT IS FERTILITY AND ITS FEATURES?

- Fertility refers to the actual number of children born to a woman during her reproductive years (15–49 years).

- **Total Fertility Rate (TFR):** Measures average births per woman and **2.1** is considered the replacement level.

- **Determinants:** Influenced by education, health access, family planning services, cultural norms, and economic conditions.

GLOBAL ISSUES SURROUNDING FERTILITY:

- **Falling Fertility in Developed Countries:** Countries like **Japan, Italy, and South Korea** face declining TFRs, below **1.5**, triggering ageing concerns.

- **High Fertility in Fragile States:** Sub-Saharan Africa has TFRs above **4**, stressing healthcare, education, and resources.

- **Reproductive Inequality:** Millions lack access to **contraception, maternal care**, and autonomy in reproductive choices.

INDIA'S STATUS AS PER THE 2025 REPORT:

- **Population Size:** India leads with **146.39 crore**, expected to peak at **170 crores** in 40 years before stabilizing.

- **TFR Status:** Current **TFR is 1.9**, below replacement level, indicating a demographic transition.

DEMOGRAPHIC COMPOSITION:

- Youth (0–14): 24%

- Teens (10–19): 17%

- Working age (15–64): 68%

- Elderly (65+): 7%

- **Life Expectancy (2025):** Men – 71 years; Women – 74 years.

- **Unrealized Fertility:** A section of the population cannot achieve desired fertility goals due to poor access to services.

WHAT IS UNFPA?

- **It** stands for **United Nations Population Fund** (originally: United Nations Fund for Population Activities).

- **Established**: In **1969**, as part of the United Nations Development Programme; became operational in **1972**.

- **Headquarters**: **New York City, USA**

- **Objective**: To ensure **universal access to sexual and reproductive health and rights (SRHR)**, reduce maternal mortality, and support population and development policies.

MANDATE:

- Promote **reproductive health**, **family planning**, and **gender equality**.

- End **preventable maternal deaths**, **unmet need for contraception**, and **gender-based violence**.

KEY FOCUS AREAS:

- **Maternal health**

- **Adolescent and youth empowerment**

- **Population data for development planning**

- **Ending harmful practices** like **child marriage** and **female genital mutilation (FGM)**

India and UNFPA: UNFPA supports India's efforts in **population stabilization**, **reproductive rights**, and **adolescent health education**, especially through partnerships with state governments and NGOs.

Funding: UNFPA is funded by **voluntary contributions** from UN member states.

Slogan: "Delivering a world where every pregnancy is wanted, every childbirth is safe, and every young person's potential is fulfilled."

| 13 | KATRIN EXPERIMENT |

The KATRIN experiment in Germany has published the most stringent upper limit yet on the sum of the masses of the three types of neutrinos, capping it at 8.8×10^{-7} times the mass of an electron—twice as precise as previous estimates.

WHAT IS KATRIN?

The Karlsruhe Tritium Neutrino (KATRIN) Experiment is a precision physics project that studies the mass of neutrinos using beta decay of tritium.

- **Developed by:** Conducted by an international collaboration led by the Karlsruhe Institute of Technology (KIT), Germany.

- **Nations Involved:** Major institutions from Germany, the U.S., and other European countries contribute to the experiment.

- **Objective:** To directly measure the absolute mass of neutrinos—a major unsolved question in particle physics.
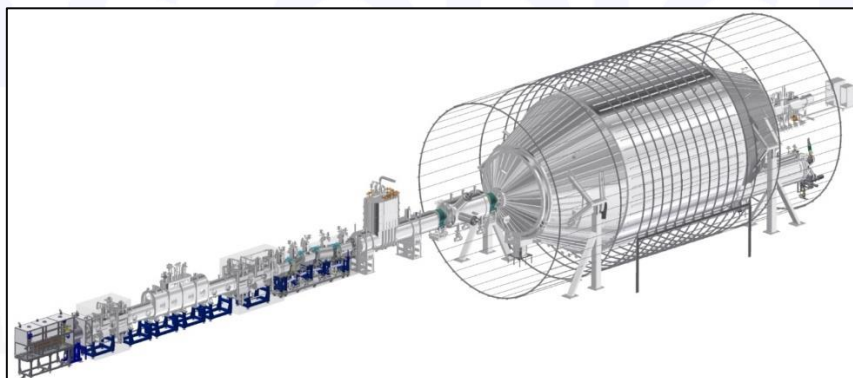
WHAT ARE KEY FEATURES OF KATRIN?

- **Massive Detector:** Uses a 200-tonne spectrometer for ultra-precise electron energy measurements during tritium decay.

- **Tritium Disintegration Monitoring:** Observes beta decay of tritium to track maximum energy of electrons, revealing neutrino mass.

- **Robust Data Collection:** Analysed over **36 million electrons** across **259 days**, making it one of the most data-rich neutrino studies.

- **Direct Measurement Method:** Unlike cosmological studies, KATRIN does not rely on early universe assumptions or models.

WHAT IS THE SIGNIFICANCE OF KATRIN?

- **Breakthrough in Neutrino Physics:** Set a **new upper limit on the sum of neutrino masses**—a critical input for physics beyond the Standard Model.

- **Validates and Challenges Theory:** Confirms neutrinos have mass, challenging the Standard Model which assumes massless neutrinos.

- **Clue to New Physics:** Opens path to identify **new forces or particles** like Majorana vs Dirac neutrinos, which could reshape particle physics.

- **No Model Bias:** Result is **model-independent**, making it more reliable than cosmological estimates that rely on multiple assumptions.

- **Foundation for Future Experiments:** Sets technical standards for future neutrino detectors and decay experiments worldwide.
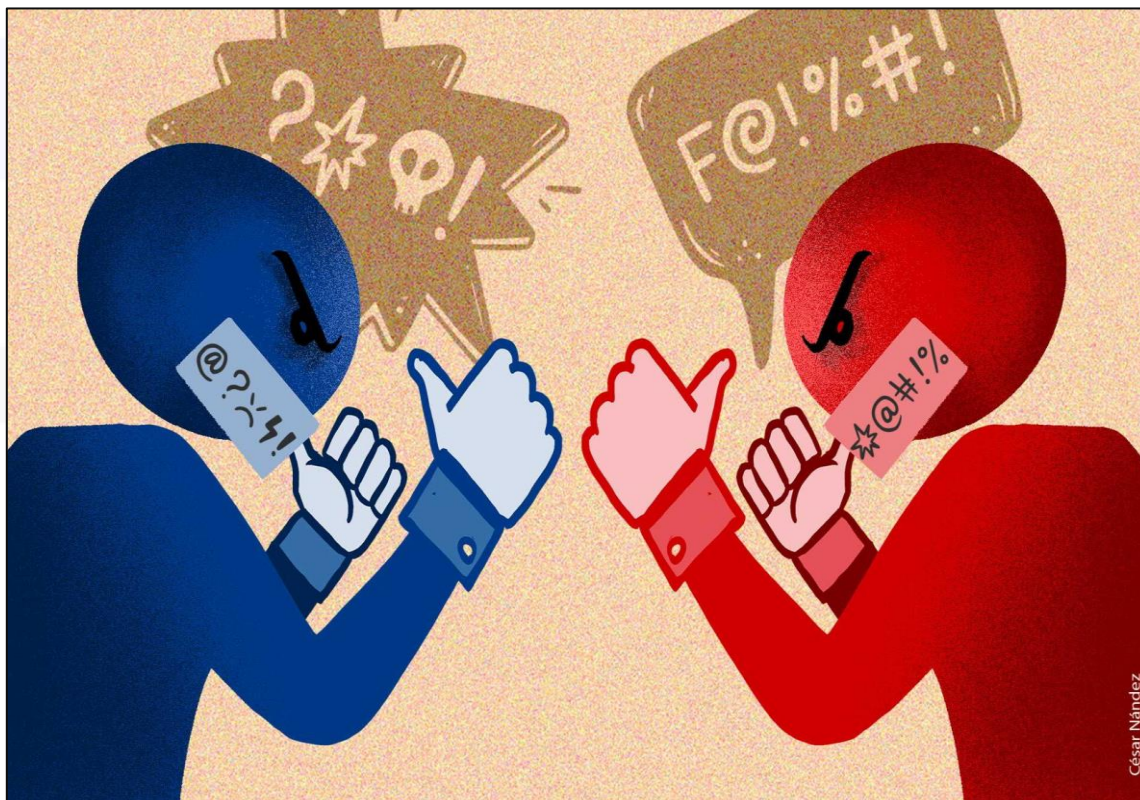
14   HATE SPEECH

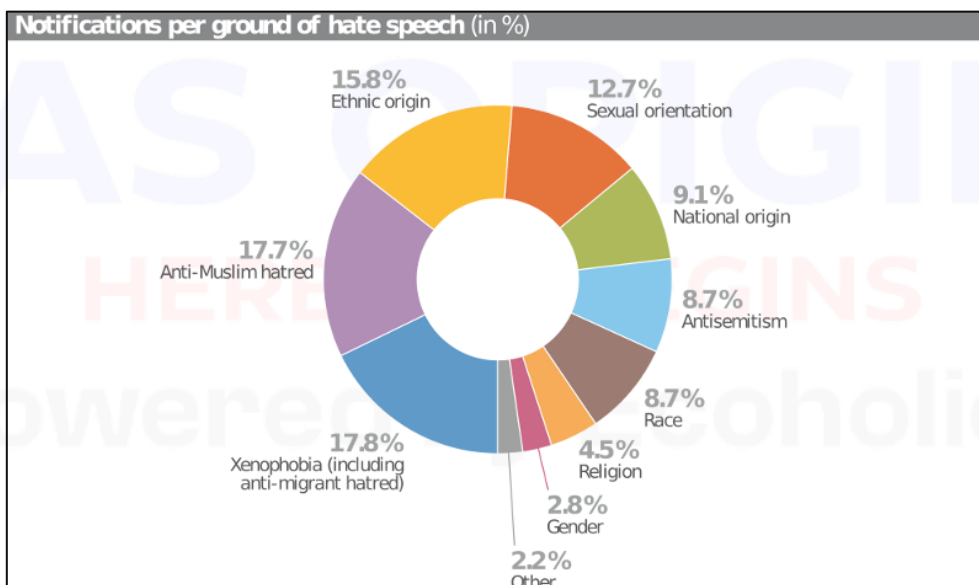Rajya Sabha may form a panel to probe **hate speech charges against HC judge.**

WHAT IS 'HATE SPEECH'?

- Hate speech lacks a specific legal definition but generally refers to speech, writings, or actions that incite violence or spread hatred and disharmony between communities.

- According to the **Law Commission of India**, hate speech targets groups based on race, ethnicity, gender, religion, etc., intending to cause fear, alarm, or incite violence.
    - It is viewed as a restriction on free speech to protect individuals or groups from hate, violence, or humiliation.

- The Law Commission has proposed adding two new IPC sections—153C and 505A—to specifically criminalize hate speech.

HOW IS IT TREATED IN INDIAN LAW?

- In Indian law, hate speech is primarily addressed under **Sections 153A (now Section 196 of the Bharatiya Nyaya Sanhita) and 505 of the IPC (now Section 353 of the Bharatiya Nyaya Sanhita)**.

  - **Section 153A** criminalizes promoting enmity between groups based on religion, race, language, etc., punishable by up to three years in prison, or five years if done in places of worship.

  - **Section 505 penalizes statements** that incite public mischief, fear, or hatred between communities, with jail terms up to three years, or five years if occurring in religious settings.

- **Judicial Intervention**: The Supreme Court in **Pravasi Bhalai Sangathan v. Union of India (2014)** emphasized the need for stricter regulation and called for responsible speech, especially by leaders.

- **Example**: Hate speeches by political leaders during **Delhi riots (2020)** or communal tensions in **Haryana (2023)** led to real-world violence and deaths.

Notifications per ground of hate speech (in %)

- 15.8% Ethnic origin
- 12.7% Sexual orientation
- 9.1% National origin
- 8.7% Antisemitism
- 8.7% Race
- 4.5% Religion
- 2.8% Gender
- 2.2% Other
- 17.8% Xenophobia (including anti-migrant hatred)
- 17.7% Anti-Muslim hatred

ISSUES AND CONCERNS WITH HATE SPEECH IN INDIA

- **Lack of Clear Legal Definition**: criminalize certain forms of speech, but **"hate speech" is not precisely defined**.

- This creates ambiguity in enforcement and judicial interpretation.

- **Misuse of Laws**: Hate speech laws are sometimes **selectively applied or misused** for political vendettas or to suppress dissent, violating **freedom of expression (Article 19(1)(a))**.

- **Communal Polarization**: Hate speech deepens **religious, caste, and ethnic divides**.

  - **Example:** Provocative speeches before the **Delhi riots (2020)** escalated violence, resulting in deaths and mass displacement.

- **Role of social media**: Platforms like Facebook, YouTube, and WhatsApp are frequently used to **spread misinformation and incite hatred**, with limited regulation and accountability.

- **Targeting of Minorities**: Hate speech often targets **Muslims, Dalits, tribal communities, and women**, leading to marginalization and social exclusion.

- **Threat to National Security and Harmony**: It fuels **mob violence**, **lynchings**, and undermines **public order and rule of law**.

- **Ineffective Implementation:**Even when hate speech is reported, **prosecution is slow**, and many offenders go unpunished, especially when politically influential.

- **Impact on Democratic Values**: It **erodes trust in institutions**, damages **secularism**, and hinders **free and fair discourse**.

CONCLUSION:

India urgently needs **clearer laws, unbiased enforcement**, and **stronger digital regulation** to prevent hate speech from undermining its constitute-ional values and social harmony.

| 15 | MONACO MARINE CONFERENCE |

Recently, India and Norway reaffirmed their commitment to strengthening cooperation in marine planning, Arctic research, and the Blue Economy at the **Monaco Marine Conference (MCC).**
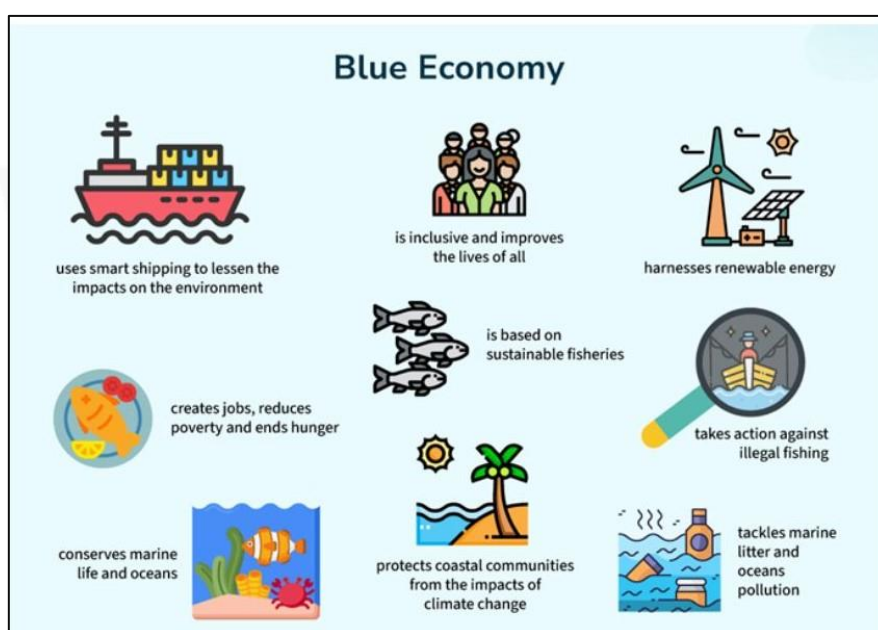

KEY POINTS

- **Marine Spatial Planning (MSP):** India aims to scale **Marine Spatial Planning (MSP) across its coastline** reinforcing its leadership in sustainable ocean management.

  - **MSP** is a science-based framework for optimizing ocean resources, protecting biodiversity, and ensuring coastal livelihoods, **under the Indo-Norwegian Integrated Ocean and Research Initiative.**

  - It has already yielded visible outcomes, particularly through **pilot projects in Puducherry and Lakshadweep.**

- **India-Norway Marine Pact:** Both nations emphasized the importance of joint research in polar sciences and ocean sustainability.

- Strengthening bilateral cooperation in marine planning, Arctic research, and ocean sustainability.

    - Norway, with **70% of its exports originating** from its maritime industry, is a recognized expert in the **Ocean Economy.**

- **SAHAV Portal:** It is a **GIS-based decision support system**, recognized as a **Digital Public Good**.

   - It was introduced to mark **World Ocean Day (i.e. 8th June).**

WHAT IS THE BLUE ECONOMY?

- Blue Economy refers to the sustainable use of ocean resources for economic growth, improved livelihoods, and environmental health.

- India's vision aligns with global efforts to balance economic development with marine ecosystem protection.

- The Blue Economy is also reflected in Sustainable Development Goal (SDG 14), which advocates for the conservation and sustainable use of oceans, seas, and marine resources for sustainable development.

- For India, with its extensive coastline of 11,098km spanning nine states and two union territories, and an Exclusive Economic Zone (EEZ) of 2.02 million sq.km, the Blue Economy holds significant potential.

Blue Economy

- uses smart shipping to lessen the impacts on the environment
- is inclusive and improves the lives of all
- harnesses renewable energy
- creates jobs, reduces poverty and ends hunger
- is based on sustainable fisheries
- takes action against illegal fishing
- conserves marine life and oceans
- protects coastal communities from the impacts of climate change
- tackles marine litter and oceans pollution

KEY POLICY FRAMEWORKS AND INITIATIVES

- **National Blue Economy Policy Framework:** It was outlined by the Economic Advisory Council to the Prime Minister, focusing on marine fisheries, coastal tourism, and ocean-based industries.

- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** It aimed at boosting fisheries and aquaculture, contributing to India's Blue Economy.
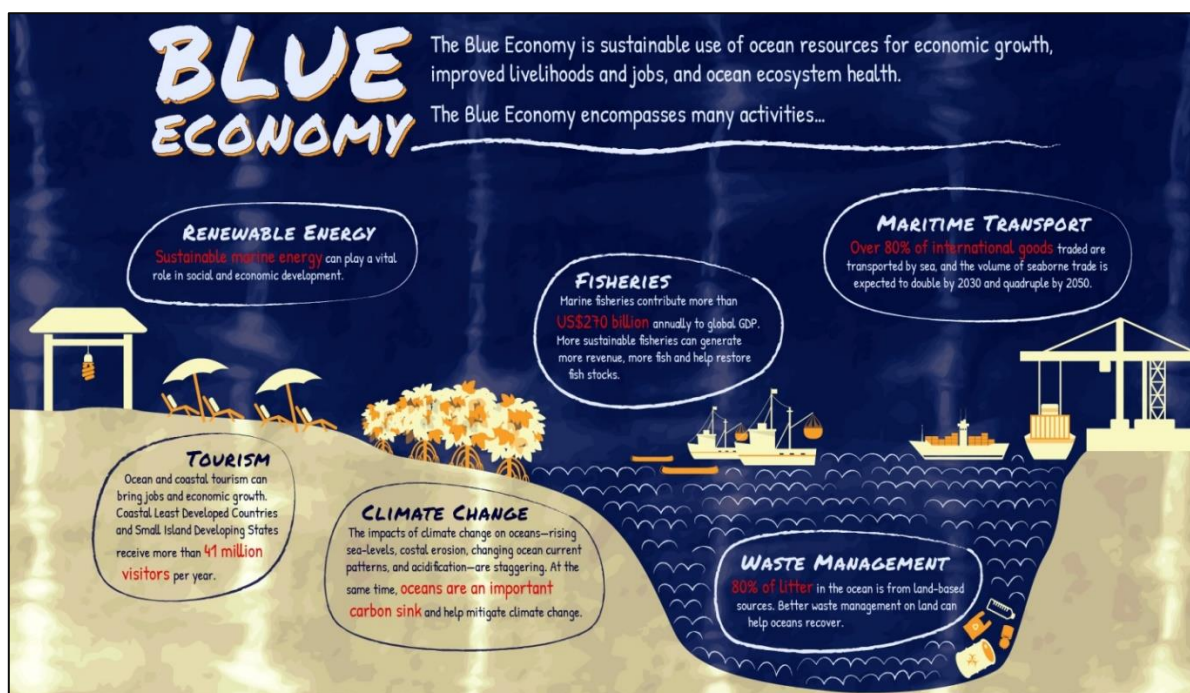
INDIA–NORWAY RELATIONS

- **About:** India and Norway have maintained a cordial and friendly relationship since 1947, built on shared values like democracy, human rights, and the rule of law.

- **Political and Diplomatic Engagement:**

    o **2014:** It strengthened cooperation in Earth Sciences, Culture, Defence, and Scientific Research.

    o **2019:** It led to the **signing of the India-Norway Ocean Dialogue,** reinforcing maritime collaboration.

    o **India-Nordic Summit (2022):** It focused on blue economy, renewable energy, green hydrogen, and sustainable shipping.

- **Trade and Investment:**

  - In March 2025, Norway's exports to India increased by 48% year-on-year. Key Norwegian exports include non-ferrous metals (like raw nickel), chemical materials, and metalliferous ores.

  - The recent signing of the India-EFTA Trade and Economic Partnership Agreement (TEPA) in March 2024 is a significant milestone, expected to boost trade and investment between India and Norway.

- **Scientific and Environmental Cooperation:**

  - India and Norway collaborate on **polar research, marine spatial planning, and climate action.**

  - India has undertaken three **Arctic Missions to Norway** (in 2007, 2008, and 2009). India's Polar Research Station, "Himadri," is located at Ny Alesund, Spitsbergen Island, Norway.

- **Export Control Regimes:** Norway has supported India's membership in key export control regimes, including the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement (WA), and the Australia Group (AG).
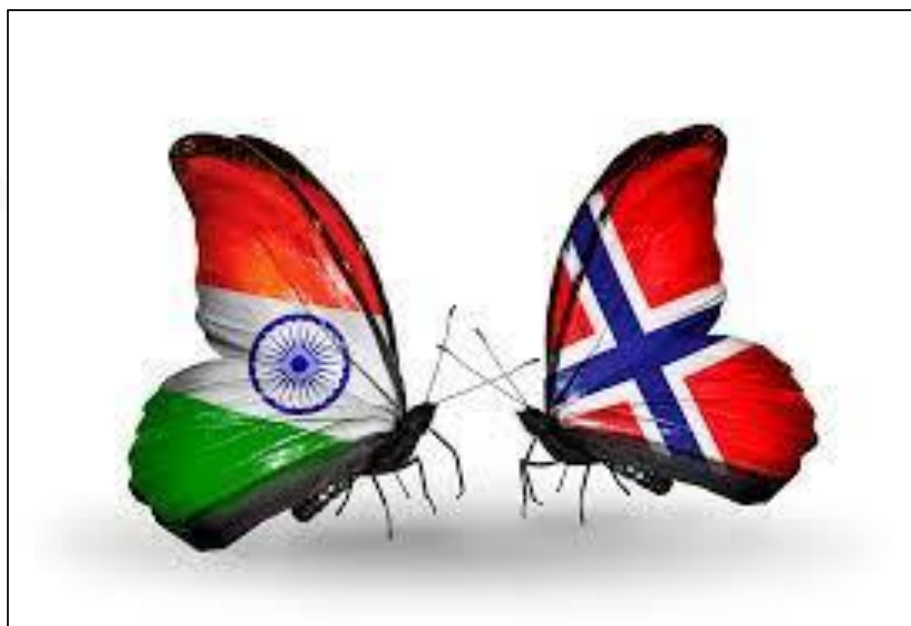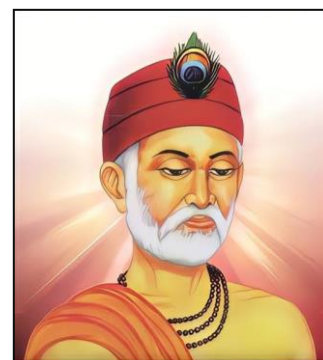
16   SANT KABIR DAS

Sant Kabirdas Jayanti was celebrated on June 11, marking his 648th birth anniversary.

This occasion honors the 15th-century poet-saint's timeless contribution to spiritual unity and social reform.

SANT KABIR DAS

- **Born: Around 1440 CE, in** Varanasi**, Uttar Pradesh.**

- **Caste/Community:** Raised in a **Muslim Julaha (weaver) family**.

- **Spiritual Influence:** Follower of **Sant Ramananda** (a Hindu Bhakti saint).

- **Religious Philosophy:**
  - Combined **Hindu Bhakti** and **Islamic Sufi** ideas.
  - Believed in **Nirguna Brahman** (formless God).
  - Rejected **idol worship**, **rituals**, and **caste discrimination**.

- **Teachings:**
  - Emphasized **inner devotion**, **truth**, and **moral life**.
  - Advocated **equality**, **universal brotherhood**, and **oneness of God**.

- **Writing Style:**
  - Used **Dohas (couplets)** in simple Hindi.
  - Criticized religious hypocrisy and orthodoxy.

- **Major Works:**
  - Verses included in **Guru Granth Sahib**, **Kabir Granthavali**, and **Bijak**.

- **Followers:** Known as **Kabir Panthis**.

- **Death:** Around 1518 CE.

  - Both Hindus and Muslims claimed him.

- **Legacy:**

  - Prominent **Bhakti Movement** saint.

  - Symbol of **social reform**, **spiritual wisdom**, and **religious harmony**.

KABIR'S PHILOSOPHY

Sant Kabir Das was a spiritual reformer whose philosophy formed a core part of the **Bhakti Movement**. His ideas were radical for his time and focused on inner spirituality, social equality, and devotion to a formless God. Below are the main elements of **Kabir's philosophy**:

BELIEF IN NIRGUNA BRAHMAN (FORMLESS GOD):

- Kabir believed in **Nirguna Bhakti**—devotion to a **formless, invisible, omnipresent God**.

- He rejected idol worship and temple rituals.

- For Kabir, God resided within the human soul and could be realized through love and inner awakening.

UNITY OF ALL RELIGIONS:

- Declared **Hindu and Muslim are equal before God**.

- Criticized both **Brahmanical orthodoxy** and **Islamic dogmatism**.

- Said: "*Allah and Ram are the same.*"

REJECTION OF RITUALS AND EXTERNAL SYMBOLS:

- Opposed **fasting, bathing in holy rivers, reading scriptures**, etc., if done without inner transformation.

- Focused on **spiritual realization** over **ritualistic religion**.

EQUALITY AND SOCIAL JUSTICE:

- Strongly opposed **caste system**, **untouchability**, and **religious discrimination**.

- Believed **all humans are equal**—"*Jat na poochho sadhu ki, poochh lijiye gyaan*" (Don't ask a saint's caste, ask about his wisdom).

SIMPLICITY AND TRUTHFULNESS:

- Advocated a **simple life**, **truthful speech**, and **ethical behavior**.

- Truth (*satya*) and love were the foundation of his teachings.

INNER DEVOTION AND SELF-REALIZATION:

- Encouraged people to seek **God within** rather than in temples or mosques.

- True worship is **meditation, love, service**, and **honesty in daily life**.

USE OF LOCAL LANGUAGE (VERNACULAR):

- Wrote in **simple Hindi** in the form of **dohas (couplets)**.

- This made his teachings accessible to the common masses.

CRITICISM OF RELIGIOUS HYPOCRISY:

- Attacked fake saints, blind rituals, and those who exploit religion for power.

- Emphasized **inner purity over outer show**.

KABIR'S INFLUENCE ON SECTS:

- **Kabir Panth:** A spiritual order based on Kabir's teachings emerged, spreading his egalitarian philosophy across villages and towns in northern India.

- **Influenced Sikhism:** Guru Nanak admired Kabir's thought; many of his verses are enshrined in the Guru Granth Sahib, shaping Sikh devotion and ethics.

- **Dadu Panthis & others:** Kabir's inclusive and non-sectarian teachings inspired several movements that challenged orthodoxy and ritualism.

- **Cross-religious following:** Hindus and Muslims alike revered him, seeing in him a figure that transcended religious divisions and embodied spiritual truth.

Sant Kabir Das
The Mystic Saint-Poet
1440-1518
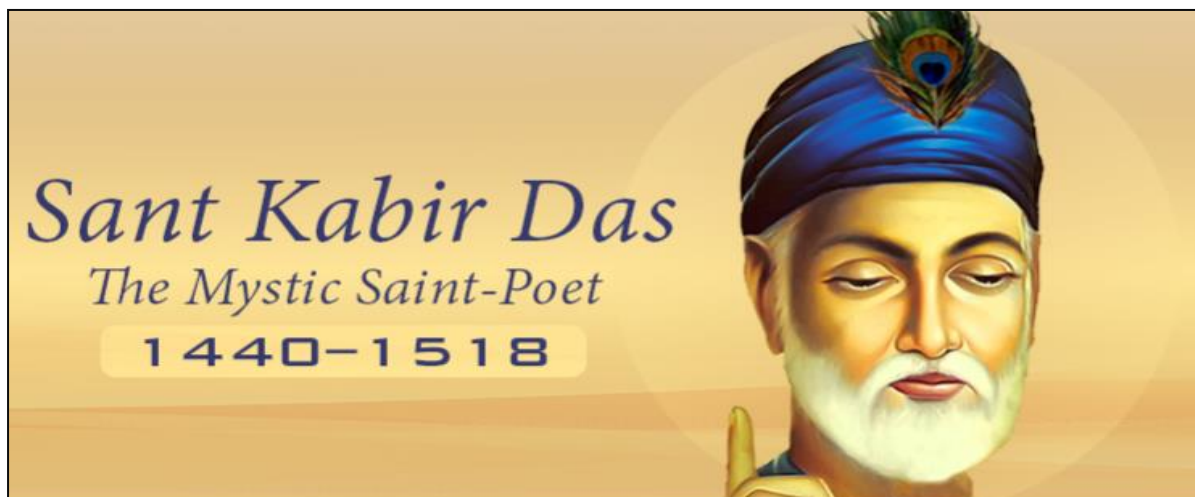
RELEVANCE OF KABIR'S PHILOSOPHY IN THE MODERN WORLD:

- **Religious Harmony:** In an age of rising intolerance, Kabir's teachings offer a bridge between communities through shared spiritual values.

- **Social Justice:** His critique of caste and privilege aligns with today's constitutional ideals of equality and dignity for all.

- **Minimalism and Sustainability:** His advocacy of contentment and simplicity provides philosophical grounding for sustainable living.

- **Humanism over Ritualism:** Kabir's focus on inner purity and conduct resonates with modern ethical discourse beyond religious boundaries.

- **Spiritual Inclusivity:** He legitimized multiple paths to truth, promoting tolerance for diverse beliefs in an increasingly pluralistic world.

DIFFERENCE BETWEEN BHAKTI AND SUFI MOVEMENT

Aspect	Bhakti Movement	Sufi Movement
Origin	Originated in **South India (Tamil Nadu)** in 7th–8th century with Alvars & Nayanars; later spread to North India.	Originated in **Persia (Iran)** in the 8th century; entered India in the **12th century**.
Religion	Part of **Hinduism**	Part of **Islam (Mystical branch)**
Main Focus	**Devotion (Bhakti)** to a personal god (Saguna or Nirguna)	**Love and devotion (Ishq)** for **Allah (God)**
God Concept	Believed in both **Saguna (with form)** and **Nirguna (formless)** Brahman	Belief in **Tawhid** – the **oneness of God (Allah)**
Means of Salvation	Through **Bhakti (devotion)** and **surrender to God**	Through **Ishq-e-Haqiqi (divine love)** and **self-purification**
Rituals & Practices	Rejected **idol worship**, **rituals**, **caste**, and **Brahmin dominance**	Rejected **rigid Sharia law**, and **external formalities**
Language of Preaching	**Vernacular languages** like Hindi, Tamil, Marathi, Bengali	**Local languages** like Persian, Urdu, Punjabi, Sindhi
Prominent Saints	Kabir, Ravidas, Tulsidas, Mirabai, Ramanuja, Chaitanya Mahaprabhu	Khwaja Moinuddin Chishti, Nizamuddin Auliya, Baba Farid, Bulleh Shah
View on Caste	Strongly **opposed caste system**	Believed in **universal brotherhood** – beyond caste/creed
Literature Style	**Poetry, Dohas, Bhajans**	**Qawwalis, Ghazals, Sufi poetry**

Mode of Worship	Personal devotion, singing bhajans, kirtans	Zikr (chanting), Sama (music), meditation, Qawwali
Religious Texts	No single scripture; followed oral and poetic traditions	Referred to Quran, Hadith, but interpreted mystically
Attitude Towards Religion	Inclusive and critical of religious orthodoxy in Hinduism	Inclusive and critical of orthodox Islam and rigid clerics
Impact on Society	Promoted social reform, equality, and women participation	Helped Hindu-Muslim unity, spiritual tolerance
Institutional Setup	Often individualistic, no formal organization	Had Khanqahs (Sufi shrines) and orders (silsilas)
Music and Art	Bhajans, kirtans, temple songs	Qawwali, Sufi music, poetry of divine love

SUMMARY:

- Both movements emphasized **love, devotion, and personal connection with God**.

- Bhakti focused on **reforming Hinduism**, while Sufism was the **spiritual dimension of Islam**.

- Both opposed **ritualism, orthodoxy, and inequality**, promoting **peace, harmony, and tolerance**.

17	MICROFINANCE IN INDIA

The RBI Deputy Governor flagged a rising crisis in India's microfinance sector, citing a sharp fall in the gross loan portfolio (13.9%) and surge in delinquencies and NPAs (₹55,000 crore).

MICROFINANCE IN INDIA

- **Microfinance** refers to providing **small loans and financial services** to the **poor and low-income groups** who lack access to traditional banking.

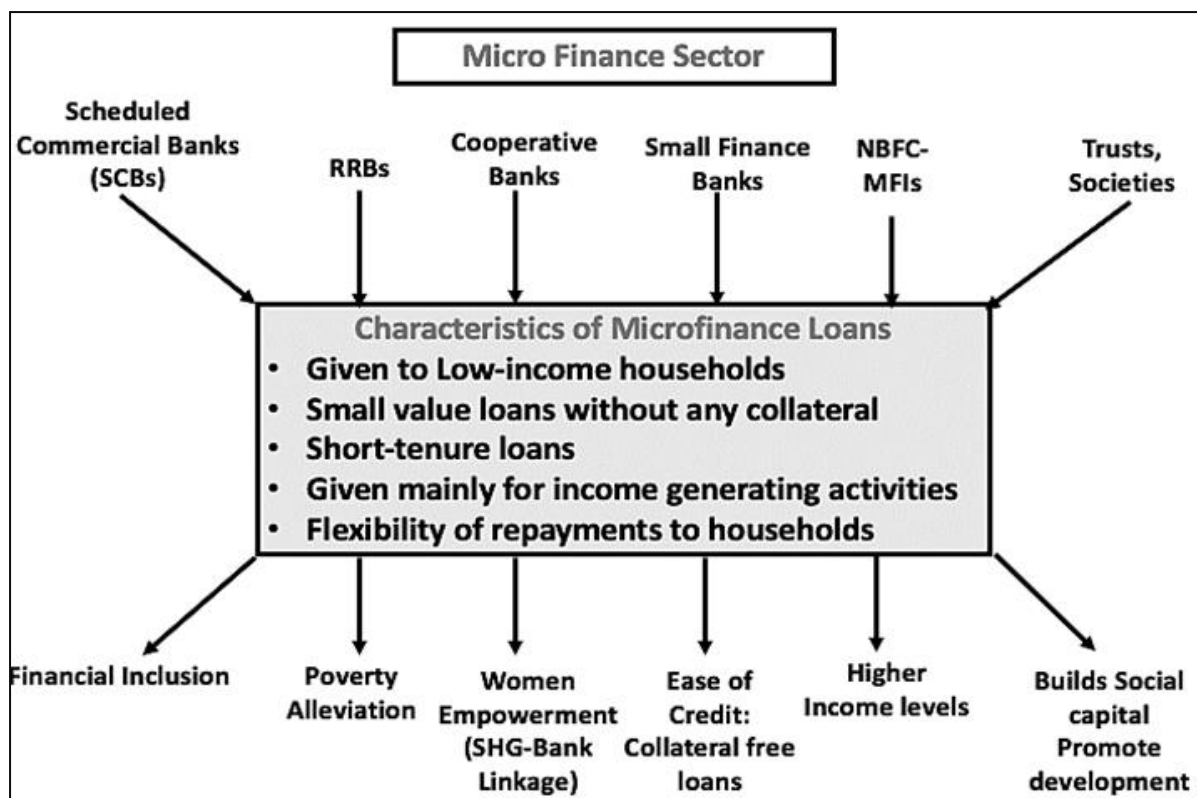- It includes **microcredit**, **savings**, **insurance**, and **remittance services**.

AIM:

- To promote **financial inclusion**, **self-employment**, and **poverty alleviation**.

- Mostly targeted at **women**, **rural poor**, and **marginalized communities**.

OPERATED BY:

- **Microfinance Institutions (MFIs)**, **Self-Help Groups (SHGs)**, and **NGOs**.

- Regulated by the **Reserve Bank of India (RBI)** under the **NBFC-MFI** framework.

KEY PROGRAMS:

- **SHG–Bank Linkage Programme (SBLP)** – launched by **NABARD** in 1992.

- **MUDRA Yojana (2015)** – provides loans under Shishu, Kishore, Tarun categories.

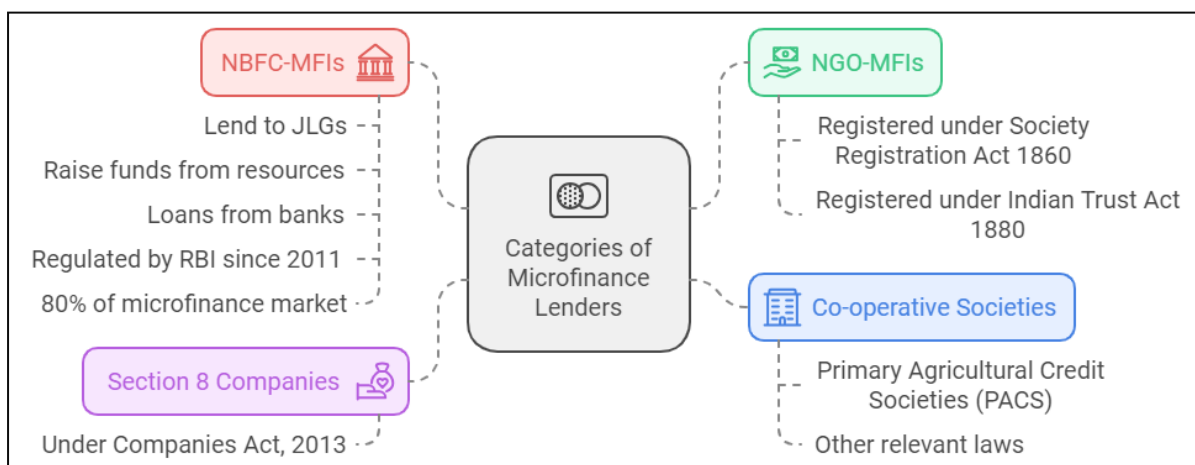- Examples of MFIs: **SKS Microfinance (now Bharat Financial Inclusion Ltd)**, **Bandhan Bank**, **Ujjivan**.

Micro Finance Sector

Scheduled Commercial Banks (SCBs) · RRBs · Cooperative Banks · Small Finance Banks · NBFC-MFIs · Trusts, Societies

Characteristics of Microfinance Loans
- Given to Low-income households
- Small value loans without any collateral
- Short-tenure loans
- Given mainly for income generating activities
- Flexibility of repayments to households

Financial Inclusion · Poverty Alleviation · Women Empowerment (SHG-Bank Linkage) · Ease of Credit: Collateral free loans · Higher Income levels · Builds Social capital Promote development

HISTORY:

- **1974:** India's first MFI – SEWA Bank, Ahmedabad.

- **1976:** Grameen Bank by Muhammad Yunus (Bangladesh) popularized global microcredit.

- **2010:** Malegam Committee recommended regulatory norms for NBFC-MFIs.

PRESENT TRENDS IN THE MICROFINANCE SECTOR (FY25):

- **Loan Portfolio Shrinkage:** The gross loan portfolio (GLP) fell by 13.5% to ₹3.75 lakh crore, reflecting reduced disbursals and growing risk aversion by lenders.

- **Rising Defaults:** Non-performing assets surged to ₹55,000 crore, while loans overdue by 31–180 days (PAR) rose sharply from 2% to 6.2%, signaling deep credit stress.

- **Disbursal Dip:** Q4 FY25 witnessed a 34% drop in disbursals to ₹70,942 crore YoY, indicating cautious lending amid tight regulatory scrutiny and defaults.

- **Average Loan Size:** Despite lower disbursals, average loan ticket size rose by 11.5% to ₹53,897, suggesting lenders are focusing on fewer but higher-value accounts.

- **State Trends:** Karnataka saw a 17% portfolio drop due to policy backlash, while Bihar, Tamil Nadu, and UP led in active microfinance engagement and outstanding credit.

Categories of Microfinance Lenders

- **NBFC-MFIs**
  - Lend to JLGs
  - Raise funds from resources
  - Loans from banks
  - Regulated by RBI since 2011
  - 80% of microfinance market

- **Section 8 Companies**
  - Under Companies Act, 2013

- **NGO-MFIs**
  - Registered under Society Registration Act 1860
  - Registered under Indian Trust Act 1880

- **Co-operative Societies**
  - Primary Agricultural Credit Societies (PACS)
  - Other relevant laws

CHALLENGES TO MICROFINANCE IN INDIA

Microfinance plays a key role in promoting financial inclusion, but it faces several challenges that limit its effectiveness and outreach in India:

- **High Interest Rates:** Many Microfinance Institutions (MFIs) charge interest rates between 20%–30%, much higher than traditional banks. This is due to high operational costs and risk of small loans. Poor borrowers often struggle with repayment.

- **Over-Indebtedness:** Borrowers often take multiple loans from different MFIs or informal sources, leading to a **debt trap**. This was seen during the **Andhra Pradesh microfinance crisis (2010),** where excessive lending and poor recovery practices led to borrower suicides.

- **Lack of Financial Literacy:** Many clients lack basic knowledge of credit, interest, and repayment, which results in poor financial decisions and defaults.

- **Weak Regulation in Informal Sector:** While RBI regulates **NBFC-MFIs**, many microfinance providers operate informally or through NGOs, creating loopholes in borrower protection and accountability.

- **Coercive Recovery Practices:** Some MFIs resort to **harassment or coercion** to recover loans. This erodes trust and affects the sector's credibility.

- **Limited Product Range:** MFIs often focus only on microcredit, neglecting **insurance, savings, or pension** services that are vital for long-term financial security.

- **Gender Bias and Social Barriers:** Though most clients are women, many face pressure from male family members and local social norms, limiting their control over funds.

MALGAM COMMITTEE ON MICROFINANCE

Recommended-

- Promoting transparency and accountability in microfinance operations.
- Enhancing consumer protection and ensuring fair and transparent practices by MFIs.
- Providing a more supportive environment for microfinance institutions.
- Strengthening the regulatory framework for MFIs.

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18 COLLECTION OF REAL TIME OBSERVATIONS & PHOTO OF CROPS (CROPIC)

The Ministry of Agriculture and Farmers Welfare has launched CROPIC, a tech-driven initiative using AI to monitor crop health and automate crop loss assessment.

The pilot phase will cover Kharif 2025 and Rabi 2025-26 in 50 selected districts.

WHAT IS CROPIC?

CROPIC is a tech-driven initiative under schemes like Pradhan Mantri Fasal Bima Yojana (PMFBY), aimed at **collecting real-time crop observations and geotagged photos**.

It enhances insurance claim verification, yield estimation, and damage assessment by layering ground-level data onto satellite imagery.

Developed by the Union Ministry of Agriculture and Farmers' Welfare under the **Fund for Innovation and Technology (FIAT)** of **PMFBY**.
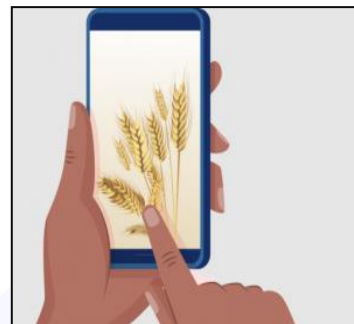
OBJECTIVES

- **Verify crop stage and sowing** accurately via on-field photos and observations.
- **Strengthen yield estimation** and damage assessment processes.
- **Reduce fraudulent insurance claims** and improve accuracy in payouts.
- **Support crop monitoring efforts** for national food security and agricultural policymaking.

HOW CROPIC WORKS

- **Data Collection:** Field agents use mobile apps to capture **photos (with location/time stamps)** of fields at defined growth stages.

- **Data Integration:** Photos and observations are paired with **satellite-derived parameters** (e.g., NDVI, sowing dates) from optical and SAR sensors like RISAT-1A, Oceansat-3, Resourcesat-2A.

- **Simulation & Assessment:** Integrated into a **crop growth simulation model**, the system evaluates crop health and potential yield.

- **Decision Support:** Outputs help validate insurance claims, forecast yields, and inform policy actions in near real-time.

KEY FEATURES

- **Real-time,** geotagged field images to authenticate crop conditions.

- **All-weather satellite data** (SAR & optical) for uninterrupted coverage.

- **Process-based simulation** models incorporating field and satellite inputs.

- **Vegetation Health Index (VHI)** for monitoring drought stress and crop vigor.

- **Scalable across regions**—initially focused on eight major wheat states (UP, MP, Punjab, etc.) during Rabi season.

- **Supports SDG goals:** food security, governance transparency, and risk management.

- **Policy integration,** enabling MoA and ISRO to plan crop procurement and insurance settlement more efficiently.

BENEFITS

- **Accurate & timely crop status** across phases—sowing, growing, harvesting.

- **Enhanced claim verification**, reducing farmer distress and fraudulent practices.

- **Sharper yield predictions**, aiding national stock and procurement strategies.

- **Disaster responsiveness**, enabling localized action during floods or droughts.

- **Data-informed policy**, using objective, verifiable metrics in agriculture management.

EXAMPLE IN PRACTICE

- During the recent wheat season (2025), ISRO leveraged CROPIC across eight key states, estimating production at **122.724 million tonnes**.

- Field teams collected photos and sowing details, which validated satellite-based models and improved the reliability of yield data.

19 INTERNATIONAL ORGANIZATION FOR MARINE AIDS TO NAVIGATION (IALA)

India participated in the 2nd Session of the IALA Council in Nice, France, as the Vice President of the organization.

India also invited members for the 3rd General Assembly (2025) and 21st IALA Conference (2027) in Mumbai.

International Organization for Marine Aids to Navigation

WHAT IS IALA?

- IALA is an intergovernmental technical body responsible for standardizing and enhancing marine aids to navigation (AtoN) to ensure maritime safety and efficiency globally.

  o **Established in:** 1957 as a non-governmental body and became an intergovernmental organization in 2021.

  o **Headquarters:** Saint-Germain-en-Laye, near Paris, France.

INDIA'S ROLE & TERM:

- India is a Council member **since 1980** and was elected Vice President during the 1st General Assembly in Singapore (2023).

- India's tenure as **Vice President (2023–2027)** marks its rising maritime stature and technical leadership.

OBJECTIVES OF IALA:

- To develop **international standards and technical guidance** for marine navigation aids.

- To promote **safety of navigation**, protection of the marine environment, and **global harmonization** of practices.

- To support **capacity building** in member states through training, technology sharing, and advisory services.

FUNCTIONS & INDIA'S CONTRIBUTIONS:

- **Standardization of Navigation Aids:** Sets global norms for buoys, beacons, lighthouses, and Vessel Traffic Services (VTS).

- **Technological Innovation:** Works on IoT-enabled navigation, Maritime Service Registry, and digital AtoN development.

- **Training and Capacity Building:** India's Kolkata Marine Navigation Training Institute will host global training sessions.

- **Heritage Conservation:** Focuses on preservation of historical lighthouses, aligned with India's own lighthouse tourism mission.

- **Hosting Global Maritime Events:** India will host the 3rd General Assembly (2025) and 21st IALA Conference (2027) in Mumbai, underlining its global maritime leadership.

20   LOKPAL OF INDIA

The Full Bench of the Lokpal of India adopted a new motto: "Empower Citizens, Expose Corruption".

The new motto replaces the older one as part of efforts to enhance institutional visibility and public outreach.

ORIGIN & HISTORICAL EVOLUTION

Coining of the Term (1963) Coined by Dr. L.M. Singhvi during parliamentary discussions on setting up an ombudsman.

- **ARC Recommendation (1966):** The First Administrative Reforms Commission (ARC), headed by Morarji Desai, recommended two bodies: a Lokpal at the Centre and Lokayuktas in states.

- **First Lokpal Bill (1968–1969):** Introduced in 1968; passed the Lok Sabha in 1969 but lapsed in Rajya Sabha due to dissolution.

- **Subsequent Attempts (1971–2008):** Reintroduced at least 10 times (1971, 1977, 1985, 1989, 1996, 1998, 2001, 2005, 2008), all lapsed or withdrawn.

- **State-Level Lokayuktas (Starting 1971):** Maharashtra first enacted Lokayukta in 1971; Odisha followed (Act in 1970, implemented in 1983).

- **Commissions Reinforce Lokpal (2002, 2005):** MN Venkatachaliah Commission (2002) and Second ARC under Moily (2005) recommended urgent establishment.

- **Anna Hazare & Jan Lokpal Movement (2011):** Massive public agitation led by Anna Hazare pressed for a stronger "Jan Lokpal" bill.

- **Lokpal and Lokayuktas Act, 2013:** Passed by both Houses in December 2013; received Presidential assent on 1 January 2014; effective from 16 January 2014.

- **Implementation & Amendments:** 2016 amendment expanded selection committee criteria; 2018 Supreme Court monitored appointments; 2020 Lokpal Rules notified.

- **First Lokpal Appointed (2019):** Justice (Retd.) Pinaki Chandra Ghose became first Lokpal on 19 March 2019; served until May 2022.

STRUCTURE, COMPOSITION & APPOINTMENT

- **Central Lokpal Body**
  - Chairperson + up to 8 Members (judicial & non-judicial).
  - At least 50% judicial members; at least 50% from
  - SC/ST/OBC/minorities/women.

- **Eligibility**
  - **Judicial:** ex-Chief Justice or Supreme Court/High Court judges.
  - **Non-judicial:** competent persons with ≥25 years experience in anti-corruption, management, public administration, vigilance.

- **Selection Process**
  - **Search Committee** (PM, LoP, CJI, HC judge, eminent person) shortlists candidates.

- **Selection Committee** (PM, Speaker, LoP, CJI nominee, eminent jurist) makes final appointments.
  - **President appoints Chairperson** and members on its recommendation

- o **Tenure & Removal Term of 5 years or until age 70;** resignation to President; removal only through parliamentary process for proven misconduct.

Chairperson: Sitting or retired **Chief Justice of India/Judge of Supreme Court (SC) or an eminent person.**

Judicial members: Sitting or retired **Judge of the SC/Chief Justice of High Court**

Other members — **Eminent Person:** With at least **25 years special knowledge and expertise** in the matters relating to anti-corruption policy, public administration, vigilance, finance including insurance and banking, law and management.

Person ineligible to become members:

- Less than 45 years in age
- Person convicted of any offence involving moral turptitude
- Person holding any office of trust or profit or be affiliated with any political party etc.
- Member of Parliament or State/UT Legislature or any Panchayat/ Municipality
- Person removed or dismissed from the service of Union/State

JURISDICTION & POWERS

- **Jurisdiction**
  - o All central public functionaries: **PM, Union Ministers, MPs**, and government servants **Group A–D**.
  - o Also includes institutions funded fully or partially by the central government and NGOs/trusts receiving foreign contributions > ₹10 lakh.

- **Functions & Authority**
  - o **Complaint & suo moto inquiries** into corruption (bribery, abuse of office under Prevention of Corruption Act, 1988).
  - o Can supervise the **CBI** and other investigative agencies acting under its forwarded cases.
  - o Powers for **search, seizure, attachment of assets**, and must appoint designated CBI staff who cannot be transferred without Lokpal's permission.
  - o **Preliminary inquiry** limited to 3 months (extendable to 6), **investigation** up to 6 months (extendable), and **trial** up to 1 year (extendable) through **special courts**.

- o **Prosecution sanction** powers independent of government approval.
- o **Annual report** submitted to President and laid before Parliament.

CRITIQUES & IMPLEMENTATION GAPS

- **Delays in Rule Notification**
  - o Lokpal Rules were notified only in 2020, more than a year after first appointment.
- **Low Complaint Uptake**
  - o Few complaints have been filed; only ~24 investigations and ~6 prosecution sanctions launched since inception.
- **Perceived Toothlessness**
  - o Criticized for minimal impact, slow action, and bureaucracy entanglement.
- **Political Interference Concerns**
  - o Appointment and independence questioned; removal processes remain complex.

ACHIEVEMENTS & IMPACT

- **Institutional Anti-Corruption Mechanism**
  - o First operational central ombudsman with prosecutorial powers—independent of executive.
- **CBI Oversight**
  - o Lokpal-led cases ensure centralized, transparent case-management and accountability.
- **Special Courts Established**
  - o Dedicated timelines and judicial cells for timely trial.
- **Promoted Transparency**
  - o Mandated public servants' asset declaration and ensured periodic publication.

- **Symbolic Value**
    - Anna Hazare-led movement marked a milestone in citizen-driven legislative reform.

LOKPAL VS LOKAYUKTA – KEY DIFFERENCES

Aspect	Lokpal	Lokayukta
Level	Central (national)	State
Established under	Lokpal & Lokayuktas Act, 2013	Respective State Acts (e.g. Maharashtra 1971)
Jurisdiction	PM, Union Ministers, MPs, Group A–D central government servants, govt institutions, NGO/trusts receiving >₹10L	State Ministers, MLAs, state govt servants and functionaries
Composition	Chair + up to 8 members (50% judicial; 50% SC/ST/OBC/minority/women)	Typically, 3 members: Lokayukta (retired SC/HC judge), Vigilance Commissioner, jurist/administrator

Appointment	President based on recommendations of Search & Selection Committees	Governor appoints following State law, often in consultation with High Court & LoP
Jurisdiction over PM	Yes (with specific procedures)	No
Powers	Investigative, prosecutorial powers; supervises CBI; search & seizure; attach assets; special courts	Mostly investigative and recommendatory; powers vary by state; some have search/seizure rights
Legal Basis	Central Act (2013)	State Acts (various, with scope heterogeneity)
Status of Implementation	First Lokpal appointed in 2019; central rules notified in 2020	Established variably across ~20 states & 2 Union Territories; uneven effectiveness

Lokpal is a **robust central anti-corruption body** with strong legal powers but is yet to demonstrate significant impact due to delays and bureaucratic inertia.

Lokayuktas vary widely across states in authority and effectiveness—some like Maharashtra and Odisha are stronger, while others remain weak.

For meaningful change, India needs **swift, independent action**, greater awareness, streamlined processes, and adequate resources for both institutions.

SUMMARY IN POINTS

- Inspired by Western ombudsman model (Sweden, 1960s)

- Coined in 1963; ARC recommendation in 1966; multiple stalled bills until 2013 passage.

- Central institution under **Lokpal and Lokayuktas Act 2013**, effective in Jan 2014.

- Comprised of Chairperson + up to 8 members; balanced judicial and social representation.

- Selection via Search & Selection Committees; appointment by President.

- Jurisdiction includes PM, Ministers, MPs, and all central govt. servants.

- Powers to investigate, prosecute, control CBI, seize assets, and use special courts.

- Faces implementation delays, low complaint intake, and independence issues.

- Has executed limited investigations and prosecutions; strong on paper as anticorruption framework.

21	TOURETTE SYNDROME

Tourette syndrome is a neurological disorder marked by sudden, involuntary tics—repetitive movements or vocal sounds that vary in frequency and severity.

WHAT IS TOURETTE SYNDROME?

It is a neurological disorder that causes sudden, involuntary movements or vocal sounds known as tics.

- It typically emerges between ages 2 and 15, with the average onset around six.

- It affects an estimated 0.3% to 1% of the global population, with a higher prevalence among boys than girls.

- Tics can range from mild to severe. In severe cases, they can significantly impact communication, daily functioning, and quality of life.

- Tics are broadly classified as simple or complex.

- Simple motor tics involve a single muscle group and include eye blinking, facial grimacing, shoulder shrugging, and head jerking.

- Simple vocal tics include throat-clearing, sniffing, barking, or grunting.

- Complex motor tics involve coordinated patterns and may include touching objects, hopping, or bending.

- Complex vocal tics may involve repeating one's own or others' words (echolalia), or, in rare cases, using obscene language (coprolalia).

- Tics often worsen with stress or excitement and may improve when the person is calm and focused. They typically reduce during light sleep and disappear in deep sleep.

- Tourette's rarely occurs in isolation. It commonly coexists with ADHD, OCD, anxiety, depression, learning disabilities, and autism spectrum disorders.

TREATMENT FOR TOURETTE SYNDROME

- Currently, there is no cure for this syndrome but treatments are available to help manage some symptoms.

- Cognitive Behavioural Therapy (CBT) has shown very promising outcomes.
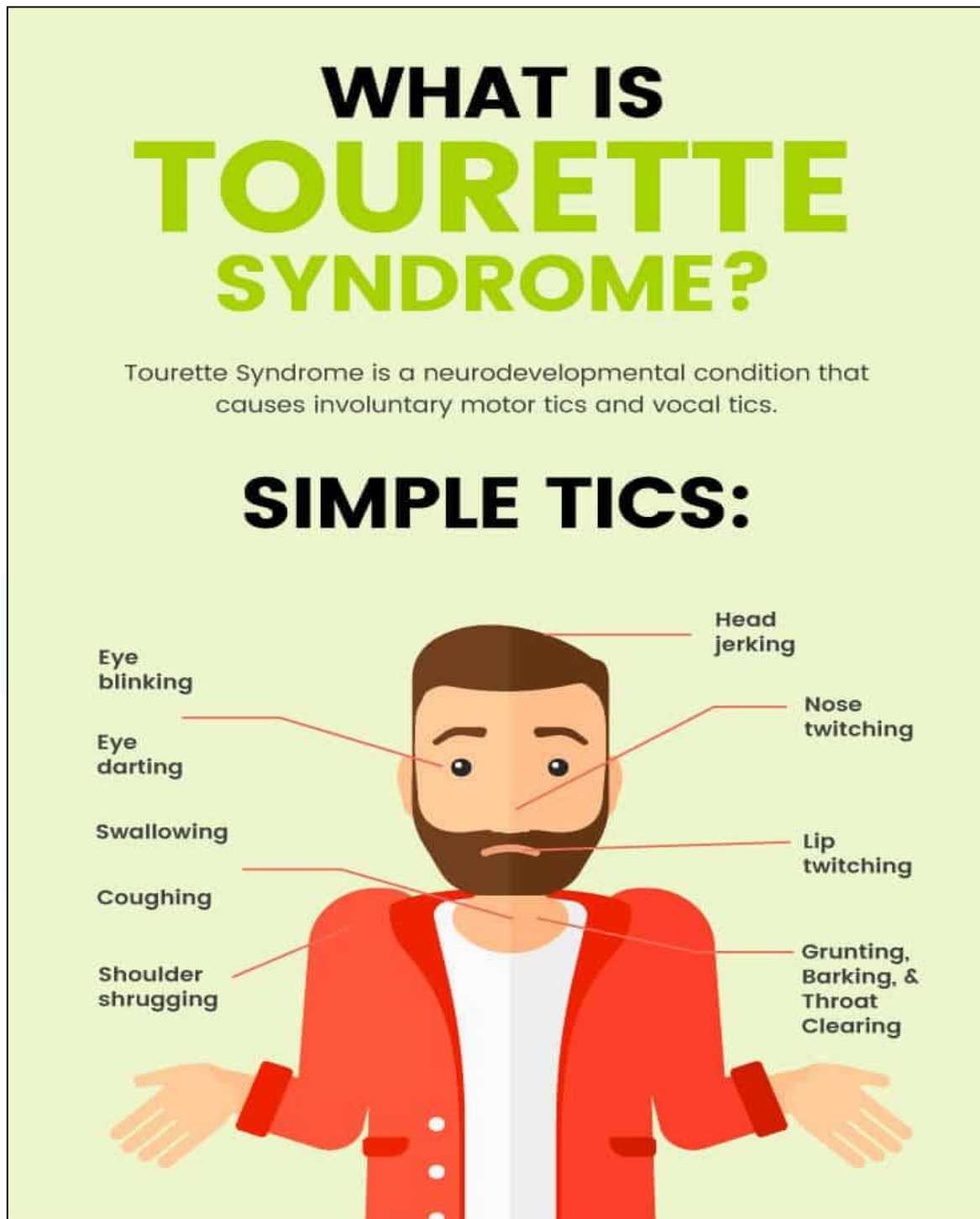
22 TOI-6894B

TOI-6894b is a giant exoplanet orbiting a red dwarf star, challenging existing planet formation theories with its unusual size and stellar pairing.
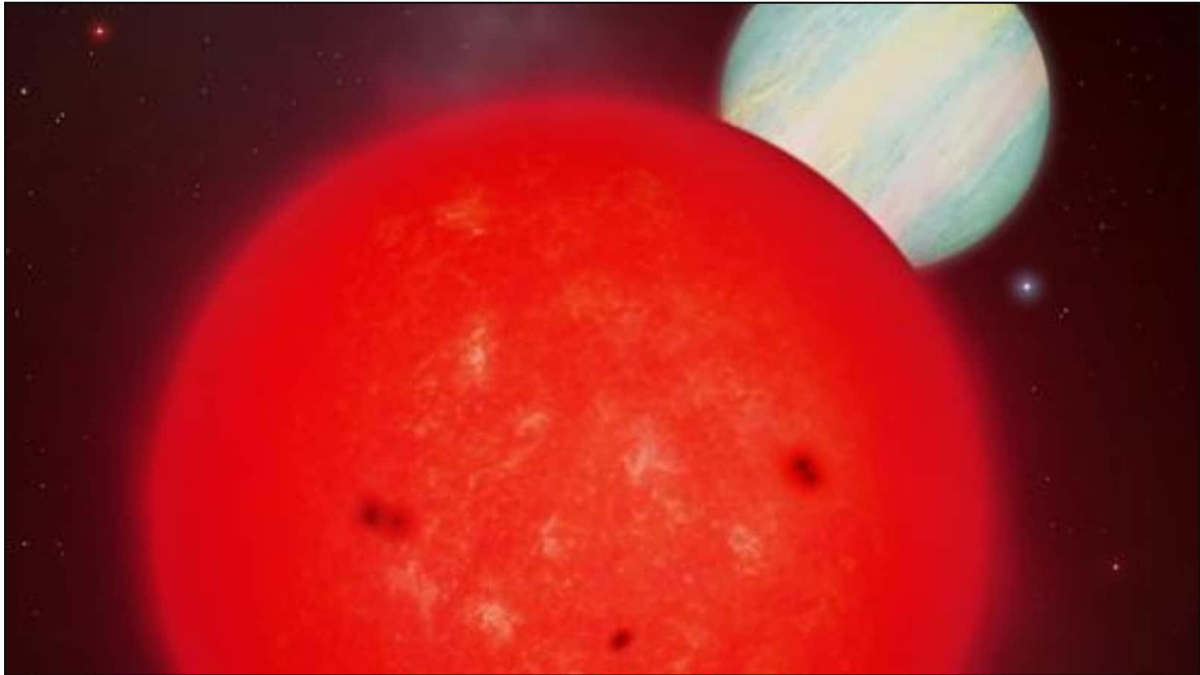
WHAT IS TOI-6894B?

- TOI-6894b, a gas giant planet, roughly the **size of Saturn, has been found orbiting an unusually small red dwarf star.**

- This rare pairing defies current models, which say small stars don't have enough material in their surrounding disks to form such large planets.

- **The planet was found about 241 light-years from Earth in the constellation Leo.**

- TOI-6894b is about 1**.07 times the diameter of Saturn but has just over half its mass.**

- This makes the planet very low in density, similar to that of a beach ball. Despite its large size, the planet orbits extremely close to its host star, completing a full revolution in just under three Earth days.

- The star it orbits, TOI-6894, is a red dwarf with only about 21% the mass of the Sun and roughly 250 times dimmer.

- **In terms of physical size, the star is just 2.5 times wider than the planet itself, a remarkable size ratio rarely seen in planetary systems.**
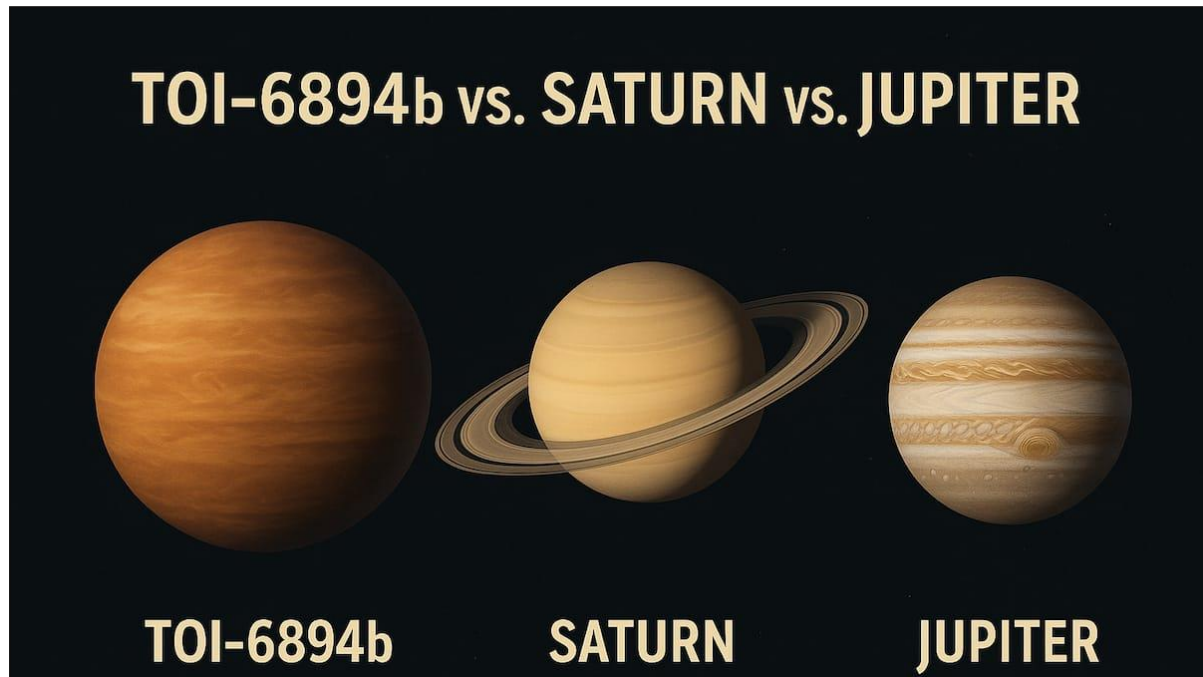
SIGNIFICANCE OF THE DISCOVERY

- **Challenges Core Accretion Theory**: The core accretion model, which explains how gas giants form around stars, struggles to account for the formation of a giant planet around such a low-mass star due to insufficient material in the protoplanetary disk.

- **Implications for Exoplanet Science:** Since small stars like TOI-6894 are the most common in the galaxy, this discovery suggests there may be many more giant planets than previously thought.

- **Future Studies:** TOI-6894b is scheduled for atmospheric observation by the James Webb Space Telescope (JWST), which could provide unprecedented insights into its composition and formation.
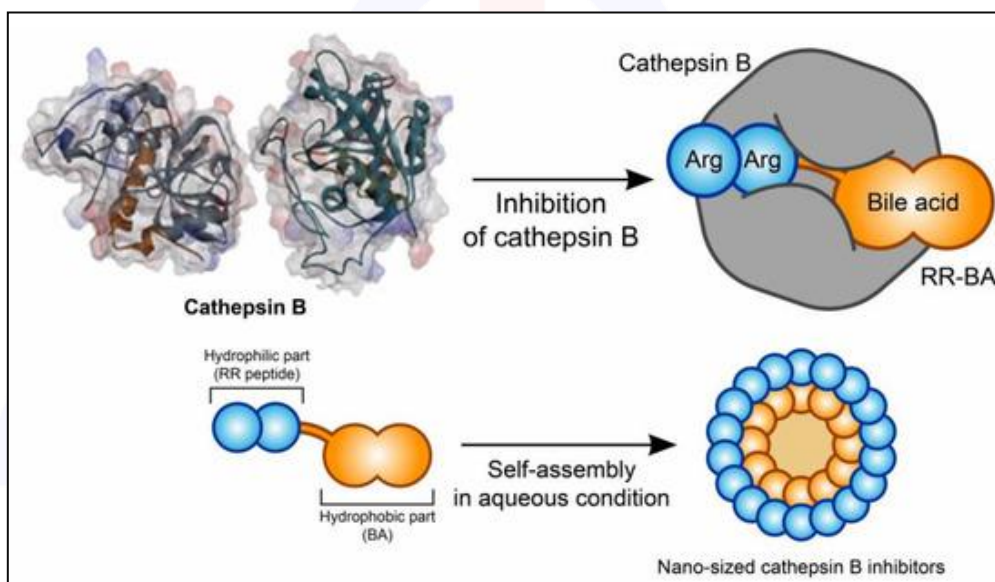
23	CATHEPSIN B

Cathepsin B is a lysosomal cysteine protease involved in protein degradation, cell death, and is linked to cancer and neurodegenerative diseases.

CATHEPSIN B (CTSB)

- **Cathepsin B** is a **lysosomal cysteine protease enzyme**, part of the cathepsin family involved in protein degradation.

- It is encoded by the **CTSB gene** and plays a crucial role in **apoptosis (programmed cell death),** antigen presentation, and extracellular matrix remodeling.

- Cathepsin B is normally confined to lysosomes but may leak into the cytoplasm or extracellular environment during **inflammation or stress**, leading to pathological processes.

- Overexpression is linked to **cancer progression**, especially in **ovarian, breast, and pancreatic cancers**, due to its ability to degrade the extracellular matrix and promote metastasis.

- Recent research also implicates Cathepsin B in **neurodegenerative diseases** like Alzheimer's, where it contributes to amyloid plaque formation.

- In reproductive health, increased Cathepsin B activity in ovarian tissue may contribute to **follicular atresia**, affecting ovarian aging and fertility.

- Inhibiting Cathepsin B is a potential therapeutic target in **cancer and aging-related disorders**.

OVARIAN RESERVE

- **Ovarian reserve** refers to the number and quality of **primordial follicles** (immature eggs) a woman has in her ovaries at any given time.

- It determines a woman's **fertility potential** and declines naturally with **age**, especially after age 35.

- Key indicators of ovarian reserve include **Anti-Müllerian Hormone (AMH) levels**, **Antral Follicle Count (AFC)** via ultrasound, and **Follicle-Stimulating Hormone (FSH)** levels.

- Low ovarian reserve can result in **poor response to fertility treatments**, difficulty conceiving, or early menopause.

Low ovarian reserve   Normal ovarian reserve   High ovarian reserve

- Factors affecting reserve include **age, genetics, smoking, chemotherapy, radiation, autoimmune diseases**, and certain surgeries.

- Modern ART (Assisted Reproductive Technology) techniques rely heavily on ovarian reserve assessments to determine the best protocol.

- Preservation of ovarian reserve can be done via **egg freezing** or ovarian tissue cryopreservation, especially for cancer patients.

- Understanding and monitoring ovarian reserve is key in **fertility planning** and **reproductive health management**.

Factors affecting ovariaon reserve in offspring
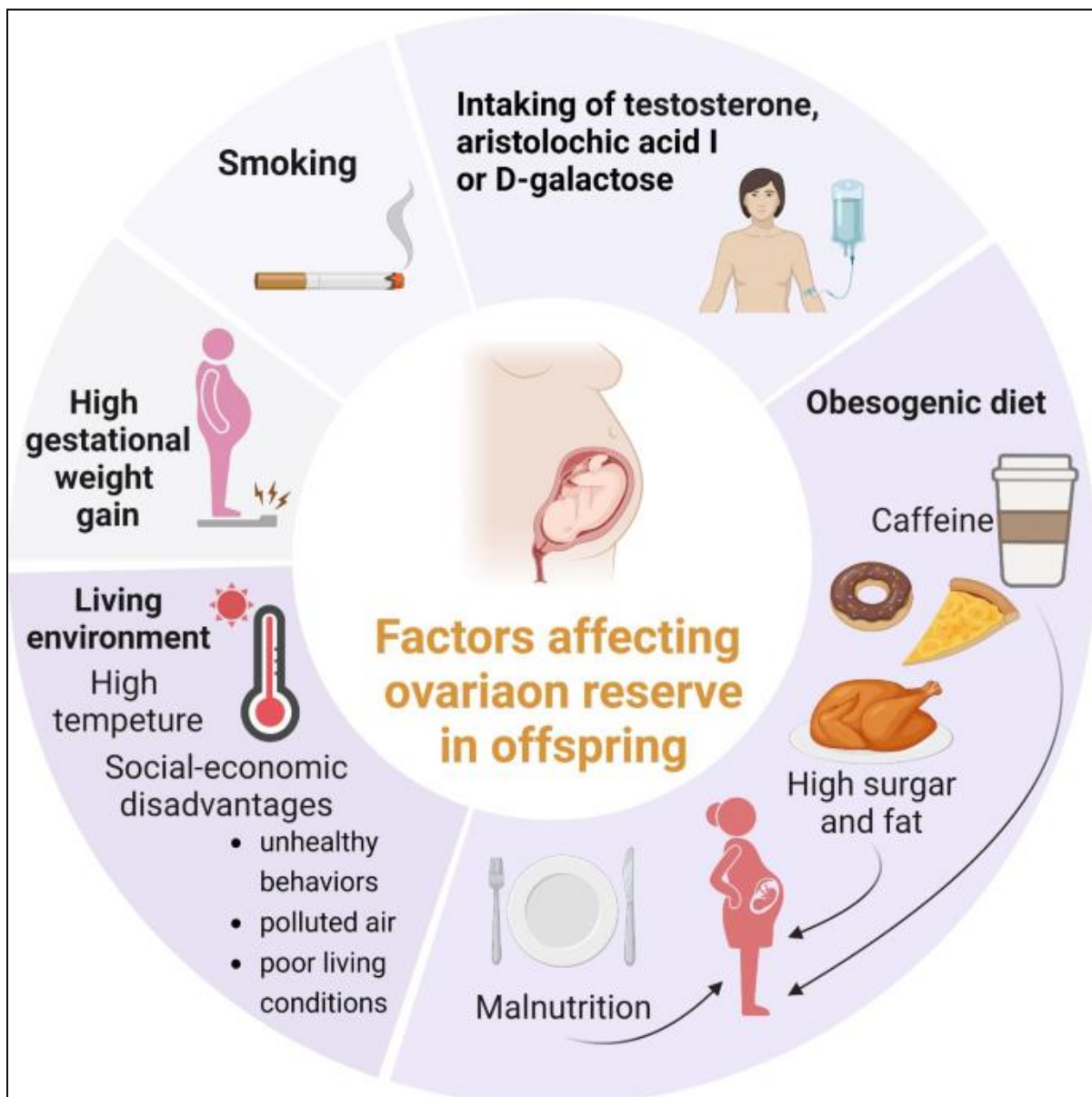
24 UN HIGH SEAS TREATY

The UN High Seas Treaty, or BBNJ Agreement, is a landmark international pact for protecting marine biodiversity in international waters.

WHAT IS UN HIGH SEAS TREATY?

- **Official Name**: *Biodiversity Beyond National Jurisdiction (BBNJ) Treaty*.

- **Adopted**: On **March 4, 2023**, at the United Nations headquarters after nearly **two decades of negotiations**.

- **Purpose**: To protect marine biodiversity in the **high seas**, which lie **beyond the national jurisdiction** of any country (roughly 64% of the ocean surface).

- **Need**: The high seas lack effective protection despite being rich in **biodiversity** and crucial for **climate regulation**, **carbon absorption**, and **food security**.

KEY PROVISIONS:

- Creation of **Marine Protected Areas (MPAs)** in the high seas.

- Regulation of **commercial activities** like deep-sea mining and overfishing.

- **Mandatory Environmental Impact Assessments (EIAs)** before exploiting resources.

- Equitable sharing of **marine genetic resources** (e.g., DNA from deep-sea organisms used in medicines).

- **Legally Binding**: Yes, once ratified by at least **60 countries**.

- **Supports SDG 14**: Conserve and sustainably use the oceans.

- **India's Role**: India supports the treaty as part of its commitment to **ocean sustainability**.

- **Significance**: First international treaty to bring the **high seas under legal protection**, potentially safeguarding **30% of the world's oceans by 2030** (Global 30x30 target).

- The treaty is built on the legacy of the UN Convention on the Law of the Sea (UNCLOS), which is the last international agreement on ocean protection, signed 40 years ago in 1982.

UNCLOS ESTABLISHED AN AREA CALLED THE HIGH SEAS.
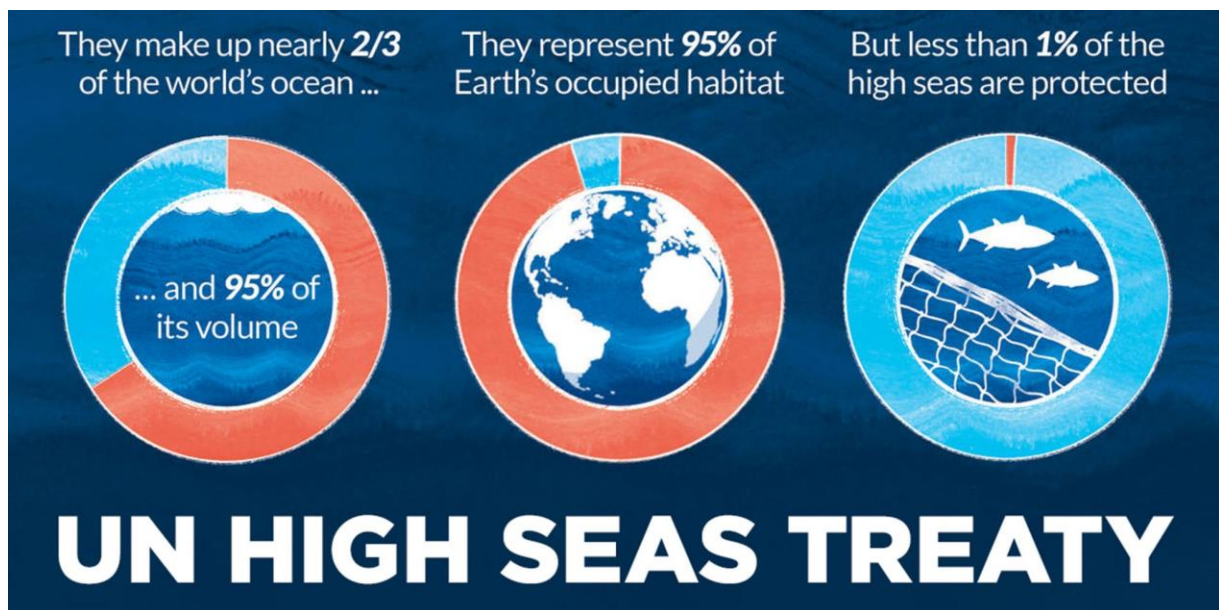
WHAT IS UNCLOS?

- **Full Form**: United Nations Convention on the Law of the Sea

- **Adopted**: **1982** (Montego Bay, Jamaica)

- **Came into Force**: **1994**

- **Parties**: Over **160 countries** (India is a signatory; the USA is **not** a ratified member)

PURPOSE AND SIGNIFICANCE:

- Sets the legal framework for **all marine and maritime activities**.

- Aims to balance the **rights of coastal states** and **freedom of navigation**.

- Helps prevent conflicts over maritime boundaries and promotes peaceful use of oceans.

KEY MARITIME ZONES UNDER UNCLOS:

Maritime Zone	Extent from Baseline	Rights of Coastal State
Territorial Sea	0–12 nautical miles (nm)	Full sovereignty (like land territory)
Contiguous Zone	12–24 nm	Control over customs, immigration, security
Exclusive Economic Zone (EEZ)	0–200 nm	Rights to explore, exploit marine resources
Continental Shelf	Up to 350 nm (in some cases)	Rights to seabed and subsoil resources
High Seas	Beyond EEZ	Open to all; no state has sovereignty

Maritime Zones

Source: Adapted by REVOLVE from Marine Insight
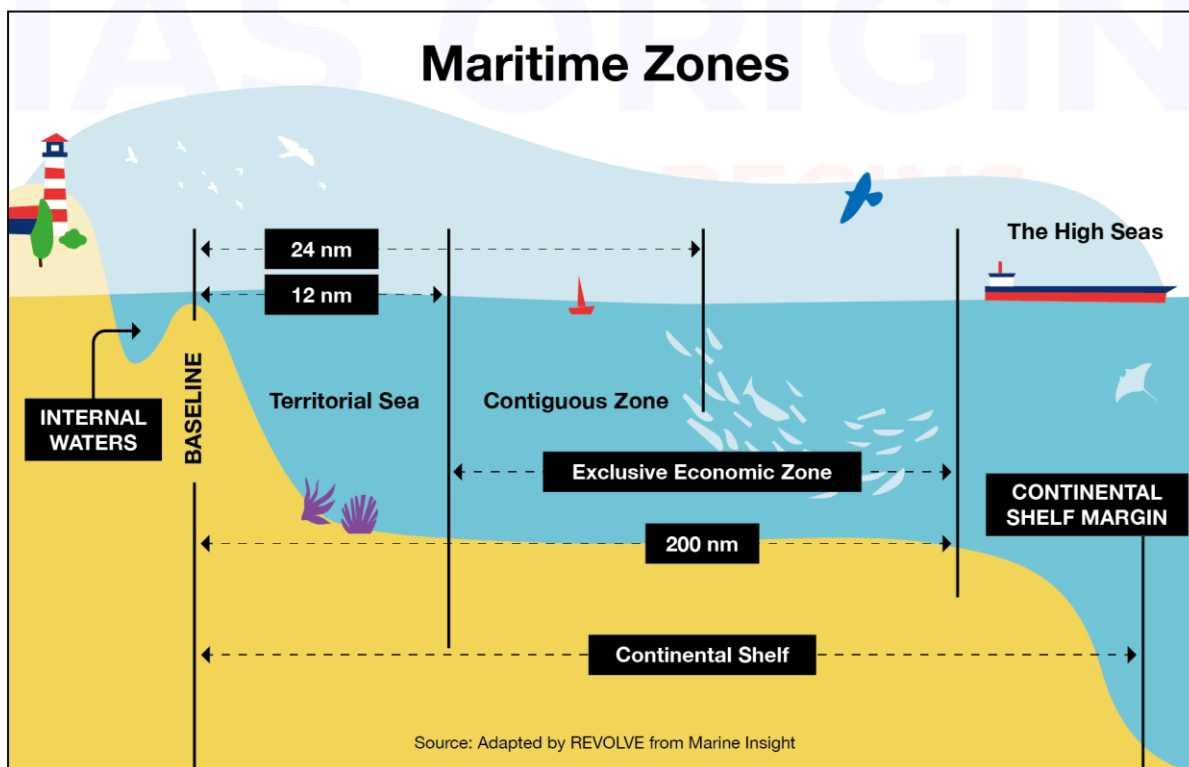
25 | EXERCISE KHAAN QUEST

Exercise Khaan Quest will bring together military forces from around the world to collaborate and enhance their peacekeeping capabilities.

WHAT IS EXERCISE KHAAN QUEST?

- It is a multinational military Exercise.

- The exercise will bring together military forces from around the world to collaborate and enhance their peacekeeping capabilities.

- **The last edition of Exercise KHAAN QUEST was conducted in Mongolia in 2024.**

BACKGROUND:

- The exercise **first started as a bilateral event between USA and Mongolian Armed Forces in the year 2003.**

- Subsequently, from the year 2006 onwards the exercise graduated to a Multinational Peacekeeping Exercise with the current year being the 22nd iteration.

- The **Indian Army contingent comprising 40 personnel is being represented mainly by troops from a Battalion of the KUMAON REGIMENT** along with personnel from other Arms and Services.
    - **One Woman Officer and two Women Soldiers will also form part of the contingent.**

WHAT IS THE AIM OF EXERCISE?

- To prepare Indian Armed Forces for peacekeeping missions while operating in a multinational environment, thereby increasing interoperability and military readiness in peace support operations under Chapter VII of United Nations Charter.

- The exercise will focus on high degree of physical fitness, joint planning and joint tactical drills.

- It will enable the participating countries to share their best practices in Tactics, Techniques and Procedures for conduct of joint operations.

- The exercise will facilitate developing inter-operability, bonhomie and camaraderie between soldiers of the participating countries.

26	INDIA'S FIRST E-WASTE RECYCLING PARK IN DELHI

India's first integrated E-Waste Eco Park at Holambi Kalan, Delhi, is set to process up to 51,000 tonnes of e-waste annually.

FIRST E-WASTE RECYCLING PARK

- This state-of-the-art facility will be India's first integrated E-Waste Eco Park and will be built under a Public-Private Partnership (PPP) model, at Holambi Kalan in north-west Delhi.

- It will be covering 11.4 acres, and is expected to process up to 51,000 metric tonnes of e-waste annually.

- The project will be developed by the Delhi State Industrial and Infrastructure Development Corporation (DSIIDC) on a Design, Build, Finance, Operate, and Transfer (DBFOT) basis, with a 15-year concession period.

ZONES:

- Dedicated areas for dismantling, refurbishing, component testing, plastic recovery, and a second-hand electronics market.

EMPLOYMENT:

- Creation of over 1,000 green jobs and skilling/training centres for informal recyclers.

SIGNIFICANCE:

- Aims to manage nearly 25% of Delhi's e-waste, set a national benchmark for smart waste processing, and promote sustainable urban infrastructure.

ENVIRONMENTAL IMPACT:

- Reduces dependency on landfills, minimises hazardous waste, and promotes resource recovery and reuse.

| 27 | MERCHANT DISCOUNT RATE |

Merchant Discount Rate (MDR) is a fee paid by businesses to payment processors for accepting digital payments via credit cards, debit cards, UPI, and more.

WHAT IS MERCHANT DISCOUNT RATE?

The **Merchant Discount Rate (MDR)** is the **fee charged to merchants** by banks or payment service providers when customers make payments via **debit/credit cards**, **UPI**, or **digital wallets**.

Who Pays MDR: The **merchant** pays this fee, not the customer.

PURPOSE:

- It covers the cost of handling and processing electronic payments and is shared among:
- The **acquiring bank** (merchant's bank)
- The **issuing bank** (customer's bank)
- The **card/payment network** (e.g., Visa, Mastercard, RuPay)

COMPONENTS OF MDR:

- Transaction processing cost
- Infrastructure cost (POS machine, software)

- Fraud detection, risk management

MDR RATES:

Vary depending on:

- **Payment mode** (credit card, debit card, UPI)

- **Merchant size** (large retailers pay less percentage-wise)

GOVERNMENT REGULATION:

- From **January 1, 2020**, **zero MDR** on **RuPay and UPI** transactions for **businesses** and **consumers**, to promote **digital payments**.
- RBI and Ministry of Finance regulate MDR policies.

Example: If a customer pays ₹1,000 via card and MDR is 2%, the merchant receives ₹980, and ₹20 goes to the service providers.

Current Issue: Merchants often oppose MDR as it reduces their margins; banks argue it's essential for digital payment sustainability.

28	ZERO-COUPON BONDS

Recently, Power Finance Corporation withdrew zero-coupon bonds issuance due to weak investor demand.

WHAT IS A BOND?

- A bond is a financial instrument that promises a fixed return (face value) at the end of a specific period, unlike equity, which has no fixed term or guaranteed returns.

- Bonds are generally safer investments used to hedge against risks or act as a store of value.

- Bonds are used by companies, municipalities, states and sovereign governments to raise money to finance a variety of projects and activities.

WHAT ARE ZERO-COUPON BONDS?

- These are a debt instrument that does not pay periodic interest but is issued at a discount rate to its face value.

- These are also known as discount bonds, are issued at a discount on the bond's face value and do not pay periodic interest to bondholders.

- They offer payment at face value at maturity so zero-coupon bonds tend to fluctuate in price on the secondary market much more than coupon bonds.

Zero Coupon Bond

$$\text{Zero-Coupon Bond Value} = \frac{\text{Maturity Value}}{(1+i)^{\text{Number of Years}}}$$

ADVANTAGES OF ZERO–COUPON BONDS

- **Varied investment horizon:** These bonds suit investors with long-term and short-term investment motives.

- **Less risky:** These bonds are considered less risky than coupon bonds, as the investors have to buy and leave them until maturity.

DISADVANTAGES OF ZERO–COUPON BONDS

- **Period:** It is only suited for long-term investment purposes. People with short-term motives cannot invest in these bonds.

- **No regular income:** The investor does not get a fixed, steady income from such bonds.

ZERO-COUPON BONDS
- More sensitive to both interest rate and inflation risk
- A lack of cash interest payments

REGULAR BONDS
- Less sensitive to both interest rate and inflation risk
- Regular interest payments

Both zero-coupon bonds and regular bonds are subject to interest rate risk and inflation risk.

29	OCEAN DARKENING

A new study seems to suggest that more than one-fifth of the global ocean has considerably darkened in the last two decades.
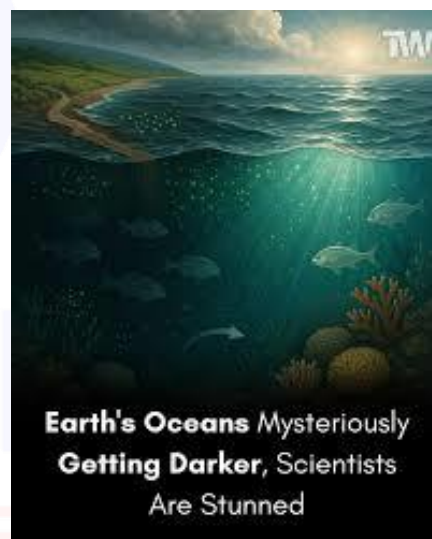
WHAT IS OCEAN DARKENING?

Ocean darkening refers to the shrinking of the ocean's photic zones, reducing sunlight penetration and affecting marine ecosystems and photosynthesis.

Darkening of the ocean is essentially shrinking of the photic zones or those layers of water where sunlight can pass and induce the process of photosynthesis which is key to all biological processes.

The photic layers can go down to about 200 meters and they also act as a base for nearly 90 per cent of the world's marine life.

This layer is responsible for increasing the productivity of the ocean which also involves regulating climate and even supporting global fisheries or related activities.

A new study seems to suggest that more than one-fifth of the global ocean has considerably darkened in the last two decades.

Earth's Oceans Mysteriously Getting Darker, Scientists Are Stunned

WHY IS OCEAN DARKENING HAPPENING?

CLIMATE CHANGE

- Global warming leads to **increased precipitation** and **glacial melt**, carrying more **sediments and organic matter** into oceans.

- Warmer waters reduce **vertical mixing**, keeping **particles and plankton** near the surface, darkening the water.

RUNOFF FROM LAND

- Rivers bring **sediments, nutrients, and organic material** (dissolved organic carbon – DOC) from deforestation, agriculture, and urbanization.
- Example: **Amazon and Ganges-Brahmaputra River deltas** show higher turbidity and ocean darkening.

ALGAL BLOOMS

- Excessive **eutrophication** due to nutrient-rich runoff (especially nitrogen & phosphorus) causes **phytoplankton blooms**, which reduce water clarity.
- Harmful Algal Blooms (HABs) further reduce sunlight penetration.

MELTING GLACIERS & SEA ICE

- Releases large volumes of **freshwater** and **mineral-laden meltwater**, increasing turbidity.
- Melting sea ice also **removes the reflective white cover**, revealing darker ocean surfaces.

POLLUTION

- Oil spills, microplastics, and suspended particles (e.g., from industrial and mining activities) **absorb and scatter sunlight**, leading to ocean darkening.

IMPACTS OF OCEAN DARKENING

DISRUPTION OF MARINE ECOSYSTEMS

- **Phytoplankton** (base of the marine food web) rely on **sunlight for photosynthesis**.
- Reduced light → less photosynthesis → decline in **marine productivity** → impact on **fisheries** and **biodiversity**.

CARBON CYCLE ALTERATION

- Less phytoplankton = **less CO$_2$ absorption** → **weakened ocean carbon sink**.

- Contributes to rising atmospheric **carbon dioxide** levels and **accelerated global warming**.

THREAT TO CORAL REEFS

- Low light levels hinder **symbiotic algae (zooxanthellae)** within corals → affects **coral growth** and **resilience**.

- Darker waters worsen stress from **coral bleaching** events.

Marine life

Planet's darkening oceans pose threat to marine life, scientists say

Band of water where marine life can survive has reduced in more than a fifth of global ocean between 2003 and 2022
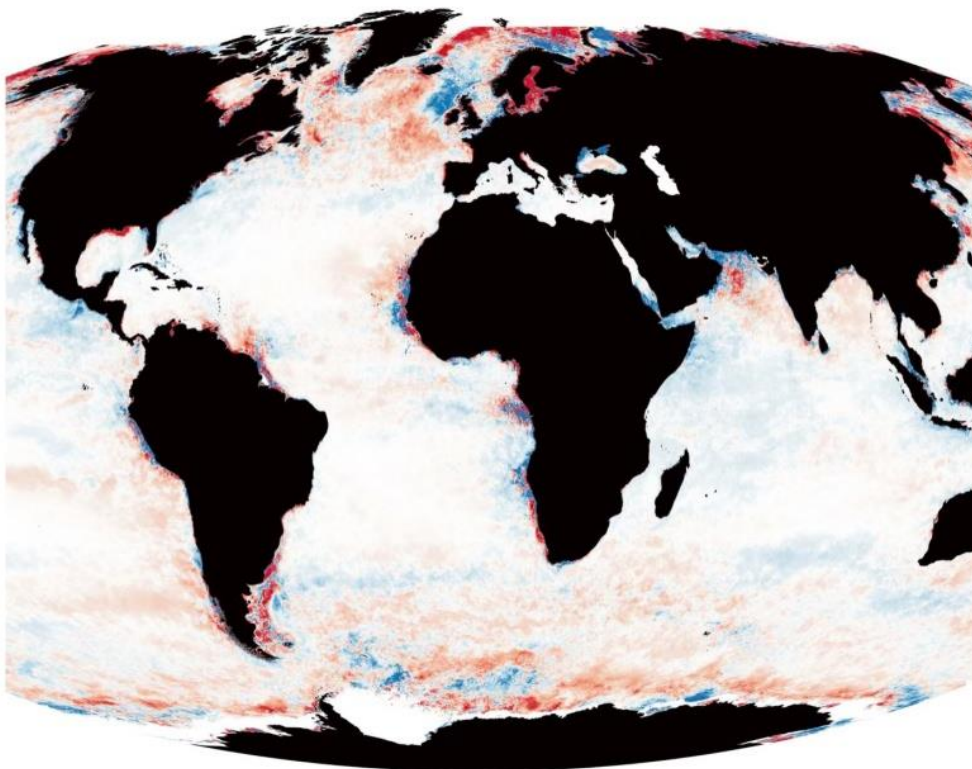
Changes in global photic zones between 2003 and 2022 are shown with red areas to indicate ocean darkening and blue lightening. Illustration: Thomas Davies/University of Plymouth

IMPACT ON MARINE SPECIES BEHAVIOR

- Many marine species (fish, plankton, migratory animals) rely on **light cues** for **feeding, breeding, and navigation**.
- Ocean darkening disrupts their **circadian rhythms and migratory patterns**.

CHANGES IN OCEAN TEMPERATURE

- Darker ocean surfaces **absorb more heat**, intensifying **ocean warming** and **sea level rise** through thermal expansion.

GLOBAL OBSERVATIONS & EXAMPLES

- **Baltic Sea, Arctic Ocean, North Atlantic** show clear signs of darkening over the last few decades.
- **Satellite data from NASA (SeaWiFS, MODIS)** shows a long-term decline in ocean brightness in many tropical and temperate regions.

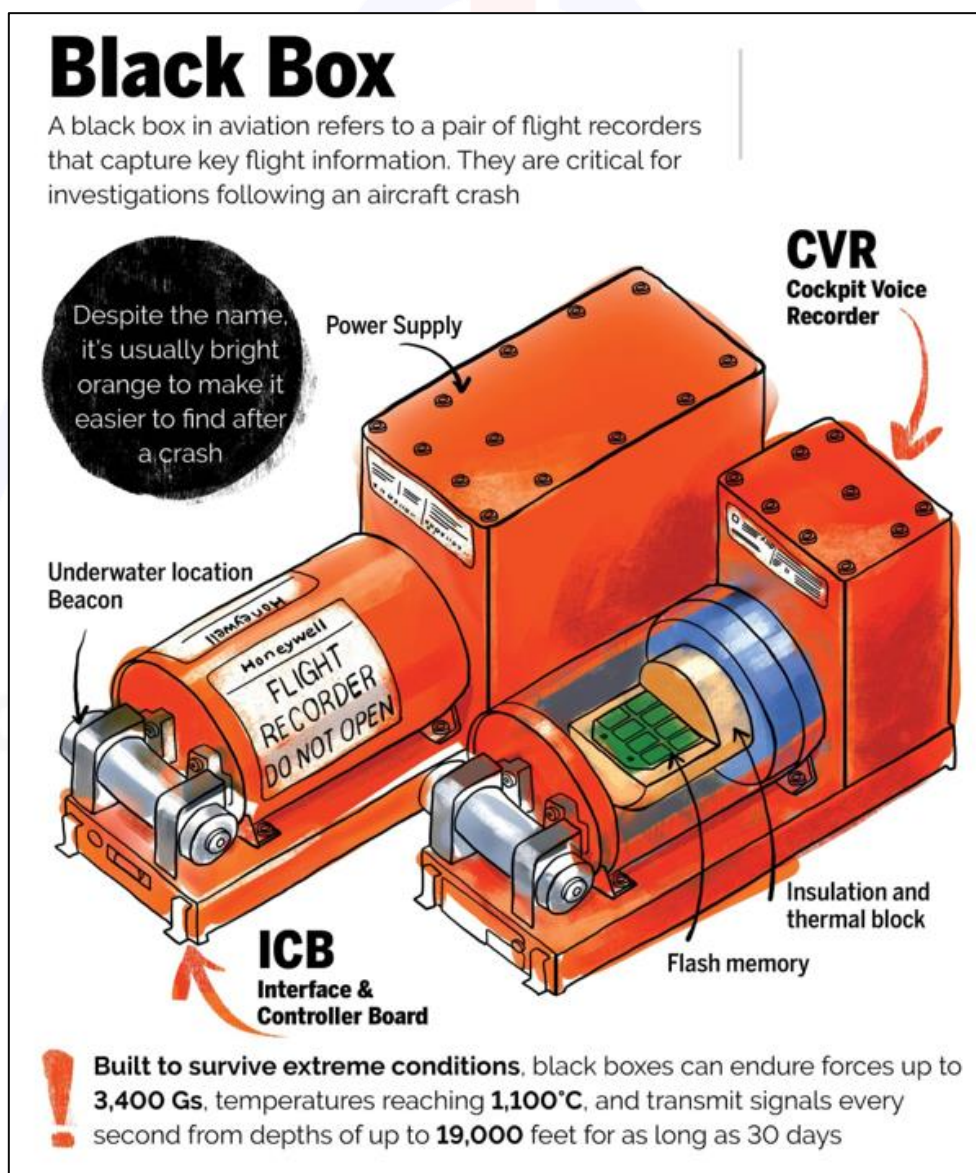| 30	BLACK BOX

After a Gatwick-bound Air India plane (AI171) crash, the search for the flight's black box continues, which is crucial equipment to find out what happened moments before the disaster.

WHAT IS BLACK BOX?

- It is a small machine that records information about an aircraft during its flight.

- This bright orange or yellow rectangular box is crafted to withstand explosions, fire, water pressure, and high-speed crashes.

Black Box

A black box in aviation refers to a pair of flight recorders that capture key flight information. They are critical for investigations following an aircraft crash

Despite the name, it's usually bright orange to make it easier to find after a crash

Power Supply

CVR
Cockpit Voice Recorder

Underwater location Beacon

Honeywell FLIGHT RECORDER DO NOT OPEN

Insulation and thermal block

Flash memory

ICB
Interface & Controller Board

Built to survive extreme conditions, black boxes can endure forces up to **3,400 Gs**, temperatures reaching **1,100°C**, and transmit signals every second from depths of up to **19,000** feet for as long as 30 days

- It was discovered by **Australian scientist David Warren, it is used to discover the cause of a plane crash.**

- Most aircraft are required to be equipped with two black boxes — **the cockpit voice recorder (CVR) and the flight data recorder (FDR) — that record the information about a flight and help reconstruct the events leading to an aircraft accident.**

- The CVR records radio transmissions and other sounds in the cockpit, such as conversations between the pilots and engine noises.

- **The flight data recorder records more than 80 different types of information, such as altitude, airspeed, flight heading, vertical acceleration, pitch, roll, autopilot status, etc.**

- The recording devices are stored inside a unit that is generally made out of strong substances such as steel or titanium and are also insulated from factors such as extreme heat, cold or wetness.

- To protect these black boxes, they are equipped towards the tail end of the aircraft, where the impact of a crash is usually the least.

WHAT IS MAY DAY?

- **"Mayday"** is an internationally recognized **distress call** used in **aviation and maritime communication**.

- It indicates a **life-threatening emergency** such as **engine failure, fire, or medical emergency**.

- The word comes from the French phrase **"m'aider"** meaning **"help me"**.

- The call is repeated **three times** — "**Mayday, Mayday, Mayday**" — to avoid confusion.

- It must be declared only in **serious emergencies**, when **immediate help** is needed.

- Pilots communicate Mayday via **radio (VHF)** to **Air Traffic Control (ATC)** on **121.5 MHz**, the international emergency frequency.

- Once declared, the aircraft receives **priority landing**, **search and rescue**, and **full support** from aviation authorities.

- For lesser emergencies, pilots use "**Pan-Pan**", repeated thrice, which indicates urgency but not immediate danger.

- Misuse of "Mayday" is **illegal and punishable**, as it can disrupt genuine rescue efforts.

31	AGENTIC AI

Recently, India's first agentic AI, Kruti, was launched by Krutrim start up.

WHAT IS AGENTIC AI?

- It is a more advanced GenAI tool.

- These intelligent systems go beyond analysis, acting autonomously on behalf of individuals and organizations to manage complex tasks, make decisions, and solve problems.

- It uses sophisticated reasoning and iterative planning to autonomously solve complex, multi-step problems.

- These systems ingest vast amounts of data from multiple data sources and third-party applications to independently analyze challenges, develop strategies and execute tasks.

Key Features of Agentic AI

Autonomy in decision-making | Adaptability | Real-time adjustments | Complex problem-solving

WHAT ARE THE FEATURES OF AGENTIC AIS?

- **Proactive:** It uses dynamic reasoning to interpret user queries, identify goals, and solve problems as they arise.

- **Action-driven:** It prioritizes taking actions and is integrated with your backend systems and tools to autonomously carry them out.

- **Retentive memory:** It has both short and long-term memory to help contextualize and personalize interactions with customers.

WHAT ARE KEY FEATURES OF KRUTI AGENTIC AI?

- **Developer & Launch**: Crafted by **Krutrim** (Ola's AI subsidiary), Kruti was officially unveiled on **June 12, 2025**, transitioning from a basic chatbot to a full-fledged agentic assistant.

- **Underlying Model**: Powered by Krutrim's proprietary LLM trained on **over 2 trillion tokens**—with the largest Indic data representation ensuring deep regional relevance.

- **Multilingual Mastery**: Understands **20 Indian languages** and generates content in **10**, with plans to cover all **22 official languages**, breaking language barriers across India.

- **Modality Integration**: Accepts **text, voice, and visual inputs**, allowing users to interact via voice prompts, images, or text seamlessly.

- **Agentic Capabilities**: Autonomously executes tasks booking cabs, setting reminders, sending messages—by interacting with external apps and APIs, without manual context-switching.

- **Personalization**: Learns individual **preferences and habits** over time, delivering **tailored suggestions**, reminders, and proactive assistance.
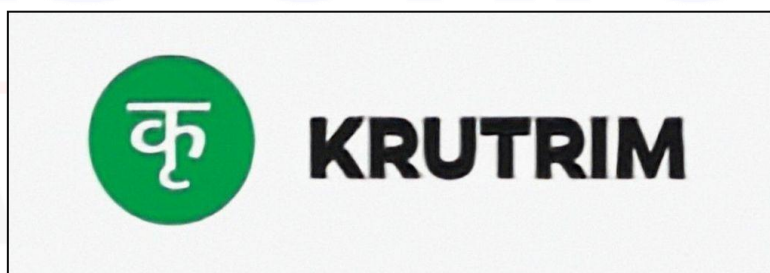
- **Sectoral Applications**: Designed for **education**, **healthcare**, **agriculture**, and **government services**, Kruti aims to democratize AI across critical Indian domains.

- **Strategic Autonomy**: By running on an India-centric cloud stack, Kruti reduces dependency on Western platforms, optimizing cost and data sovereignty for Indian enterprises

32   SILVER NOTICE

Recently, the Central Bureau of Investigation (CBI) successfully got India's first 'silver notice' issued by Interpol, which will enable the CBI to trace proceeds of crime related to the French embassy visa 'fraud' case.

WHAT IS SILVER NOTICE?

- **It is the latest addition to Interpol's suite of colour-coded alerts, designed to help countries track and retrieve criminally obtained assets.**

- It allows participating nations to request information on assets linked to criminal activities such as fraud, corruption, drug trafficking, and environmental crimes.

- It aimed at tracing assets laundered across international borders.

- It is part of a pilot project involving 52 countries, including India, was launched following a request from Italy to locate the assets of a senior mafia member.

- The project will run until at least November 2025, with 500 notices available for distribution among the participating countries.

HOW DOES IT WORK?

- Countries can use the Silver Notice to request information on various assets, including properties, vehicles, financial accounts, and businesses connected to criminal activities.

- The notice facilitates the identification and location of these assets, enabling further legal action, such as seizure or confiscation, subject to national laws.

- India is a participant in this pilot project and stands to benefit significantly.

Benefit to India: With numerous fugitive economic offenders and a substantial amount of unaccounted black money transferred offshore, the Silver Notice could be instrumental in tracing and recovering these assets.

WHAT IS INTERPOL?

- **Established**: 1923 as the International Criminal Police Commission; renamed INTERPOL in 1956

- **Headquarters**: Lyon, France

- **Membership**: 195 countries (virtually all UN member states)

- **Core Mandate**: Facilitate global police cooperation against transnational crime

GOVERNING BODIES:

- **General Assembly**: Meets annually; supreme decision-making authority

- **Executive Committee**: 13 elected members overseeing policy execution

- **General Secretariat**: Led by the Secretary-General; manages day-to-day operations

- **National Central Bureaus (NCBs)**: One in each member country; India's NCB is in New Delhi

KEY TOOLS & SERVICES:

- **I-24/7 Network**: Secure global police communications

- **Databases**: Stolen property, fingerprints, DNA profiles, terrorism, fugitives

- **Notices**:

    - **Red Notice**: Request to locate and arrest a wanted person

    - **Blue/Green/Yellow Notices**: Intelligence or missing-person alerts

- **Legal Status**: Neutral and non-political; cannot compel arrests or prosecute

- **Operational Principles**: Respect for national sovereignty; non-interference in political, military, religious matters

- **Significance**: A vital platform for intelligence exchange, joint investigations, and capacity building to combat organized crime, cybercrime, human trafficking, drug smuggling, and terrorism.

33	GLOBAL GENDER GAP REPORT

India has been ranked 131 out of 148 countries in the World Economic Forum's Global Gender Gap Report 2025, slipping two places from its position last year.
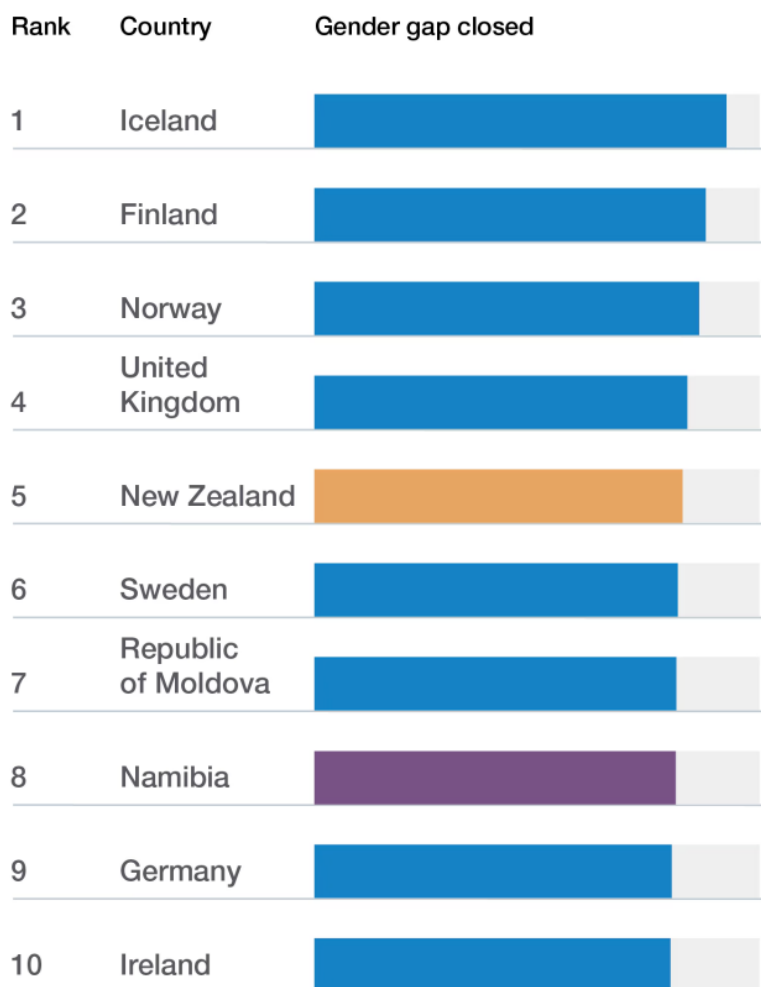
WHAT IS GLOBAL GENDER GAP INDEX?

- It is an annual index designed to measure gender equality.

- It benchmarks gender-based gaps in four areas: economic participation and opportunity; educational attainment; health and survival; and political empowerment.

- It is released by the World Economic Forum (WEF).

- It is the longest-standing index tracking the progress of numerous countries' efforts towards closing these gaps over time since its inception in 2006.

HIGHLIGHTS OF REPORT

- India's gender parity score stands at just 64.1 per cent, placing it among the lowest-ranked countries in the South Asian region.

- In educational attainment, India scored 97.1%, reflecting gains in female literacy and tertiary education enrolment.

- **One dimension where India increases parity is in Economic Participation and Opportunity, where its score improves by 0.9 per cent to 40.7 per cent.**

- India also records higher parity in health and survival, driven by improved scores in sex ratio at birth and in healthy life expectancy.

- India recorded a slight drop in political empowerment, with parity dropping by 0.6 points since the previous edition. Female representation in Parliament fell from 14.7 per cent to 13.8 per cent in 2025

- Iceland retains the world's most gender-equal economy for the **16th consecutive year, closing 92.6% of the gender gap – the only economy to reach 90% parity.**

- European countries account for eight of the **top ten rankings; Iceland, Finland, Norway, and Sweden have all been in the top ten since 2006.**

- **The bottom 10 countries in the Global Gender Gap Index 2025 led by Pakistan, Sudan, Chad, and Iran continue to show the widest gender disparities globally.**

The Global Gender Gap Index 2025 Rankings

Rank	Country	Gender gap closed
1	Iceland	
2	Finland	
3	Norway	
4	United Kingdom	
5	New Zealand	
6	Sweden	
7	Republic of Moldova	
8	Namibia	
9	Germany	
10	Ireland	

34	POSON POYA

Sri Lanka celebrated Poson Poya on June 10–11, 2025, marking over 2,000 years since the arrival of Buddhism on the island.

WHAT IS POSON POYA?

The second **Poya** (full-moon) festival of the year, celebrated by **Sri Lankan Buddhists** on the **June full moon**.

HISTORICAL SIGNIFICANCE

- Commemorates the **introduction of Buddhism** to Sri Lanka in **c. 247 BCE** by **Arahat Mahinda**, son of Emperor Ashoka.

- Falls on the **full moon day of Poson month** (usually late May or June in the Gregorian calendar).

- **Religious Observances**: **Kovil processions**, **pirith chanting**, and **offering of dana** (alms) at temples and temples' precincts.

- **Pilgrimage**: **Anuradhapura's Mihintale Hill** is the focal pilgrimage site where Mahinda preached to King Devanampiya Tissa.

- **Cultural Practices**: **"Dansalas"** (free food stalls) are set up nationwide by devotees for monks and laypeople.

- **Symbolism**: Marks the **fusion of Theravāda Buddhism** with **Sri Lankan society**, shaping the island's cultural identity.

- **Government Recognition**: A **public holiday** in Sri Lanka, reflecting its enduring social and spiritual importance.

BUDDHISM IN SRI LANKA

- Buddhism is a spiritual tradition founded by Siddhartha Gautama (the Buddha) in the 6th century BCE in India.

- It emphasizes the path to enlightenment (nirvana) through ethical living, meditation, and wisdom.

- Core teachings include the Four Noble Truths and the Eightfold Path, guiding individuals to overcome suffering (dukkha).

- Buddhism arrived in Sri Lanka over 2,300 years ago during the reign of King Devanampiyatissa, marking a profound spiritual and cultural transformation.

- It was introduced by Arahat Mahinda, the son of Indian Emperor Ashoka, in 236 BCE on Poson Poya day at Mihintale.

- The king embraced Buddhism, leading to its widespread acceptance across the island. Temples, stupas, and monastic traditions flourished, making Sri Lanka a major center of Theravāda Buddhism.
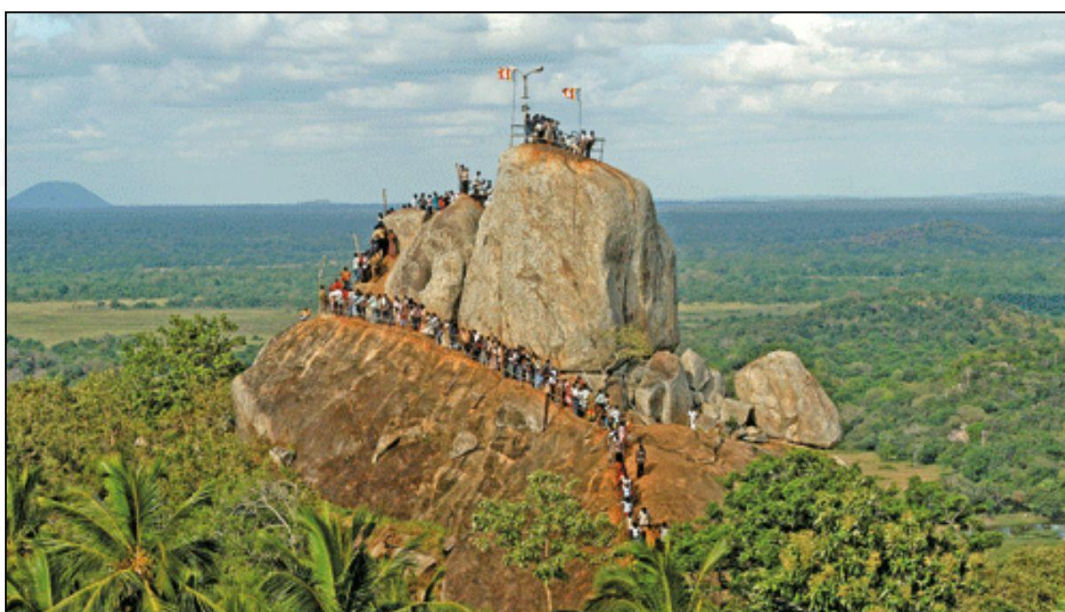
35	GYAN POST SERVICE

India Post launched the 'Gyan Post' service to deliver educational books and socio-cultural literature at affordable rates across India.

The initiative supports the vision of **'Har Ghar Gyan, Har Sapne Ko Udaan'.**

WHAT IS GYAN POST?

Gyan Post is a postal delivery service introduced by the Department of Posts under the Ministry of Communications to deliver non-commercial educational and socio-cultural material at subsidized rates.

WHAT ARE THE OBJECTIVES?

- **Promote inclusive access** to educational content across rural and urban India.

- **Support students** and competitive exam aspirants by ensuring low-cost, last-mile connectivity.

- **Encourage dissemination** of cultural and religious literature aligned with Indian laws.

HOW IT WORKS?

- Operates through **surface transport** (road or rail) to keep costs minimal.

- Parcels must be marked "**Gyan Post**" and are **subject to inspection** by postal officials.

- Items are booked **at post office counters only** (retail, not bulk).

- Tracking is enabled, with optional add-ons like **Proof of Delivery** and **Insurance**.

WHAT ARE THE KEY FEATURES?

- Only printed educational, social, religious, or cultural content is permitted.

- **Magazines, advertisements, or commercial publications are excluded**.

- Each book must carry the **printer/publisher's name** and be free of promotional content.

- **Packaging** must allow for easy inspection (unsealed envelopes or open wrapping).

- No personal communication or handwritten letters are allowed inside.

ELIGIBILITY CRITERIA:

- Materials must be from recognized boards, universities, or statutory institutions.

- Content should be legally compliant and used for academic or cultural purposes only.

- Sender must mention the receiver's and sender's full address with PIN codes.

- Books should not be periodically issued like journals or weeklies.

WEIGHT & DIMENSION LIMITS:

- **Minimum Weight:** 300 grams

- **Maximum Weight:** 5 kilograms

- Allowed in both **roll and non-roll formats** within defined dimension tolerances.

- **Pricing:** The pricing structure used in Gyan Post is called a slab-based pricing model or weight-based tiered pricing.

36 INDIAN ARMY SUCCESSFULLY TESTS RUDRASTRA VTOL DRONE FOR PRECISION STRIKES

The Indian Army has achieved a major milestone in its push for defence indigenization by completing successful trials of Rudrastra, a VTOL-capable drone developed by an Indian company. Designed for precision attacks and deep-target engagement, this UAV represents a technological leap in the Army.

RUDRASTRA

- It is a **hybrid vertical takeoff and landing (VTOL) dron**e developed by Solar Aerospace and Defence Limited (SDAL).

- It is capable of vertical takeoff like a helicopter and long-range flight like an aircraft.

- It is Designed for precision anti-personnel strikes, it can hit targets over 50 km away and has a full range of 170 km.

- It is Ideal for deep strikes on enemy camps or artillery and offers the Army a powerful stand-off weapon with no risk to soldiers.

- **Range:** Total range of 170 km, including loitering time.

- Endurance: Up to 1.5 hours of flight time.

- **Warhead:** Equipped with airburst munitions, effective for anti-personnel roles.

- **Strike Mechanism:** High-altitude deployment to maximize destruction over a wide radius.

- **Features:** Can operate autonomously, relay real-time video, and return to base.

STRATEGIC IMPORTANCE:

- Developed under Make-in-India push for indigenous defence technology.

- Designed to neutralize,

- Enemy artillery positions

- Terrorist camps

- Infiltration launch pads

- Enhances Army's stand-off attack capabilities up to 100 km inside enemy territory.

ROLE OF INDIAN DEFENCE MANUFACTURERS:

- Multiple Indian drone manufacturers invited for trials.

- Focus on reducing dependence on foreign defence imports.

- Demonstration of India's growing unmanned systems expertise.

Desi Drones for Cross-Border Strikes

Drones being developed for cross-border strikes to take down enemy artillery positions

Trials conducted at Pokhran firing range

Drones demonstrate ability to take down targets at a range of over 50 km

Drones can relay back live video and return to the launch position in automated mode

Army looking to acquire drones in significant numbers

Rudrastra has demonstrated a total range of 170 km, which included loitering over the target area and an endurance of close to an hour-and-a-half

37 ISRAEL–IRAN TENSION IMPACTS INDIA'S TEA EXPORTS

Renewed **Israel-Iran tension** is threatening potential disruptions in the tea exports of India.

ABOUT TEA

- According to the Tea Board, the Tea exports from India increased by **9.92 per cent at 254.67 million kg,** from January to December 2024, **against 231.69 million kg in the previous calendar year.**
    - India has become the **second largest tea exporter in the world.**
- **Types of tea exported:** Primarily black tea (96%), with small quantities of regular, green, herbal, masala, and lemon tea.

- **Key driver:** Significant rise in shipments to West Asia, especially Iraq, now accounting for 20% of India's tea exports.
- **India's Export destinations:** Over 25 countries, including UAE, Iraq, Iran, Russia, US, and UK.

- **Prominent tea regions:** Assam (Assam Valley, Cachar) and West Bengal (Dooars, Terai, Darjeeling).

- **Global reputation:** Indian teas, especially Assam, Darjeeling, and Nilgiri, are renowned for their quality.

  - o **China** is the largest tea producing country in the world **followed by India.**

GEOGRAPHICAL FACTORS FOR TEA CULTIVATION

- **Temperature:** 20–30°C (ideal), no frost.

- **Rainfall:** 150–300 cm annually; well-distributed throughout the year.

- **Soil:** Deep, well-drained, acidic soils rich in humus; loamy soils are preferred.

- **Topography:** Grown on hill slopes to avoid waterlogging; elevation between 600–2,000 meters is ideal.

- **Shade:** Tea requires shade trees to protect from intense sunlight.

38	DISTRICT & STATE LEVEL CELLS: FOREST RIGHTS ACT, 2006

Recently, the **Union Ministry of Tribal Affairs** has sanctioned the establishment of **324 district-level FRA cells** and **17 state-level FRA cells** under the **Dharti Aba Janjatiya Gram Utkarsh Abhiyaan** to 'facilitate' implementation of **Forest Rights Act, 2006.**

WHAT ARE FRA CELLS?

- FRA Cells are State and District-level administrative units created under the **Dharti Aba Janjatiya Gram Utkarsh Abhiyaan (DAJGUA)** to accelerate the implementation of the **Forest Rights Act, 2006 (FRA).**

  - These cells are **not created under the FRA 2006 legislation**, but under an administrative scheme by the Ministry of Tribal Affairs.

- The newly established FRA cells aim to facilitate the implementation of the **FRA, particularly in districts and states** where a **large number of claims remain pending.**

- These cells also aim **to assist claimants and Gram Sabhas** in preparing paperwork for FRA claims, managing data efficiently, and streamline administrative processes.

- These also aim to accelerate the disposal of pending claims, especially those delayed even after **District Level Committee (DLC)** approval.

- These cells will **not interfere with decisions** made by the Gram Sabha, Sub-Divisional Level Committees (SDLCs), District Level Committees (DLCs), or State government departments.

CURRENT STATUS

- About **14.45% of the 51.11 lakh FRA claims** across 21 states and union territories remain **pending**.

- **Least FRA Pendency:** Chhattisgarh, Madhya Pradesh, Maharashtra, and Jharkhand

  - However, in **Assam (over 60%),** and in **Telangana (around 50.27%)** claims are pending.

- The **highest number of district FRA cells** sanctioned so far has been in **Madhya Pradesh,** followed by Chhattisgarh, Telangana, Maharashtra, Assam, and Jharkhand.

ABOUT THE FOREST RIGHTS ACT (FRA), 2006

- It is officially known as the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**.

- It was enacted to recognize the **rights of Scheduled Tribes and Other Traditional Forest Dwellers (OTFDs)** over forest land.

- It ensures that **Scheduled Tribes (STs) and other traditional forest dwellers** can **legally access and manage forest resources** while contributing to biodiversity conservation.

Forest Rights Act

Enacted in 2006, the Forest Rights Act came into effect in 2008. Considered a landmark piece of legislation as it attempts to correct historical injustices against forest dwellers in the colonial era and in independent India, it recognises forest dwellers' individual rights over their land and a village's rights to manage and conserve the forest:

Individual Forest Rights: Any person belonging to a scheduled tribe can claim rights to live in and cultivate up to 4 ha if he occupied it and depended on it as of December 13, 2005. A non-tribal, in addition, will have to prove his family's residence in the vicinity of the forest for 75 years prior to December 2005

Community Forest Rights: The Act recognises the rights of a gram sabha over forest land within the village boundaries or seasonal use of landscape for pastoral communities. This allows the villagers to own and collect, use and dispose of minor forest produce besides timber, including the right to use grazing land and water bodies and the right to protect and regenerate any community resource, among others

- It impacts an estimated 150 million forest-dwelling people, 40 million hectares of land, and 1,70,000 villages.

CONCERNS OVER NEW FRA CELLS

- **Parallel Governance:** Creation of FRA cells outside the statutory FRA framework may lead to a dual structure, diluting accountability.

- **Lack of Legal Backing:** The FRA cells have no statutory authority, unlike SDLCs and DLCs.

- **Potential Duplication:** May lead to bureaucratic overlap, blurring of accountability

39 NINTH ANNIVERSARY OF THE PRADHAN MANTRI UJJWALA YOJANA (PMUY)

India marked the ninth anniversary of the **Pradhan Mantri Ujjwala Yojana (PMUY).**

ABOUT PMUY

- **Launched:** In 2016 by the Ministry of Petroleum & Natural Gas.

- **Objective:** To provide LPG (Liquefied Petroleum Gas) connections to women from Below Poverty Line (BPL) households to reduce the health risks associated with traditional cooking methods.

- **Target Group:** Adult women from BPL households, with a focus on women's empowerment and improving their living standards.

- **Eligibility Criteria:** Women from Below Poverty Line (BPL) households, with priority given to SC, ST, PMAY (Gramin) families, forest dwellers, and tea garden workers. Migrant households can avail self-declaration for address proof.

- **Phase I (2016-2020):** 8 crore deposit-free LPG connections were provided to women from BPL households by 2020.

- **Phase II (2021 onwards):** An additional allocation of 1.6 crore LPG connections was made under the PMUY scheme by December 2022, with a special provision for migrant households.

- **Achievements (As of March 1, 2025):** Total number of active domestic LPG consumers in India stands at 32.94 crore, with 10.33 crore beneficiaries under PMUY.

Pradhan Mantri Ujjwala Yojana

Smoke-free life for every Indian by providing 5 Cr LPG connections to BPL families

BENEFITS

Replacing the unclean cooking fuels mostly used in the rural India with the clean and more efficient LPG

WHO WILL BENEFIT

Families in BPL (Below Poverty Line)

ELIGIBILITY

Female
i) Listed in Socio - Economic Caste Census 2011 data
ii) Above 18 years of age

Under BPL
i) Should have a savings bank account in a national bank
ii) Should not have any existing LPG connection in household

PROCESS OF AVAILING

- Applicant has to fill up the Ujjwala Yojana KYC application form available at the nearest LPG distributor or can download online from -

http://www.pmujjwalayojana.com/download.html

SIGNIFICANCE

- **Health Benefits:**
    - **Improved Health:** PMUY aims to eliminate the use of traditional cooking methods like wood, coal, and crop residues, which lead to indoor air pollution.
    - **WHO Estimates:** Around 5 lakh deaths in India occur annually due to the use of unclean cooking fuels.

- **Women Empowerment:**

  - **Freedom from Collecting Firewood:** PMUY empowers women by reducing the time spent collecting firewood, often from faraway forests.

  - **Improved Lifestyle:** Access to clean fuel saves time and energy, allowing women to focus on productive activities.
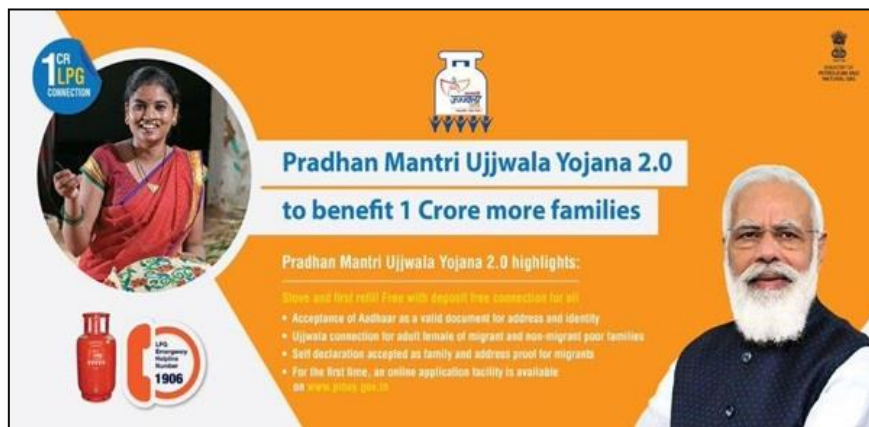
- **Socio-Economic Benefits:**

  - **Increased Productivity:** Women are freed from labor-intensive cooking methods, enabling them to engage in economic activities.

  - **Control over Resources:** LPG connections are issued in the name of women, promoting financial independence and decision-making power within households.

- **Environmental Benefits:**

  - **Reduced Air Pollution:** Use of cleaner cooking fuel reduces the harmful emissions associated with burning wood or kerosene, contributing to environmental conservation.

CHALLENGES

- **Refilling Costs:** While the initial connection is free, the refilling cost is a challenge. Poor households may struggle to afford regular refills due to limited financial resources.

- **Bureaucratic Hurdles:** Delays in documentation and approval processes can slow down the rollout of the scheme.

- **Lack of Infrastructure:** Rural areas often face challenges with the last-mile connectivity required for LPG delivery. Filling plants and distributors are often not present in remote areas.

- **Habitual Practices:** Despite having access to LPG, many beneficiaries still rely on firewood due to the cost-saving nature of traditional methods, especially in areas where LPG refilling is expensive.

40 SOCIAL PROTECTION COVER IN INDIA RISES TO OVER 64% IN 2025: ILO

According to the latest data from International Labour Organization's (ILO) ILOSTAT, India's social security coverage in 2025 stood at **64.3 per cent, up from 19 per cent a decade ago.**

KEY FINDINGS

- India now ranks **second in the world** in social security coverage, providing protection to more than **94 crore of its citizens.**

- Nearly **two out of three people** in India are now covered under at least one social security benefit which roughly translates into **950 million people.**

- India is also the **first country globally** to update its 2025 social protection coverage data in the ILOSTAT database, reinforcing its leadership in digital governance and transparency in welfare systems.

  o These include schemes like Atal Pension Yojana, Kisan Samman Nidhi, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Janani Suraksha Yojana and PM POSHAN, among others.

WHAT IS SOCIAL SECURITY?

- Social security refers to the protection provided by society to individuals and households to ensure access to healthcare and guarantee income security in situations such as old age, un-employment, sickness, maternity, and invalidity.

KEY INITIATIVES IN INDIA FOR SOCIAL PROTECTION

- **Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM):** To provide old age protection and social security to unorganized sector workers (e.g., street vendors, rickshaw pullers, construction workers, domestic workers).

- **Pradhan Mantri Jeevan Jyoti Yojana (PMJJBY):** To provide affordable life insurance cover.

- **Atal Pension Yojana (APY):** To provide a guaranteed pension for unorganized sector workers.

- **Ayushman Bharat (Pradhan Mantri Jan Arogya Yojana – PMJAY):** To provide health insurance coverage to the poorest and most vulnerable sections of society.

- **Public Distribution System (PDS) / National Food Security Act (NFSA):** To ensure food and nutritional security by providing subsidized food grains.

- **Pradhan Mantri Awaas Yojana – Gramin (PMAY-G):** To provide "Housing for All" by ensuring a pucca house with basic amenities to all houseless households and those living in kutcha and dilapidated houses in rural areas.

WHAT IS ILO?

- The ILO was created in **1919** as part of the **Treaty of Versailles** that ended World War I to reflect the belief that universal and lasting peace can be accomplished only if it's based on social justice.

- In **1946**, after the demise of the League of Nations, the ILO became the **first specialised agency** associated with the **United Nations**.

- It is the **only tripartite UN Agency** where representatives of the **workers** and of the **employers** have an equal voice with those of **governments** in formulating its policies.

- All the three groups are represented on almost all the deliberative organs of the ILO and share responsibility in conducting its work.

Headquarters: Geneva, Switzerland

Members: 187 Members (India is a founding member)

Membership:

- Any nation that is a **member of the UN** can become a member of the ILO by **unilaterally** notifying the Director General that it accepts the obligations of the ILO constitution.

- Other nations may be admitted to ILO membership by a **two-thirds vote of the International Labour Conference.**

- It is also a **member of the United Nations Development Programme (UNDP),** a coalition of UN organisations helping meet the Sustainable Development Goals.

- The Organization won the **Nobel Peace Prize** on its 50th anniversary in **1969** for improving peace among classes, pursuing decent works and justice for workers, and providing technical assistance to other developing nations.

OBJECTIVES OF ILO

- Promote and realise standards and fundamental principles and rights at work

- Create greater opportunities for women and men to have decent employment and income

- Enhance the coverage and effectiveness of social protection for all

- Strengthen tripartism and social dialogue

GOVERNANCE

The three organs of the ILO are:

- International Labour Conferences

- Governing Body

- International Labour Office

INTERNATIONAL LABOUR CONFERENCE

- The Conference sets the international **labour standards** and the broad **policies** of the ILO.

- It meets **annually** in Geneva.

- Often called an **international parliament of labour**, the Conference is also a forum for discussion of key social and labour questions.

- The Conference has so far had 4 Indian Presidents, viz,

- Sir. Atul Chatterjee (1927)

- Shri Jagjivan Ram, Minister for Labour (1950)

- Dr. Nagendra Singh, President, International Court of Justice (1970)

- Shri Ravindra Verma, Minister of Labour and Parliamentary Affairs (1979)

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8 core ILO Conventions

- **Freedom of association & collective bargaining**
  - ILO Convention nr. 87 (freedom union membership)
  - ILO Convention nr. 98 (organise & collective bargaining)

- **Abolition of forced labour**
  - ILO Convention nr. 29 (no forced labour)
  - ILO Convention nr. 105 (no forced labour)

- **Equality**
  - ILO Convention nr. 111 (non discrimination)
  - ILO Convention nr. 100 (equal remuneration)

- **Elimination of child labour**
  - ILO Convention nr. 138 (minimum age)
  - ILO Convention nr. 182 (worst forms of child labour)

GOVERNING BODY

- It is the **executive wing** of the Organization. It is also **tripartite** in character.

- It meets three times a year, in March, June and November.

- It takes decisions on **ILO policy**, decides the **agenda of the International Labour Conference**, adopts the draft Programme and Budget of the Organization for submission to the Conference, and **elects the Director-General**.

- In **1922**, India became a **permanent member** of the ILO Governing Body and in 1928, the ILO office in India was established in New Delhi.

International Labour Office
It provides the Secretariat for all conferences and other meetings and is responsible for the day-to-day implementation of decisions made by the Conference, Governing Body, etc.

ILO Administrative Tribunal
It examines **employment-related complaints** by officials of ILO and other international organizations that have recognized its jurisdiction.

ILO Centres and Institutes
It provides specialized research, training and support for the ILO's offices and constituents.

REPORTS RELEASED BY ILO

- World Employment and Social Outlook (WESO)

- Global Wage Report

- World Social Protection Report

- World Employment and Social Outlook for Youth

- World of Work Report

INTERNATIONAL LABOUR STANDARDS

- International labour standards are **legal instruments** drawn up by the ILO's constituents (governments, employers and workers) and setting out basic principles and rights at work. They are either:

- **Conventions and Protocols:** They are **legally binding international treaties** that member States may ratify, or

- **Recommendations:** They serve as **non-binding guidelines**.

- Conventions, Protocols and Recommendations are drawn up by representatives of **governments, employers** and **workers** and are adopted at the annual International Labour Conference.

FUNDAMENTAL CONVENTIONS OF ILO

The eight fundamental conventions form an integral part of the **United Nations Human Rights Framework**, and their ratification is an important sign of member States' commitment to human rights.
The conventions are:

- **Forced Labour Convention (No. 29)**

- **Abolition of Forced Labour Convention (No.105)**

- **Equal Remuneration Convention (No.100)**

- **Discrimination (Employment Occupation) Convention (No.111)**

- **Minimum Age Convention (No.138)**

- **Worst forms of Child Labour Convention (No.182)**

- Freedom of Association and Protection of Right to Organised Convention (No.87)

- Right to Organise and Collective Bargaining Convention (No.98)

- **Conventions 1-6 are ratified by India.**

INDIA AND THE INTERNATIONAL LABOUR ORGANISATION

India has been a **founding member of ILO** since 28 June 1919

ILO'S WORK IN INDIA

- **Preventing unacceptable forms of work** such as bonded labour, labour trafficking, and ensuring the rights and protection of domestic workers.

- **Promoting gender equality** at the workplace, preventing sexual harassment, gender-based violence and wage discrimination.

- Conducting **evidence-based policy research** on areas of national importance including mapping trends in India relating to the future of work.

- Introducing tools to **integrate employment goals in national policies** and programmes and promoting Decent Work elements in select governmental programmes.

- Supporting the creation of a national **Social Protection Floor** through advisory services and identifying challenges in implementing select government schemes.

- Strengthen tripartite institutions' ability to carry out social dialogue at both national and state levels and promote capacities of employers' and workers' organizations.

DECENT WORK COUNTRY PROGRAMME FOR INDIA (2023–27)

- The ILO and its constituents launched its new Decent Work Country Programme, the **fourth** since 2007 for the next five years, as the country builds forward better after COVID-19.

41	PLACES & SPECIES IN NEWS

SURINSAR–MANSAR WILDLIFE SANCTUARY

Surinsar-Mansar Wildlife Sanctuary is located in the Union Territory of Jammu and Kashmir, known for its rich biodiversity and picturesque twin lakes.

- **Location**: Situated in **Jammu district** of **Jammu & Kashmir**, near **Surinsar and Mansar Lakes**, about **42 km from Jammu city**.

- **Establishment**: Declared a **wildlife sanctuary in 1981** under the Jammu and Kashmir Wildlife (Protection) Act.

- **Ecological Zone**: Lies in the **Shivalik Range of the Outer Himalayas**, featuring **subtropical forest ecosystems** with varied topography hills, lakes, and forested areas.

LAKES IN THE SANCTUARY:

- **Surinsar Lake**: A freshwater lake with religious significance.

- **Mansar Lake**: A larger lake, also sacred, supporting **aquatic biodiversity**.

- Surinsar and Mansar lakes are included in the list of Ramsar sites in 2005.

- The area forms one of the important catchments of river Tawi.

FLORA:

- Dominated by **dry deciduous and tropical broad-leaved forests**.

- Important tree species include **Acacia, Terminalia, and Pine**.

- Pinus rouxburgii, Acacia catechu, Lannea grandi, Mallotus philipenesis, Cassia fistula, Zizyphus jujuba, Dalbergia sissoo, Emblica officinalis.

FAUNA:

- **Mammals**: **Leopards, wild boar, barking deer, rhesus macaque**, blue bull/ Nilgai and **langurs**.

- **Birds**: Over **150 avian species**, including **peafowls, jungle fowl, and migratory birds** during winters.

- **Ecotourism**: The sanctuary is a **popular destination** for **nature tourism and religious tourism**, especially due to the **Mansar-Surinsar twin lakes**.

- **Conservation Importance**: Plays a crucial role in **preserving biodiversity** in the fragile Shivalik ecosystem and **sustains the cultural-ecological linkage** of the region.

- **Protected Area Network**: Forms part of J&K's broader **biodiversity conservation strategy**, helping in **watershed protection and climate regulation**.

- **Recent Focus**: Included under initiatives like **Eco-sensitive Zone (ESZ) notification** and **biodiversity conservation programmes** by the UT administration.

TOTAPURI MANGOES

Recently, the Andhra Pradesh government has banned the entry of juicy Totapuri mangoes from other states into Chittoor district, a decision that has put it at loggerheads with neighbouring Karnataka.

Totapuri Mango

Totapuri' mango, or Ginimoothi, is a cultivar that is widely grown in south India and is partially cultivated in Sri Lanka.
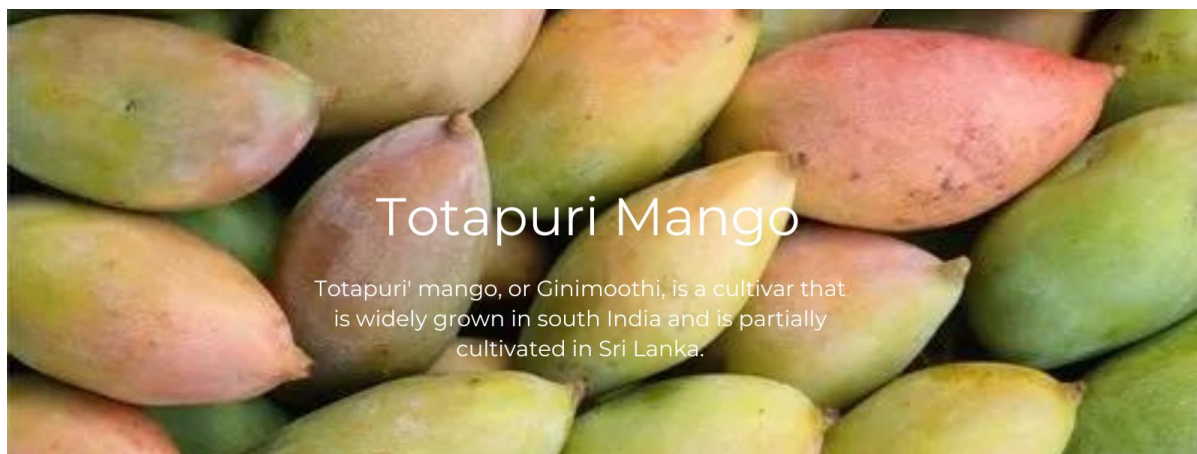
ABOUT TOTAPURI MANGOES

- Totapuri mangoes are primarily grown **in Chittoor district in Andhra Pradesh and in parts of border districts in Karnataka and Tamil Nadu.**

- It is known for its elongated shape and distinct parrot beak-like tip (hence "Totapuri"), the variety is valued for its juice and pulp.

- **It is indigenous to South India and also known by other names such as Ginimoothi, Sandersha, Banglora.**

- Totapuri mangoes are used aplenty in mango drinks manufactured and distributed across the country.

- These mangoes are largely supplied to processing units that extract mango pulp for commercial use, both domestically and internationally.

CLIMATIC CONDITIONS REQUIRED FOR TOTAPURI MANGOES

- **Soil:** Thrives in well-drained, loamy soils with a neutral to slightly acidic pH.

- **Climate:** Best suited for tropical climates with moderate to high temperatures.

NUTRITIONAL VALUE OF TOTAPURI MANGOES

- **Vitamins:** Rich in Vitamin C and Vitamin A, supporting immune function and eye health.

- **Minerals:** Contains calcium, potassium, and magnesium, which are vital for bone health and muscle function.

- **Antioxidants:** Provides antioxidants that protect cells from damage and support skin health.

EMPEROR PENGUINS

Recently, a study revealed that emperor penguins are the iconic species threatened by climate change in Antarctica.

- **Scientific Name**: *Aptenodytes forsteri*

- **Habitat**: Native to **Antarctica**, they are the **largest of all penguin species**, adapted to the **harsh polar environment**.

- **Physical Features**:

  o Height: Up to **120 cm**

  o Weight: Around **20–40 kg**

  o Distinct features: **Black back, white belly**, and **yellow-orange patches** on the neck and ears.

- **Adaptations**:

  o Thick layer of **blubber and feathers** for insulation.

  o **Huddling behavior** conserves body heat during Antarctic winters.

  o Capable of diving to **depths over 500 meters** and holding breath for **20 minutes**, aiding deep-sea hunting.

- **Breeding**:
    - Unique among birds: **Males incubate eggs** on their feet under a brood pouch for about **65 days** in extreme cold.
    - **Breeding occurs in winter** when temperatures can drop below –60°C.
- **Diet**: Primarily feed on **fish, krill, and squid**.
- **Conservation Status**:
    - Listed as **Near Threatened (IUCN Red List)**.
    - Facing risks from **climate change**, **melting sea ice**, and **declining prey populations**.
- **Ecological Importance**: Indicators of **Antarctic ecosystem health**.
- **International Protection**: Covered under the **Antarctic Treaty System** and **CCAMLR (Convention on the Conservation of Antarctic Marine Living Resources)**.
- **Current Concerns**: 2022–23 breeding failures reported due to **record low sea-ice extent** (NASA data).

EXERCISE SHAKTI

Exercise Shakti 2025 will be held at La Cavalerie in France, from June 18 in La Cavalerie.

WHAT IS IT?

A biennial joint army exercise between **India and France,** started in **2011,** alternating host countries.

- **Participants**
  - o **90 Indian troops** mainly from the **Rajput Regiment**, along with observers from the **Indian Navy and Air Force 90 French troops** from the renowned **13th Foreign Legion Half-Brigade (13th DBLE)**.

- **Focus Areas**
  - o **Operations** in **semi-urban and mountainous terrain**, supporting **multi-domain operations** in **sub-conventional scenarios** under **UN Chapter VII mandate**.

- - o **Tactical drills**: anti-terror responses, establishment of joint command posts and intelligence/surveillance centres, heliborne ops, small-team insertions/extractions, drone & counter-drone tactics.

- **Objectives & Significance**

  - o **Enhance interoperability**, physical endurance, and alignment of **Tactics, Techniques & Procedures (TTPs)**.

  - o Strengthening **strategic ties** under the **Indo-French defence partnership**, as emphasized in PM Modi–President Macron's **Horizon 2047** roadmap.

  - o Accelerated complexity: **double troop strength**, **brigade-level command-post exercise**, inclusion of **air and naval observers** for the first time.

- **Outcome**

  - o Concluded with a **final validation exercise** and **tri-service observer review**, reinforcing **synergy and interoperability** between both armies

Other Joint Exercises between France and India are Exercise Desert Knight, Exercise Varuna and Exercise Garuda.

SHIPKI LA PASS

Himachal Pradesh has opened the Shipki La pass, a motorable mountain pass at an altitude of 3,930 metres in the tribal Kinnaur district, to domestic tourists.

SHIPKI LA PASS

- **Location**: Shipki La is a **high-altitude mountain pass** located in the **Kinnaur district** of **Himachal Pradesh**, on the **India-China (Tibet) border**.

- **Altitude**: Approximately **3,968 meters (13,020 ft)** above sea level.

- **Geographical Significance**:

    o Lies in the **Greater Himalayan range**.

    o Crossed by the **Sutlej River** which enters India from Tibet (where it is known as Langqen Zangbo).

- **Strategic Importance**:

    o One of the **official border trade routes** between India and China.

    o Due to security concerns and border tensions, the pass is **heavily monitored** and **restricted to civilians**.

- **Economic Role**:

    o Previously part of **Indo-Tibetan trade routes**, dealing in wool, salt, and borax.

    o Trade through Shipki La is currently **limited and regulated** under bilateral agreements.

- **Military Significance**:

    o Close to the **Line of Actual Control (LAC)**; under the operational control of **Indo-Tibetan Border Police (ITBP)** and Indian Army.

- **Climate & Accessibility**:

    o Harsh alpine climate; snow-covered for most of the year.

MOUSE DEER

Recently, the Indira Gandhi Zoological Park (IGZP) announced that its conservation and breeding efforts have resulted in the birth of a red-necked wallaby and a mouse deer within the zoo premises.

MOUSE DEER (INDIAN CHEVROTAIN)

- **Common Name**: Mouse Deer

- **Scientific Name**: *Moschiola indica*

- Also known as **Indian Chevrotain**, it is the **smallest hoofed mammal (ungulate)** in India.

- Belongs to the family **Tragulidae**, which is considered **primitive and ancient** in the evolutionary lineage of deer.

DISTRIBUTION

- **Native to India and Sri Lanka**.

- Found in **Central India, Western Ghats, Eastern Ghats**, and parts of **Southern India** including **Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Maharashtra**.

- Also reported in some parts of **Odisha and Chhattisgarh**.

- Prefers **dense tropical forests**, **evergreen forests**, and **deciduous woodland habitats** near water sources.

FEATURES

- **Size**: Height ~25 cm; Weight ~2–4 kg; Comparable to a **rabbit** in size.

- **Appearance**: Brown coat with **white or pale spots/stripes** on the flanks, short thin legs, pointed face, and large eyes.

- **No Antlers**: Unlike deer, **mouse deer have no antlers** or horns.

- **Teeth**: Males have **enlarged canines** resembling fangs (used during territorial disputes).

- **Behavior**:
  - **Nocturnal and shy**, active during night hours.
  - **Solitary and territorial**.
  - Excellent in **camouflage**, quickly disappears into thickets when disturbed.

- **Diet**: Herbivorous – eats **fruits, leaves, flowers, and grasses**.

CONSERVATION STATUS

- **IUCN Status**: **Least Concern**, but **population declining** due to habitat loss and poaching.

- **Threats**:
  - **Deforestation**, forest fires, human encroachment.
  - Hunted for **bushmeat** in some tribal areas.

- **Legal Protection**: Listed under **Schedule I of the Wildlife Protection Act, 1972**, providing **highest level of protection**.

- **Captive Breeding**:
  - **India's first mouse deer breeding centre** was established at **Nehru Zoological Park, Hyderabad (2010)**.
  - Successful **reintroduction efforts** in Telangana and Andhra Pradesh forests.

KHANKHUULUU MONGOLIENSIS

Scientists have confirmed that Khankhuuluu mongoliensis, dubbed the "Dragon Prince", lived around 86 million years ago approximately 20 million years before T. rex.

KHANKHUULUU MONGOLIENSIS

- Khankhuuluu mongoliensis, whose name translates to **"Dragon Prince of Mongolia,"** roamed the Earth approximately 86 million years ago during the Cretaceous period.

- The fossils of this new species were actually found in the **1970s in Mongolia's Gobi Desert** but were only recently recognized as belonging to a distinct species after advanced analysis and reexamination.

- This medium-sized, fleet-footed predator weighed about **750 kilograms (roughly the size of a horse) and measured up to 4 meters in length, making it two to three times smaller than its massive descendants like Tyrannosaurus rex.**

- The species is characterised by a long, shallow skull, tiny rudimentary horns, and a lighter, more agile build compared to later tyrannosaurs.

- Unlike the bone-crushing T. rex, Khankhuuluu was a mesopredator, relying on speed and agility to hunt smaller prey.
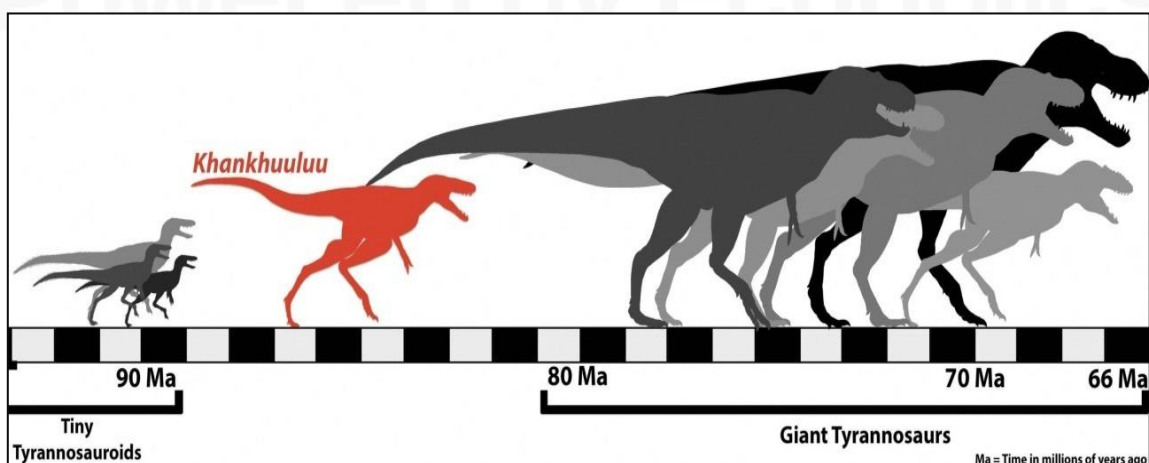
SIGNIFICANCE OF DISCOVERY

- This prehistoric predator is now considered the closest-known ancestor to the infamous Tyrannosaurus rex and played a pivotal role in setting tyrannosaurs on the evolutionary path to ruling Earth as apex predators.

- Khankhuuluu marks a crucial evolutionary transition from smaller, agile hunters to the colossal apex predators that dominated the late Cretaceous.

- Its discovery has bridged a significant gap in the fossil record, revealing that tyrannosaurs originated in Asia and migrated to North America, where they evolved into the iconic T. rex.

GOBI DESERT

- The **Gobi Desert** is a vast, cold desert located in **northern China** and **southern Mongolia**.

- It is the **5th largest desert in the world** and the **largest in Asia**, covering approximately **1.3 million sq km**.

- Unlike sandy deserts, the Gobi is primarily a **rain-shadow desert**, formed due to the **Himalayas blocking monsoon winds**.

- It features **bare rock, gravel plains**, and **mountainous terrain**, with **very little sand**.

- The climate is **extreme continental**, with **hot summers** and **freezing winters** (temperatures can drop below –40°C).

- Major cities nearby include **Ulaanbaatar** (Mongolia) and **Hohhot** (China).

- Home to endangered species like the **Bactrian camel**, **snow leopard**, and **Gobi bear**.

- The Gobi also holds archaeological importance **fossils of dinosaur eggs** have been discovered here.

- It is rapidly expanding due to **desertification** caused by **climate change and overgrazing**.

OHLER'S SPINY FROG

Ohler's Spiny Frog, a newly discovered large stout frog with spiny chest, was found at a waterfall in Vietnam over 4 inches long, challenges conservation norms.

OHLER'S SPINY FROG

- **Common Name**: Ohler's Spiny Frog
- **Scientific Name**: *Nanorana ohleri*
- Belongs to the family **Dicroglossidae**.
- Described relatively recently and named after **Annette Ohler**, a noted herpetologist.
- It is a **species of amphibian** endemic to parts of the **Eastern Himalayas**.

DISTRIBUTION

- Found in the **Arunachal Pradesh** region of **Northeast India**, particularly in the **Tawang and West Kameng districts**.
- Also reported in **southern Tibet**, indicating **transboundary distribution** in the Himalayan ecosystem.
- Inhabits **high-altitude montane streams**, generally between **1,500 to 2,500 meters** above sea level.
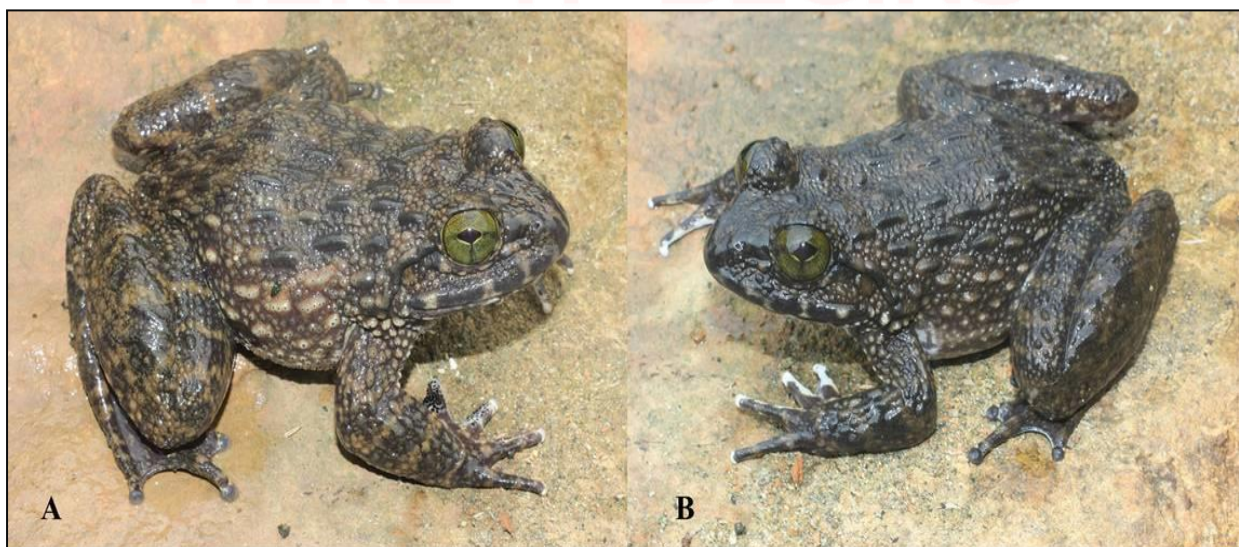
FEATURES

- **Medium-sized frog**, males are smaller than females (sexual dimorphism).

- Characterized by **rough, spiny skin**—especially on the **back and limbs**, hence the name *spiny frog*.

- Coloration ranges from **olive green to brownish**, helping in **camouflage in rocky stream habitats**.

- Adapted to **cold, fast-flowing mountain streams**.

- Males have **nuptial pads** and vocal sacs used during breeding.

- Tadpoles of this species are also adapted to **cling to rocks in torrents**.

CONSERVATION STATUS

- **IUCN Red List: Data Deficient (DD)**

  - Due to limited studies and insufficient data on population trends and distribution.

- **Threats**:

  - o **Habitat degradation** due to deforestation, infrastructure development, and **hydroelectric projects**.

  - o **Climate change** affecting Himalayan ecosystems and freshwater habitats.

- **Legal Protection**: Not currently listed under **Indian Wildlife (Protection) Act, 1972**, due to lack of comprehensive assessment.

- **Conservation Importance**:

  - o Acts as a **bio-indicator species**; frogs are sensitive to environmental changes.

  - o Preserving this species supports broader **freshwater ecosystem health** in the Himalayas.

EURASIAN OTTER

Recently, the Eurasian otter which was thought to be extinct in the Kashmir Valley sighted almost after three decades.

ABOUT EURASIAN OTTER

- It is also known as the European otter, common otter, and Old-World otter.

- It is a semiaquatic carnivorous mammal native to Eurasia.

DISTRIBUTION OF EURASIAN OTTER

- It has one of the widest distributions of all palearctic mammals, spanning countries in the Middle-East, Europe, Northern Africa, across to Eastern Russia, China, and other Asian countries.

- In India, it occurs in northern, northeast and southern India. In Kashmir, it is known as Vuder, was an integral part of Kashmir's aquatic ecosystem and was abundantly found in the water bodies.

HABITAT EURASIAN OTTER

- It lives in a wide variety of aquatic habitats, including highland and lowland lakes, rivers, streams, marshes, swamp forests, and coastal areas, independent of their size, origin, or latitude.

- In the Indian subcontinent, it is found in cold hills and mountain streams.

FEATURES OF EURASIAN OTTER

- It is an elusive, solitary otter.

- It has sleek brown fur, which is often paler on the underside, and a long, lithe body with a thick tail and short legs.

- Adaptations for an aquatic lifestyle include webbed feet, the ability to close the small ears and the nose when under water, and very dense, short fur that traps a layer of air to insulate the animal.

- It has an acute sense of sight, smell, and hearing.

- **Threats:** Water pollution and hunting of the mammal for its fur.

CONSERVATION STATUS

- **IUCN:** Near threatened

- **Wildlife Protection Act, 1972:** Schedule II

- **CITES:** Appendix I.

Eurasian otter (*Lutra lutra*)
Shy, nocturnal and most widely distributed of 13 otter species worldwide

STRAIT OF HORMUZ

Recent Israel strikes against Iran Threaten the maritime trade through strategic choke point Strait of Hormuz.

STRAIT OF HORMUZ

- **Location**: The **Strait of Hormuz** is a narrow waterway connecting the **Persian Gulf** with the **Gulf of Oman** and the **Arabian Sea**.

- **Geographical Importance**:

  o It lies between **Iran (north)** and **Oman & UAE (south)**.

  o It is only about **33 km wide** at its narrowest point, with a **navigable channel just 3 km wide** in each direction.

- **Strategic Significance**:

  o Considered the **world's most important oil transit chokepoint**.

  o Over **20% of global oil consumption** (approx. 17–18 million barrels per day) passes through the Strait.

  o Major exporters: **Saudi Arabia, Iraq, UAE, Iran, and Kuwait**.

  o Also crucial for **liquefied natural gas (LNG)** shipments from **Qatar**.

- **Security Concerns**:
    - The Strait is a **tension zone** involving **Iran, the US, and Gulf States**.
    - Iran has repeatedly threatened to block the strait during political or military crises.
    - Regular patrolling by **U.S. Navy and allied forces** to ensure safe passage.

- **International Law**:
    - Governed by the **United Nations Convention on the Law of the Sea (UNCLOS)**.
    - Allows for **transit passage** of ships, but regional geopolitics complicate enforcement.

- **India's Interest**:
    - A large part of **India's crude oil imports** comes from this route.
    - Instability in the region directly affects **India's energy security** and shipping routes.

SCHENGEN AREA

WHAT IS THE SCHENGEN AREA?

- The **Schengen Area** is a group of **European countries** that have **abolished internal border controls**, allowing for **free and unrestricted movement of people**.

- It functions as a **single jurisdiction for international travel**, with **common visa policies**.

KEY FACTS

- **Named after** the **Schengen Agreement** signed in **1985** in **Schengen, Luxembourg**.

- Became operational in **1995**.

- Total members: **27 countries** (as of 2024).

  o Includes most **EU countries** and some **non-EU members** (e.g., Norway, Switzerland, Iceland, Liechtenstein).

  o **Non-Schengen EU countries**: Ireland, Romania, Bulgaria (partially in process).
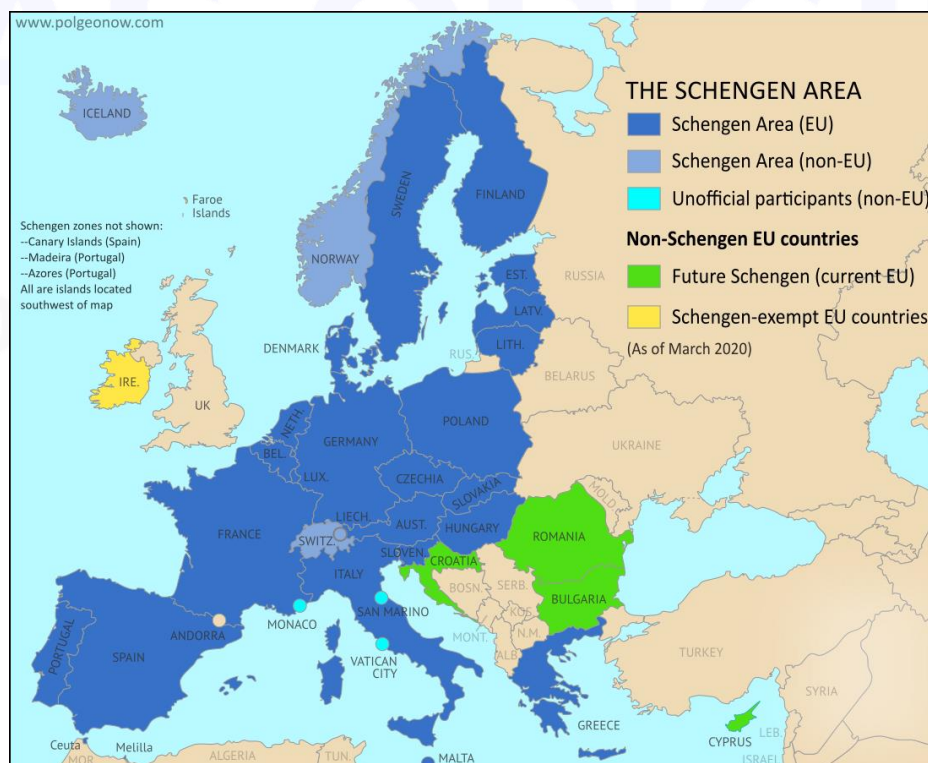
FEATURES

- **No passport control** at mutual borders.

- **Common visa system** (Schengen Visa) for short stays up to **90 days in 180-day period**.

- **Police and judicial cooperation** between member states.

- **Integrated border management** and **information-sharing** via the **Schengen Information System (SIS)**.

CHALLENGES

- **Migration and refugee crises** have pressured the system.

- Temporary reintroduction of border checks in some countries due to **security concerns** (terrorism, COVID-19, etc.).

RELEVANCE FOR INDIA

- Indian tourists and business travelers need a **Schengen Visa** to visit any of the 27 member countries.

- The Schengen Agreement is often cited in debates around **regional integration** and **open-border policies** globally.

HODEIDAH PORT

ATTACKED BY ISRAEL

LOCATION

- **Hodeidah Port** is located on the **Red Sea coast** of **western Yemen**, in the city of **Al Hudaydah (Hodeidah)**.

- It is **Yemen's principal port**, strategically positioned near the **Bab-el-Mandeb Strait**, a key maritime chokepoint between the **Red Sea and the Gulf of Aden**.

STRATEGIC IMPORTANCE

- Handles **over 70% of Yemen's imports**, including **food, fuel, and humanitarian aid**.

- Critical lifeline for millions of Yemenis, especially amid the ongoing **humanitarian crisis and civil war**.

- Provides maritime access to **Sanaa**, Yemen's capital.

CONFLICT AND CONTROL

- A major site in the **Yemeni Civil War** between **Houthi rebels** and the **Saudi-led coalition**.

- Under **Houthi control since 2014**, making it a focal point of military and diplomatic struggles.

- In **2018**, the **UN brokered the Stockholm Agreement**, calling for a **ceasefire in Hodeidah** and **redeployment of troops** though implementation remains partial and contested.

GLOBAL RELEVANCE

- Located close to **Bab-el-Mandeb**, a vital chokepoint through which nearly **10% of global oil trade** passes.
- Any disruption at Hodeidah can threaten **global energy supply chains** and **international maritime trade**.

TARDIGRADES

RECENTLY IN NEWS DUE TO:

- **NASA and ISRO studies** on tardigrades for **astrobiology and space research**.

- Used to understand **extreme survival mechanisms** that could help design **life-support systems for deep space missions**.

- In 2019, **Israeli spacecraft Beresheet crash-landed on the Moon** carrying tardigrades raising ethical and planetary protection debates.

- **CRISPR gene editing** being explored on tardigrades to decode **DNA repair and radiation resistance**.

WHAT ARE TARDIGRADES?

- **Tardigrades**, also called **water bears** or **moss piglets**, are **microscopic, water-dwelling** animals from the **phylum Tardigrada**.

- Size ranges from **0.1 to 1.2 mm**.

- First discovered in **1773** by Johann August Ephraim Goeze.

- Approximately **1,300+ species** are known.

HABITAT

- Found in **extreme environments**: deep sea, hot springs, polar ice, mountains, deserts, and even **volcanic ash**.

- Common in **mosses, lichens, soil, and leaf litter**.

BIOLOGICAL FEATURES

- Possess **eight legs with claws**, segmented bodies, and a **tough cuticle**.

- Feed on **plant cells, algae, and small invertebrates**.

- Known for **cryptobiosis** – a reversible dormant state where metabolism nearly stops.

- In this state, they can survive:

    o **Extreme temperatures** (–272°C to 150°C)

    o **Radiation**, **vacuum of space**, **high pressure**, and **desiccation**

    o Exposure to **UV and gamma rays**

SCIENTIFIC IMPORTANCE

- Model organisms in **molecular biology**, **cryobiology**, and **exobiology**.

- Their proteins (e.g., **Dsup – Damage suppressor protein**) are being studied for **DNA protection**.

AVILIST

The world's first unified global checklist of bird species, called AviList, was officially launched, standardizing bird taxonomy across international conservation, research, and biodiversity platforms.

WHAT IS AVILIST?

- AviList is a **comprehensive global bird species checklist**, developed to harmonize scientific naming and classification of birds worldwide.

- It is designed to replace earlier inconsistent systems and streamline avian taxonomy for global conservation and research.
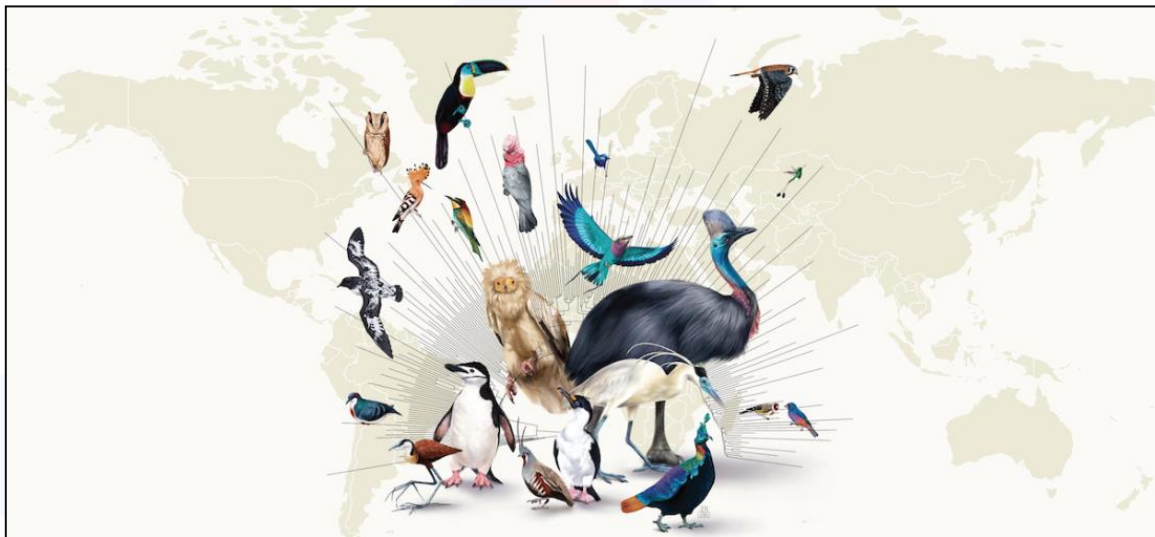
DEVELOPED BY:

- AviList was created by the **Working Group on Avian Checklists**, under the International Ornithologists' Union.

- It involved four years of detailed analysis and consensus-building among experts.

- **Organizations Involved:** BirdLife International, International Ornithologists' Union and others.

OBJECTIVES:

- **Standardize global bird taxonomy** using the integrative species concept.

- **Support conservation** by offering a common language for laws, treaties, and biodiversity planning.

- **Facilitate collaboration** among birdwatchers, researchers, and policymakers globally.

- **Eliminate confusion** caused by multiple competing checklists.

KEY FEATURES:

- **Integrative Species Concept:** Considers morphology, genetics, ecology, reproductive isolation, and biogeography.

- **Annual Updates:** Checklist will be revised annually to incorporate new research and evolutionary insights.

- **Consensus-Driven:** Final decisions are made by voting within the core group of taxonomists.

- **Versatile Utility:** Beneficial for ornithologists, conservationists, governments, educators, and citizen scientists.

LAKE NATRON

A recent surge in environmental attention has spotlighted Lake Natron in Tanzania, a hyper-alkaline lake capable of calcifying animals, as climate threats and proposed development projects endanger its fragile eco-system.

WHAT IS LAKE NATRON?

- Lake Natron is a shallow salt and alkaline lake located in northern Tanzania, bordering Kenya in the Gregory Rift Valley, part of the East African Rift system.

LOCATION & GEOGRAPHY:

- Situated in **Ngorongoro District**, **Arusha Region**,

- Lies close to the Kenya-Tanzania border.

- Fed by the **Ewaso Ng'iro River** from Kenya and mineral-rich hot springs.

- Recognized as a **Ramsar wetland site of** international importance.

UNIQUE FEATURES OF LAKE NATRON:

- **Extremely Alkaline Waters:**

- pH levels can reach **5–12**, nearly as corrosive as **ammonia**.

- Alkalinity results from **sodium carbonate and trona deposits**, originating from **Ol Doinyo Lengai volcano**, the world's only active carbonatite volcano.

CALCIFICATION OF ANIMALS:

- High **salt and soda concentrations** dehydrate and preserve animals that fall into the lake.

- Optical illusions from the **glassy surface** cause birds to crash, leading to their calcification.

- **Striking Red Color:** Caused by **halophilic microorganisms** that thrive in hypersaline water.

FLAMINGO HABITAT:

- **Only regular breeding site for** Africa's lesser flamingos.

- Flamingos feed on **cyanobacteria** and nest on isolated soda flats, avoiding predators.

UNESCO 'CREATIVE CITY OF GASTRONOMY'

A proposal for Creative City Lucknow under the category Gastronomy for **Awadhi Cuisine** has been submitted to the World Heritage Centre recently.

UNESCO CREATIVE CITIES NETWORK (UCCN)

- The UNESCO Creative Cities Network (UCCN) is a **global network of cities** that recognize culture and creativity as drivers of sustainable urban development.
  - UCCN was created in **2004.**
- The network focuses on **seven creative fields:** Crafts and Folk Art, Design, Film, Gastronomy, Literature, Media Arts, and Music.

INDIAN CITIES IN UCCN

- India has several cities recognized by UNESCO as part of the Creative Cities Network.
- The network currently includes;
  - **Jaipur and Srinagar** (Crafts and Folk Arts),
  - **Varanasi, Chennai and Gwalior** (Music),
  - **Mumbai** (Film),

- o **Hyderabad** (Gastronomy)**,**

- o **Kozhikode** (Literature).

Srinagar: Crafts and Folk Arts (2021)

Jaipur: Crafts and Folk Arts (2015)

Mumbai: Film (2019)

Hyderabad: Gastronomy (2019)

Chennai: Creative City of Music (2017)

Varanasi: Creative City of Music (2017)

Kozhikode: City of Literature (2023)

Gwalior: City of Music (2023)
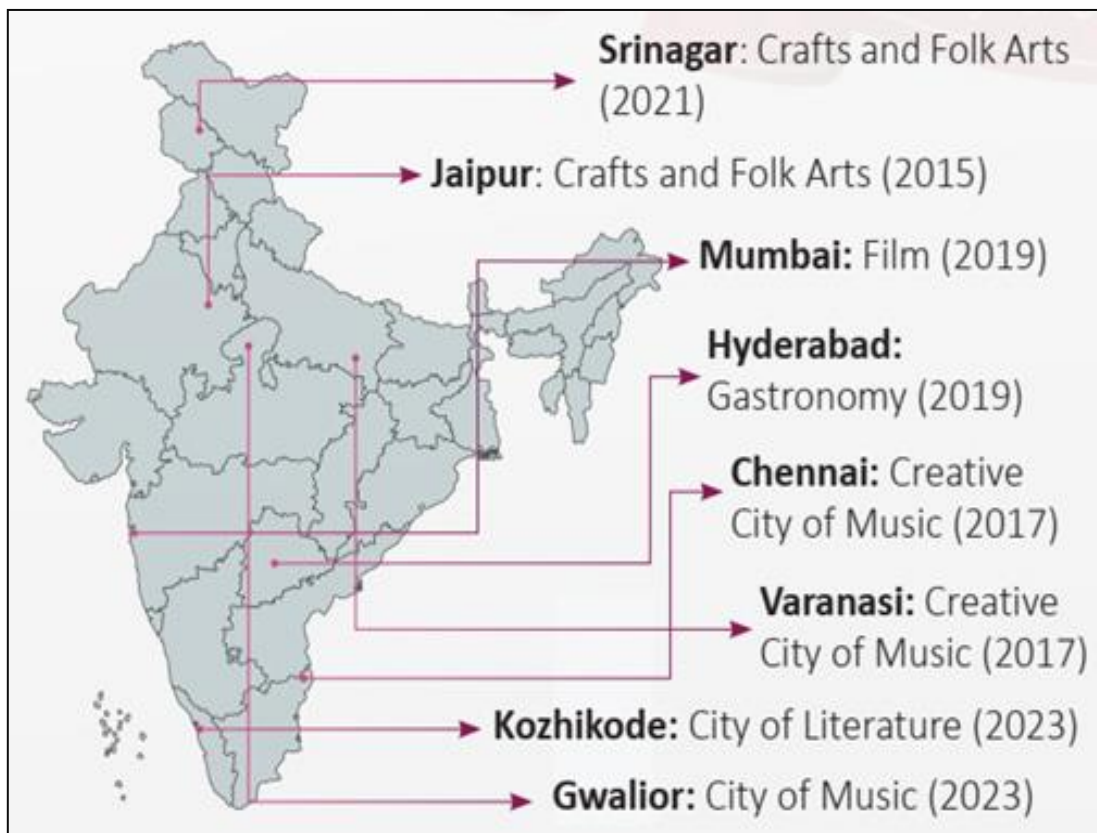
ECO-SENSITIVE ZONE (BESZ)

A municipal solid-waste incinerator set up in **Gangotri** (Uttarkashi, Uttarakhand) within the **Bhagirathi Eco-Sensitive Zone (BESZ)** has triggered criticism among **environmental activists.**
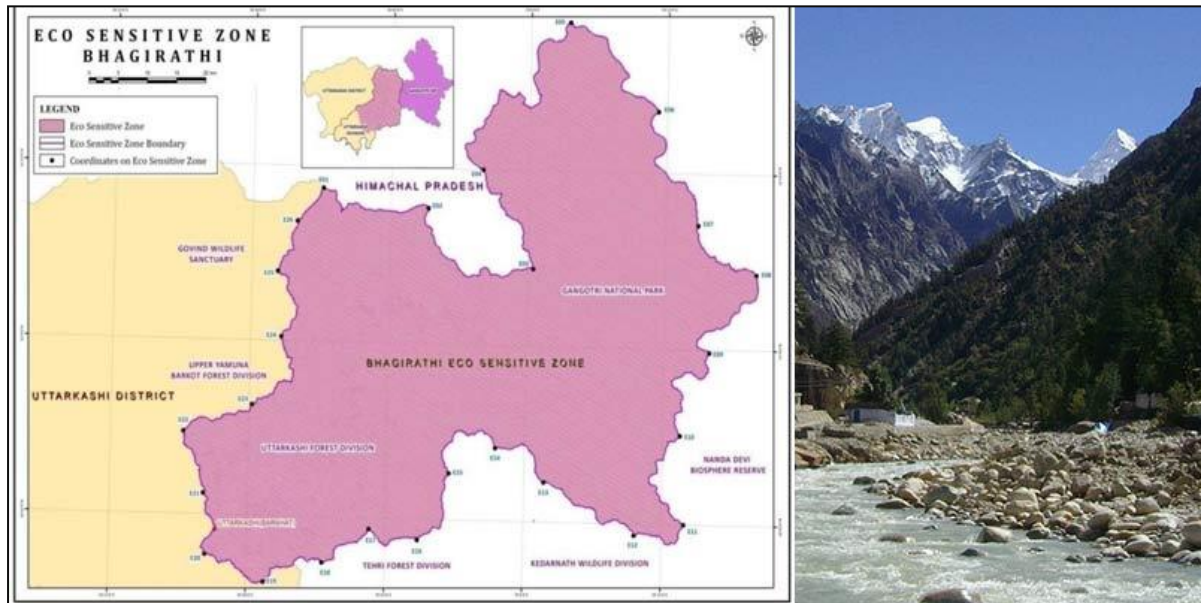
WHAT ARE ECO-SENSITIVE ZONES (ESZS)?

- Eco-Sensitive Zones (ESZs) are areas notified by the **Ministry of Environment, Forests and Climate Change (MoEFCC)** under the **Environment (Protection) Act, 1986.**

- ESZs are designated areas around protected areas like national parks and wildlife sanctuaries.

- Their primary purpose is to **protect the fragile ecosystems** of these protected areas by regulating human activities in the surrounding areas.

- The extent of ESZ can go up to **10 km** around the protected area. In exceptional cases, even beyond 10 km.

- Activities in ESZs are classified as:

  - **Prohibited:** commercial mining, setting up of major hydroelectric projects, setting up of polluting industries (red category).

- o **Regulated:** construction, tourism, tree felling, vehicular traffic.
- o **Permitted:** agriculture, organic farming, local community use.

- **In June 2022,** the Supreme Court of India mandated that all national parks and wildlife sanctuaries within protected forests must have a minimum Eco-Sensitive Zone (ESZ) of **1 km.**

| 42 | PERSONALITY IN NEWS |

Ram Prasad Bismil remembered on his birthday 11th June.

- **Born**: **11 June 1897**, in **Shahjahanpur**, Uttar Pradesh

- **Died**: **19 December 1927** (executed by hanging) at **Gorakhpur Jail**

- He was a **freedom fighter, revolutionary, poet**, and a **member of the Hindustan Republican Association (HRA)**.

ROLE IN THE FREEDOM STRUGGLE

- Bismil actively participated in the **anti-colonial revolutionary movement** against British rule.

- Co-founder of **Hindustan Republican Association (HRA)** in **1924**, which aimed at overthrowing British rule through **armed revolution**.

- Key architect of the **Kakori Conspiracy Case (1925)** – an armed train robbery to fund revolutionary activities.

- Along with **Ashfaqulla Khan, Roshan Singh, and Rajendra Lahiri**, he was sentenced to death for his role in the robbery.

LITERARY CONTRIBUTIONS

- A **prolific Hindi and Urdu poet**, wrote under pen names like **'Bismil', 'Ram', and 'Agyat'**.

- Famous patriotic poem: **"Sarfaroshi Ki Tamanna Ab Hamare Dil Mein Hai"**, became an anthem for revolutionaries.

- Wrote **autobiography 'Kakori Ke Shaheed'** and several poems, ghazals, and essays.

- Translated books like **'Catherine'** (based on the Russian revolutionary) from English to Hindi.

LEGACY & RECOGNITION

- Bismil is remembered as a **symbol of youthful courage and sacrifice**.

- His execution at age 30 made him a **martyr and icon** for Indian revolutionaries.

- The Government of India issued a **postal stamp** in his honor in **1997**.

- Several institutions and roads in India bear his name in remembrance of his **contribution to India's independence**.

SRIMANTA SANKARDEVA (1449–1568)

Born: 1449 AD, in **Alipukhuri**, Nagaon district, Assam

Died: 1568 AD, at Cooch Behar (present-day West Bengal)

He was a **Vaishnavite saint-reformer**, poet, playwright, and **founder of the Neo-Vaishnavism movement** in Assam.
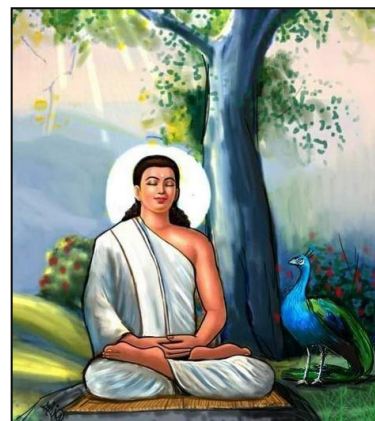
SPIRITUAL & RELIGIOUS CONTRIBUTIONS

- Founder of **Ekasarana Dharma** (Shelter-in-One Religion), a **monotheistic Vaishnava movement** that preached devotion to **Lord Krishna**.

- Opposed caste discrimination, idol worship, and animal sacrifice.

- Promoted **Bhakti (devotion)** as the sole path to salvation, inspired by **Bhakti Movement saints** like Ramanuja and Madhva.

- His movement emphasized **Naam (chanting God's name), Bhajan, and community service**.

INSTITUTIONAL LEGACY

- Introduced **Namghars** (prayer halls) and **Sattras** (monastic institutions), which continue to be vital socio-cultural and spiritual centers in Assam.

- These institutions propagated **devotional singing, drama, and communal harmony**.

- Trained disciples like **Madhavdeva**, who carried forward his spiritual legacy.

LITERARY CONTRIBUTIONS

- Wrote extensively in **Brajavali**, a literary language that combined Assamese and other dialects.

- Translated parts of **Bhagavata Purana**, **Ramayana**, and other Puranic texts into the regional language.

- Composed devotional songs known as **Borgeets**, which are still sung in Namghars.

- Authored the famous one-act plays called **Ankiya Naat** (e.g., *Parijat Haran*, *Keli Gopal*)—considered the foundation of **Assamese theatre**.

CULTURAL CONTRIBUTIONS

- Promoted **Sattriya dance**, which was later recognized as one of the **eight classical dance forms of India** by the Sangeet Natak Akademi.

- Played a crucial role in shaping **Assamese identity** through language, art, and devotion.

- Synthesized **religion with culture**, making spirituality accessible to the common people.

MODERN RELEVANCE

- Sankardeva represents the **Assamese counterpart to Bhakti movement leaders** like Kabir, Chaitanya Mahaprabhu, and Tukaram.

- Key figure in **social reform, regional integration, and vernacular renaissance**.

- His philosophy fostered **communal harmony** and challenged **orthodox Brahmanism**.

- He is honored as the **greatest saint and cultural architect of Assam**.

BIRSA MUNDA

PM PAID TRIBUTE TO BIRSA MUNDA

- **Born**: 15 November 1875, **Ulihatu village**, Ranchi district, Bengal Presidency (now **Jharkhand**).

- **Died**: 9 June 1900, aged 25, in **Ranchi Jail** (under suspicious circumstances).

- **Tribe**: **Munda**, a major tribal group of the **Chotanagpur Plateau**.

- Known as **"Dharti Aba"** (Father of the Earth), spiritual and political leader.

EARLY LIFE & INFLUENCES

- Studied briefly at a **Christian Mission School** but left due to opposition to conversion efforts.

- Deeply rooted in **tribal customs, nature worship, and Vaishnavite ideology**.

- Witnessed **land alienation**, **forced labor (begar)**, and **cultural erosion** under British and missionary influence.

BIRSA MUNDA ROLE IN THE FREEDOM STRUGGLE

ULGULAN (REBELLION) – 1899 TO 1900

- **Ulgulan** means "Great Tumult" – a massive tribal uprising led by Birsa against:

  - **British colonial rule**

  - **Zamindari system**, landlords (Dikus), and **moneylenders**

  - **Religious conversions** and loss of **tribal identity**

- Called for:

  - Establishment of **Munda Raj** (self-rule)

  - Restoration of **traditional land rights**

  - Protection of **tribal socio-religious systems**

- Rebellion spread across **Ranchi, Khunti, Singhbhum, and Hazaribagh** regions.

- Attacked **missionary institutions**, **police stations**, and **colonial symbols**.
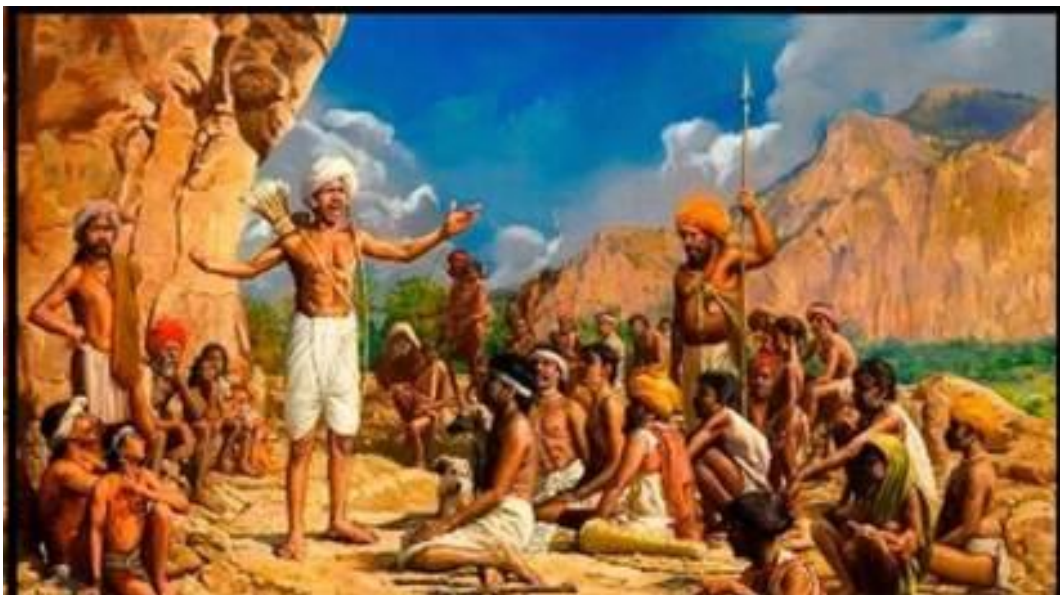
FORMATION OF MUNDA RAJ:

- Birsa unified tribal groups under the concept of 'Munda Raj,' advocating for self-rule and organising guerrilla attacks on British forces.

- He targeted symbols of colonial authority, uniting tribal communities in resistance.

SYMBOL OF TRIBAL RESISTANCE:

- Birsa's slogan, "Abua raj seter jana, maharani raj tundu jana" ("End the queen's reign, establish our own rule"), captured his vision for tribal self-government.

ADVOCATE FOR TRIBAL RIGHTS:

- Birsa strongly opposed land dispossession and advocated for tribal land rights, influencing the Chotanagpur Tenancy Act of 1908, which prohibited the transfer of tribal lands to non-tribals and recognised traditional community rights over land, water, and forests.

RELIGIOUS LEADERSHIP:

- Birsa founded the 'Birsait' faith, which blended traditional animist beliefs and social reforms.

- He urged his followers to reject superstitions and embrace tribal traditions, earning him the title Dharti Aba (Father of the Earth).

DEATH:

- Birsa Munda was captured by the British in March 1900 and died under mysterious circumstances in Ranchi Jail on June 9, 1900.

- His death marked the end of the rebellion, but his legacy as a tribal leader and resistance icon endures.

BIRSA MUNDA LEGACY

- Birsa Munda is commemorated as a tribal hero, with November 15 celebrated as 'Janjatiya Gaurav Diwas' and Jharkhand's founding on his birth anniversary in 2000.

- His legacy continues with a museum in Ranchi and the 'PM-JANMAN' initiative promoting justice and empowerment for tribal communities.

INSPIRATION AND COMMEMORATION:

- Birsa Munda is celebrated as a key figure in Jharkhand, with his birth anniversary on November 15 marked as 'Janjatiya Gaurav Diwas' to honour tribal contributions to India's freedom struggle.

GOVERNMENT INITIATIVES:

- The establishment of the 'PM Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)' reflects modern efforts to support vulnerable tribal groups, continuing Birsa Munda's vision of justice and empowerment.

आदिवासी समाज के महान नेता बिरसा मुंडा की जयंती पर श्रद्धांजलि! उनकी विरासत हमें सशक्त और एकजुट बनाती है।
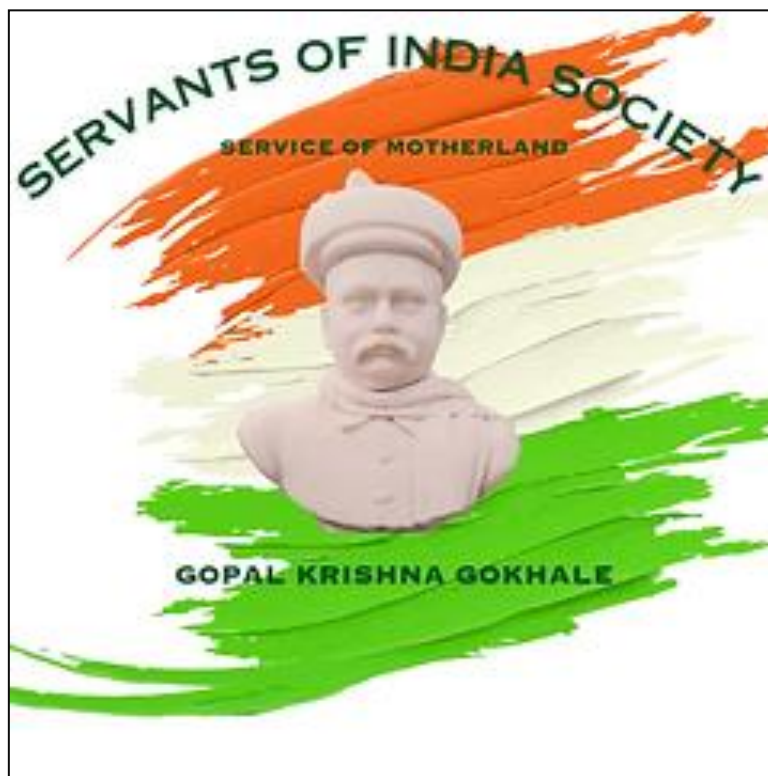
जय जोहार! बिरसा मुंडा जयंती की हार्दिक शुभकामनाएं
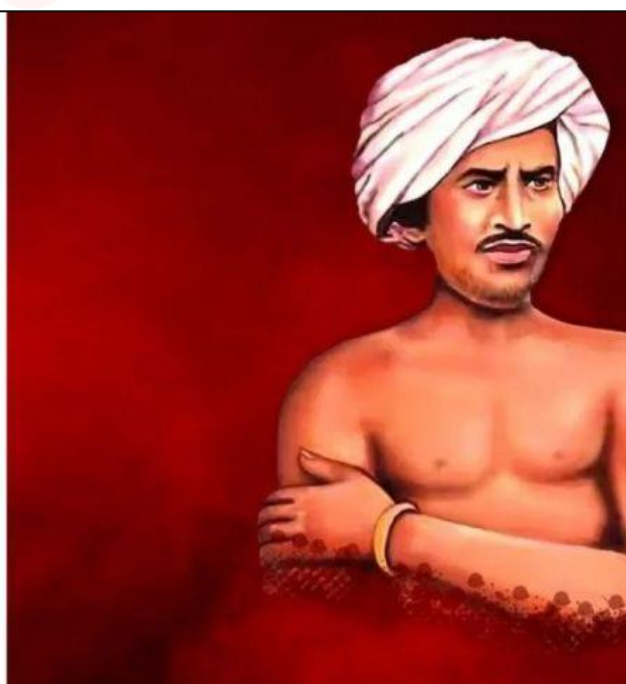
SERVANTS OF INDIA SOCIETY

Tensions have resurfaced between Pune's Gokhale Institute of Politics and Economics (GIPE) and the Servants of India Society (SIS) over control of a joint bank account and allegations of financial misconduct.
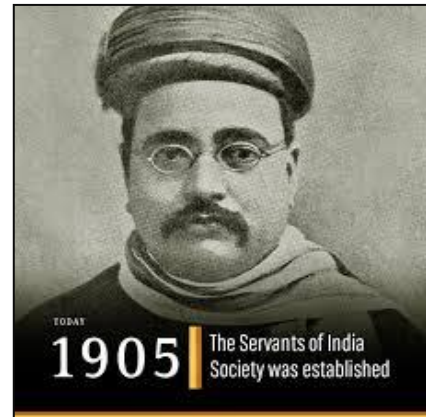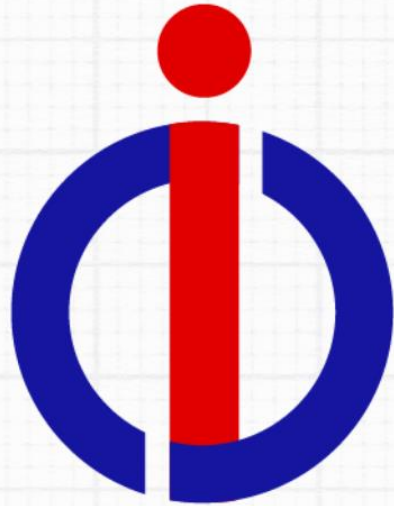

THE SERVANTS OF INDIA SOCIETY

- The 'Servants of India Society' was founded by **Gopal Krishna Gokhale** at Fergusson hill in June 1905 in Pune district of Maharashtra along with three associates named Natesh Appaji Dravid, Gopal Krishna Deodhar and Anant Vinayak Patwardhan.
- It aimed to create a group of selfless, dedicated workers committed to national service.
  - Members took vows of renunciation and focused on education, social welfare, and uplifting the underprivileged, including rural and tribal communities.
- It aimed to promote the welfare of the Indian people by engaging in various social and educational activities
- It played a key role in uniting diverse groups and contributing to social integration during the Indian Independence movement.

WHO WAS GOPAL KRISHNA GOKHALE?

1905 | The Servants of India Society was established

- He was born on May 9, 1866, in Maharashtra and was a prominent Indian liberal political leader and social reformer during the Independence Movement.

- He was influenced by Western political thought and the social work of Justice M.G. Ranade.

- He was leader of the Indian National Congress and he advocated for Indian self-rule and social reform.

- He was a prominent moderate thinker who advocated a liberal political approach and gradual social progress.

- He supported British rule in India, believing it had initiated the country's modernisation.

- He argued that continued British presence would help India progress in industry, education, commerce, and politics, eventually leading to self-governance.

- He mentored Mahatma Gandhi and played a key role in the Morley-Minto Reforms.

  o Known for his scholarly speeches and economic insights, he passed away on February 19, 1915.