



drishti

Current Affairs (CONSOLIDATION)

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Note:

Polity and Governance

Highlights

- Challenges Related to Lateral Entry Scheme
- Crosspathy
- Achievements Under National Health Mission
- NGO Regulation Under FCRA
- Ad hoc Judges in High Court
- Party Whip
- Landmark Rulings Safeguarding Freedom of Press in India
- Delays in MGNREGA Wages
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- Statehood Day for Manipur, Tripura, and Meghalaya
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- 150th Foundation Day of IMD and Mission Mausam
- Lokpal Foundation Day
- National Turmeric Board

Challenges Related to Lateral Entry Scheme

Why in News?

The **Lateral Entry Scheme (LES)**, enabling private sector professionals to join senior bureaucracy on contract, faces **legal and political dispute**.

- Since 2019, **63 appointments have been made**, but concerns over the **lack of a statutory framework** and **reservations** for marginalized communities persist.

Note: The legal dispute began in February 2020 when IFS officer Sanjiv Chaturvedi challenged the Lateral Entry Scheme before the Nainital **Central Administrative Tribunal (CAT)**, citing **lack of legal sanctity and procedural rigour**.

What are the Challenges Related to Lateral Entry Scheme?

- **Constitutional Validity:** It challenged for conflicting with **Article 309** of the Constitution which grants the **authority to the appropriate legislature (Parliament, State legislatures)** to enact laws **regulating the recruitment** and conditions of service for public servants
 - Also, **excluding reservation in recruitment** undermines **social justice and constitutional mandates**.

- **Short Tenure:** The 3-year tenure for lateral entrants is seen as **too short for effective governance adaptation and accountability**.
- **Doctrine of Pleasure and Bulk Recruitment:** The government justifies LES under **Article 310**, allowing the **President to appoint specialists**. Critics argue it's not meant for large-scale recruitment of senior, non-permanent roles.
 - While citing an officer shortage, the necessity is questioned, given 18 empanelled officers per vacancy.
- **Conflict of Interest:** Concerns include **potential biases from private-sector professionals** influencing **government policies** and the **lack of rigorous vetting**, such as **background checks** and **vigilance clearances**.
- **Bureaucratic Morale Concerns:** The rise in lateral entrants may **negatively affect the morale of career bureaucrats**. They may resist **lateral entrants**, viewing them as outsiders and potentially fostering hostility due to concerns about hierarchy and disruption.

What are the Key Facts Related to Lateral Entry Scheme (LES)?

- **About:** A **LES**, launched in **2018** is a recruitment process that **allows private sector professionals** to be **directly hired into mid-level or senior government positions**, bypassing the usual competitive exams.

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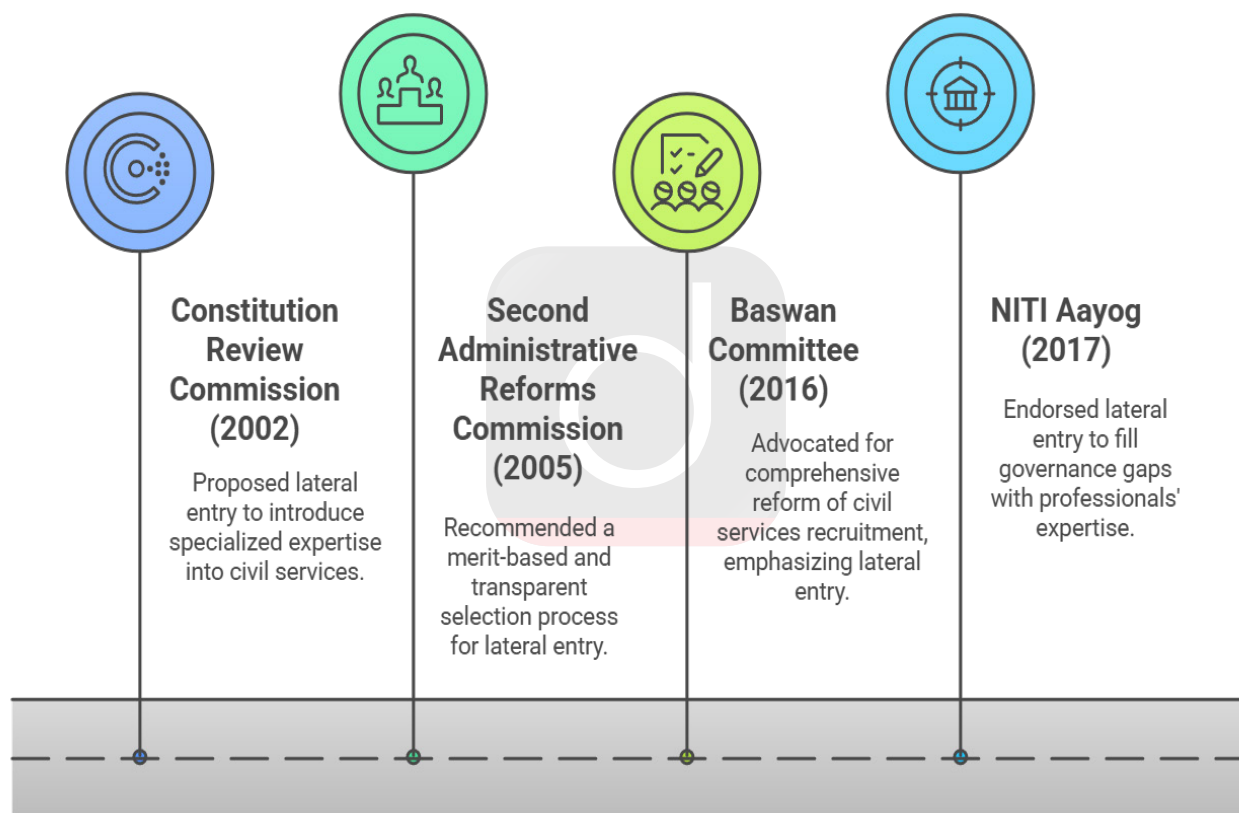
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Note:

- They are appointed by the **Union Public Service Commission (UPSC)** on **contracts for 3 years**, which can be **extended to a maximum of 5 years**.
- **Reservation Provision:** Lateral entry positions are **exempt from the reservation system** as these roles are **considered "single posts,"** meaning quotas for **SC, ST, OBC, and EWS** categories **do not apply**.
- **Recruitment:** Since 2018, **63 lateral entrants** have been appointed, with **57 serving** as of August 2023.
 - In August 2024, UPSC withdrew recruitment for 45 senior posts under LES due to opposition over reservation rights.

Evolution of India's Lateral Entry Scheme



What are the Advantages of Lateral Entry in Civil Services?

- **Specialized Expertise:** Lateral entry enables the **recruitment of specialists** in fields like technology, management, and finance, **addressing knowledge gaps** that generalist civil servants may not fill.
- **Addressing Shortages:** With a **deficit of around 1500 IAS officers**, lateral entry can help alleviate this shortage and **ensure the smooth functioning** of government departments.
- **Improving Work Culture:** Lateral entrants can help **break the bureaucratic inertia**, fostering a shift away from **red-tapism** and towards **more dynamic, results-oriented** governance.
- **Inclusive Governance:** Lateral entry facilitates **greater involvement of stakeholders**, including the **private sector and non-profits**, enhancing participatory governance and multi-actor collaboration.

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Note:

Crosspathy

Why in News?

In December 2024, the **Maharashtra Food and Drugs Administration (FDA)** issued a directive allowing **homeopathic** practitioners with a pharmacology certificate to prescribe **allopathic** medicines.

- The decision has faced criticism from the **Indian Medical Association (IMA)**, which warns it could lead to “**crosspathy**” and harm patients.

What is Crosspathy?

- **About:** Crosspathy refers to the practice of healthcare professionals prescribing or **practicing medicine outside their recognized scope of expertise**.
 - Specifically, it involves practitioners of alternative medicine systems (like **Ayurveda, Yoga, and Naturopathy, Unani, Siddha and Homoeopathy (Ayush)**) prescribing or performing treatments typically reserved for **allopathic (modern) medicine**.
- **Concerns:** This practice is often criticized because it can lead to **misdiagnosis, inappropriate treatments, and risks to patient safety**, as these practitioners are not fully trained in the methods and practices of modern medicine.
- **Regulations and Legal Precedents:**
 - **MCI Code of Ethics 2002:** The **Medical Council of India (MCI)** established the **Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations, 2002**, under the **Indian Medical Council Act, 1956**, which restricts unqualified individuals from conducting medical procedures such as abortions or issuing medical competence certificates.
 - It also mandates that qualified doctors cannot assign non-qualified personnel for medical tasks.
 - **Supreme Court Judgments:** In a landmark 1996 case, **Poonam Verma Vs. Ashwin Patel**, the **Supreme Court of India** held a **homeopath liable for negligence after prescribing allopathic medicines**, which led to the patient’s death.

- The Court ruled that cross-system practice constitutes medical negligence.
- This has been upheld in subsequent rulings, stating that **crosspathy is only permissible if explicitly authorized by the concerned State Government**.

What are Reasons for Promoting Crosspathy?

- **Shortage of Specialists:** A report on Health Dynamics of India 2022-23 highlights an **80% shortage of specialist doctors in Community Health Centres (CHCs)** in rural areas, with only 4,413 specialist doctors available, while **21,964 are needed**.
 - The government has been promoting AYUSH doctors to help alleviate the **shortage of medical professionals**, particularly in rural areas.
- **Expanding Healthcare Access:** As of June 2022, there were over **13 lakh allopathic doctors** and over 5.5 lakh AYUSH practitioners in India.
 - India’s doctor-population ratio is **1:836**, surpassing the **World Health Organization (WHO) standard of 1:1000**, but most doctors are concentrated in **urban areas, limiting rural healthcare access**.
 - Crosspathy improves healthcare access in remote areas with **fewer allopathic doctors**, offering an affordable alternative for rural patients who cannot access specialists or urban facilities.
 - Poor **working conditions and low remuneration** deter MBBS doctors from taking up rural posts.

What are the Concerns Regarding Crosspathy in India?

- **IMA’s Concerns:** The IMA criticizes the Maharashtra FDA’s latest directive, arguing that the **National Medical Commission (NMC) Act, 2019** does not authorize AYUSH doctors to practice allopathy.
 - Maharashtra’s decision contradicts national policies, as even the Central Council for Homeopathy does not permit homeopaths to practice allopathy.
 - The IMA insists that such practices would be **detrimental to patient safety** and could potentially lead to negligence or **malpractice**.

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Note:

- IMA argues that it promotes “crosspathy,” undermining the integrity of medical qualifications and specializations.
- **Quality of Care:** Compromises the standard of healthcare, as AYUSH practitioners lack formal training in modern medicine.
- **Hospital Practices:** The directive encourages appointment of AYUSH doctors in allopathic roles, violating medical ethics and contributing to **reduced employment opportunities for Bachelor of Medicine and Bachelor of Surgery (MBBS) or Modern medicine doctors.**

Indian Medical Association (IMA)

- Founded in 1928, the IMA is India's largest voluntary organization for doctors, focused on improving public health, medical education, and safeguarding the dignity of the medical profession.
- IMA headquartered in **New Delhi**, plays a pivotal role in shaping health policies and organizing national health programs.

Achievements Under National Health Mission

Why in News?

The Central Government recently presented a **2021-24 assessment report** on the **National Health Mission (NHM)**, highlighting its achievements in improving healthcare accessibility and addressing key health challenges, including **Covid-19**.

What are the Key Achievements of the NHM (2021-24)?

- **Human Resource Expansion:**
 - Between FY 2021-24, NHM engaged over **12 lakh additional healthcare workers**, including medical officers, nurses, specialists, community health officers (CHOs), and **AYUSH** doctors.
 - 1.56 lakh **Ni-kshay** Mitra volunteers supported over **9.4 lakh TB patients** under the **Pradhan Mantri TB Mukh Bharat Abhiyan**, improving healthcare delivery in rural areas.
- **Reduction in Mortality Rate:**
 - **Maternal Mortality Ratio (MMR)** declined by **83%** since 1990 (exceeding the global decline of 45%).
 - The **Under-5 Mortality Rate (U5MR)** reduced by **75%** (outperforming the global reduction of 60%).
 - **Infant Mortality Rate (IMR)** decreased from 39 (2014) to **28 (2020)**.
 - **Total Fertility Rate (TFR)** dropped from 2.3 (2015) to **2.0 (2020)**.
- **Disease Control and Elimination**
 - **Tuberculosis:** TB incidence reduced by **17.7% (2015-2023)** and mortality decreased by **21.4%** under **National Tuberculosis Elimination Programme (NTEP)**.
 - **Malaria:** **Malaria** cases initially declined by **13.28% in 2021**, but rose by 9.13% in 2022 and **28.91% in 2023**.
 - Deaths fell by 3.22% in 2021, dropped by **7.77% in 2022**, despite the rise in cases.
 - **Kala-azar:** **Kala-azar** elimination was successful, with **100%** of endemic blocks achieving the target of less than one case per 10,000 population by 2023.
- **Vaccination and Immunization Campaigns:**
 - The **Measles-Rubella Elimination Campaign**, under the **Intensified Mission Indradhanush (IMI) 5.0**, vaccinated over **34.77 crore children**, achieving an impressive **97.98% coverage**.
 - During **Covid-19** pandemic over 220 crore vaccine doses (Jan 2021–Mar 2024) were administered.
 - Implementation of the India Covid-19 **Emergency Response and Health Systems Preparedness Package (ECRP)**.
 - The **U-WIN platform** launched in January 2023, tracked **vaccination events in real-time** and expanded to 65 districts by FY 2023-24.
- **Healthcare Infrastructure Expansion:**
 - By March 2024, 7,998 public health facilities were certified under **National Quality Assurance Standards (NQAS)**, with **4,200** receiving national certification.

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Note:

- **Ayushman Arogya Mandirs:** Operational centers increased to 1.72 lakh, ensuring essential healthcare services for millions.

➤ **Specialized Health Initiatives:**

- **Pradhan Mantri National Dialysis Programme (PMNDP):** **PMNDP** delivered 62.35 lakh hemodialysis sessions in FY 2023-24, benefiting 4.53 lakh patients.
- **National Sickle Cell Anemia Elimination Mission (NSCAEM):** **NSCAE Mission** screened 2.61 crore individuals, focusing on tribal regions, aiming for disease elimination by 2047.

What is the National Health Mission?

➤ **About:**

- The **NHM**, launched in **2013**, aims to provide **accessible, affordable, and quality healthcare**, focusing on vulnerable and underserved populations.
- It integrates the **National Rural Health Mission (NRHM)** and the **National Urban Health Mission (NUHM)**.

➤ **Initiatives:**

- **Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A)**, including **Janani Shishu Suraksha Karyakram (JSSK)**.
- **Communicable Diseases Control:** Focusing on **Tuberculosis (TB)**, malaria, leprosy, and HIV/AIDS under initiatives such as the **National Vector-Borne Disease Control Programme** and **Revised National Tuberculosis Control Programme**.
- **Non-Communicable Diseases:** For **diabetes, hypertension, and cancer** under the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke.
- **Other Initiatives:**
 - **Rashtriya Bal Swasthya Karyakram (RBSK)**
 - **PM National Dialysis Programme**
 - **Ayushman Bharat**
 - **Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**

NGO Regulation Under FCRA

Why in News?

The **Ministry of Home Affairs (MHA)** warns **NGOs** using **foreign funds** without a valid **FCRA** license will face penalties under the **FCRA, 2010** amended in 2020.

What is Foreign Contribution Regulation Act?

- **About:** The FCRA, enacted in **1976** during the **Emergency**, governs the **acceptance and utilization** of foreign contributions by **individuals, associations, and organizations** in India.
 - It ensures that such contributions are used only for **legitimate purposes** and do not compromise national interest.
- **Amendments:** It was amended in **2010** and **2020** to **ensure transparency** and prevent misuse of foreign contributions in India.
- **Validity and Renewal:** FCRA registration is valid for **five years**, with NGOs needing to apply for **renewal** six months before expiry.
- **Amendments Made in 2020:**
 - **Suspension:** MHA is empowered to **suspend** an NGO's FCRA registration for up to **360 days** if it is found in violation of the **FCRA, 2010**.
 - **Aadhaar identification** was made **mandatory** for all office-bearers, directors, or key functionaries of NGOs.
 - **Bar on Public Servants:** The amendment **prohibits public servants** from receiving foreign contributions.
 - **Administrative Expenses:** NGOs are now **restricted** to using a maximum of **20% of foreign funds** for administrative purposes.
 - Earlier, they could use up to **50%** for administrative expenses.
 - **Prohibition on Sub-Granting:** NGOs receiving foreign funds are prohibited from **transferring these funds** to other NGOs or entities.
 - **Designated Bank Account:** NGOs are required to open a **designated FCRA account** exclusively at a branch of the **State Bank of India (SBI)** in New Delhi.

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Note:

- **Prohibited Activities:** The applicant must not represent **fictitious entities** or engage in **religious conversions**.
 - They should have no history of **communal tension, disharmony, or seditious activities**.
 - The FCRA bars foreign funds for **candidates, journalists, media, judges, government servants, politicians, and political organizations**.

DEVELOPMENTAL GROUPS IN INDIA

Self-Help Groups (SHGs)

- ④ Self-governed peer-controlled information group of people with similar socio-economic backgrounds and interests
 - ⑤ Members allowed: 5-20 | Registration not required
 - ⑤ SHGs use savings amounts for giving loans to members
- ④ **NABARD's SHG-Bank Linkage Programme (1992)** - To connect SHGs with formal banking institutions
- ④ ~88% of SHGs in India have all-women members
- ④ **Success Stories:**
 - ⑤ Self-Employed Women's Association (SEWA) since 1972
 - ⑤ Kudumbashree (1998) in Kerala

Cooperative Societies

- ④ **People-centred** enterprises, owned, controlled, and run by and for their members.
 - ⑤ Capital raised through shared contributions from members.
- ④ **Regulating Acts:**
 - ⑤ Multi-State Co-operative Societies Act, 2002
 - ⑤ State Cooperative Societies Acts
- ④ **97th Constitutional Amendment (2011):**
 - ⑤ Right to form cooperatives - a fundamental right (Article 19(1)(c))
 - ⑤ Article 43B (DPSP) - Promotion of Cooperatives
 - ⑤ Part IX-B titled "The Co-operative Societies" (Articles 243-ZH to 243-ZT).
- ④ **Examples:** AMUL, IFFCO and PACS

Non-Governmental Organisations (NGOs)

- ④ Pursue activities to relieve suffering, promote the interests of the poor, protect the environment, provide basic social services, or undertake community development
 - ④ **Registered as:**
 - ⑤ **Societies:** Societies Registration Act, 1860
 - ⑤ **Trusts:** Indian Trusts Act, 1882
 - ⑤ **Companies:** Section 8 Companies Act, 2013
 - ④ **Constitutional Provisions:**
 - ⑤ **Article 19(1)(c)**
 - ⑤ **Article 43**
 - ⑤ **Concurrent List mentions** Charities and charitable institutions
- FCRA mandates registration for all NGOs intending to receive foreign donations.**
- ④ **Prominent NGOs:**
 - ⑤ **NGO Pratham:** Pioneered the **ASER report** to assess the learning levels of children in rural India.
 - ⑤ **Akshaya Patra Foundation:** Provided nutritious mid-day meals to school children.
- NGO-DARPAN Platform - An interface between NGOs and Government Bodies.**



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Note:

Ad hoc Judges in High Court

Why in News?

The **Supreme Court (SC)** suggested temporarily appointing retired judges on an ad hoc (as required) basis to address the growing backlog of pending criminal cases before several **High Courts**.

- The SC suggested revising its **2021 ruling limiting ad hoc judge appointments** to specific cases.

What are Key Points Regarding Ad hoc Judges in HC?

- **About:** Ad hoc judges are temporary judges appointed to a court, typically to address specific needs such as **reducing case backlogs or filling gaps** when permanent judges are unavailable.
- **Constitutional Basis:** **Article 224A** of the Indian Constitution allows the **Chief Justice of a High Court**, with the **President's approval** (along with the consent of the retired judge), to appoint **retired High Court judges** to serve temporarily.
- **Procedure:** The procedure is outlined in the **Memorandum of Procedure (MOP) 1998**, created after the collegium system for appointing **High Court judges**.
 - The MOP states that after the retired judge has **consented** to the appointment, the **Chief Justice** must forward her name and details on the duration of the appointment to the **state's Chief Minister (CM)**.
 - The CM will pass this recommendation to the **Union Law Minister**, who will **consult the Chief Justice of India (CJI)** before forwarding the recommendation and the **CJI's advice to the Prime Minister of India**.
 - The PM will advise the President on whether to give her approval.
 - In the **Lok Prahari v. Union of India case, 2021**, the Supreme Court ruled that recommendations for appointing retired judges must go through the **Supreme Court's collegium**.
 - Under the collegium system, for appointment of **high court judges**, the **CJI** should consult a collegium of **two senior-most judges of the Supreme Court**.
- **Initiation of Process:** In the **Lok Prahari v. Union of India case, 2021**, the SC laid down the **following requirements** to initiate the appointment process.
 - **Vacancy Thresholds:** **More than 20%** of the sanctioned strength of judges is vacant.

- **Pending Cases:** **More than 10%** of the backlog of pending cases is **over 5 years old**.
- **Regular Appointments First:** Ad hoc appointment process can only be initiated after the **process for regular judicial appointments** has been triggered.
- **Process for Selection:** Each High Court's Chief Justice should create a **panel of retired or soon-to-retire judges** for ad hoc appointments.
 - The appointment process can **bypass the Intelligence Bureau check** since the nominees are **former judges**, shortening the process.
- **Tenure:** Ad-hoc judges typically serve for **two to three years**, with the number ranging from **two to five** based on the backlog and vacancies in the High Court.
- **Role and Duties:** Ad-hoc judges may hear cases **over five years old** and are **prohibited from other legal work**, such as advisory, arbitration, or client representation.
- **Emoluments and Allowances:** Ad-hoc judges will receive **emoluments and allowances equivalent to a permanent judge of that High Court**, excluding pension.
- **Previous Appointments:** **Only three ad hoc judges** have been appointed under Article 224A, with the Supreme Court calling it a **"dormant provision."**
 - **Justice Suraj Bhan to Madhya Pradesh HC in 1972** for one year to hear election petitions,
 - **Justice P. Venugopal to Madras HC in 1982**, with a one-year renewal in 1983,
 - **Justice O.P. Srivastava went to Allahabad HC in 2007** to hear the Ayodhya title suit.

Ad hoc Judge in SC (Article 127)

- When there is a **lack of quorum of the permanent judges** to hold or continue any session of the Supreme Court, the **Chief Justice of India** can appoint a **judge of a High Court as an ad hoc judge of the Supreme Court** for a temporary period.
- He can do so only after **consultation** with the **chief justice of the High Court** concerned and with the **previous consent of the president**.
- The judge so appointed should be **qualified for appointment as a judge of the Supreme Court**.
- It is the duty of the judge so appointed to **attend the sittings** of the Supreme Court, in priority to other duties of his office.
- While attending, he enjoys **all the jurisdiction, powers and privileges** (and discharges the duties) of a judge of the Supreme Court.

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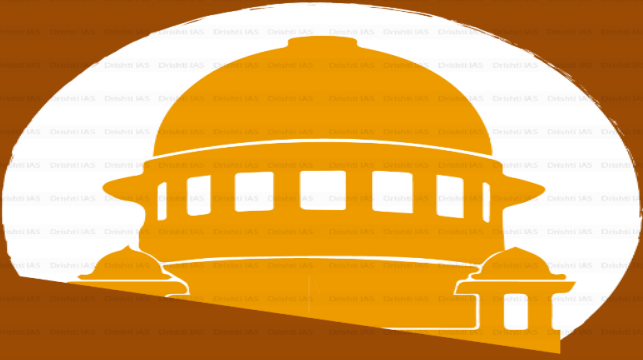
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Note:



Collegium System



- System of appointment and transfer of judges
- Evolved through judgments of the Supreme Court, and not by an Act of Parliament

Constitutional Provisions Related to Appointment of Judges

- **Articles 124 (2) and 217**- Appointment of judges to the Supreme Court and High Courts
 - President makes appointments after consulting with "such judges of the Supreme Court and of the High Courts" as s/he may deem necessary.
- But the Constitution **does not lay down any process** for making these appointments.

Evolution of the System

First Judges Case (1981)

- SC held that in the appointment of a judge of the SC or the HC, the word "**consultation**" in Article **124 (2)** and in Article **217** of the Constitution does not mean "concurrence"
- Gave the **executive primacy** over the judiciary in judicial appointments



Second Judges Case (1993)

- SC overruled the First Judges Case
- Gave **birth to the Collegium System (Primacy to the Judiciary)**
- Collegium included the Chief Justice of India and the **2** most senior judges of the SC

Third Judges Case (1998)

- SC expanded the Collegium to include the CJI and the **4** most-senior judges of the court after the CJI

Current Structure



-  **Supreme Court Collegium:** CJI and the **4** senior-most judges of the SC
-  **High Court Collegium:** CJI and **2** senior most judges of the SC

Criticism

- Opaqueness
- Scope for Nepotism
- Exclusion of Executive
- No Predetermined Procedure of Appointment

National Judicial Appointments Commission (NJAC)

- It was an attempt to replace the Collegium System. It prescribed the procedure to be followed by the Commission to appoint judges
- NJAC was established by the **99th Constitutional Amendment Act, 2014**
- But the **NJAC Act was termed unconstitutional** and was struck down, citing it as having affected the independence of the judiciary

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Note:

What is the Status of Pendency of Cases in India?

- **Pending Cases:** As of 2024, there are over **51 million (5.1 crore)** pending cases across various courts in India, including both **district and high courts**.
 - This backlog includes over **169,000 cases** that have been pending for more than **30 years**.
 - The majority of the cases (approximately **87%**, or **4.5 crore**) are in **district courts**.
- **Rate of Disposal:** A 2018 **NITI Aayog** report projected it would take **over 324 years** to clear the pending cases, which then stood at **29 million**.
 - **Judicial delays** cost the economy an estimated **1.5% to 2% of India's GDP**.
- **Impacts:** Delays in the judicial system **deny timely justice and erode public confidence** in the judicial system.
 - India ranks **111th in civil justice and 93rd in criminal justice** in the **Rule of Law Index, 2023** highlighting global concerns about its delayed judicial processes.
- **Causes of Case Pendency:**
 - **Shortage of Judges:** As of January 2024, India's **25 High Courts have 783 out of 1,114 sanctioned judges**, and over **5,000 district-level vacancies** remain as of early 2023.
 - **Infrastructure Gaps:** A study of 20 district courts in 10 states found that only **45% of judicial officers** have electronic **display facilities**, and **32.7% lack video conferencing** in court complexes.
 - **Lack of Judicial Accountability:** The **impeachment process** for removing judges is **rarely used** and inadequate provisions for **addressing minor issues** not amounting to impeachment.
 - **Alleged corruption and post-retirement appointment** controversies have increased calls for transparency in the judiciary.
 - **Access to Justice Barriers:** By 2022, **76% of India's prison population were undertrials**, largely from disadvantaged communities, due to **high costs, complex procedures, and language barriers**.

What Initiatives have been Taken to Reduce Pendency of Cases?

- **National Mission for Justice Delivery and Legal Reforms:** Launched in **August 2011**, the initiative aims to **reduce judicial delays and arrears** by improving infrastructure and leveraging technology.

- **e-Courts Mission Mode Project:** It leverages **Information and Communication Technology (ICT)** to enable court processes and enhance transparency. Key components include:
 - **Wide Area Network (WAN)** connectivity in court complexes
 - Establishment of **virtual courts** etc.
- **Tele-Law Programme:** Launched in **2017**, the program aims to provide legal advice to disadvantaged communities through **video conferencing, phone, and mobile apps**.
- **ADR Mechanisms:** The Government has strengthened **Alternate Dispute Resolution (ADR)** mechanisms such as **Arbitration, Mediation, and Lok Adalats**.
 - E.g., **Mediation Act, 2023, Arbitration and Conciliation (Amendment) Act, 2015** etc.
- **Fast Track Courts:** They were established to speed up trials for specific cases, including **heinous crimes, crimes against women and children**, and offenses involving MPs/MLAs.

Party Whip

Why in News?

The **Vice President of India** has expressed concerns regarding the **use of party whips** in **Parliament**, questioning their impact on **limiting the independent judgment** of elected **representatives**.

What is a Party Whip?

- **About:**
 - A **whip** in Parliament is a directive issued **by a political party to its members** in the legislature, instructing them on **how to vote during discussions and decisions on specific bills, motions, or resolutions**.
 - Also, the **whip** is also the **designated party member** responsible for **ensuring attendance and adherence to these directives**.
- **Objective:**
 - The primary objective of a whip is to **maintain party discipline, ensure uniformity in decision-making, and avoid defections or dissent** within the party ranks.
 - The term "whip" originates from England's hunting fields, where a whipper-in kept stray hounds within the pack.

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Note:

- **Constitutional Status:**
 - It is **not mentioned** in the **Constitution**, Rules of the House, or any **parliamentary statute**, and is based on **parliamentary conventions**.
- **Types of Whips:**
 - **One-Line Whip:** Informs members about an important vote, **allowing abstention without penalty**.
 - **Two-Line Whip:** This mandates the presence of members during a vote but **does not explicitly require them to vote** in a particular manner.
 - **Three-Line Whip:** The strictest form, requiring members to **attend the vote and align their vote with the party's directive**.
- **Functions:**
 - **Ensures Attendance:** Responsible for ensuring the **presence of party members** and maintaining **quorum** in the House.
 - **Secures Support:** Works to **garner support for or against** specific issues.
 - **Maintains Discipline:** Ensures party members **adhere to party guidelines** and maintain stable democratic institutions.
 - **Identifies Discontent:** Monitors **signs of discontent among MPs** and **reports them to party leaders**.
 - **Internal Party Coordination:** Acts as a **unifying force**, maintaining party cohesion within the Parliament.
- **Violation of Whip:**
 - If an **Members of Parliament (MPs)/ Members of Legislative Assemblies (MLAs)** defies the party's whip, they may face expulsion under the **Anti-Defection Law**, unless **more than two-third** of the legislators dissent, leading to a split within the party.

Quorum:

- The quorum in the **Parliament** is the **minimum number of members required to be present for a session to be considered valid**.
- It is specified in **Article 100** of the **Constitution of India**.
- It is **one-tenth of the total number of members** in a house of Parliament. (**Lok Sabha: 55 and Rajya Sabha: 25**).

Landmark Rulings Safeguarding Freedom of Press in India

Why in News?

The **Romesh Thapar v. State of Madras (1950)** case set a landmark **precedent for protecting free speech** under **Article 19(1)(a)**, curbing arbitrary state powers, and **shaping the interpretation of the freedom of press** and fundamental rights in India.

What are Key Facts Regarding Romesh Thapar v. State of Madras, 1950 Case?

- **Background:**
 - In 1950, the Madras government banned the weekly magazine **CrossRoads** under the **Madras Maintenance of Public Order Act** for reporting police violence that caused 22 Communist deaths, a ban later challenged in the **Supreme Court**.
- **Supreme Court Verdict:**
 - In May 1950, the SC declared the **Madras Maintenance of Public Order Act unconstitutional**, stating that **restrictions on free speech must be narrowly defined and linked to "security of the state."**
 - The court clarified that **"public order" cannot be equated with "state security,"** limiting arbitrary state censorship.

Note:

- In response to **Romesh Thapar v. State of Madras, 1950** case, the government introduced the **First Constitutional Amendment Act in 1951**, adding **"reasonable restrictions"** to Article 19(1)(a) in free speech, including grounds like **public order, incitement to an offense, and friendly relations with foreign states**.

What are the Other Landmark Cases Related to Freedom of Press in India?

- **Brij Bhushan v. State of Delhi, 1950:** In **Brij Bhushan Case**, the SC invalidated a provision **requiring prior censorship of a newspaper**, imposed on the **Organiser magazine**, asserting that such censorship was a violation of freedom of speech and expression.

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Note:

- The SC held that **restrictions on the fundamental right** should only happen if there is a **clear danger to public order** or if there is **incitement to violence**.
- The ruling reinforced the principle that any prior restraint on publication is unconstitutional.
- **Sakal Papers Ltd vs Union of India, 1961:** The SC struck down the Newspaper (Price and Page) Act, 1956, which imposed restrictions on newspaper pricing, advertisement space, and supplements.
 - The Court ruled that **these restrictions violated the fundamental right to freedom of speech** under **Article 19(1)(a)**, as they **unreasonably interfered with press freedom**.
- **Bennett Coleman & Co. v. Union of India, 1973:** The SC invalidated the Newsprint Control Order, which imposed restrictions on the number of pages a newspaper could publish.
 - The SC held that **such restrictions were not reasonable** under Article 19(2) and **violated the right to freedom of speech**.
- **Indian Express Newspapers v. Union of India, 1985:** In 1981, the Indian government imposed a **steep hike in customs duties on newsprint**, affecting smaller newspapers and regional publications.
 - This was seen as an **indirect attempt to curb press freedom** by making it financially difficult for newspapers to operate.
 - The SC ruled that **freedom of the press is an essential** aspect of freedom of speech and **struck down excessive taxation** on newspapers as a means to curtail free expression emphasizing that any restrictions must be justified under Article 19(2).
- **Shreya Singhal vs Union of India, 2015 :** In **Shreya Singhal Case**, the SC struck down **Section 66A of the IT Act**, deeming it **unconstitutional for being vague and overly broad**, thereby violating the right to free speech under Article 19(1)(a).

Delays in MGNREGA Wages

Why in News?

A recent study in the *Indian Journal of Labour Economics (IJLE)*, revealed that the union government owes **Rs 39 crore** in delayed wages to **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** workers.

- The study analyzed **31.36 million wage transactions in 2021-22** and found that the **Aadhaar-Based Payment System (ABPS)** and **caste-based wage distribution**, instead of improving payment speed, have **caused delays**.

What are the Key Findings Related to the MGNREGA Wages?

- **Inefficiency of ABPS:** Only **43% of MGNREGA workers were eligible for ABPS** when it became mandatory in **January 2024**.
 - The unaccounted delay compensation caused by ABPS could amount to **Rs 400 crore nationwide**, contrary to the government's claim of streamlining payments and improving transparency.
- **Inadequate Funds:** The reason for delayed payments are primarily due to **inadequate funds released by the central government**.
 - In FY 2021-22, **only 29%** of payments were processed within the mandated 7-day period.
- **Budget Allocation Shortfall:** The study highlights **critical underfunding of MGNREGA**, with **budget allocation in FY 2021-22 at just 0.41% of Gross Domestic Product (GDP)**, well below the required level to meet rural employment demand.
 - During the Covid-pandemic year **2020-21**, it was **only 0.56%**, which further declined to **0.2% in FY 2023-24 and FY 2024-25**.
 - Researchers suggest that **to meet the full work demand**, the budget should be at least 4 times higher i.e. around **1.2% to 1.5% of GDP**.
- **Caste-Based Wage Payments and Inequities:** The **caste-based wage segregation, introduced in 2021**, which categorized payments into **Scheduled Caste (SC)**, **Scheduled Tribes (ST)**, and **'Other'** categories led to delayed payments for **'Other'** caste workers compared to SC and ST workers.
 - Only **33% of 'Other'** caste payments were processed **within 7 days**, compared to **42% for STs and 47% for SCs**.

What is MGNREGA Act?

- **About:**
 - The **MGNREGA** is a Centrally Sponsored Scheme for social security aimed at providing guaranteed rural employment in India.
 - It was enacted in **2005** under the **Ministry of Rural Development** as nodal ministry.

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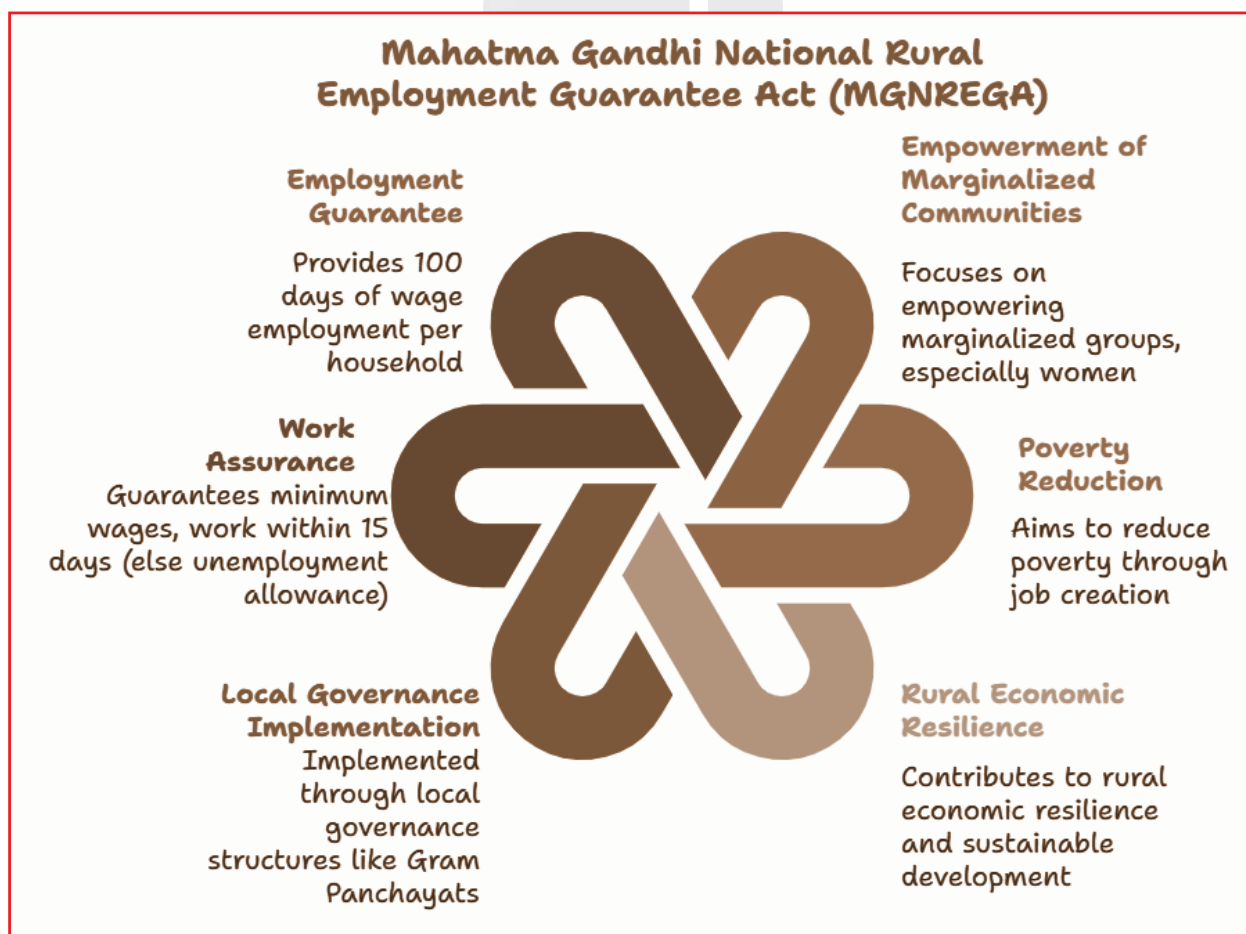


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Note:

- **Purpose:** To provide at least 100 days of guaranteed wage employment to registered adult rural households willing to undertake **unskilled manual work**.
- **Coverage:** The scheme extends across the entire country, excluding districts with 100% urban populations.
- **Demand-Driven Framework:** Employment is **provided on demand**; if not granted within **15 days**, workers are entitled to an **unemployment allowance**, which is **one-fourth of the minimum wage** for the first 30 days and half of the minimum wage thereafter.
- **Decentralized Planning:** The scheme emphasizes **grassroots planning**, with at least **50% of work executed by Gram Panchayats** based on Gram Sabha recommendations.
- **Fund Sharing:** The **Central Government covers 100% of unskilled labor costs** and 75% of material costs, while **State Governments contribute 25% of material costs**, ensuring cooperative federalism in implementation.
- **Wage Payment Mechanism:** Wages are linked to **state-specific Minimum Wage rates** and paid directly to **workers' bank or Aadhaar-linked accounts** for transparency.
 - Compensation for delayed payments is provided at **0.05% of unpaid wages per day**, starting from the **16th day after the muster roll closure**.
- **Accident Compensation:** Workers injured on the job are eligible for **compensation**, with **ex-gratia payments** for families in case of death or permanent disability.
 - At least **one-third of MGNREGA beneficiaries must be women**, ensuring equal access to wages and work opportunities.



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Note:

Key Latest Data on MGNREGA

- **Budget 2024-25:**
 - **MGNREGA Allocation:** The MGNREGA budget increased from Rs 33,000 crore in FY 2013-14 to Rs 86,000 crore in FY 2024-25.
 - **Wage Rate Increase:** The minimum average wage rate saw a 7% increase in FY 2024-25.
- **Economic Survey 2023-24:**
 - **Women Participation:** Women's participation in MGNREGA rose from 54.8% in FY 2019-20 to 58.9% in FY 2023-24.
 - **Geotagging & Transparency:** MGNREGA ensures 99.9% payment accuracy through the National Electronic Management System, with geotagging of assets.

What Steps Should be Taken For Strengthening MGNREGA Scheme?

- **Adequate Budget Allocation:** The government must increase MGNREGA's budget allocation to ensure timely wage payments, meet the growing demand for rural employment, and protect the dignity and livelihood of workers.
- **Review and Improve Digital Systems:** The government should review and improve digital systems like ABPS, addressing technical barriers, enhancing infrastructure, and ensuring accessibility and user-friendliness, especially for rural workers.
- **Strengthen Accountability Mechanisms:** The government must take responsibility for delays, ensure compensation in line with MGNREGA provisions, and improve reporting, monitoring, and grievance redress systems to ensure timely wage disbursements.
- **Future Reforms:** Future reforms should ensure efficient, transparent, and equitable wage distribution, avoiding caste-based inequalities and ensuring fair treatment for all workers.

Mitigating and Aggravating Circumstances in Death Penalty

Why in News?

A Kolkata court sentenced a convict to life imprisonment for the rape and murder of a doctor at

RG Kar Medical College and Hospital, despite the CBI's strong argument for the death penalty.

- In *Bachan Singh vs. State of Punjab Case, 1980*, the Supreme Court (SC) upheld the death penalty as constitutional but should be awarded in the "rarest of rare" cases after considering both aggravating and mitigating circumstances.

What are Aggravating and Mitigating Circumstances?

- **About: Aggravating (increasing) and mitigating (reducing) circumstances** are factors courts consider when deciding the severity of a sentence, especially in the death penalty.
 - Aggravating circumstances could tilt the court towards the death penalty, while mitigating circumstances could lead it away from the death penalty.
- **Guiding Factors:** The SC did not provide specific aggravating and mitigating circumstances for determining when the death penalty should be applied but provided a non-exhaustive list of guiding factors.
 - **Aggravating Circumstances:**
 - If the murder is pre-planned, calculated, and involves extreme brutality.
 - If the murder involves "exceptional depravity"
 - If the accused is found guilty of murdering a public servant, police officer, or armed forces member while on duty or for performing their lawful duties.
 - **Mitigating Circumstances:**
 - Whether the accused was experiencing extreme mental or emotional disturbance at the time of the offence.
 - Age of the accused; they would not be given death if they are very young or very old.
 - Probability of the accused posing a continued threat to society.
 - Probability of reforming the accused.
 - If the accused was acting on the directions of another person.
 - If the accused believed their actions were morally justified.
 - If the accused suffers mentally and is unable to appreciate the criminality of their actions.

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Note:

How Aggravating and Mitigating Circumstances Evolved After the Bachan Singh Case?

- **Age of the Accused:** In cases like *Ramnaresh vs. State of Chhattisgarh Case, 2012* and *Ramesh vs. State of Rajasthan Case, 2011*, SC considered the **accused's age (below 30)** a strong **mitigating factor**, believing in their potential for reform.
 - In *Shankar Kisanrao Khade vs. State of Maharashtra Case, 2013*, the SC highlighted the **subjective nature** of sentencing by **distinguishing cases where age was a mitigating factor**.
 - The **262nd Law Commission Report 2015** noted that age as a mitigating factor has been used **very inconsistently**.
- **Nature of the Offence:** In *Machhi Singh vs. State of Punjab Case, 1983*, the SC held that death could be given in cases where the **"collective conscience"** of society is so **shocked** that the judiciary is expected to **impose the death penalty**.
 - It marked a shift toward emphasizing the **nature of the crime over the circumstances** of the criminal and the possibility of reform.
- **Possibility of Reform:** In *Santosh Bariyar vs State of Maharashtra Case, 2009*, the SC stated that the court must provide **clear evidence** explaining why the **convict is unfit for reform or rehabilitation**.
 - The **262nd Law Commission Report 2015** called the evidence requirement in Bariyar **"essential" for objectivity** in sentencing.
- **Stage of the Trial:** In *Bachan Singh*, the SC ruled that courts must hold a **separate trial after conviction** to allow a **"real, effective and meaningful hearing"** on why the death sentence should not be imposed.
 - In *Dattaraya vs. State of Maharashtra Case, 2020*, the court ruled that the **lack of a proper hearing** was a valid reason to **commute the death sentence to life imprisonment**.

What is the Death Penalty?

- **About:** The death penalty, also referred to as **capital punishment**, is the **most severe** form of punishment in the Indian judicial system as it **cannot be reversed** after execution like other kinds of punishment.

- It involves the **state's execution of an individual** as a penalty for serious offenses.
- **Legal Framework:** The death penalty in India is governed by provisions in the ***Bharatiya Nyay Sanhita, 2023***, ***Bhartiya Nagrik Suraksha Sanhita, 2023***, and other special laws.
 - The BNS prescribes the death penalty for crimes such as **rape causing death (Section 66)**, **gang rape of minors (Section 70(2))**, **serial rape (Section 71)**, and others.
 - Offenses punishable by death include **murder (Section 302)**, **terrorism (UAPA, 1967)**, and certain **drug trafficking offenses under the NDPS Act, 1985**.

What are SC Rulings on the Death Penalty?

- **Jagmohan Singh Case, 1972:** The SC **upheld** the constitutionality of **capital punishment**, ruling that it could be **imposed if due process was followed** and constitutional provisions were not violated.
- **Shatrughan Chauhan Case, 2014:** The SC ruled that **prolonged delays in execution** of the death penalty could be a valid ground for **commuting the sentence to life imprisonment**.
- **Manoj vs State of Maharashtra Case, 2022:** The SC mandated a **thorough investigation** into the convict's mitigating circumstances and emphasized a balanced approach to sentencing, considering both **aggravating and mitigating factors**.
- **Suo Motu Writ on Death Penalty, 2022:** In a ***suo motu writ***, the SC referred the issue of granting the convict a **"meaningful opportunity"** to argue against the death sentence to a larger five-judge bench for a fair hearing.

What is the Law Commission Stand on Death Penalty?

- **35th Report, 1967:** In 1967, the Law Commission's 35th Report **strongly supported the death penalty**.
- **187th Report, 2003:** In 2003, the Law Commission's 187th Report acknowledged the **procedural flaws** in sentencing though it did not advocate abolition.
- **262nd Report, 2015:** In 2015, the Law Commission's 262nd Report called for **doing away with the death penalty** for all crimes **except terrorism** and related offences.

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Note:

Status of the Death Penalty Around the World

- As of 2022, 55 countries had the death penalty, with 9 reserving it for the most serious crimes like multiple killings or war crimes.
- The United States and Japan are the only advanced industrial democracies that still practice capital punishment.
- As of 2022, 112 countries have completely abolished the death penalty, up from 48 in 1991.
 - In 2022, Kazakhstan, Papua New Guinea, Sierra Leone, and the Central African Republic abolished the death penalty, while Equatorial Guinea and Zambia limited it to the most serious crimes.
- The five countries responsible for 91% of these executions were China, Iran, Pakistan, Sudan, and the United States.

Statehood Day for Manipur, Tripura, and Meghalaya

Why in News?

The Prime Minister of India greeted Manipur, Tripura, and Meghalaya on their Statehood Day (21st January).

What is the Historical Context Behind the Statehood Day?

- **Merger of Manipur:** Before 1947, Manipur was an independent princely state. The Maharaja, Bodhachandra Singh, signed the 'Instrument of Accession' with the Indian government, agreeing to merge with India while ensuring internal autonomy.
 - Manipur held its **first election based on universal adult franchise in 1948**, becoming a constitutional monarchy.
 - In 1949, under pressure from the Indian government, the Maharaja signed the **Merger Agreement** without consulting Manipur's elected assembly.
 - Following the merger, Manipur's State Assembly was dissolved, and it became a **Part C State**, administered by the President of India through a **Chief Commissioner or Lieutenant Governor**.

- On 1st November 1, 1956, Manipur became a **Union Territory under the Union Territorial Council Act, 1956**. Later on 21st January 1972, Manipur was granted full statehood through the **North-Eastern Areas (Re-organization) Act, 1971 (NEA-(R) Act)**.
- **Merger of Tripura:** Tripura, a princely state, merged with India in 1949, facilitated by **Queen Kanchan Prabha Devi**, who assumed regency after **King Bir Bikram's** death.
 - After merging with India, **Tripura became a Part 'C' State**. In 1956, it became a **Union Territory**, and later on 21st January 1972, Tripura became a full-fledged State under the **NEA-(R) Act, 1971**.
- **Meghalaya:** Meghalaya's statehood journey began with demands for **greater autonomy from Assam**, particularly from the **Khasi, Jaintia, and Garo Hills**, who sought a **separate state to preserve indigenous cultures**, especially after Assam's attempt to impose Assamese as the medium of instruction.
 - In 1969, the **Assam Reorganization (Meghalaya) Act** established Meghalaya an autonomous state within Assam.
 - Following this, the NEA (R) Act, 1971 granted **full statehood to Meghalaya**, making it the **21st state of India**, with Shillong as its capital.

North-Eastern Areas (Re-organization) Act, 1971

- **Manipur and Tripura:** Upgraded from Union Territories to full-fledged states.
- **Meghalaya:** Formed as a state from autonomous regions of Assam.
- **Mizoram and Arunachal Pradesh:** Established as Union Territories.
- **Representation in the Legislature:** Allocated seats for the new North-Eastern states in the **Council of States (Rajya Sabha)** and the **House of the People (Lok Sabha)**.
 - Ensured proper representation of Scheduled Castes and Scheduled Tribes in the legislative assemblies.
- **Judicial Reorganization:** Established the **Gauhati High Court** as the common High Court for the States of Assam, Nagaland, Meghalaya, Manipur, and Tripura.

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Note:

REORGANISATION OF STATES IN INDIA

The States Reorganisation Commission set up in 1956 suggested the formation of 14 States and 6 UTs. At present, India comprises 28 states and 8 UTs.

1950

States classified into 4 categories

- Part A, B, C and D (1st Schedule)

- **Part A** - Ruled by **Governor** with **elected State Legislature**
 - ◇ **Andhra Pradesh** (first state on linguistic lines) - 1953
- **Part B** - Former **Princely States**
- **Part C** - Former **Chief Commissioners' Provinces**, some **Princely states**
- **Part D** - Andaman and Nicobar Islands

7th Constitutional Amendment (1956) -

- Distinction between Part-A and Part-B states done away
- Part-C states were abolished
- Made total no. of (erstwhile) states - 14 and UTs - 6

Reorganisation/Creation of States/UTs after 1956

States Carved Out of Other States

- ➔ **Gujarat and Maharashtra** from Bombay (Bombay Reorganisation Act, 1960)
- ➔ **Nagaland** from Assam (State of Nagaland Act, 1962)
- ➔ **Haryana** from Punjab (Punjab Reorganisation Act, 1966)
- ➔ **Meghalaya** from Assam (North-Eastern Areas (Reorganisation) Act, 1971)
- ➔ **Chhattisgarh** from MP (Madhya Pradesh Reorganisation Act, 2000)
- ➔ **Uttarakhand** from UP (Uttar Pradesh Reorganisation Act, 2000)
- ➔ **Jharkhand** from Bihar (Bihar Reorganisation Act, 2000)
- ➔ **Telangana** from Andhra Pradesh (Andhra Pradesh Reorganisation Act, 2014)

States Formed by Granting Statehood

- ➔ **Himachal Pradesh** (State of Himachal Pradesh Act, 1970)
- ➔ **Manipur and Tripura** (North-Eastern Areas (Reorganisation) Act, 1971)
- ➔ **Sikkim** (36th Constitutional Amendment (1975))
- ➔ **Mizoram** (State of Mizoram Act, 1986)
- ➔ **Arunachal Pradesh** (State of Arunachal Pradesh Act, 1986)
- ➔ **Goa** (Goa, Daman, and Diu Reorganisation Act, 1987)

Formation of UTs

- ➔ Andaman and Nicobar Islands, Delhi, Lakshadweep - 1956
- ➔ Puducherry - 1962
- ➔ Chandigarh - 1966
- ➔ J&K and Ladakh - 2019
- ➔ Dadra & Nagar Haveli and Daman & Diu - 2020



9th Anniversary of Startup India Initiative

Why in News?

16th January 2025 marked the 9 years of completion of **Startup India Scheme** since it was launched on 16th January 2016.

- This day has been recognized as **National Startup Day**. **Startup India initiative** aims to cultivate innovation, support startups, and stimulate investments.

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Note:

What is the Startup India Initiative?

➤ About:

- The **Startup India initiative** is a government program launched in 2016 that supports **entrepreneurs** and **startups** in India.
- The goal of the initiative is to **create a strong ecosystem for innovation and entrepreneurship** that will **drive economic growth and employment** by supporting startups through measures such as tax benefits, easier compliance, and access to funding.

➤ Flagship Schemes under Startup India:

- **Fund of Funds for Startups (FFS)**: A Rs 10,000 crore fund to provide **early-stage funding support**.
- **Startup India Seed Fund Scheme (SISFS)**: **SISFS** offers financial assistance to startups for **proof of concept, prototype development, and product trials**.
- **Credit Guarantee Scheme for Startups (CGSS)**: **CGSS** facilitates **collateral-free loans** to startups to ensure access to credit.
- **Startup Intellectual Property Protection (SIPP)**: **SIPP** provides startups with assistance in **patent filing, trademark registration, and Intellectual Property Rights (IPRs)** protection at reduced costs.



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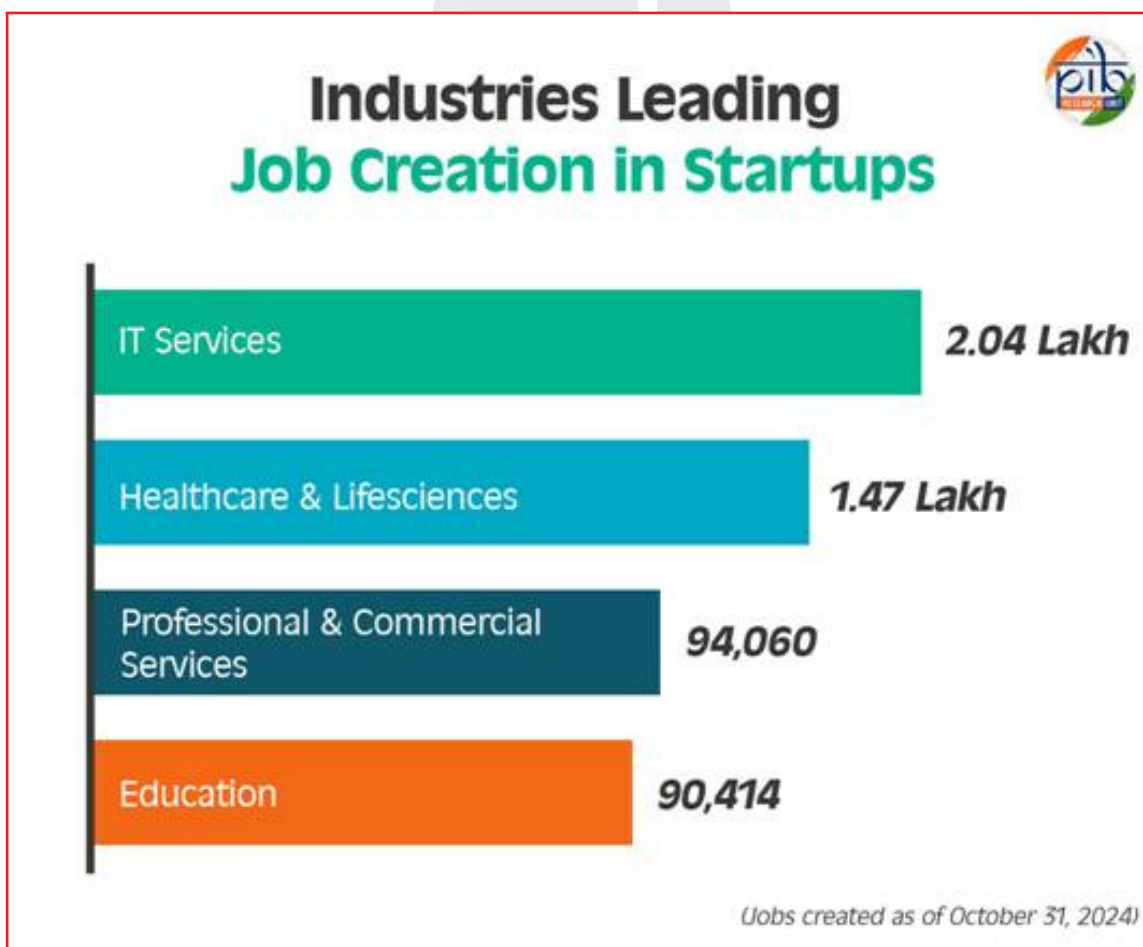
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➤ **Key Features:**

- **Startup Recognition:** Streamlined registration and eligibility criteria.
- **Ease of Doing Business:** Simplified **compliance, self-certification, and single-window clearances** reduce bureaucratic hurdles for startups.
- **Tax Benefits:** Eligible startups receive **tax exemptions on profits for 3 consecutive financial years**, encouraging profitability and growth.
- **Sector-Specific Policies:** Targeted initiatives in sectors like **biotechnology, agriculture, and renewable energy** drive focused development and innovation.
- **Capacity Building:** The **Startup India Hub** serves as a one-stop platform **connecting startups with mentors, investors, and industry experts**, while **mentorship programs** offer **guidance and training** to enhance entrepreneurial skills and business acumen.

What are the Key Achievements Under Startup India Initiative?

- **Increase in Startups:** The DPIIT- recognized startups increased from 500 (2016) to 1.59 lakh (2025).
- **Startup Ecosystem:** India is now the **3rd largest startup ecosystem globally**, after the **US and China**, with **over 100 unicorns** (startups valued over USD 1 billion).
- **Employment Generation:** By October 2024, startups have created **16.6 lakh direct jobs**, with key sectors like **IT Services** (2.04 lakh) and **Healthcare & Lifesciences** (1.47 lakh).

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Note:

- **Rise of Women Entrepreneurs:** As of 2024, **73,151 startups** have **at least one woman director**, reflecting the increasing participation of women in entrepreneurship.
- **Focus on Non-Metro Cities:** Programs like the **States' Startup Ranking** and **capacity-building workshops** have strengthened **startup ecosystems in non-metro cities**.

What are the Other Significant Initiatives Under Startup India?

- **Ecosystem Development Events: Startup Mahakumbh** is a national event that showcases **India's entrepreneurial spirit and innovation**.
 - The first edition in 2024 attracted over 48,000 visitors and 392 speakers. The second edition (April 2025), will focus on **"Startup India @ 2047-Unfolding the Bharat Story,"** highlighting India's future as a global innovation hub.
 - **ASCEND (Accelerating Startup Calibre and Entrepreneurial Drive)** workshops support entrepreneurs in **North Eastern States**, and the **Startup India Innovation Week** celebrates entrepreneurship during **National Startup Day**.
- **International Exposure:** India's **G20 Presidency** institutionalized the **Startup20 Engagement Group** to facilitate global collaboration.
- **BHASKAR: BHASKAR (Bharat Startup Knowledge Access Registry)**, launched in 2024 is a one-stop digital platform where diverse **startup ecosystem stakeholders like investors, mentors, service providers**, and government bodies can seamlessly connect and collaborate.
 - It offers **centralized resources** for scaling startups, **personalized BHASKAR IDs** for streamlined interactions, and an **advanced search feature for better discoverability** of opportunities.
 - The platform also **promotes India as a global innovation hub** and **empowers startups from non-metro regions** by fostering **inclusivity and regional growth**.

What are the Challenges to the Startup Ecosystem in India?

- **Access to Capital:** Despite initiatives, many **startups struggle with securing adequate funding**, especially in **Tier-II and Tier-III cities**.
 - In August 2024, funding in Tier-II and Tier-III cities dropped to **Rs 630 crore** from **Rs 2,202 crore in July 2024**, and further to **Rs 202 crore** in November 2024 from **Rs 1,743 crore** in October 2024, highlighting disparities with Tier-I cities.
- **Regulatory Hurdles:** India's complex and ambiguous regulatory environment poses significant challenges for startups. For instance, the debate over **categorizing app-based cab services** like Ola and Uber **under the Motor Vehicles Act** has created **operational uncertainties**.
 - Additionally, the new **Digital Personal Data Protection Act, 2024**, while necessary, increases compliance burdens on startups.
- **Scaling Challenges:** According to studies, despite strong growth, around **90% of startups fail within the first 5 years** primarily due to issues related to **scaling, operational inefficiencies** and challenges in entering new markets.
- **Sustainability Issues:** Several sectors in India's startup ecosystem, including edtech, are witnessing **increasing competition**, leading to **market saturation and reduced profit margins**.
 - The post-pandemic **downturn in edtech** highlights the **challenges of hyper-competition**, often resulting in **unsustainable cash burn and market consolidation**.

10th Anniversary of BBBP and Sukanya Samriddhi Yojana

Why in News?

22nd January 2025 marked the 10th year of the launch of **Beti Bachao Beti Padhao (BBBP) scheme** and **Sukanya Samriddhi Yojana**.

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Note:

- Celebrations are planned from **22nd January to 8th March** (**International Women's Day**) and include the launch of the **Mission Vatsalya** and **Mission Shakti** portals.
- BBBP scheme was launched on **22nd January 2015**, in Panipat, Haryana and SSY was launched as part of BBBP scheme.

What is BBBP?

- **About:** BBBP is a **centrally sponsored scheme** launched to address the declining **Child Sex Ratio (CSR)**, prevent gender-biased **sex-selective elimination**, and promote the **survival, protection, and education** of the girl child.
- **Key Objectives:**
 - Improve the **Sex Ratio at Birth (SRB)** by two points annually.
 - Achieve a sustained **institutional delivery** rate of **95% or above**.
 - Increase the percentage of **first-trimester antenatal care** registrations and **secondary education enrollment** by 1% annually.
 - **Reduce dropout rates** among girls at the secondary and higher secondary levels.
 - Raise awareness about **safe menstrual hygiene management (MHM)**.
- **Target Groups:**
 - **Primary Groups:** Young couples, expecting parents, adolescents, households, and communities.
 - **Secondary Groups:** Schools, **Anganwadi Centers (AWCs)**, medical professionals, local government bodies, NGOs, media, and religious leaders.
- **Integration with Mission Shakti:** The BBBP scheme is now integrated with **Mission Shakti**, a program for **women's safety and empowerment**, for implementation during the **15th Finance Commission (2021-2026)**. Mission Shakti consists of **two sub-schemes**:
 - **Sambal (Safety and Security):** Focuses on women's safety through initiatives like **One Stop Centres (OSCs)**, **Women Helpline (181)**, nationwide

expansion of BBBP, and **Nari Adalat** for grievance redressal.

- **Samarthya (Empowerment):** Empowers women through **Shakti Sadans** (relief and rehabilitation homes), **Sakhi Niwas** (safe accommodation for working women), and **Palna** (Creche facilities).
 - The **Pradhan Mantri Matru Vandana Yojana (PMMVY)** now extends support for a **2nd child** if it is a girl, promoting maternal health.
 - The **SANKALP: HEW (Hub for Empowerment of Women)** serves as a **district-level single-window mechanism** for women to access Central and State schemes.
- **Funding:** BBBP is a **centrally sponsored scheme** with **100% funding by the Central Government** in all the districts of the country under **Sambal sub-scheme of Mission Shakti**.
 - District-level **financial aid** is allocated as per SRB i.e., **Rs 40 lakh (SRB ≤918)**, **Rs 30 lakh (SRB 919-952)**, and **Rs 20 lakh (SRB >952)**.
- **Key Interventions:** Grassroots campaigns like the **Yashaswini Bike Expedition**, which symbolized women's empowerment, and the **Kanya Shiksha Pravesh Utsav**, which **re-enrolled over 100,000 out-of-school girls**.
 - Conferences and events promoting workforce participation and skilling, like **"Betiyan Bane Kushal."**
- **Achievements in 10 Years:**
 - **SRB:** The national SRB improved from **918 in 2014-15** to **930 in 2023-24**.
 - **Education:** Girls' **Gross Enrollment Ratio (GER)** in secondary education rose from **75.51% in 2014-15** to **78% in 2023-24**.
 - **Institutional Deliveries:** Institutional deliveries increased from **61% in 2014-15** to **97.3% in 2023-24**.
 - **Awareness Campaigns:** Nationwide campaigns like 'Selfie with Daughters' and 'Beti Janmotsav' celebrated the value of the girl child.
 - **Economic Empowerment:** Collaborations with the Ministry of Skill Development enhanced **skill development and economic participation** for girls and women.

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Note:

Mission Vatsalya

- **About:** Mission Vatsalya aimed at **child protection and development** aligned with SDGs.
 - It emphasizes **child rights, advocacy, and awareness**, while strengthening the **juvenile justice system** to ensure “no child is left behind.”
 - It was initially known as **Integrated Child Protection Scheme (ICPS)**.
- **Sub-Scheme:** There were **three schemes** being implemented under the Ministry of Women and Child Development namely:
 - Programme for **Juvenile Justice for Children** in need of care and protection, and Children in conflict with Law.
 - Integrated Programme for **street children**.
 - Scheme for **assistance to homes for children (Shishu Greh)**.
- **Consolidation under ICPS (2009-2010):** Above three schemes were **merged** into the ICPS and managed by the **Ministry of Women & Child Development**.
 - In **2017**, ICPS was renamed the **Child Protection Services (CPS) Scheme**.
 - CPS was **integrated into Mission Vatsalya** from 2021-22 onwards.

Pradhan Mantri Matru Vandana Yojana (PMMVY)

- **About:** PMMVY is a **maternity benefit scheme** launched by the **Ministry of Women and Child Development** to support **pregnant and lactating women** by providing financial assistance during pregnancy and after childbirth.
- **Key Objectives:**
 - **Compensate Wage Loss:** Provide **partial compensation for wage loss** to women to enable them to **rest adequately** during pregnancy and after delivery.
 - **Ensure Health and Nutrition:** Promote **safe delivery and good nutrition** for both mother and child.
 - **Reduce Maternal and Infant Mortality:** Encourage **institutional delivery and postnatal care**.

- **Key Features:** A **Rs 5,000 direct benefit** is provided in **three installments**.
 - An **additional Rs 1,000** is provided under the **Janani Suraksha Yojana (JSY)** for **institutional delivery**, bringing the total benefit to **Rs 6,000 per beneficiary**.
- **Eligibility Criteria:** The scheme is for **pregnant women and lactating mothers** with their **first live birth, who are 19 years or older**.
 - It **excludes women in regular government jobs or receiving similar benefits** under other laws.

What is Sukanya Samriddhi Yojana (SSY)?

- **About:** It was launched as a **part of BBBP** scheme to provide **financial security** for the future of the girl child through **opening of bank accounts**, focusing on education and empowerment.
- **Account Eligibility:** The scheme is open for any **resident Indian girl child**, with an account being able to be opened from birth **until the age of 10**.
 - A guardian can open **one account per child**, with a maximum of **two accounts per family**, except for **twins or triplets**.
- **Deposit and Contributions:** The minimum initial deposit is **Rs 250** with the annual **deposit limit is Rs 1,50,000**.
 - Deposits can be made for **up to 15 years**, with the **guardian** managing the account until the **girl turns eighteen**.
- **Account Maturity:** The Sukanya Samriddhi account **matures after 21 years** from the account opening date. **Early closure** is allowed if the account holder intends to **marry before maturity**.
- **Withdrawals:** After turning **eighteen or completing 10th grade**, the account holder can **withdraw up to 50%** of the balance from the previous financial year for education.
- **Premature Closure:** In case of the account holder's death or compassionate reasons like severe illness or the guardian's death, the account can be **prematurely closed**.

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Note:

- However, premature closure is **not allowed within the first five years** of opening the account.
- **Achievements in 10 Years:** As of **November 2024**, over **4.1 crore Sukanya Samridhi** accounts have been opened, promoting financial discipline and encouraging long-term savings for girls' education and empowerment.

What are Key Data Related to Progress in Gender Indicators in India?

- **Sex Ratio at Birth:** According to the **Sample Registration System (SRS)**, the sex ratio at birth improved from **898 females per 1,000 males (2014-16)** to **907 (2018-20)**.
 - **National Family Health Survey 5 (2019-21)** showed an increase in the sex ratio at birth from **919 (2015-16)** to **929 (2019-21)**.
- **Educational Gender Gap:** In 2015-16, the **GER** for women in higher education was **23.5%, 1.9 percentage points lower than men**. However, the **AISHE 2021-2022** shows women now lead men in **GER by 0.2 percentage points**.
 - At the **secondary and higher secondary** levels of education, female enrolment **surpassed or was equal to male** enrolment from 2015-16 onwards.
- **Maternal and Infant Mortality:** Maternal mortality **declined to 97 per lakh live births**, while infant mortality **decreased to 28 per 1,000 live births**.
- **Institutional Deliveries:** Institutional deliveries have nearly reached **100%** across the country.

Rise in Donation Through Electoral Trust

Why in News?

The **Electoral Trust Contribution** reports released by the **Election Commission of India (ECI)** for the FY 2023-24, indicate a significant increase in donations to political parties through **electoral trusts**.

- This increase followed the **Association for Democratic Reforms vs Union of India case, 2024**, in which

SC declared the **electoral bonds scheme** unconstitutional and directed banks to cease issuing bonds immediately.

What are the Key Highlights of the ECI's Report and its Implications?

➤ Highlights of the Report:

- **Surge in Donations:** The contribution to the **Prudent Electoral Trust (PET)** increased almost three-fold from 2022-23 to 2023-24.
 - PET is the largest electoral trust in India, receiving **Rs 1,075.71 crore** in FY24. Represents a significant concentration of corporate donations within a single trust.
- **Major Recipient:** The ruling party at centre (BJP) was the largest beneficiary, followed by the Congress, Bharat Rashtra Samithi (BRS), and YSR Congress.
- **Status of Electoral Trusts:** With **more than 15 electoral trusts** recognized by the ECI, only five trusts, including PET, received donations during this period.

➤ Implications:

- **Comparative Analysis:** Unlike electoral bonds, which enabled Rs 12,000 crore in anonymous donations between 2018 and 2023, the **SC ruling in Association for Democratic Reforms vs Union of India case 2024**, declaring them unconstitutional has significantly shifted political funding towards electoral trusts.
 - This shift has enhanced transparency by disclosing donor identities, amounts, and recipient parties, with trusts like Prudent Electoral Trust receiving 74% of their FY24 donations (Rs 797.1 crore out of Rs 1,075.7 crore) post-ruling.
- **Economic Dimensions:** Electoral trusts channel large-scale corporate funds into political systems, reinforcing corporate influence on party finances.
 - The dominance of a few trusts like **Prudent and Triumph** highlights the centralization of political funding among top donors.

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Note:



PRUDENT ELECTORAL TRUST

Contribution
23-24

1075.7 crore

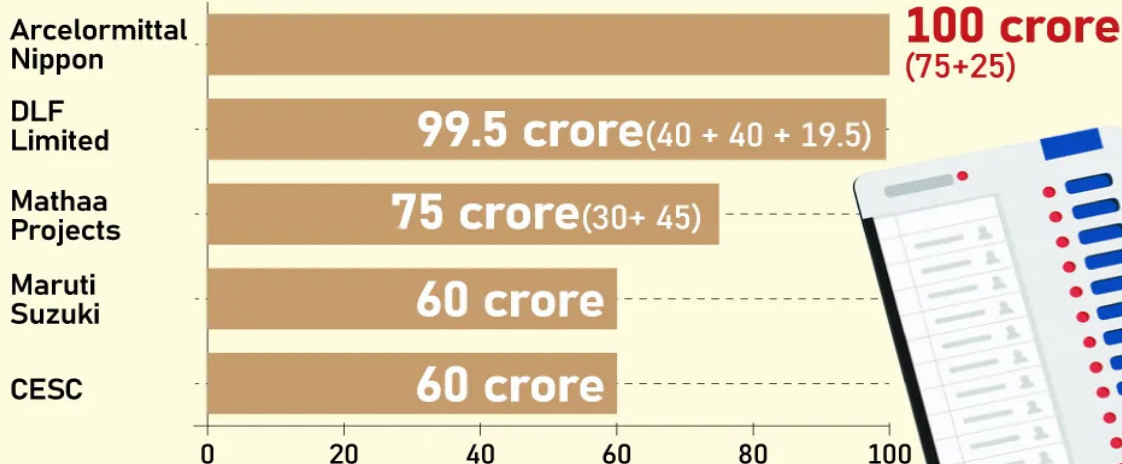
Contribution
22-23

363.16 crore

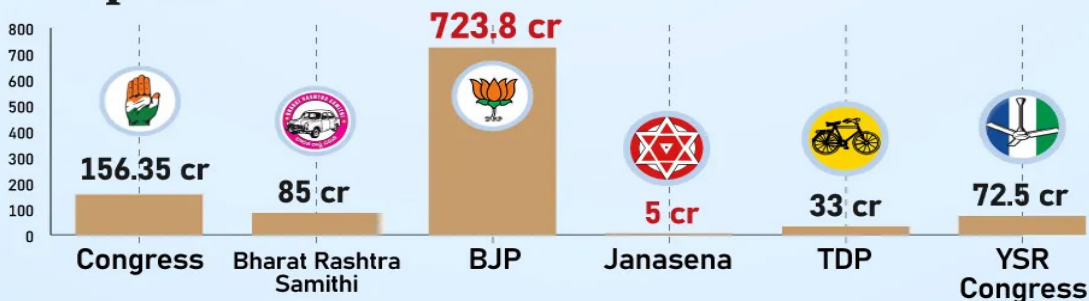
No. of donations
23-24

155

Top Contributors 23-24



Recipients



What are Electoral Trusts?

- **About;** The Electoral Trusts, **introduced in 2013**, are non-profit entities established to collect funds from donors and distribute them to political parties.
- **Legal Framework:** These trusts are regulated under the **Companies Act, 1956. Section 25** of this act (now **section 8** in new **Companies Act, 2013**) allows any company to establish an electoral trust under this scheme.

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Note:

- **Eligibility for Donations:** Section 17CA of the Income Tax Act, 1961 permits donations to electoral trusts from:
 - Indian citizens, Companies registered in India, Firms, Hindu Undivided Families (HUF), or associations of persons residing in India.
 - Donors are required to provide their **PAN (for residents) or passport number (for NRIs)** at the time of making contributions.
- **Donations to Political Parties:** Electoral trusts must donate **at least 95%** of the funds they receive in a financial year to eligible political parties that are registered under the Representation of the People Act, 1951.
- **Registration and Renewal:** Electoral trusts are required to **apply for renewal every three financial years** in order to continue their registration and operations.
- **Key Differences Between Electoral Bonds and Electoral Trusts:**

Feature	Electoral Bonds	Electoral Trusts
Regulation	Primarily regulated by the RBI, SBI, and Election Commission.	Regulated by the Companies Act , monitored by the Election Commission and Income Tax Department.
Purpose	Aims to streamline donations while maintaining donor anonymity.	Focuses on aggregating donations and ensuring transparency.
Tax Benefits	Donors can avail deductions under Section 80GGC .	Donors receive tax deductions for donations through the Trust.
Operational Mechanism	Donations are made directly to political parties via bonds.	Trusts collect funds and distribute them to political parties.
Donor Disclosure	Donors' identities remain undisclosed .	Donors' identities are publicly disclosed.
Transparency	Anonymity of donors and recipients; concerns over undisclosed corporate influence.	Full disclosure of donors and recipients details to the public.

What is the Electoral Bond Scheme?

- **About:** The Electoral Bonds Scheme, **introduced in 2018**, is a **money instrument** similar to promissory notes, available for purchase by individuals and companies from the **State Bank of India (SBI)**.
 - The bonds can only be redeemed by registered political parties in a designated account.
 - The person purchasing the bonds can either buy them singly or jointly with others.
- **Objective:** The primary goal was to **ensure transparency in electoral funding**, with the government presenting it as a reform for a nation progressing towards a digital economy.
- **Amendments to Scheme:** In 2022 amendment to the scheme introduced an **extra 15-day period** for the purchase of electoral bonds during years of state legislative assembly elections.
 - Electoral bonds are **valid for 15 days** from issuance. If not deposited within that time, they cannot be used. If deposited by the political party within the validity period, the bond is credited to their account on the same day.
 - Only political parties registered under **Section 29A of the Representation of the People Act, 1951 (RPA)** that secured **at least 1% of the votes** in the last general election (either Lok Sabha or State Legislative Assembly) are eligible to receive Electoral Bonds.
- **Declared Unconstitutional:** In Association for Democratic Reforms vs Union of India case, 2024, SC declared the scheme as **Unconstitutional** and found that the **anonymity** allowed in the scheme **violates the fundamental right to information** under Article 19(1)(a) of the Constitution,

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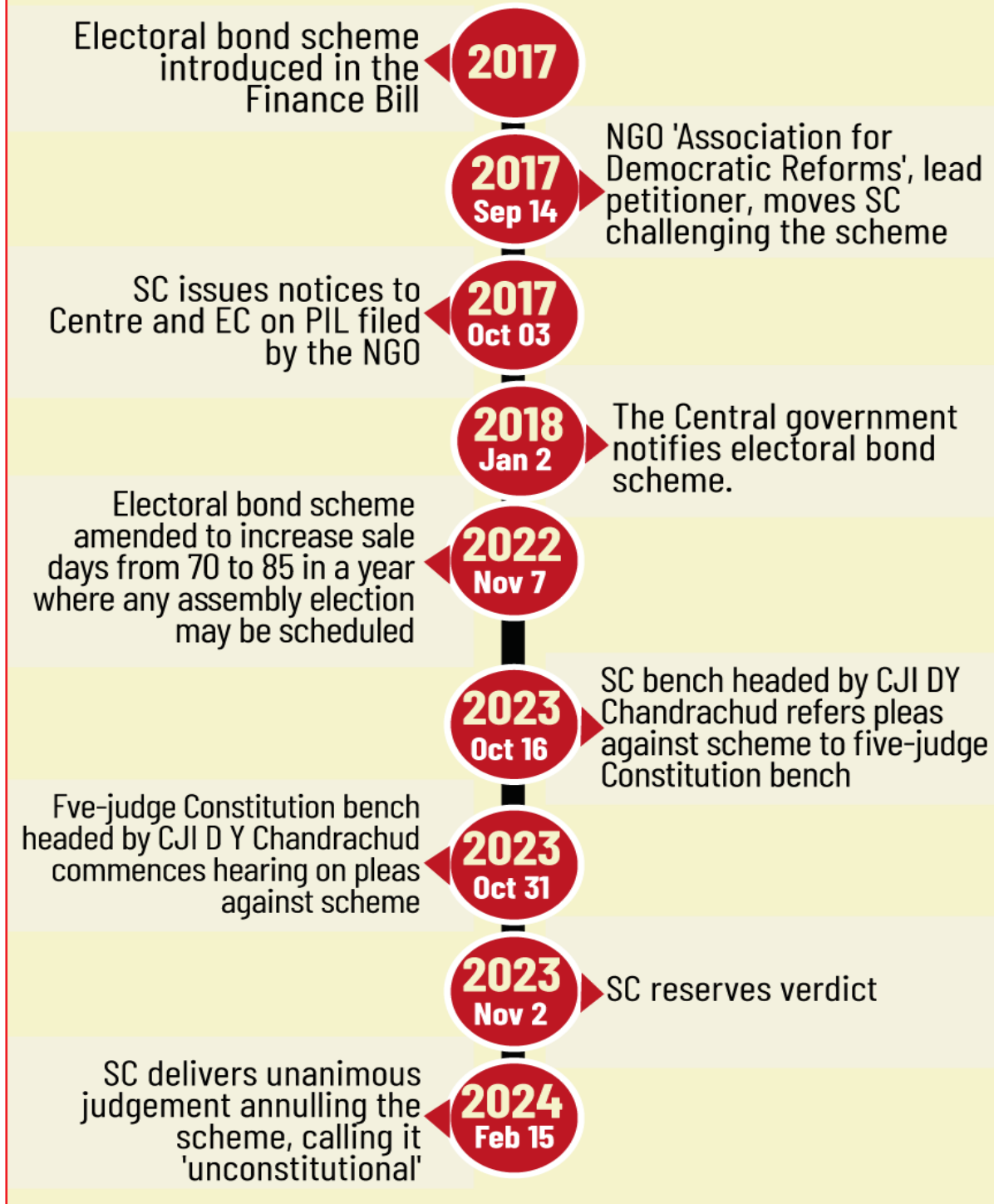


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Note:

Chronology of events in Electoral bonds case



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Note:

What are the Recommendations Related to Electoral Funding in India?

- **Indrajit Gupta Committee, 1998:** Endorsed **state funding of elections** to establish a fair playing field for parties with less financial resources.
 - **Recommended limitations:**
 - State funds to be allocated only to **national and state parties** with allotted symbols, **not independent candidates**.
 - Initially, state **funding should be provided in kind**, offering certain facilities to recognised political parties and their candidates.
 - Acknowledged economic constraints, advocating **partial rather than full state funding**.
- **Law Commission, 1999:** Described total state funding of elections as **desirable** under the condition that political parties are prohibited from receiving funds from other sources.
 - The Commission proposed amending the RPA, 1951, introducing **section 78A for maintenance**, audit, and publication of political party accounts, with penalties for non-compliance.
- **Election Commission's Recommendations:** The **2004 report** of the Election Commission emphasised the necessity for **political parties to publish their accounts annually**, allowing scrutiny by the general public and concerned entities.
 - Audited accounts, ensuring accuracy, should be made public, with auditing performed by **Comptroller and Auditor General-approved firms**.

What are the Issues Related to Electoral Funding in India?

- **Transparency Issue:** Electoral Bonds were meant to **ensure transparency**, but donor anonymity undermines it, especially for the public and opposition. Transparency issue in electoral bonds allows the ruling party to manipulate donor information, compromising elections.
 - The ruling party may access donor details via SBI, **potentially victimizing non-supportive companies**.
- **Impact on Democracy:** Voters remain unaware of donation sources, limiting their ability to make informed choices. Electoral bonds restrict citizens' right to know about political donations, affecting participatory democracy.

- **Crony Capitalism:** The removal of **donation caps (7.5% of their average net profits from the past 3 financial years)** opens the door for corporate influence on politics, fostering crony capitalism.
 - **Crony Capitalism** is an economic system characterized by close, mutually advantageous relationships between business leaders and government officials.
- **Imbalance in Funding:** **Association for Democratic Reforms (ADR) Report, 2023** highlights that national parties, especially the ruling party, dominate electoral bond donations, creating an unequal funding landscape.
 - As electoral bonds show **disproportionate donations from the corporate sector**, strengthening the power of the ruling party.

National Panchayat Awards 2024

Why in News?

The **National Panchayat Awards 2024** were awarded to 45 Panchayats across India by the **President of India** for their exceptional contributions to inclusive growth and **sustainable development**.

- The event highlighted the pivotal role of **Panchayati Raj Institutions (PRIs)** in advancing rural governance and environmental sustainability.

What are the Key Facts Related to National Panchayat Awards 2024?

- **About:**
 - The National Panchayat Awards commemorate the enactment of **73rd Constitutional Amendment Act, 1992**, which granted **constitutional status to Panchayats** as local self-governance institutions.
 - These awards are typically presented on 24th April (**National Panchayati Raj Day**) every year.
- **Objective:**
 - The awards aim to **promote best practices, foster a spirit of competition**, and **motivate Panchayats to excel** in delivering quality governance and services to rural communities.
 - These awards were **revamped in 2022** to align with **Sustainable Development Goals (SDGs)**, using a **multi-level evaluation** across **Block, District, State/UT, and National levels**.

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Note:

- Panchayats are assessed on **9 thematic areas**:



➤ **Significance:**

- The awards highlight **Panchayats' pivotal role** in **socio-economic development, grassroots governance**, and advancing the **SDGs** through **LSDGs**.

➤ **Categories of Awards:**

- **Deen Dayal Upadhyay Panchayat Satat Vikas Puraskar (DDUPSVP):** Top 3 **Gram Panchayats (GPs)** under each of the 9 **Localization of SDGs (LSDGs)** themes.

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Note:

- **Nanaji Deshmukh Sarvottam Panchayat Satat Vikas Puraskar:** Top 3 GPs, Block Panchayats, and District Panchayats for overall excellence across all themes.
- **Gram Urja Swaraj Vishesh Panchayat Puraskar:** Recognizes GPs for renewable energy adoption.
- **Carbon Neutral Vishesh Panchayat Puraskar:** Awards GPs for achieving **net-zero carbon emissions**.
- **Panchayat Kshamta Nirmaan Sarvottam Sansthan Puraskar:** Honoring institutions supporting Panchayats in implementing LSDGs.

➤ **Awardees for 2024:**

Category	Key Achievements in 2024
Carbon Neutral Vishesh Panchayat Puraskar	Panchayats from Maharashtra, Odisha, and Uttar Pradesh recognized for achieving carbon neutrality.
Gram Urja Swaraj Vishesh Panchayat Puraskar	Panchayats from Maharashtra, Odisha, and Tripura awarded for adopting sustainable energy practices.
DDUPSVP	27 GPs from states like Kerala, Tamil Nadu, Gujarat, Tripura, and Ladakh recognized across 9 LSDG themes.
Panchayat Kshamta Nirmaan Sarvottam Sansthan	Institutions from Kerala, Maharashtra, and Odisha honored for supporting PRIs in implementing LSDGs.
Nanaji Deshmukh Award	Nine Panchayats conferred for excellence in all nine thematic areas.

What are the Other Initiatives Related to PRIs?

➤ **SVAMITVA Scheme:**

- **SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas)** scheme aims to promote the **economic development of rural India** by providing a “**Record of Rights**” for every rural household owner, thereby facilitating **access to property and financial services**.
 - It was launched on **National Panchayati Raj Day** in 2020.

➤ **e-Gram Swaraj e-Financial Management System:**

- **e-Gram Swaraj** is a simplified application developed for PRIs to manage **work-based accounting**, enhancing **transparency and accountability** in financial management.

➤ **Geo-Tagging of Assets:**

- **mActionSoft** is a mobile-based solution designed to **capture photographs with geo-tags (GPS coordinates)** for assets generated by Panchayat works.

- **Citizen Charter:** The Ministry of Panchayati Raj (MoPR) has introduced a platform for Panchayats to upload **Citizen Charters**, under the slogan “**Meri Panchayat Mera Adhikaar – Jan Sevaayein Hamaare Dwaar**”, to ensure **efficient and timely service delivery to citizens**.

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Note:

Symbols of State

Why in News?

Tripura unveiled its first **official state emblem** after approval from the **Union Ministry of Home Affairs (MHA)**.

- The proposal for the **emblem of the Government of Tripura** has been approved under **Rule 4(2) of the State Emblem of India (Regulation of Use) Rules, 2007**.

What are the Provisions Related to the State's Flag, Emblem and Song?

- **State Flag:** States in India can have a state flag, as long as it does not supersede or contradict the Indian national flag as per the **Emblems and Names (Prevention of Improper Use) Act, 1950**, **Flag Code of India, 2002** and the **Prevention of Insults to National Honour Act, 1971**.
 - The **Supreme Court of India (SC)** in ***S. R. Bommai v. Union of India Case 1994*** ruled that states can have their own flags, as long as they do not dishonor the national flag.
 - SC further stated that the **Constitution of India does not prohibit states from having their own flags**.
 - It held that the **state flag should always be flown below the national flag**, cannot be flown alongside it, and **cannot be used for official or statutory purposes**.
- **State Emblem:** The **State Emblem of India** is regulated under the **State Emblem of India (Prohibition of Improper Use) Act, 2005**.
 - **States in India** can adopt their emblem but require **Union Home Ministry approval for state symbols**.
 - Authorized **uses of states' emblems** include **official seals, stationery, vehicles, and key public buildings**. Unauthorized use for personal, organizational, or commercial purposes is strictly prohibited.
- **State Song:** India lacks uniform legislation on state songs, which are typically **approved by state legislatures or executives**. These songs reflect the state's heritage

and are sung at official events, ensuring respect for **national unity** and the national anthem.

- **Example:** West Bengal announced ***Poila Baisakh*** (first day of the Bengali month of Baisakh) as **State Day** (or Bangla Divas), and ***Banglar Mati Banglar Jal***, composed by ***Rabindranath Tagore***, as the **State Song**.

Note: **Article 51A (Fundamental Duties)** of the Constitution imposes a moral duty on citizens to respect the **national and state symbols** as part of their fundamental duties.

- **Article 51 A (a):** To abide by the Constitution and respect its ideals and institutions, the **National Flag and the National Anthem**.

What is the Emblems and Names (Prevention of Improper Use) Act, 1950?

- **About:**
 - The **Emblems and Names (Prevention of Improper Use) Act, 1950** prohibits the **unauthorized use of national emblems, names, and symbols** for commercial purposes by private entities without proper permission.
 - The Act also **extends to state symbols**, meaning that **state emblems and names are protected under this legislation** as well to ensure that state symbols are **not misused for commercial purposes** without proper authorization.
- **Prohibition of Improper Use :**
 - **Section 3** of the Act prohibits the use of names or emblems listed in the Schedule, or their imitations, for trade, business, profession, or as trademarks/patents, without prior approval from the Central Government or an authorized officer.

Flag Code of India, 2002

- **About:**
 - The **Flag Code of India, 2002** outlines the **rules for the use, display, and hoisting of the Indian National Flag**.
 - It is governed by the **Prevention of Insults to National Honour Act, 1971**.

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Note:

➤ Key Provisions:

○ Materials and Construction:

- The National Flag can be made from **hand-spun, hand-woven, or machine-made** materials like cotton, polyester, wool, or silk, following the December 2021 amendment allowing **polyester and machine-made flags**.

○ Hoisting and Display:

- **Individuals, organizations, or institutions** may hoist the flag on **any day with respect**. The amendment in July 2022 allows it to be **flown day and night** in the open or on private properties.

○ Design and Dimensions:

- The flag must be **rectangular**, with a **length-to-width ratio of 3:2**.

○ Restrictions:

- The flag cannot be flown from a single masthead along with other flags.
- It cannot be flown on vehicles except for designated dignitaries like the **President, Vice-President, Prime Minister, Governors**, etc.
- No other flag or bunting should be placed above or alongside the National Flag.

PM-Surya Ghar: Muft Bijli Yojana

Why in News?

The Union Ministry of New and Renewable Energy has issued operational guidelines for the **PM-Surya Ghar Muft Bijli Yojana**, detailing **RESCO (Renewable Energy Service Company)** and **Utility-Led Aggregation (ULA)** models.

- These guidelines will supplement the existing consumer-driven implementation of **rooftop solar installations** through the **National Portal of the scheme**.

What are the Key highlights of the Guidelines for the PM-Surya Ghar?

➤ Two Models for Solar Installation:

- **RESCO (Renewable Energy Service Company) Model:** Third-party entities invest in rooftop solar installations. Consumers only pay for the electricity

consumed, without bearing upfront costs. Excess power can be sold to DISCOMs.

- **Utility Led Aggregation (ULA) Model:** Power distribution companies (DISCOMs) or state-designated entities install rooftop solar systems for residential households.

- **Payment Security Mechanism (PSM):** A Rs 100 crore PSM fund has been established to de-risk investments in RESCO-based rooftop solar models. It can be enhanced with additional grants, subject to Ministry approval.

What are the Key Facts About PM-Surya Ghar Muft Bijli Yojana?

- **About:** The PM Surya Ghar Muft Bijli Yojana, launched in February 2024 by the Ministry of New and Renewable Energy (MNRE), aims to provide **free electricity to one crore households by installing rooftop solar panels**.

- With a total budget of Rs 75,021 crore, the scheme is planned for implementation until **FY 2026-27**.

- It offers up to **300 units of free electricity per month** and provides a **subsidy covering up to 40% of the installation cost**, promoting widespread solar energy adoption across the country.

- **Eligibility:** Indian citizens, homeowners, valid electricity connection, no prior solar subsidy.

- **Implementation:** The PM Surya Ghar Muft Bijli Yojana will be implemented by the **National Programme Implementation Agency (NPIA)** at the national level and **State Implementation Agencies (SIA)** at the state level.

➤ Key Components:

- **Central Financial Assistance (CFA):** Provides financial support to residential consumers for installing rooftop solar panels through the National Portal.

- **Model Solar Village:** Create one **Model Solar Village per district**, promoting solar energy adoption.

- Villages with populations over 5,000 (or 2,000 in special states) are eligible for selection, and are evaluated on **renewable energy capacity** six months after being identified by the **District Level Committee (DLC)**.

- The village with the highest **RE capacity in each district receives Rs 1 crore** in financial assistance.

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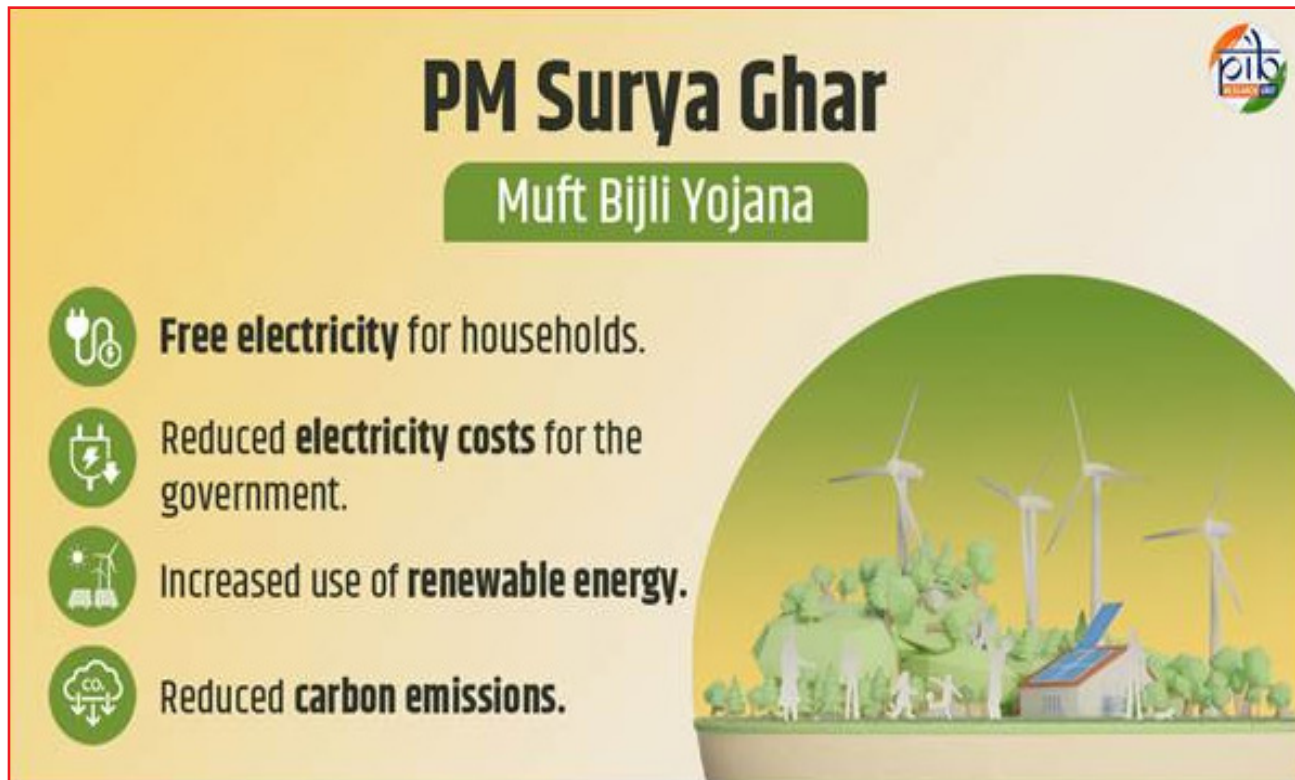
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Note:

➤ **Expected Outcomes:**

- The scheme is expected to reduce **carbon emissions** by 720 million tonnes over the lifetime of the rooftop systems.
- An estimated **17 lakh direct jobs** will be generated across sectors like manufacturing, logistics, installation, and operations.
- The scheme will contribute 30 GW to India's solar energy capacity through residential rooftop systems.
- Households can earn income by selling surplus electricity to DISCOMs, with systems like the **3 kW rooftop setup generating over 300 units per month**.



150th Foundation Day of IMD and Mission Mausam

Why in News?

The **Prime Minister of India (PM)** participated in the **150th Foundation Day** celebrations of the **Indian Meteorological Department (IMD)** on **15th January 2025** at New Delhi.

- He also launched the **Mission Mausam initiative** and released the **IMD Vision-2047 document**.
- The event also witnessed the participation of the Secretary-General of the **World Meteorological Organization (WMO)**.

What is the Mission Mausam Initiative?

- **About:** Mission Mausam is a government initiative aimed at **enhancing the capabilities** of India's weather department in weather forecasting, modelling, and dissemination.
- **Budget:** The mission will have an allocation of Rs 2,000 crore for its first two years of implementation.

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Note:

➤ Objectives:

- **Upgrade Weather Forecasting:** The mission seeks to **improve the accuracy of short to medium range weather forecasts by 5-10%**, enhance the **air quality prediction** in major metro cities by up to **10%** and extend predictions to the panchayat level with a lead time of **10-15 days**.
 - Currently, the IMD's accuracy for extreme events like heat waves is approximately **98%**, while heavy rainfall forecasts stand at around **80%**.
- **Invest in Technology:** It will utilize advanced technologies like **AI, machine learning, and high-performance computing** to improve weather models and observational systems, including the deployment of additional **Doppler radars** and **satellites**.
- **Weather Management:** Mission will explore **weather modification techniques** like **cloud seeding** to manage rainfall and mitigate extreme events such as **floods and droughts**.
- **Cloud Chamber Research:** A cloud chamber will be set up at the **Indian Institute of Tropical Meteorology, Pune**, to study **cloud dynamics** and **improve weather management** through **cloud seeding** experiments.
- **Phases:** Mission Mausam will be executed in **2 phases over 5 years**.
 - **Phase One (2025 - March 2026):** Focus on expanding the **observational network** by adding around **70 Doppler radars, high-performance computers, wind profilers, and radiometers**.
 - **Phase Two (2026 onwards):** Further enhancement of observational capabilities through the **introduction of satellites and aircraft**.

What is the IMD Vision-2047 Document?

➤ About:

- It is a strategic document that **sets ambitious targets for enhancing weather forecasting accuracy and disaster management in India by 2047**.
- It outlines milestones for the next **two years, ten years (2035), and twenty-two years (2047)**.

➤ Key Objectives:

- **100% Detection of Severe Weather:** Aiming for complete detection of severe weather events at

the **village and household levels** by 2047, using enhanced observational systems like **satellites and radars**.

○ **Forecast Accuracy:** Achieving:

- **100% accuracy** for forecasts up to 3 days
- **90% accuracy** for up to 5 days
- **80% accuracy** for up to 7 days
- **70% accuracy** for up to 10 days

- **Zero Deaths from Weather Events:** Aiming to reduce fatalities from extreme weather events to zero, ensuring early warnings for disaster management.

India Meteorological Department (IMD)

- **IMD** is the principal agency responsible for meteorological observations, weather forecasting and seismology in India established in **1875**.
- It operates under the **Ministry of Earth Sciences**, Government of India.
- It provides **weather forecasts and warnings** for sectors like agriculture, aviation, and shipping, and **offers critical data for national development**.
- It also conducts **research to advance meteorological science**.

Major Initiatives Related to Meteorology in India

- **National Monsoon Mission (NMM)**
- **Mausam App**
- **Doppler Weather Radars**

Lokpal Foundation Day**Why in News?**

On **16th January 2025**, social activist **Anna Hazare, Justice (retd) N. Santosh Hegde, and Attorney-General R. Venkataramani** will be felicitated on the occasion of **Lokpal Foundation Day**.

- The **Lokpal and Lokayuktas Act, 2013**, which empowers the anti-corruption body to investigate allegations of corruption, came into effect on **16th January 2014**.

Note: The **first Lokpal Day** will be celebrated on **16th January 2025** in **Delhi Cantt**, with the **Chief Justice of India (CJI)** as the Chief Guest.

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Note:

What is Lokpal?

- **About:** Lokpal is an **independent statutory body** established under the **Lokpal and Lokayuktas Act, 2013**, to combat **corruption in public offices** and **ensure accountability** among public functionaries.
 - They perform the function of an “**ombudsman**” and inquire into allegations of corruption against **certain public functionaries and for related matters**.
 - The Act also provided for the establishment of **Lokayukta for States**.

LOKPAL

It is a statutory body functioning as “Ombudsman” to investigate corruption allegations against specific public officials and related issues.

HISTORICAL BACKGROUND

World

- ⑤ **1809:** Institution of Ombudsman first created in Sweden

India

- ⑤ **1963:** Idea of ombudsman first came up in Parliament
- ⑤ **1971:** First Lokayukta established in Maharashtra
- ⑤ **2011:** Anna Hazare Movement for Lokpal
- ⑤ **2013:** Lokpal and Lokayuktas Bill, 2011 passed
- ⑤ **2014:** Lokpal and Lokayuktas Act, 2013 came into force and amended in 2016
- ⑤ **2019:** Justice (Retd) Pinaki Chandra Ghose as first Lokpal of India

Statutory Provision: Lokpal And Lokayuktas Act (2013)

Seeks to establish institution of Lokpal at Centre and Lokayukta at State

Jurisdiction

- ⑤ Includes Prime Minister, Ministers, MPs and Groups A, B, C and D officers, officials of Central Govt
- ⑤ Institutions financed fully or partly by Government
- ⑤ Entities getting over ₹10 lakhs annually in foreign donations under FCRA

Power

- ⑤ Authority to approve public servants' prosecution instead of government or relevant authority
- ⑤ Power of superintendence and direction over any investigating agency, including CBI, for cases referred to them by Lokpal
- ⑤ Incorporates provisions for attachment and confiscation of property of public servants acquired by corrupt means, even while prosecution pending

Punishment

- ⑤ Enhances maximum punishment under Prevention of Corruption Act, 1988

Appointment

- ⑤ Selection of Chairperson and members through Selection Committee (PM, Speaker-LS, Leader of largest opp. party, CJI or sitting SC Judge nominated by CJI and an eminent jurist nominated by President)
- ⑤ Search Committee assists Selection Committee in process of selection

Structure

- ⑤ Chairperson + maximum 8 members
 - ⑤ 50% Judicial members
 - ⑤ 50% from SCs, STs, OBCs, minorities and women

Term of office

- ⑤ 5 yrs or until the age of 70 yrs



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Note:

- **Origin:** The concept of the **Lokpal/Lokayukta** originates from the **Ombudsman system** in **Scandinavian countries**.
 - In India, the **Administrative Reforms Commission (1966-70)** recommended the establishment of the **Lokpal** at the central level and **Lokayuktas** in the states.
 - Prior to the enactment of the **Lokpal and Lokayuktas Act, 2013**, several states had already created the Lokayukta institution through state laws.
 - **Maharashtra** was first in this respect with its Lokayukta body established in **1971**.
- **Salary and Allowances:** The **Chairperson's salary and allowances** are equivalent to those of the **Chief Justice of India**, while the Members receive benefits similar to those of a **Judge of the Supreme Court of India**.
- **Proceeding of Lokpal:**
 - On receiving a complaint, the Lokpal may initiate a preliminary inquiry through its Inquiry Wing or refer cases to agencies like the **Central Bureau of Investigation (CBI)** or **Central Vigilance Commission (CVC)**.
 - The CVC reports back to Lokpal for Groups A and B officials, while it takes independent action for Groups C and D under the **CVC Act, 2003**.

Lokayukta

- **About:** It is a state-level **anti-corruption authority** in India, established to investigate grievances and allegations against public servants.
- **Appointment:** The **Governor** appoints the Lokayukta and Upalokayukta after consulting **Chief Justice** of the State High Court and the **Leader of the Opposition** in the **State Legislative Assembly**.
- **Tenure:** In most states, the Lokayukta serves a **5-year term** or until reaching **65 years of age**, whichever is earlier.
 - Reappointment is not allowed.
- **Removal:** Once appointed, a Lokayukta cannot be dismissed or transferred by the government and can only be removed through an impeachment motion passed by the state assembly.

What is the Significance of the Institution of Lokpal?

- **Combating Corruption:** The Lokpal and Lokayukts aim to **address systemic corruption by providing a**

dedicated platform for investigating complaints **against public officials**, thus deterring corrupt practices and promoting ethical governance.

- **Enhancing Accountability:** These institutions **enhance accountability by holding public officials responsible for their actions**, which helps restore public trust in government.
- **Empowering Citizens:** The Act empowers **citizens to file complaints against corruption**, offering protection from retaliation by powerful officials.
- **Promoting Good Governance:** Independent oversight by Lokpal and Lokayukts ensures the **effective use of public resources** and encourages officials to act in the public's best interest.

Similar Global Practices in Other Countries

- **Ombudsman (Scandinavian countries):** Independent authorities investigate complaints against government officials, ensuring fair treatment and accountability.
- **Anti-Corruption Commissions (Hong Kong, Singapore):** Agencies like **ICAC (Hong Kong)** and **CPIB (Singapore)** investigate and prosecute corruption in public and private sectors.
- **Public Protector (South Africa):** Investigates maladministration and corruption by public officials, holding them accountable.
- **Federal Anticorruption Bureau (Brazil):** Oversees corruption investigations with a focus on prosecuting high-level officials.

What are the Limitations Related to Lokpal?

- **Limitation Period for Filing Complaints:** Under the **Lokpal and Lokayuktas Act, 2013**, complaints against public servants must be filed within **7 years** from the **date of the alleged corruption** or when the complainant becomes aware of it.
 - This time-bound restriction **may lead to the exclusion of older cases of corruption**, especially those discovered much later.
- **Severe Punishment for False Complaints:** The **heavy penalties for filing false complaints** may discourage individuals from lodging complaints, even when justified.
- **Independence Issues:** The Lokpal and Lokayukts face **challenges regarding their independence**, with concerns over political influence affecting their ability to function impartially.

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Note:

- **Ineffectiveness in Tackling Corruption:** The Lokpal has **struggled to effectively address corruption**, as evidenced by its **receipt of 8,703 complaints between 2019-20 and 2023**, with **5,981 disposed of**.
 - However, it has **not initiated prosecution against any individual for corruption**, as noted in an **April 2023 parliamentary committee report**.
- **Exemptions Clause :** While the Prime Minister falls under Lokpal's jurisdiction, issues related to **international relations, security, public order, atomic energy, and space are excluded**, curbing its authority over sensitive matters.
- **No Oversight Mechanism:** There is no comprehensive mechanism to evaluate Lokpal's own functioning, raising concerns about its accountability.

National Turmeric Board

Why in News?

The **Ministry of Commerce & Industry** launched the **National Turmeric Board (NTB)** with its headquarters at **Nizamabad, Telangana**.

What are Key Facts About the National Turmeric Board?

- **About:** It has been established to promote the **cultivation, production, processing, and marketing** of turmeric in India and enhancing the income of turmeric farmers.
 - The Ministry of Commerce & Industry has increased its **product-dedicated boards to six**, after **tea, coffee, rubber, spices, and tobacco**.
- **Board Representation:** The Board will consist of a **Chairperson** appointed by the Central Government with representatives of the **Ministry of AYUSH, Department of Pharmaceuticals, Department of Agriculture & Farmers Welfare and Department of Commerce**, along with **rotating senior representatives from three states**.
- **Key Objectives:** Farmer welfare **across 20 states**, including **Maharashtra, Tamil Nadu**, and others.
 - Promoting research, new products, and **value addition** for domestic and international markets.

- Raising awareness about turmeric's **medical benefits**.

What are Key Facts About Turmeric?

- **About:** **Turmeric** is an **underground stem** of the *Curcuma longa* plant, which is part of the **ginger family (Zingiberaceae)**.
 - **Curcumin**, the **active compound** in turmeric, gives it its **yellow color** and is known for its **anti-inflammatory, antioxidant, and antimicrobial benefits**.
- **Cultivation:** India grows **over 30 varieties** of turmeric across **20+ states**, with major production in **Maharashtra, Telangana, Karnataka, and Tamil Nadu**.
- **Global Position:** India is the **largest producer, consumer, and exporter** of turmeric globally.
 - In 2022-23, India produced **over 75% of the world's turmeric** and holds **62% of the global export market**.
- **Export Performance:** In 2022-23, India exported **1,53,400 tonnes** of turmeric and turmeric products valued at **USD 207.45 million**.
 - Key export markets include **Bangladesh, UAE, the US, and Malaysia**.
- **GI Tag:** **Lakadong turmeric (Meghalaya), Kandhamal turmeric (Odisha), Erode turmeric (Tamil Nadu), and Armooor turmeric (Nizamabad, Telangana)** among others have got **GI tag**.
 - A **GI tag** is a label given to a product linked to a **specific region**, with qualities or characteristics unique to that area.
- **Medical Benefits:** Turmeric, with its active compound **curcumin**, helps reduce **inflammation, neutralize free radicals, and support digestive health** by promoting bile production.

Note: India ranked the world's **8th largest agricultural exporter** in 2023 despite a decline in exports from **USD 51.12 billion in FY23 to USD 48.77 billion in FY24**.

- India is targeting a significant boost in its **organic produce exports**, aiming to **triple the value to Rs 20,000 crore** within the **next three years**.



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Note:

Economic Scenario

Highlights

- Economic Survey 2024-25: State of the Economy
- National Critical Mineral Mission
- Need of Sovereign Wealth Fund for India
- Contract Farming in India's Agriculture
- Fiscal Health Index 2025
- UNCTAD Global Investment Trends Monitor Report
- Challenges and Reforms in India's Taxation System
- India's Fiscal Consolidation
- CBDT Issues New Guidelines for PPT under DTAA's
- Open Market Sale Scheme (Domestic) Policy
- Offshore Sand Mining in Kerala
- RBI Issues Revised 'Master Direction' for ARCs
- RBI Liberalizes FEMA Rules for Cross-Border Transactions
- World Employment and Social Outlook: Trends 2025
- Boosting India's Rubber Industry
- Centre-State Revenue Dynamics
- India's Demographic Transition
- Key Trends and Challenges in Retail Inflation

Economic Survey 2024-25: State of the Economy

Why in News?

The Finance Minister Nirmala Sitharaman tabled the **Economic Survey 2024-25** in **Parliament**. It provides a roadmap for reforms and growth, setting the stage for the **Union Budget 2025**.

Economic Survey

- The Economic Survey is an annual report presented by the government before the **Union Budget** to assess India's economic condition.
- Prepared by the **Economic Division of the Ministry of Finance** under the **Chief Economic Adviser's** supervision, it is tabled in both houses of **Parliament** by the Union Finance Minister.
 - The survey assesses economic performance, highlights sectoral developments, outlines challenges and provides an economic outlook for the coming year.
 - The Economic Survey was first presented in **1950-51 as part of the budget** and became a separate document from the **Union Budget in 1964**, tabled a day before the budget.

What are the Key Highlights of the Economic Survey 2024-25: State of the Economy?

- **Global Economy:** The global economy in 2024 experienced **moderate but uneven growth**, with the **International Monetary Fund (IMF)** projecting **3.2% growth** for the year, with a slowdown in **manufacturing** due to supply chain disruptions while the **services sector** remained strong.
 - Inflation eased globally, yet **services inflation** remained persistent, leading to **divergent monetary policies** across central banks.
- **India's Economy:** India's **Gross domestic product (GDP)** is projected to grow between **6.3-6.8%** in **FY26 (2025-26)**.
 - India's real GDP is estimated to grow by **6.4%** in **FY25 (2024-25)**, driven by **agriculture and services**, while **manufacturing faces challenges**.
- **Sector-Wise Performance:**
 - **Agriculture:** **3.8% growth** in FY25, driven by **record Kharif production** and **strong rural demand**.
 - **Industry & Manufacturing:** **6.2% growth** in FY25, with **manufacturing slowing** due to **weak global demand**.
 - **Services:** **Fastest-growing sector at 7.2%** in FY25, led by **Information technology, finance, and hospitality**.

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Note:

- **External Sector:** Overall exports (merchandise + services) grew by 6% (YOY) in the first nine months of FY25. Services sector by 11.6% during the same time.
 - **Merchandise exports** grew 1.6%, while imports rose 5.2%, widening the **trade deficit**.
 - India remained the **top global recipient of remittances**, helping contain the **current account deficit** at 1.2% of GDP.
 - Overall, **India's economic outlook remains positive**, driven by **domestic resilience** and **structural reforms**, though risks from global uncertainties persist.

What are the Challenges Facing India's Economy?

- **Geopolitical Uncertainties:** **Russia-Ukraine war** and **Israel-Hamas conflict** have impacted **trade, energy security, and inflation**.
 - **Suez Canal disruptions** forced ships to reroute via the Cape of Good Hope, increasing **freight costs and delivery times**.
 - **Trade policy risks** and **protectionism** in major economies impact **India's exports and supply chains**.
- **Inflation and Investment:** Global inflation easing, but risks of **synchronized price increases** persist.
 - **Food inflation** remains a concern, driven by **weather shocks and supply chain disruptions**.
 - **Weak global manufacturing demand** has pressured **India's manufacturing sector**, slowing private investment.
- **Financial Risks:** State fiscal stress due to rising **subsidies**, lower tax collections, and dependency on central transfers.

National Critical Mineral Mission

Why in News?

The Union Cabinet approved the **National Critical Mineral Mission (NCMM)** with a total outlay of Rs 34,300 crore over seven years.

- The mission aims to **strengthen India's self-reliance in critical minerals**, in alignment with the **Atmanirbhar Bharat** vision.

What is the National Critical Mineral Mission (NCMM)?

- **Objective:** The NCMM aims to reduce India's dependence on imports of critical minerals and ensure **self-reliance for high-tech industries**, clean energy, and **national defense**.
 - The mission will cover **all stages**, including mineral exploration, mining, beneficiation, processing, and recovery from end-of-life products.
 - The mission will intensify the **exploration of critical minerals within the country and in its offshore areas**.
- **Approach:** The NCMM will adopt a **"whole-of-government"** approach, working closely with various ministries, **Public Sector Undertakings (PSUs)**, private companies, and research institutions.
 - A fast-track approval process will be established to expedite mining projects for critical minerals.
- **Stockpiling Minerals:** NCMM provisions to **develop stockpiles of critical minerals** will ensure that India has sufficient reserves to meet future demands.
- **International Strategy:** Encourages Indian companies to acquire critical mineral **assets abroad** and build trade ties with resource-rich nations.
- **Infrastructure:** The mission will establish **mineral processing parks**, promote recycling of critical minerals, and support research in related technologies, including the creation of a **Centre of Excellence for Critical Minerals**.
 - Encourages industries to **establish processing units within India** through financial incentives.
 - Expands **Promoting Innovations in Individuals, Startups And MSMEs (PRISM)** initiative to fund startups and **Micro, Small and Medium Enterprises (MSME)** in the critical minerals sector.

What is the Need for NCMM?

- **Role of Critical Minerals:**
 - **Green Energy Transition:** Critical Minerals are essential for **solar panels**, wind turbines, **electric vehicle (EV) batteries**, and **hydrogen fuel cells**.
 - **Electronics & Telecommunications:** Used in **semiconductors**, **fiber optics**, and circuit boards.
 - **Defense & Aerospace:** Required in missile guidance systems, aircraft, and satellite technologies.
 - **Medical Equipment:** Key component in **Magnetic Resonance Imaging (MRI)** machines, pacemakers, and other advanced healthcare technologies.

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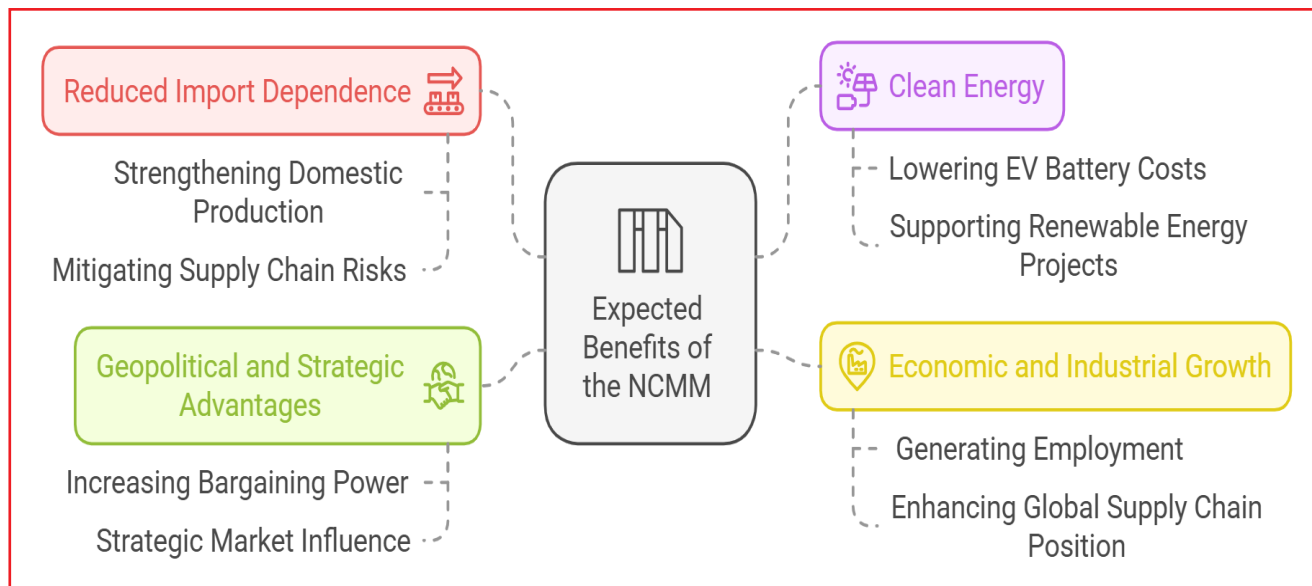


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Note:

- **India's Dependence on Imports:** India heavily depends on China for six critical minerals (bismuth, lithium, silicon, titanium, tellurium, and graphite) highlighting its vulnerability to supply disruptions.
 - The **30% annual growth in lithium-ion battery demand**, driven by EV adoption, makes NCMM essential to support this surge.
- **Global Context:** China dominates the global supply chain for critical minerals like lithium, cobalt, and rare earths, refining over **60% of these minerals**.
 - The US, **European Union**, and Japan have implemented policies to secure their own supplies.
 - India needs a strong strategy for long-term access to critical minerals, making NCMM crucial for global competitiveness.



What are the Recent Developments Related to Critical Minerals?

- **Critical Mineral List:** India has released a **list of 30 critical minerals for India**.
 - These minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
- **Legislative Amendments:** The **Mines and Minerals (Development and Regulation) Act, 1957**, was amended in 2023 to streamline critical mineral exploration, resulting in the auction of 24 strategic mineral blocks.
 - The 2023 amendment to the **Offshore Areas Mineral (Development and Regulation) Act (OAMDR), 2002**, introduces a transparent auction process for offshore mineral rights, mandates composite licenses for exploration and production.
- **Exploration Projects:** The **Geological Survey of India (GSI)** has completed 368 critical mineral exploration projects, with 195 ongoing in 2024-25, and 227 planned for 2025-26.
- **Customs Duty Elimination:** The FY25 Union Budget removed customs duties on critical minerals to promote domestic production and encourage processing facilities.
- **International Collaboration:** **Khanij Bidesh India Ltd (KABIL)**, a joint venture of the Ministry of Mines, acquired 15,703 hectares in **Catamarca, Argentina**, for lithium exploration and mining.

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Note:

Need of Sovereign Wealth Fund for India

Why in News?

India is contemplating creating a **Bharat Sovereign Wealth Fund (BSWF)** or **The Bharat Fund (TBF)** to tap a **reservoir of national wealth** that lies dormant in India's economy.

What is a Sovereign Wealth Fund (SWF)?

- **About:** SWFs are **government-owned funds** created from **state surpluses**, often from a variety of sources like **natural resources, trade surpluses, or budget excesses**.
 - SWFs help governments generate wealth through **strategic investments**, ensuring **financial stability and economic growth**.
- **Characteristics:** **Santiago Principles 2008** defines SWFs as having **3 key characteristics**:
 - It is owned by the **general government**, which includes both **central government** and **sub-national governments**.
 - It Includes **investments in foreign financial assets**.
 - They invest for **financial objectives**.
 - These key elements **exclude public pension funds**, owned by policyholders, and **central bank reserve assets**, which are **not invested**.
- **Types:**
 - **Stabilization Funds:** **Absorb shocks** from volatile revenues, ensuring fiscal consistency.
 - **Future Generation Funds:** Invest surpluses for **long-term wealth**, benefiting future generations.
 - **Public Benefit Pension Reserve Funds:** Fund pension systems to meet long-term obligations.
 - **Reserve Investment Funds:** Manage and grow **foreign exchange reserves**, stabilizing currency.
 - **Strategic Development SWFs:** Invest in **key sectors** for national development.
 - **Foreign Currency Reserve Assets:** Maintain **currency stability** and manage global trade power.

- **Examples:** **Norway Government Pension Fund Global** (USD 1.7 trillion, world's largest SWF), **China Investment Corporation** (USD 1.35 trillion), **Abu Dhabi Investment Authority** (USD 993 billion) etc.
- **SWFs in India:**
 - **2007-08:** The SWF idea in India **gained traction in 2007-08** due to a surge in capital inflows (exceeding **USD 108 billion in a year**) but lost momentum after the **Global Financial Crisis 2008**.
 - **2010-11:** The **Planning Commission** revived the SWF proposal in **2010-11**, suggesting a **USD 10 billion fund** funded by foreign exchange reserves, PSUs, or budget allocations.
 - **2015:** **NIIF** was set up that remains **India's main structured investment fund**.

Note: The **Santiago Principles** refer to a set of **24 voluntary guidelines** that promote transparency, good governance, accountability, and prudent investment practices for **Sovereign Wealth Funds (SWFs)**.

- These principles were established in **2008** by the **International Forum of Sovereign Wealth Funds (IFSOF)**, a voluntary organisation of global SWFs.

Why does India Need a SWF?

- **Unlocking Public Sector Wealth:** A SWF could unlock an estimated **Rs 40 lakh crore (USD 450-500 billion)** across **80 listed enterprises** by investing and increasing returns from these state-owned entities.
- **Fiscal Deficit Reduction:** A **2% divestment** from government equity could generate over **USD 10 billion annually**, reducing India's **fiscal deficit** from **4.9% to 4.6% of GDP**.
- **Diversifying Investments:** The **2007-09** crisis highlighted the risks of relying on **'secure' securities like US treasuries**.
 - India's SWF could **diversify investments** and seek higher returns.
- **Capitalizing on Excess Reserves:** India's excess **forex reserves**, covering over nine months of imports, could be better utilized to boost **national wealth**.

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Note:

- **Support for Strategic Sectors:** It can drive **long-term growth and innovation** by investing in sectors like **electric vehicles, hydrogen energy, semiconductors, biotechnology, and AI**, positioning India as a global leader.
- **Social Welfare:** SWFs can generate **non-debt financial resources** for social sector commitments, enhancing fiscal flexibility for **welfare programs** and national growth investments.
- **Projecting Soft Power:** SWFs could support **advocacy, incubate ventures, provide disaster relief, and invest in SWFs of other nations like Norway** boosting India's international standing and soft power.

What Concerns are Associated with SWFs?

- **Current Account Deficit:** SWFs are typically for countries with **mineral wealth or trade and budget surpluses** but India faces **persistent current account deficits** and a significant **fiscal deficit**.
- **Macroeconomic Risks:** **Global growth slowdown**, rising sovereign debt, and tightening financial conditions could impact SWFs by **lowering investment returns**, straining fiscal health, and increasing financial instability.
- **Geopolitical Tensions:** Geopolitical tensions and the shift away from **globalization** could disrupt SWF **investment strategies**, affecting **cross-border investments**, supply chains, and trade policies.
- **Environmental Risks:** SWFs risk losses from **climate-exposed industries and stranded assets** if environmental policies fail, particularly in **fossil fuels**.
- **Technological Vulnerabilities:** SWFs managing large sums of public money face **growing risks of fraud and data theft**.
 - Rapid advancements in technology could disrupt traditional investment models.

Contract Farming in India's Agriculture

Why in News?

Contract farming has had a **positive impact** in India, particularly for processed potatoes, and this success can be **extended to other crops** and food products.

What is a Contract Farming Model?

- **About:** Contract farming is a system where **farmers (producers)** and **buyers** enter into an agreement regarding the **production and marketing** of farm products.
 - The agreement specifies the **price, quantity, quality standards, and delivery date** for the farmer's produce **before the production process begins**.
- **Advantages:**
 - **Efficient Supply Chain Management:** It **reduces wastage of perishables** ensuring **fair pricing** for producers and consumers.
 - **Access to Credit and Inputs:** Farmers benefit from **credit, inputs, and extension services** provided by contracting firms for **improved quality and production**.
 - **Enhanced Operational Efficiency:** It helps firms **reduce costs, boost efficiency, and meet demand** for high-value, non-traditional crops.
 - **Increased Income for Farmers:** Contract farmers often **earn higher incomes** than non-contract farmers due to **improved yields, guaranteed prices, and efficient practices**.
 - An RBI paper revealed that **farmers receive only 31%–43%** of the consumer price for fruits and vegetables that can **increase under contract farming**.
 - **Meeting Food Safety Standards:** Firms often train farmers in **food safety practices**, such as using **organic fertilizers** and pesticide control, to meet international standards like the **Maximum Residue Level (MRL)**.
 - **Better Price for Consumers:** It **cuts intermediaries**, offering **better prices** for consumers and **competitive rates** for products without middlemen markups.
- **Concerns:**
 - **Power Imbalance:** Small farmers often **lack bargaining power** with large agribusinesses that may lead to **exploitative terms**, especially when **dependent on contracts and investments** in specific crops or assets.

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Note:

- **Risk of Default:** Farmers may default if market prices rise, while firms may refuse procurement after a price crash, leaving farmers without a market.
- **Loss of Control Over Land:** Firms often supply all inputs, leaving farmers with only land and labor to offer. It can create situations of forced cultivation and indirect land grabs by firms.
- **Environmental Degradation:** Intensive contract farming can harm the environment through excessive water use, monocropping-related infestations, and increased pesticide and fertilizer application.
- **Food Insecurity:** Farmers might prioritize high-value cash crops for contract farming at the cost of growing food crops, affecting local food security.
- **Policy Status:**
 - **Model APMR (Agricultural Produce Marketing Regulation) Act, 2003:** It introduced compulsory registration for contracting firms, dispute resolution, market fee exemptions, and protected farmers' land ownership under contracts.
 - **Model Agriculture Produce and Livestock Contract Farming Act, 2018:** Key provisions included state-level authorities for contract farming implementation, promotion of FPOs, insurance for contracted produce.

What are Key Points on Potato Production in India?

- **About Potato:** A potato is a starchy root vegetable rich in carbohydrates. It originated in the Peruvian-Bolivian Andes region of South America.
 - Potatoes need friable, porous, well-drained soil.
- **Potato Production:** India is the 2nd-largest potato producer globally after China.
 - **Top Producer:** Uttar Pradesh, West Bengal, and Bihar.
 - The Kufri varieties of potato were developed by the Central Potato Research Institute (CPRI), Shimla.
- **Legal Dispute (PepsiCo vs. Indian Farmers Case):** In 2016, PepsiCo filed lawsuits against farmers in Gujarat,

accusing them of unauthorized cultivation of FL 2027 (potato variety) and demanded compensation.

- In 2024, the Delhi High Court reinstated PepsiCo's FL 2027 registration under the Protection of Plant Varieties and Farmers' Rights Act, 2001 reviving the dispute.

Fiscal Health Index 2025

Why in News?

In a bid to enhance fiscal governance, National Institution for Transforming India (NITI Aayog) launched its inaugural Fiscal Health Index (FHI) 2025.

- The Index provides a comprehensive evaluation of the fiscal health of 18 major Indian states for 2022-23, offering data-driven insights that will guide policy interventions at the state level.

What is the Fiscal Health Index (FHI)?

- **About:** The Fiscal Health Index (FHI) is an assessment tool to evaluate the fiscal health of Indian states and highlights specific areas for improvement.
- **Parameter:** FHI ranks states based on five key sub-indices.
 - **Quality of Expenditure:** Measures the proportion of spending on long-term growth (developmental) vs. routine operations (non-developmental).
 - Assesses capital investments as a share of economic output.
 - **Revenue Mobilization:** Reflects a state's ability to generate its own revenue and cover its expenditures independently.
 - **Fiscal Prudence:** Tracks deficits (fiscal and revenue) and borrowing relative to economic output, signaling fiscal health.
 - **Debt Index:** Assesses the state's debt burden, focusing on interest payments and liabilities relative to economic size.
 - **Debt Sustainability:** Compares Gross State Domestic Product (GSDP) growth to interest payments, with a positive difference indicating fiscal sustainability.

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Note:

MAJOR SUB-INDICES	MINOR SUB-INDICES
1. Quality of Expenditure	1.1 Total Developmental Expenditure/Total Expenditure
	1.2 Total Capital Outlay/ GSDP*
2. Revenue Mobilization	2.1 State Own Revenue/ GSDP*
	2.2 State Own Revenue/ Total Expenditure
3. Fiscal Prudence	3.1 Gross Fiscal Deficit/ GSDP*
	3.2 Revenue Deficit/ GSDP*
4. Debt Index	4.1 Interest Payments/Revenue Receipts
	4.2 Outstanding Liabilities/ GSDP*
5. Debt Sustainability	5.1 Growth Rate of GSDP* - Growth Rate of Interest Payments

GSDP at current prices for the year 2022-23

- **Aim:** Guide policymakers in formulating **targeted reforms for sustainable economic growth**, fiscal consolidation, and better **resource management** at the state level.
 - Encourage healthy competition among states, aligning their fiscal strategies with national economic objectives.
- **Key Findings of FHI 2025:**
 - **Top Performers:** Odisha leads with the highest overall FHI score of **67.8**, followed by Chhattisgarh (55.2), Goa (53.6), Jharkhand (51.6), and Gujarat (50.5), with strengths in **Debt Index, Revenue Mobilization, and Fiscal Prudence**.
 - **Revenue Mobilization:** Goa, Telangana, and Odisha lead in Revenue Mobilization and Fiscal Prudence.
 - Odisha, Jharkhand, Goa, and Chhattisgarh excel in non-tax revenue, with Odisha heavily relying on **mining-linked premiums** and Chhattisgarh benefiting from **coal block auctions**.
 - Punjab and West Bengal lag in Revenue Mobilization, highlighting disparities in fiscal management and economic resilience.
 - Aspirational States like **Punjab, West Bengal, Andhra Pradesh, and Kerala** face significant fiscal challenges.
 - Punjab and Kerala struggle with **Debt Sustainability** and **Quality of Expenditure**, while Andhra Pradesh faces high **Fiscal Deficits**.
 - **Capital Expenditure:** Madhya Pradesh, Odisha, Goa, Karnataka, and Uttar Pradesh allocate 27% to **Capital Expenditure**, enhancing long-term investments.
 - States like West Bengal, Andhra Pradesh, Punjab, and Rajasthan allocate only 10%, impacting long-term growth.
 - **Debt Management:** Top states like Odisha and Goa manage debt effectively, with low risk of default, while bottom states like West Bengal and Punjab show growing debt burdens, raising concerns about **debt sustainability**.

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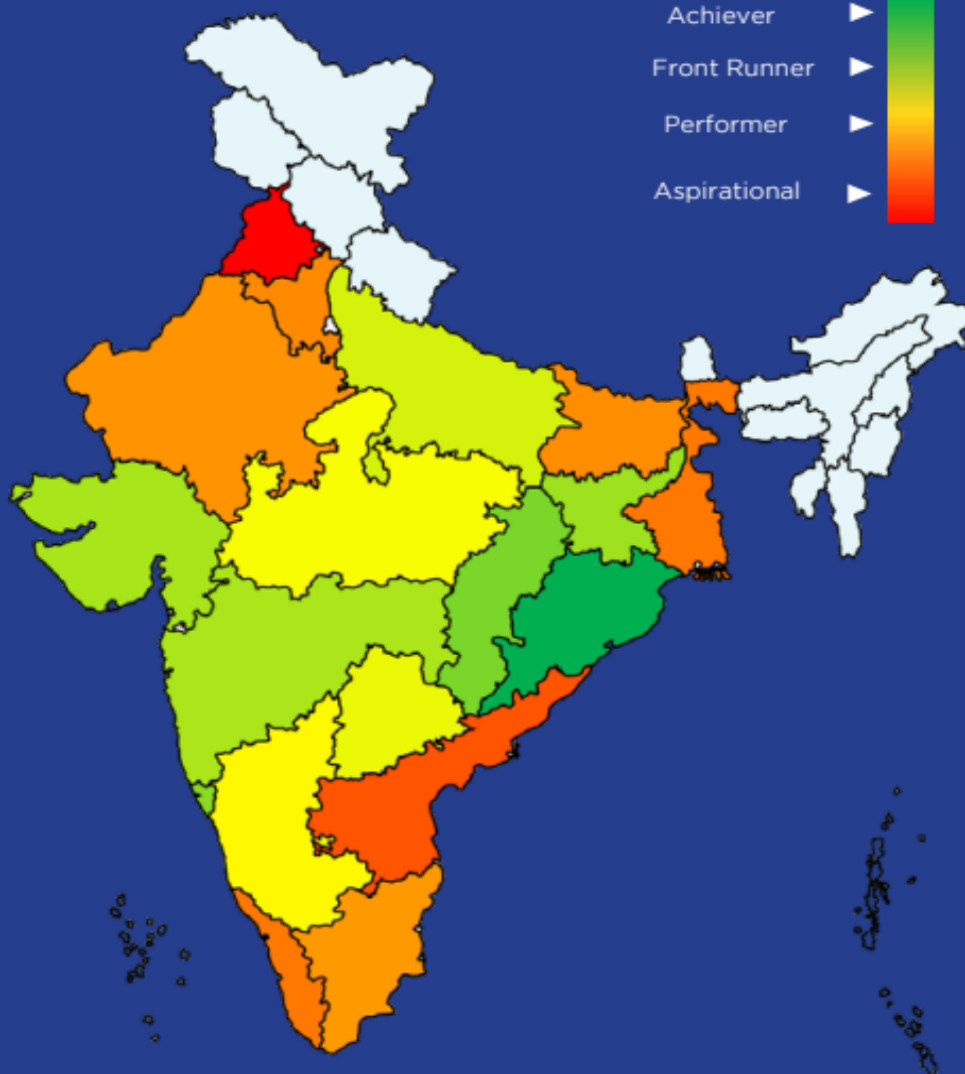


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Note:

State-wise Composite FHI Score Heatmap



Achiever	Front Runner	Performer	Aspirational
Odisha (1)	Maharashtra (6)	Tamil Nadu (11)	Kerala (15)
Chhattisgarh (2)	Uttar Pradesh (7)	Rajasthan (12)	West Bengal (16)
Goa (3)	Telangana (8)	Bihar (13)	Andhra Pradesh (17)
Jharkhand (4)	Madhya Pradesh (9)	Haryana (14)	Punjab (18)
Gujarat (5)	Karnataka (10)		

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Note:

NITI Aayog

(National Institution for Transforming India)

HISTORY- PLANNING COMMISSION

Set up in **1950**
to direct investment
activity

Replaced by **NITI
Aayog** on January
1, 2015

Composition of #NITIAayog

Chairperson

Prime Minister

Governing Council

CMs (States) and Lt Governors (UTs)

Regional Councils

Formed on need-basis, comprising CMs
and Lt Govs of the region

Members

Full-time basis

Part-time Members

Max 2, rotational, from relevant institutions

Ex-officio Members

Max 4 from Council of Ministers,
nominated by PM

Special Invited

Experts, specialists, practitioners with
domain knowledge

Chief Executive Officer

Appointed by PM for fixed tenure
(Secy rank)

Secretariat

As deemed necessary

OBJECTIVES

- ↳ Foster **cooperative federalism**
- ↳ Develop mechanisms to **formulate credible plans (village level)**
- ↳ Interests of **national security** in economic strategy and policy
- ↳ Special **attention to weaker sections**
- ↳ Provide advice and encouragement to partnerships between **key stakeholders, national-international Think Tanks, research institutions**
- ↳ Create **knowledge, innovation and entrepreneurial support system**
- ↳ **Platform** for inter-sectoral and inter-departmental **issues resolution**
- ↳ Maintain **state-of-the-art Resource Centre**

NITI Aayog vs Planning Commission

NITI Aayog	Planning Commission
Advisory Think Tank	Extra-constitutional body
Wider expertise	Limited expertise
Secretaries (CEO) appointed by PM	Secretaries appointed by usual process
Bottom-up approach	Top-Down approach
No Mandate to impose policies	Imposed policies on states
No power to allocate funds	Allocated funds to ministries/state govts

Major Initiatives

- ↳ SDG India Index
- ↳ Atal Innovation Mission
- ↳ e-AMRIT Portal (electric vehicles)
- ↳ Good Governance Index
- ↳ India Innovation Index
- ↳ Aspirational District Programme
- ↳ 'Methanol Economy' programme

Issues

- ↳ **No powers** in granting **discretionary funds** to states
- ↳ Only an **advisory body**
- ↳ **No role** in influencing private or public investment
- ↳ **Politicisation of the organisation**
- ↳ **Lacks the requisite power** to bring positive change



Read more: [RBI Report on State Finances 2024-25](#)

UNCTAD Global Investment Trends Monitor Report

Why in News?

The [United Nations Conference on Trade and Development \(UNCTAD\)](#) has released its **Global Investment Trends Monitor for 2024**, reporting an **8% decline** in global **Foreign Direct Investment (FDI)**.

- This threatens funding for critical sectors like **infrastructure** and **renewable energy** which are essential for achieving the [Sustainable Development Goals \(SDGs\)](#).

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Note:

United Nations Conference on Trade and Development (UNCTAD)

➤ **About:**

- It is the **leading institution** of the UN established in 1964, that is **focused on trade and development** of developing countries.
- It **provides expertise and policy advice** on issues related to trade, investment, finance, and technology transfer to promote sustainable development.

➤ **Headquarters:** Geneva, Switzerland.

➤ **Structure:** It is a **part of the UN Secretariat, reports to the General Assembly** and Economic and Social Council; has its own membership, leadership, and budget.

➤ **Flagship Reports:**

- [Trade and Development Report](#)
- [World Investment Report](#)
- Digital Economy Report
- [Technology and Innovation Report](#)



What are the Key Highlights of the Global Investment Trends Monitor for 2024 Report?

➤ **Global FDI Trends:**

- **Global FDI:** Global **Foreign Direct Investment (FDI)** flows increased by 11% reaching about **USD 1.4 trillion in 2024**. However, when **excluding flows through European conduit economies**, FDI decreased by around 8%.
 - Conduit economies are countries that **allow financial flows to be diverted to other countries for tax avoidance**.
Eg: Ireland, Luxembourg, the Netherlands, Switzerland and the UK.

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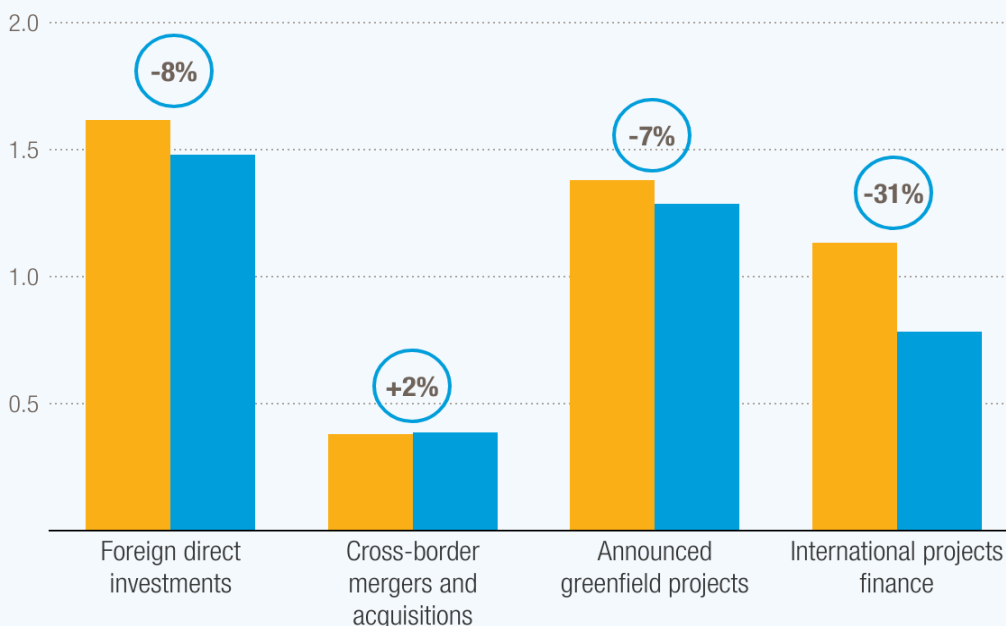
- **Developed Economies:** FDI into developed economies **surged by 43%**, driven primarily by multinational transactions passing through **conduit economies**.
 - However, excluding these transactions, FDI into developed economies fell by **15%**.
- **Developing Economies:** FDI flows to developing economies declined by 2% in 2024, following a 6% drop in 2023.



Foreign direct investments fell 8% in 2024

Global investment trends, 2024 vs 2023, billions of dollars

2023 2024



Source: UN Trade and Development (UNCTAD), based on information from The Financial Times, fDi Markets (www.fDimarkets.com) and LSEG Data & Analytics.

➤ Regional Investment Trends:

- **Developed Economies:**
 - FDI in Europe **dropped 45%** (excluding conduit economies) but **North America** saw a **13% rise**.
 - **Greenfield project announcements in developed economies** fell by **10%**, but the value of greenfield projects rose by 15%, mainly due to semiconductor megaprojects.
- **Developing Economies:**
 - **Greenfield investment announcements** decreased by **6%** in number.
 - **Africa and Asia saw the largest declines** in greenfield project numbers, with nearly 200 fewer projects in Africa and 150 fewer in Asia.
 - It also declined in **Latin America and the Caribbean**.
 - FDI in **Africa surged by 84%** to USD 94 billion, mainly driven by a large project in Egypt.
 - FDI in Central America has increased.

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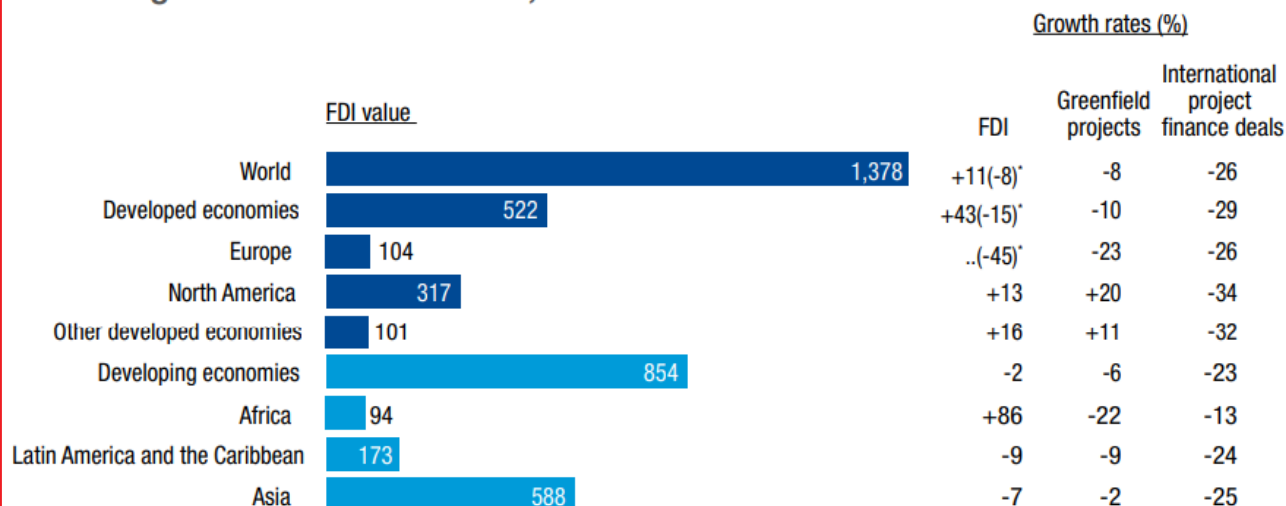
Note:

- FDI flows to developing Asia decreased by 7%, with China experiencing a 29% decline, while ASEAN saw a 2% increase and India saw a 13% rise.
- India experienced growth in greenfield projects. The international project finance in India dropped by 23% in number and 33% in value.



Figure 2

Regional investment trends, 2024 vs 2023



Source: UNCTAD, based on information from The Financial Times, fDi Markets (www.fDimarkets.com) and LSEG Data & Analytics.

*Excluding conduit economies.

➤ SDG-Related Investments:

- Investments in sectors related to the SDGs, including infrastructure, agrifood systems, and water and sanitation, decreased by 11% in 2024.
- This drop could impact critical sectors such as affordable and clean energy (SDG 7), industry and infrastructure (SDG 9), and water and sanitation (SDG 6).
- Renewable energy project finance slowed, with international deals down 16%, and domestic finance down 60%.

What are the Prospects for Global FDI in 2025 as per UNCTAD Report?

➤ Global FDI Outlook:

- Global FDI is expected to grow moderately, with the US and EU seeing stronger growth.
 - US investment abroad has declined as focus shifts to domestic projects, while Chinese investment abroad has increased.
- ASEAN, Eastern Europe, West Asia, North Africa, and Central America may benefit from global supply chain shifts.
- For India, moderate FDI growth is expected in 2025, driven by improved financing conditions, increased mergers and acquisitions (M&A), and ongoing reforms.

➤ Key Influencing Factors:

- FDI growth will depend on GDP, trade, inflation, market volatility, geopolitical dynamics, technology advancements, and policy changes.
- Private equity and sovereign investors will also play a significant role.

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Note:

➤ Economic Growth:

- **Stable GDP growth** is expected with **improved projections for capital formation and trade**, benefiting global investments.
- **Lower interest rates** could reduce borrowing costs, boosting cross-border investments, especially in infrastructure.


➤ Technology & Sector Trends:

- Investments in sectors like **AI, cloud computing, cybersecurity**, and **renewable energy (green hydrogen, electric vehicles)** are expected to rise.

What is Foreign Direct Investment (FDI)?

➤ About:

FDI and FPI



Foreign Direct Investment (FDI)

About:

- Investment made by foreign entities/individuals in **businesses and assets** located in a different country

FDI Routes:

- Automatic Route:**
 - No prior government approval required
 - Up to 100% allowed in non-critical sectors
- Government Approval:**
 - Necessary in certain sectors or for investments above specific thresholds
 - Administered by **Department for Promotion of Industry and Internal Trade (DPIIT)** and **RBI**

Examples of Approval via Auto and Govt Route:

- Banking (Private sector):** up to 49% (auto) + above 49% and up to 74% (Govt)
- Defence:** up to 74% (auto) + above 74% (Govt)
- Healthcare (Brownfield):** up to 74% (auto) + above 74% (Govt)
- Telecom Services:** up to 49% (auto) + above 49% (Govt)

Foreign Investment Promotion Board (FIPB):

- Comes under Ministry of Finance
- Responsible for processing FDI proposals - facilitated by **Foreign Investment Facilitation Portal (FIFP)**
- Making recommendations for Government approval

Govt's prior approval is mandatory for FDI from countries sharing land border with India (China, Bangladesh, Pakistan, Bhutan, Nepal, Myanmar and Afghanistan)

India's Top 5 FDI Sources (FY 2022-23):

- Mauritius
- Singapore
- USA
- Netherlands
- Japan

India's Top Sectors Attracting FDI (FY 2022-23):

- Services Sector
- Computer Software & Hardware
- Trading
- Telecommunications
- Automobile Industry

Foreign Portfolio Investment (FPI)

About:

- Investments made by foreign individuals, institutions, or funds in financial assets
- Known as **Fly by Night** or **Hot Money**

Imp Features:

- Purchase of financial assets** occur without gaining ownership
- Passive investment approach
- Investors earn returns through **dividends, interest, and capital appreciation**

Example:

- Stocks, Bonds etc.

Regulatory Body:

- Securities and Exchange Board of India (SEBI)

Difference between FDI and FPI		
Features	FDI	FPI
Nature of Investment	Long-term	Short-term
Objective	Long-term presence in a foreign country	Earning quick returns on investments
Control	Significant (over the invested entity)	No or limited control
Investments in	Tangible assets (e.g., factories, buildings)	Financial assets (e.g., stocks, bonds)
Returns	Profits, Dividends, and Capital appreciation	Dividends, Interest, and Capital appreciation
Policy Regulations	Govt policies and sector-specific regulations	Flexible regulations and easier entry/exit
Impact on Economy	Job creation, technology transfer, and economic growth	Short-term liquidity and impact on stock market performance



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Note:

➤ **Types of FDI:**

- **Greenfield Investment:** Creating new business operations from the ground up, offering high control and customization.
- **Brownfield Investment:** Expanding through mergers, acquisitions, or joint ventures by utilizing existing facilities.
 - While control may be lower than in Greenfield investments, it still allows significant influence over operations.

➤ **FDI in India:**

- **Regulation:** FDI in India is governed by the **Foreign Exchange Management Act (FEMA), 1999**, and is administered by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, under the Ministry of Commerce and Industry.
- **FDI Prohibition in India:** FDI is strictly prohibited in sectors like atomic energy generation, gambling and betting, lotteries, chit funds, real estate, and the tobacco industry.
- **Latest Data Related to FDI:** FDI inflows into India crossed USD 1 trillion between April 2000 and September 2024, totaling USD 1,033.40 billion.
 - From 2014 to 2024, India attracted USD 667.4 billion in cumulative FDI, a 119% increase from the 2004-2014 period.

What are the Opportunities and Challenges Related to FDI in India?

➤ **Opportunities for FDI in India:**

- **Large Market Size and Growth:** India's 1.4 billion population drives high demand for both affordable and high value goods.
 - India is one of the fastest growing economies and its GDP is projected to grow at 6.5% in 2025 and 2026 as per IMF.
- **Favorable Demographics:** A young workforce (over 65% below 35 years) provides a relatively skilled and cheap labour pool.
- **Government Initiatives:** Policies like **"Make in India," "Atmanirbhar Bharat,"** and ease of doing business reforms streamlined requirements and made favourable destinations to attract FDI.
- **Strategic Location:** India's location acts as a gateway to the emerging markets of South Asia, the Middle East, and Southeast Asia.

➤ **Challenges in Attracting FDI:**

- **Regulatory Hurdles:** Complex tax systems, inconsistent policies (**retrospective taxation**), and bureaucratic delays hinder business operations.
- **Infrastructure Challenges:** Poor infrastructure, particularly in rural and suburban areas, limits ease of doing business.
- **Labor Laws:** Rigid labor laws and low labor market flexibility create challenges for businesses.

➤ **Expectations from Investors:**

- **Technology Transfer:** India seeks foreign expertise and technology in sectors like manufacturing, healthcare, and renewable energy.
- **Job Creation:** Investors are expected to create employment opportunities for India's growing workforce.
- **Sustainable Investments:** India encourages green and sustainable investments to meet its climate goals (e.g., **National Action Plan on Climate Change**).

Challenges and Reforms in India's Taxation System

Why in News?

The current tax system, particularly under the **Goods and Services Tax (GST)** framework, **retards growth** that hinder business development, suppress consumption, and damage India's investment reputation.

How is the Tax System in India?

- **About taxes:** **Taxes** are mandatory financial charges or levies imposed by a government on **individuals, businesses, or property** to fund public services and government operations.
 - There is **no quid pro quo** between the tax payer and the public authority.
 - The Tax System in India consists of a **mix of Direct Taxes, Indirect Taxes and Other Taxes**.
- **Types of Taxes:**
 - **Direct Taxes:** They are paid by individuals or entities to the government and **cannot be transferred** to others.
 - **Indirect Taxes:** They are levied on goods and services, collected by intermediaries from consumers at the point of sale, and remitted to the government.

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Note:

- **Other Taxes:** These taxes are levied for **specific purposes**, often funding **infrastructure or welfare programs**.
- **Direct Taxes:**
 - **Income Tax:** It is imposed on **income** that is progressive in nature, with different slabs for various **taxpayer categories**.
 - **Capital Gains Tax:** Tax on gains from **investments**, with different rates for short-term and long-term holdings.
 - **Securities Transaction Tax:** Tax on **transactions involving securities** in the stock market.
 - **Perquisite Tax:** Tax on **benefits provided by an employer** to employees (e.g., housing, cars).
 - **Corporate Tax:** Tax paid by companies on their **earnings**, with **different slabs for various income levels**.
 - **Minimum Alternative Tax (MAT):** **MAT** ensures companies pay a minimum tax, set at **18.5%**.
 - **Fringe Benefit Tax (FBT):** Tax on **non-cash benefits** provided by employers (abolished in 2009).
 - **Dividend Distribution Tax (DDT):** Tax on **dividends** paid by companies.
 - **Banking Cash Transaction Tax:** Tax on banking transactions (abolished in 2009).
- **Indirect Taxes:**
 - **GST:** A consumption-based tax on value-added goods and services (**ad valorem tax**), levied at each stage of the supply chain.
 - It is **regressive in nature** as it is imposed at the **same rate** on all individuals **irrespective of income**.
 - **Value Added Tax (VAT):** Tax on goods sold, applied at each stage of the supply chain. It is imposed on goods that are **excluded from the GST regime** like alcoholic beverages, petroleum products etc.
 - **Custom Duty & Octroi:** Taxes on imported goods (Custom Duty) and on goods crossing state borders (Octroi).
 - **Excise Duty:** Tax on goods manufactured within India.
- **Other Levies (Cess):**
 - **Education Cess:** A **2% tax** to fund educational initiatives like developing classrooms, libraries, providing **scholarships** etc.
 - **Swachh Bharat Cess:** Tax introduced in **2015** to fund **cleanliness initiatives** like **Swachh Bharat Mission**.

- **Krishi Kalyan Cess:** Tax introduced in **2016** to support **agricultural welfare** like irrigation projects, **subsidized seeds** etc.

What is the Goods and Services Tax (GST)?

- **About:** GST is a **value-added tax** applied to goods and services for **domestic consumption**.
 - It is an **indirect tax** i.e., while **consumers pay the GST**, it is **collected and remitted** to the government by the **businesses** selling the goods and services.
- **Legislative Basis:** The **101st Amendment Act, 2016** established the **GST system** by introducing a single **indirect tax regime** for the entire country by subsuming various taxes.
 - **Central taxes** subsumed under GST are **Central Excise Duty, Additional Excise Duties, Service Tax**, etc.
 - **State taxes** subsumed under GST are **State VAT (Value Added Tax), Central Sales Tax, Luxury Tax**, etc.
- **Main Features:**
 - **Supply Side:** GST applies to the **supply of goods and services**, unlike the old tax on manufacturing, sale, or provision.
 - **Destination-Based Taxation:** GST follows **destination-based consumption taxation**, **unlike the origin-based system**.
 - **Dual GST:** Both the **Centre (CGST)** and **States (SGST)** levy tax on a common base.
 - **Imports** of goods or services are treated as **inter-state supplies** and are subject to **Integrated Goods & Services Tax (IGST)** along with applicable **customs duties**.
 - **GST Council:** CGST, SGST, and IGST rates are mutually decided by the Centre and States, based on the **GST Council's** recommendations.
 - **Multiple Rates:** GST is levied at five rates i.e., **0% (nil-rated), 5%, 12%, 18%, and 28%**, with item classifications determined by the **GST Council**.
- **GST Council:** **Article 279A** establishes the GST Council, headed by the **Union Finance Minister** and comprising **state-nominated ministers**.
 - The **Centre holds 1/3rd voting power**, while **states have 2/3rd**, with **decisions** made by a **3/4th majority**.

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Note:

What are the Challenges in the Current Taxation System?

- **Retrospective Taxation:** The **55th GST Council**'s recommendation for a **retrospective tax** amendment is a **regressive move** that disregards Supreme Court (SC) rulings.
 - The ill-advised retrospective amendment to **nullify** the **Vodafone verdict** resulted in an **international penalty of Rs 8000 crore**, which India had to pay.
 - In 2014, the former Finance Minister **Arun Jaitley** termed retrospective taxation "tax terrorism".
 - This **erodes investor confidence** and discourages long-term investments, as companies cannot rely on consistent rules.
- **Revenue Maximisation:** The GST Council's single-minded **focus** on **maximizing revenue** results in **arbitrary and exaggerated tax demands**, leading to business frustration and inefficiencies.
- **Input Tax Credit Denial:** Denying businesses **input tax credit**, particularly in sectors like real estate, is economically detrimental.
 - This **increases the final price** for consumers, **distorts market competition**, and dampens sectors that could stimulate growth.
 - In the **Chief Commissioner of Central Goods and Service Tax & Ors. Vs Safari Retreats Case, 2024**, the SC ruled that the real estate sector can claim **Input Tax Credit (ITC)** on construction costs for **commercial buildings used for renting or leasing purposes** that was earlier not allowed.
- **Complicated Tax Structure:** The multiple tax rates in both indirect and direct taxes, complex tax notifications, **complicated system of exemption and concessions**, and circulars create an environment that **benefits tax professionals** rather than businesses.
- **Low Direct Tax Collection:** Corporations, particularly **multinationals**, use **transfer pricing** to shift profits from **high-tax to low-tax jurisdictions**, reducing their tax liabilities.
 - Some corporations **underreport their income or overstate their expenses** to reduce their tax liability.
 - Such **low direct tax collection** forces the government to generate revenues from other sources like **high indirect tax rate, surcharge, and cess**.

What are the Consequences of Complex Tax Structure?

- **Imports Dependency:** A burdensome tax system makes **domestic manufacturing less competitive** compared to imported goods, leading to **over-reliance on foreign products**.
 - E.g., imports from China increased from **USD 70 billion in 2018-19 to USD 100 billion in 2023-24**.
 - It also leads to **inverted duty structure** where the **rate of tax on inputs** used is **higher than the rate of tax on the finished goods**.
 - The share of manufacturing in India's **GDP** has **fallen below 15%**.
- **Currency Depreciation:** As businesses face higher costs, reduced competitiveness, and suppressed growth, it leads to **weakening of the Indian rupee** and escalating the trade deficit.
 - It can lead to **twin account deficits** when a country has both a **fiscal deficit** and a **current account deficit**.
- **Investment Discouragement:** A complicated tax system, with **unclear structures and retrospective amendments**, creates uncertainty for investors and negatively impacts **ease of doing business**.
- **Lower Revenue Collection:** Businesses struggle to navigate the complex tax system, resulting in either **underreporting or tax evasion**.
 - Lower revenue collection forces the government to **resort to higher taxes** to meet fiscal targets, which leads to a **cycle of stagnation**.
- **Downward Economic Spiral:** Lower growth, reduced investment, and rising imports create a vicious cycle that **undermines long-term economic stability** and **perpetuates inefficiencies**.

India's Fiscal Consolidation

Why in News?

India has significantly reduced its **fiscal deficit** from a pandemic high of **9.2% of GDP** in FY 2020-21 to an estimated **5.6% in FY 2023-24**, with a target of **4.9% for FY 2024-25**.

- Through **targeted spending** and enhanced **revenue collection**, the country has made substantial progress in **fiscal consolidation** under the **Fiscal Responsibility and Budget Management (FRBM) Act, 2003**.

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Note:

What is Fiscal Consolidation?

- **About:** Fiscal consolidation refers to the **prudent management of government finances** to ensure long-term economic stability.
 - It focuses on balancing government **revenue (taxes and non-tax receipts) with expenditure**, aiming to **minimize fiscal deficits, control public debt**, and support sustainable economic growth.
- **Key Features:**
 - **Prudent Spending:** Focus on **essential, efficient, and productive areas** like infrastructure, health, and education.
 - **Revenue Optimization:** Maximize **tax collection**, reduce **tax evasion**, and broaden the **tax base**.
 - **Deficit Control:** Limit fiscal deficits to **avoid excessive borrowing**.
 - **Debt Management:** Keep **public debt sustainable** to prevent economic crises.
 - **Accountability:** Ensure transparency through **audits and compliance** with regulations.
- **Significance:**
 - **Macro-Economic Stability:** It controls **inflation** by lowering government borrowing (**low money circulation**), stabilizes **currency exchange rates** (reducing volatility in exchange rates), and ensures stable economic growth.
 - **Reduced Debt Burden:** Prevents **unsustainable borrowing**, thereby reducing the burden on future generations.
 - **Investor Confidence:** Signals **sound economic management**, attracting domestic and foreign investments.
 - **Efficient Resource Utilization:** Prevents wasteful expenditure and ensures resources are directed toward development priorities.

How Does Fiscal Consolidation Impact Economic Stability and Growth?

- **Inflation Control:** Under the **FRBM Act, 2003**, the fiscal deficit was reduced from **4.5% of GDP in FY 2013-14 to 3.4% by FY 2018-19** reducing government borrowing.
 - By **curbing excessive borrowing** and government spending, fiscal consolidation helps **keep prices stable** and inflation in control.
- **Increased Capex:** During the **Covid-19 pandemic**, India focused financial relief on sectors like **MSMEs and displaced individuals**, while prioritizing **capital**

expenditure (capex) which increased from **1.6% of GDP in FY 2014-15 to 3.2% in FY 2023-24**.

- It helped **cushion the negative economic impact** on vulnerable sectors and laid the foundation for **long-term economic growth** by improving critical infrastructure
- **Revenue Mobilization:** The **digitization of the tax system** led to greater efficiency in tax collection, with tax receipts rising from **10% of GDP in FY 2014-15 to 11.8% in FY 2023-24**.
 - Increased tax revenues enhanced the government's ability to **invest in public services**.
- **Long-Term Structural Reforms:** India launched the **Production Linked Incentive (PLI) scheme** to **boost domestic manufacturing**.
 - It helped **mitigate the effects of global trade disruptions and geopolitical tensions**, ensuring steady growth despite global uncertainties.
- **Capacity Building:** As the fiscal deficit narrowed, India became more competitive in exports, reduced its reliance on imports, and improved its trade balance.
 - As the fiscal deficit narrowed and the economy became more stable, India's **competitiveness in exports** improved.

What is FRBM Act, 2003?

- **About:** The FRBM Act was enacted in 2003 to establish financial consolidation in the government to **reduce fiscal deficits** and promote **fiscal responsibility**.
- **Key Features:** Union and States to reduce the Fiscal Deficit to 3% of GDP (Union) and 3% of GSDP (States), and eliminate the Revenue Deficit by 2008.
 - Present the **Medium Term Fiscal Policy, Macroeconomic Framework, and Fiscal Policy Strategy Statements** with the Union Budget.
- **Escape Clause:** Under **Section 4(2)** of the FRBM Act, 2003, the government can **exceed its fiscal deficit target by up to 0.5% of GDP** in times of severe economic stress in situations such as **national security/act of war, national calamity, etc.**
- **Amendments:** It was amended in **2012** to **remove the requirement for a 0% Revenue Deficit**, instead mandating a **0% Effective Revenue Deficit by 2015**.
 - Effective revenue deficit implies **revenue deficit minus grants to states for capital assets creation**.
 - In **2016**, **NK Singh Committee** was set up to suggest improvements to the Act due to the perceived rigidity of its targets.

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Note:

N.K. Singh Committee Recommendations

- **Deviations:** Both Union and State governments may exceed the fiscal deficit target by up to 0.5% of GDP.
 - **Primary deficit** target of 0% shifted to 2022-23 (earlier 2020-21).
 - **Primary deficit** is the difference between the government's **fiscal deficit** and its **interest payments** on existing public debt.
- **Debt as Primary Target:** Focus on **debt reduction** rather than rigid fiscal deficit targets.
- **Fiscal Council:** Creation of an autonomous **Fiscal Council** with independent members to oversee fiscal policy.
- **Borrowings:** Restrictions on **borrowing** from RBI, allowing it only in specific cases:
 - Meeting **temporary shortfalls** in receipts.
 - RBI purchases **government securities** for deviations from targets.
 - RBI subscription to government securities in certain conditions.

CBDT Issues New Guidelines for PPT under DTAA

Why in News?

The **Central Board of Direct Taxes (CBDT)** has introduced new guidelines for applying the **Principal Purpose Test (PPT)** under **India's Double Tax Avoidance Agreements (DTAAs)**, aiming to prevent tax avoidance.

- These guidelines apply prospectively, with specific exemptions for treaties with **Cyprus, Mauritius, and Singapore** due to grandfathering provisions.

What is the Principal Purpose Test (PPT)?

- **Principal Purpose Test:** The PPT is part of international tax rules aimed at **preventing misuse of tax treaties**.
 - Under the **Base Erosion and Profit Shifting (BEPS)** framework, the PPT checks whether a **business arrangement is genuinely commercial or created mainly to avoid taxes**.

- If the primary purpose is **tax-saving**, **treaty benefits can be denied**.

New Guidelines:

- **Applicability of PPT:** The PPT provisions will apply prospectively, meaning past investments, particularly those before 1st April 2017, will remain unaffected and not face retrospective scrutiny.
- **Grandfathering Provisions:** Treaties with **Singapore, Mauritius, and Cyprus** are excluded from PPT due to specific bilateral commitments.
 - Investments made under these treaties before specific dates will follow the original treaty provisions.
- **Reference to Global Standards:** The new guidelines encourage tax authorities to refer to international tax frameworks, including the **BEPS Action Plan 6** and the **UN Model Tax Convention**, when applying the PPT provisions.

What are Double Tax Avoidance Agreements (DTAAs)?

- **About:** DTAA is a treaty between two countries that helps taxpayers **avoid double taxation**.
 - For example, an NRI earning dividends from investments in India would typically face taxes in both India and the US. However, with a DTAA, they are taxed in only one country based on the agreement's terms.
 - This helps **NRIs avoid hefty taxes in two nations and reduces tax evasion**.
 - DTAAs cover various income types, including business profits, dividends, interest, royalties, and capital gains.
 - Each agreement specifies which **country can tax certain income**, usually granting the primary right to the country of origin while allowing the residence country to tax at a reduced rate.
- **India and DTAAs:** India has signed **94 DTAAs** with countries including Australia, France, Germany, Japan, Mauritius, the USA, and the UK.

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Note:

Base Erosion and Profit Shifting (BEPS) Framework

- The BEPS framework, an initiative led by the **Organisation for Economic Co-operation and Development (OECD)** with the backing of the **G20**, seeks to address **global tax avoidance** strategies employed by multinational corporations.
 - BEPS refers to strategies where **multinationals minimize tax by shifting profits to low-tax regions** or creating payments that can be subtracted from taxable income, like **royalties**.
 - **BEPS Framework** established in 2016, it unites **147 countries** (including India) to tackle tax avoidance. The framework consists of two key pillars:
 - **Pillar One:** Reallocation of profits to countries with consumer presence.
 - **Pillar Two:** **Global Minimum Corporate Tax (GMCT) of 15%** for MNEs.
- **BEPS Action 6** tackles treaty shopping and sets minimum standards for the BEPS Inclusive Framework members.
 - It provides rules to prevent treaty abuse and guides jurisdictions on tax policy considerations before entering into tax agreements.

UN Model Tax Convention

- It provides a framework for **negotiating bilateral tax treaties**. It aims to avoid **double taxation** and **prevent tax evasion**, with a focus on developing countries.
- It offers guidelines on taxing rights between countries and standardizes rules for income taxation, helping nations resolve cross-border tax issues.

Open Market Sale Scheme (Domestic) Policy

Why in News?

The Ministry of Consumer Affairs, Food & Public Distribution announced key revisions to the **Open Market Sale Scheme (Domestic) (OMSS(D)) policy** for 2024-25. These changes aim to improve **food security** and support **ethanol production** in India.

What is the Open Market Sale Scheme (Domestic) Policy?

- **About:** The OMSS involves the periodic sale of surplus food grains (**wheat and rice**) from the central pool managed by the **Food Corporation of India (FCI)**.
 - The grains are sold to dealers, bulk consumers, and retail chains through e-auctions at prices set by the **Ministry of Consumer Affairs, Food & Public Distribution**.
 - The scheme helps **curb inflation** and stabilize food grain prices meeting the needs of the **Targeted Public Distribution System (TPDS)** and **Other Welfare Schemes**.
- **Eligible Buyers:** Wheat is sold to Processors, Atta Chalkis, and Flour Millers, while rice is sold to traders.
 - States can also procure food grains through the OMSS, beyond their **National Food Security Act (NFSA), 2013 allocation**, without participating in auctions.
- **Auction Process:** Bidders can participate through e-auctions, with a minimum of 10 metric ton (MT) and a maximum of 100 MT for wheat and a minimum of 10 MT and maximum of 1000 MT for rice.
- **Revisions to the OMSS(D):** The Centre reduced the reserve price of **FCI rice under OMSS by Rs 550 to Rs 2,250 per quintal** for states and ethanol producers to boost sales, support ethanol production, and enhance food security.

Food Corporation of India (FCI)

- **Establishment:** The FCI is a **statutory body** established under the **Food Corporation's Act, 1964**.
- **Key Roles:**
 - **National Food Security Act (NFSA):** FCI procures grains to fulfill **NFSA, 2013** requirements and distributes them at **Central Issue Prices** to economically vulnerable sections.
 - **Public Distribution System (PDS):** Delivers food grains to State Governments and agencies for distribution through **Fair Price Shops**.
 - Promotes nutritional security through the **distribution of fortified rice**.
 - **Market Interventions:** Stabilizes food prices and mitigates inflation through procurement and **OMSS (Open Market Sale Scheme)**.
 - Provides a safety net for farmers by ensuring **Minimum Support Prices (MSP)**.

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Note:

- **Headquarters:** Headquartered in New Delhi, FCI operates through a nationwide network with Zonal, Regional, and District Offices.
- **Reforms By FCI:**
 - **Direct Benefit Transfer (DBT):** Implemented the “One Nation, One MSP” policy for transparent farmer payments.
 - **Digital Procurement:** Computerized food grain procurement nationwide for faster and transparent operations.
 - **Modernized Storage:** Transitioned from traditional storage to scientifically managed depots and silos.
 - **Integrated Supply Chain Management:** Streamlined operations through the ANNA DARPAN portal.
 - **AI-Based Grain Analysis:** Introduced **Automatic Grain Analyzers** for transparent procurement.
 - **Digital Quality Labs:** Linked quality control labs with centralized dashboards for real-time data.
 - **Storage and Transit Loss Reduction:** Reduced storage loss from **0.17% in 2013-14 to a net gain of 0.22% by 2023-24** and Cut transit losses from **0.46% to 0.16% over the same period.**
 - **Decentralized Procurement (DCP):** Increased state participation in DCP for both rice and wheat.

Offshore Sand Mining in Kerala

Why in News?

The Union government’s move to begin **offshore sand mining** along **Kerala’s coast** under the **Offshore Areas Mineral (Development and Regulation) Amendment Act, 2023 (OAMDR Amendment Act)**, has drawn sharp opposition from the state government and local communities over concerns about ecological and livelihood impacts.

Why is the Government Pushing for Offshore Sand Mining?

- **Economic Potential:** The Centre’s decision to permit offshore mining of construction sand is based on a study by the **Geological Survey of India (GSI)**.
- Since 1985, GSI surveys have identified **construction-grade sand resources** off **Ponnani, Chavakkad,**

Kochi, Alappuzha, and Kollam, at water depths ranging from 22 to 45 metres.

- These deposits, located within **Indian territorial waters** (up to 12 nautical miles) and in the **Exclusive Economic Zone (EEZ)**, contain sand with a **range of 80% to 96% purity** and **clay content between 4% and 20%.**
 - The sand, originally **sourced from rivers**, has undergone marine processes, making it suitable for **construction after desalination.**
- With an estimated **750 million tonnes of reserves**, these sand deposits could **satisfy Kerala’s construction needs for the next 25 years**, at a rate of 30 million metric tonnes annually.
- **Auction Plan:** The Centre under the **OAMDR Amendment Act, 2023** plans to auction sand blocks in five sectors of Kerala’s coastal areas, including **Ponnani, Chavakkad, Alappuzha, Kollam North, and Kollam South.**
- **Revenue Generation:** The offshore sand mining is expected to bring in significant **income through shipping, trade, and Goods and Services Tax (GST) collection.**

Sand Mining

- Sand is classified as a “minor mineral” under the **Mines and Minerals (Development and Regulations) Act, 1957 (MMDR Act)**, with state governments overseeing its administration.
- The **Ministry of Environment, Forests, and Climate Change (MoEFCC)** issued the **“Sustainable Sand Mining Management Guidelines 2016”** to promote scientific and eco-friendly sand mining practices.

What is Offshore Mining?

- **About:** Offshore mining involves extracting minerals or precious stones from the **seabed.**
- **Potential for Offshore Mining in India:** India’s **EEZ** spans over **two million square kilometers**, the **GSI** has delineated resources of various minerals in the offshore areas.
 - **Lime mud:** 153,996 million tons (off Gujarat and Maharashtra coasts)
 - **Construction-grade Sand:** 745 million tons (off Kerala coast)

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Note:

- **Heavy Mineral Placers:** 79 million tons (off Odisha, Andhra Pradesh, Kerala, Tamil Nadu, Maharashtra coasts)
- **Polymetallic Nodules:** Andaman Sea and Lakshadweep Sea.
- **Offshore Critical Mineral Auction:** India launched its **first-ever offshore critical mineral auction in 2024** under the OAMDR Act, 2002 offering **13 blocks across the Arabian Sea and Andaman Sea**.
- The auction targets **critical minerals like lithium, cobalt, nickel, and copper**, essential for infrastructure, **renewable energy**, and advanced technologies.
 - With this initiative, India aims to reduce import reliance, enhance resource availability, and strengthen its position in the global mineral market.

What are the Laws and Rules Governing Offshore Mining?

- **OAMDR Amendment Act 2023:** The Act amends the **Offshore Areas Mineral (Development & Regulation) Act (OAMDR Act), 2002**, which governs the exploration and extraction of mineral resources in India's territorial waters, continental shelf, and EEZ.
 - OAMDR Amendment Act 2023 introduces a **transparent auction process for offshore operating rights**, establishes a trust for mining-affected people, and boosts exploration.
 - It removes discretionary renewals, and sets a **50-year lease period**.
 - To implement the amended provisions of the OAMDR Act, the Ministry of Mines has framed **Offshore Areas (Existence of Mineral Resources) Rules, 2024** and **Offshore Areas Operating Right Rules, 2024**.
- **Offshore Areas (Existence of Mineral Resources) Rules, 2024:** These rules apply to all minerals in offshore areas, excluding **mineral oils, hydrocarbons**.
 - They do not affect the **Atomic Energy Act, 1962**, or the provisions related to minerals specified in **Part B of the First Schedule of the Mines and Minerals (Development and Regulation) Act, 1957**.
 - **Stages of Exploration:** The rules define four stages for exploration.
 - **Reconnaissance Survey (G4):** Initial phase for identifying mineral deposits.
 - **Preliminary Exploration (G3):** More detailed exploration based on G4 findings.
 - **General Exploration (G2):** Further detailed exploration that could lead to production.
 - **Detailed Exploration (G1):** Final stage confirming the precise nature of resources.
 - A minimum of **G2 level exploration is required for auctioning blocks for production leases**.
- **Offshore Areas Operating Right Rules, 2024:** Lessees can surrender their lease after **10 years if operations become uneconomical**.
 - Lessees must report new mineral discoveries within **60 days and update their lease deeds accordingly**.
 - Government bodies have priority access to reserved **offshore zones for securing operating rights**.

What are the Concerns Regarding Offshore Mining?

- **Pollution Risks:** Offshore mining creates **sediment plumes** and releases **toxic wastewater containing heavy metals**, posing long-term risks to **marine life, and ecosystems** reliant on marine resources.
 - In Kerala, environmentalists warn that offshore sand mining could destabilize ecosystems, weaken **natural defenses against tsunamis, cyclones, erosion**, and disrupt sediment dynamics, threatening aquatic habitats.
- **Revenue Collections:** States like Kerala argue the OAMDR Amendment Act, 2023 does **not safeguard state interests**.
 - **Royalty revenues** from mining are **assigned entirely to the central government**, sidelining state authorities.
 - **Private sector involvement** allowed by the 2023 amendments has raised concerns about unchecked exploitation and lack of transparency.
- **Local Community's Opposition:** Fishermen's and other marine-dependent communities oppose the tendering of mining, citing threats to **livelihoods and the ecosystem**.
- **Global Resource Competition:** The rising demand for metals like cobalt, nickel, driven by **renewable energy and electric vehicle industries**, intensifies competition leading to **exploitation of resources**.
- **Climate Change:** Disturbing seafloor ecosystems could **release stored carbon**, accelerating **climate change** by increasing atmospheric **CO₂ levels** contributing to **global warming**.

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Note:

- **Limited Knowledge:** Offshore mining in India raises concerns due to the limited understanding of deep-sea ecosystems.
 - It remains one of the least explored and poorly understood areas, making it challenging to predict the **full environmental impact of mining activities**.
 - This uncertainty could lead to unforeseen damage to **marine biodiversity and ecosystems**, particularly as India begins exploring these resources.

RBI Issues Revised 'Master Direction' for ARCs

Why in News?

Reserve Bank of India (RBI) has revised the 'Master Direction - Reserve Bank of India (Asset Reconstruction Companies-ARCs) Directions, 2024'.

- The revised norms for ARCs aim to **streamline operations, ensure transparency, protect creditor interests**, and emphasize due diligence in settlement processes.

What are the Key Points of the RBI's Revised Master Direction on ARC?

- **Board-Approved Policy:** Each **asset reconstruction company (ARC)** must establish a **board-approved policy** for settling borrower dues, covering various key elements such as:
 - **Cut-off date** for eligibility of **one-time settlement**.
 - **Permissible sacrifice** for different categories when deciding the settlement amount.
 - **Methodology** for evaluating the **realizable value** of the security.
- **Settlement Process:** Settlement should be considered only after **all recovery options** have been explored.
 - Preferably, the settlement amount should be **paid in a lump sum** (one-time payment).
 - **Non-lump sum** payment plans must align with **business models, borrower cash flows, and projected earnings**.
- **Independent Advisory Committee (IAC):** An IAC, with technical, financial, or legal experts, should **review settlement proposals** and advise the **ARC's board committee**.

What are ARCs?

- **About:** An ARC is a **special type of financial institution** that buys **non-performing assets (NPAs)** from banks and financial institutions and **attempts to recover the debts or associated securities** by itself.
- **Background of ARCs:** The concept of ARCs was introduced by the **Narasimham Committee – II (1998)**, leading to the establishment of ARCs under the **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (SARFAESI Act, 2002)**.
- **Registration and Regulation of ARCs:** ARC is registered under the **Companies Act, 2013** and must also be **registered with the RBI under section 3** of the SARFAESI Act, 2002.
 - It operates under the SARFAESI Act, 2002, and follows **guidelines issued by the RBI**.
- **Working of the ARCs:**
 - **Asset Reconstruction:** It involves acquiring a bank's or financial institution's rights in **loans, advances, bonds, guarantees, or other credit facilities** for recovery, known as **'financial assistance'**.
 - **Securitisation:** It involves acquiring financial assets by issuing **security receipts** to **Qualified Buyers (QB)**.
 - QBs include **insurance companies, banks, state financial corporations, ARCs under SARFAESI, and SEBI-registered asset management companies**.
 - **Security Receipts:** ARCs issue **security receipts to lenders**, redeemable upon loan recovery, charge a management fee, and **share recovery gains** with the selling financial institutions.

Non-Performing Asset (NPA)

- **About:** NPA is a loan classified as an **NPA** when the loan payments have not been made for a **minimum period of 90 days**.
 - For **agriculture**, a loan is classified as an NPA if the **principal or interest is not paid for two cropping seasons**.
- **Types:** Banks classify NPAs into **three categories** based on the duration of non-performance and recovery chances.
 - **Sub-standard Assets:** NPAs for **12 months or less**.
 - **Doubtful Assets:** NPAs for **over 12 months**.
 - **Loss Assets:** Uncollectible assets with **little or no chance of recovery**, needing full write-off.

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Note:

RBI Liberalizes FEMA Rules for Cross-Border Transactions

Why in News?

The **Reserve Bank of India (RBI)** has liberalized norms under the **Foreign Exchange Management Act (FEMA) of 1999** to promote the use of the **Indian Rupee (INR)** in cross-border transactions.

- This initiative aims to **stabilize the INR and encourage its internationalization**, especially at a time when the currency is facing depreciation pressures.

What are the Changes Made in FEMA Regulations by RBI?

- **Opening INR Accounts for Non-Residents:** Overseas branches of **Authorized Dealer banks** can now open INR accounts for non-residents. This allows non-residents to settle all permissible current and capital account transactions with residents of India in Indian Rupees.
- **Repatriable INR Accounts:** The RBI has enabled **non-residents to settle transactions with other non-residents** using balances in their repatriable INR accounts, such as **Special Non-Resident Rupee Accounts (SNRR)** and **Special Rupee Vostro Accounts (SRVA)**.
- **Foreign Investment:** **Non-resident Indians (NRIs)** can now use the balances in their INR accounts to make foreign investments, including **Foreign Direct Investment (FDI)** in **non-debt instruments**. This strengthens the role of INR in global investment flows.
- **Foreign Currency Accounts for Exporters:** Indian exporters can now open accounts in any foreign currency overseas to settle trade transactions. This includes receiving export proceeds and using those funds to pay for imports.

NRI Accounts

- **NRE Account:** An **NRE (Non-Resident External) Account** can be opened by NRIs with earnings from their country of residence, but the funds are held in Indian rupee denominations.
 - Income from the NRE account is tax-free, with both principal and interest exempt from taxation.

- **NRO Account:** An **NRO (Non-Resident Ordinary) Account** opened by NRIs to manage income earned in India (e.g., rental income, business income, dividends, etc.), and is held in INR denominations. Interest earned on an NRO account is taxable.
- **FCNR (B) Account:** An **FCNR (Foreign Currency Non-Residential) Account** allows NRIs or **Persons of Indian Origin (POIs)** to deposit earnings in their country of residence in any of the prescribed foreign currencies by RBI.
 - Income from an FCNR account is tax-free, including both principal and interest.

Foreign Exchange Management Act (FEMA), 1999

- **About:** The FEMA, enacted in 1999, replaced the older **Foreign Exchange Regulation Act (FERA) of 1973**.
 - Its primary aim is to **promote external trade and payments** while ensuring the orderly development of India's foreign exchange market, in line with the country's post-liberalization economic changes.
 - FEMA categorizes foreign exchange transactions into **Current Account Transactions and Capital Account Transactions**.
- **Capital Account Transaction:** It refers to transactions that **alter the assets or liabilities** outside India of residents in India or vice versa.
 - Key transactions under this category include the transfer or issuance of **foreign securities**, borrowing or lending in **foreign exchange or rupees** between residents and non-residents, **export/import of currency notes**, and acquisition or transfer of immovable property in India or abroad.
- **Current Account Transaction:** Includes transactions that are not related to capital account transactions. It encompasses payments for foreign trade, services, and income from investments, as well as transfers such as remittances and foreign aid.
- **Key Objectives and Provisions:**
 - **Civil Offences:** Violations under FEMA are treated as civil offences, unlike FERA, which was criminal in nature.
 - **RBI's Role:** The RBI has the authority to issue rules and oversee the implementation of FEMA.

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Note:

Internationalization of Rupee

- **About:** It involves increasing its use in cross-border transactions, starting with trade, followed by current and capital account transactions.
 - In July 2022, India introduced the **Special Rupee Vostro Account (SRVA)** to boost INR use in trade.
 - Additionally, the RBI signed Memorandums of Understanding (MoUs) with the central banks of the UAE, Indonesia, and Maldives to encourage cross-border transactions in local currencies.
 - In December 2023, the **Foreign Exchange Management Regulations** were revised to allow cross-border transactions in all foreign currencies, including INR.

INTERNATIONALISATION OF RUPEE

MEANING

- Increasing the use of Indian rupee in cross-border transactions

INVOLVES

- Rupee for **import** and **export**
- Rupee for **current** and **capital** account transactions

Indian Rupee is fully convertible in current account, but partially in capital account (BoP)

NEED

- Weaponisation of USD by US (for **sanctions**)
- Wave of **de-dollarisation**
- Increasing **internationalisation of Chinese Renminbi**
- India's **minimal share** in global forex market turnover (1.7%)

RBI'S EFFORTS

- Indian currency in cross-border trade - key component in **Foreign Trade Policy 2023**
- Mechanism introduced for **rupee trade settlement with 18 countries**
 - » Banks from these countries allowed to open **Special Vostro Rupee Accounts (SVRAs)**
- Circular on "International Trade Settlement in Indian Rupees" (2022)
- External **commercial borrowings in INR** enabled

SIGNIFICANCE

- Reduced dependency** on USD
- Lesser need** for holding **forex reserves**
- Better bargaining** power of Indian business
- Less exposure** to currency volatility

CHALLENGES

- Rupee not fully convertible
- Less need for other countries to hold INR; **India's low share in global exports**
- Rupee may become **more vulnerable to external shocks**
- India's **lesser control** on Rupee supply

STEPS THAT CAN BE TAKEN

- More **liberalised settlements in INR** (in India and overseas)
- India to **expand its reach** in the global financial market
- Transition to an **export-oriented economy** to **reduce trade deficit**

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World Employment and Social Outlook: Trends 2025

Why in News?

The **International Labour Organisation's (ILO)** has released its "World Employment and Social Outlook (WESO): Trends 2025" report, highlighting that the global unemployment rate remained at a historic low of 5% in 2024.

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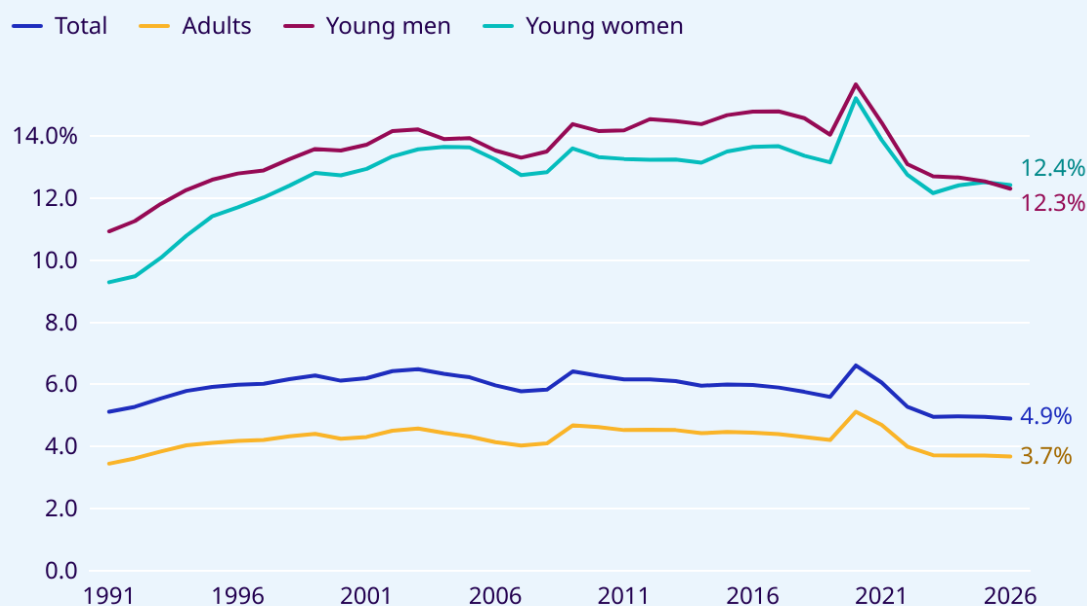
- The report points to ongoing challenges such as **slow economic recovery**, **geopolitical tensions**, **climate change**, and **social uncertainties** affecting the labor market.

What are the Key Highlights of the WESO Trends 2025 Report?

- **Steady Global Unemployment:** The global unemployment rate held steady at **5% in 2024**, with **youth unemployment** notably high at **12.6%**.

► Global unemployment rates (%)

The global unemployment rate is the percentage of the labour force who is out of a job and actively seeking one



Source: ILOSTAT, ILO modelled estimates, November 2024.

- **Youth unemployment** is highest in **upper-middle-income countries** at **16%**, and lower in **low-income countries** at **8%**, often due to **underemployment** and informal work.
 - This group faces significantly higher unemployment compared to adults.
 - **Low-income countries (LIC)** face challenges in generating decent jobs, and informal employment has returned to pre-pandemic levels.
- **Regional Disparities in Employment:** In **Sub-Saharan Africa**, **employment growth** is largely in the **informal sector**, where workers lack stability and social protection, where around **62.6% of households live on less than USD 3.65 per day**.
 - Similarly, in other **developing countries**, while **employment is growing**, many **workers remain in vulnerable**, low-paying, and informal jobs.
- **Economic Growth Trends:** **Economic growth** for **2024** was recorded at **3.2%**, slightly down from **3.3% in 2023** and **3.6% in 2022**.
 - The report forecasts a **similar economic expansion in 2025**, followed by a gradual deceleration in the medium term.

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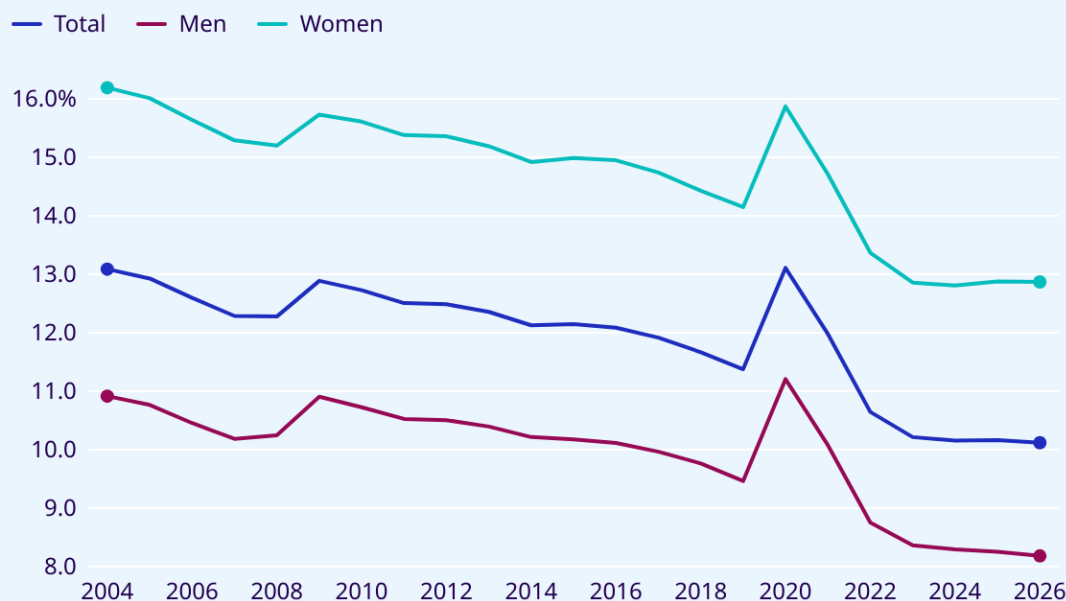


Note:

- **Global Jobs Gap:** The global jobs gap (i.e. number of people who desire work but are unable to find it) stood at 402 million in 2024.
 - This includes 186 million unemployed individuals, 137 million discouraged workers, and 79 million who are unable to seek employment due to caregiving responsibilities.
 - While the gap has narrowed since the **Covid-19 pandemic**, it is expected to stabilize in the coming years.

► Global jobs gap (%)

The global jobs gap is the percentage of total population who want to work but do not have a job



Source: ILOSTAT, ILO modelled estimates, November 2024.

- **Labour Force Participation:** Labour force participation has **increased in advanced economies**, particularly among **older workers and women** and it has **declined in low-income nations**, contributing to slower employment growth globally.
- **NEET Statistics:** In 2024, the global NEET (**Not in Education, Employment, or Training**) population reached **259.1 million**, with 85.8 million **young men (13.1%)** and 173.3 million **young women (28.2%)**.
 - **LICs saw a sharp rise**, with youth unemployment worsening. NEET rates among young men increased by 4% points above pre-pandemic levels.
- **Debt Distress:** **High interest rates and economic challenges** have resulted in **unsustainable public debt**, particularly in **developing countries**.
 - Around **70 nations are at risk of debt distress**, with many **spending more on servicing debt** than on essential services like health and education.
 - Example: In **Africa**, the median public debt stands at about **65% of Gross Domestic Product (GDP)**.
- **Stagnant Wages Amid Shifting Labor Dynamics:** Real wage growth remains weak post-pandemic due to **low employment growth** and a **shift in labor market power toward employers**.
- **Green Transition:** The **renewable energy sector** saw global employment rise from **13.7 million in 2022 to 16.2 million in 2023**, driven by investments in solar and hydrogen energy, but **benefits are unevenly distributed**, with **46% in China**.

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Note:

- The digital sector **offers job potential**, though many countries lack the necessary infrastructure and skilled workforce to capitalize on it.

What are the ILO Recommendations for Achieving Social Justice and SDGs by 2030?

- **Leverage Remittances:** ILO recommends that **LICs**, especially in Sub-Saharan Africa, should **channel remittances into productive investments** rather than consumption.
- Governments can create mechanisms to **consolidate remittances into investment funds**, boosting private sector growth and long-term development.

UN SPECIALISED AGENCIES

UNSAs are 15 autonomous international organizations working with the UN

Part III
ILO, WHO and ITU

ILO

The only tripartite (govt., trade unions, employers) and the 1st affiliated UNSA

- **Estd.** - 1919 (Treaty of Versailles)
- **Headquarters** - Geneva, Switzerland
- **Functions** -
 - » Set labour standards
 - » Develop policies & programmes for promoting decent work for all
- **Member States** - 187 (India a founding member + permanent member of ILO Governing Body)

- **International Labour Conference** -
 - » Meets annually in Geneva
 - » aka International Parliament of Labour
- **ILO Declaration on Fundamental Principles and Rights at Work 1998 (Principles)** -
 - » Freedom of Association and The Right to collective bargaining
 - » Elimination of forced or compulsory labour
 - » Abolition of child labour
 - » Elimination of discrimination in respect of employment and occupation

WHO

WHO became functional on April 7, 1948 (now celebrated as World Health Day)

- **Estd.** - 1948
- **Headquarters** - Geneva, Switzerland
- **Functions** -
 - » Provides leadership on global health matters
 - » Shaping health research agenda
 - » Monitoring, assessing health trends
- **Member States** - 194 (incl. India)

WHO's regional office for SE Asia is located in New Delhi

- **World Health Assembly** - WHO's decision-making body, held yearly at Geneva
- **Major Initiatives** -
 - » UN Decade of Healthy Ageing (2021–2030)
 - » UN Decade of Action on Nutrition (2016-2025)
 - » GLASS Initiative (AMR)
 - » WHO 1+1 Initiative (2019) (TB)

ITU

ITU became functional on July 17, 1947

- **Estd.** - 1865
- **Headquarters** - Geneva, Switzerland
- **Functions** -
 - » Facilitate intl. connectivity in communication networks
 - » Allocate global radio spectrum and satellite orbits

- **Member States** - 193 (India a regular member since 1952)
- **Important Publication** -
 - » **Global Cybersecurity Index (GCI)**

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Note:

- **Structural Transformation:** Countries should address **structural bottlenecks** by focusing on **modern services and manufacturing** to create quality jobs, **reducing regional disparities** through investments in **infrastructure, education, and skills training**.
- **Youth skill development:** Provide **quality education and training to youth**, ensuring that they are equipped with the skills necessary for participation in **modern labor markets** and to take advantage of emerging industries like **green energy** and **technology**.
- **International Collaboration:** Promote **global cooperation**, sustainable growth, and inclusive fiscal and monetary policies that benefit all workers.

Boosting India's Rubber Industry

Why in News?

The **Rubber Board** has launched new initiatives like **Indian Sustainable Natural Rubber (iSNR)** and **INR Konnect Platform** to boost **Indian rubber's** global prominence and increase domestic production.

- It is in line with the **National Rubber Policy (NRP) 2019** that aims to build an **environmentally sustainable, globally competitive** rubber industry.

What are the Recent Initiatives Taken in India's Rubber Industry?

- **iSNR Initiative:** Indian Sustainable Natural Rubber (iSNR) Initiative was launched to meet **European Union Deforestation Regulation (EUDR)** standards.
 - It facilitates **traceability** of rubber products with **certificates verifying origin** and compliance and simplifies the compliance process for stakeholders targeting **EU markets**.
 - It promotes **sustainable rubber production** while positioning Indian natural rubber as a **competitive and responsible choice** in the global market.
- **INR Konnect Platform:** It is a web-based platform aimed at **increasing productivity** by connecting growers of **untapped rubber holdings** with interested adopters.
 - It targets **20-25%** of **untapped and neglected plantations** in India by absentee landlords to address price drops, and high costs.

- **mRube:** mRube was launched as the **digital marketing platform** of Rubber Board to enhance **marketing and trade efficiency** in the natural rubber sector.
- **Subsidy Hike:** The government plans to **increase subsidies** for rubber cultivation in a **phased manner**.

Note: Absentee landlords **own property but don't live or manage it**, relying on **property managers, tenants, or local agents** for maintenance, rent collection, and other operations.

What is EUDR?

- **About:** EUDR is a **legislative framework** proposed by the **European Commission** to address the global issue of **deforestation and forest degradation** linked to commodity **supply chains**.
 - The regulation aims to **reduce** the EU's role in driving **deforestation** and ensure that products linked to deforestation do not enter the **European market**.
- **Mechanism:** Traders or operators must **demonstrate** that their products, when **entering** the EU market or being **exported**, do not originate from **recently deforested land or contribute to forest degradation**.
- **Objectives:** The primary objectives include:
 - **Prevent deforestation** by ensuring listed products don't contribute to it.
 - **Reduce carbon emissions** by at least **32 million metric tonnes** annually.
 - Combat forest degradation linked to **agricultural expansion** of these commodities.
- **Commodities Covered:** It focuses on commodities such as **cattle, wood, cocoa, soy, palm oil, coffee, rubber**, and related products (e.g., leather, chocolate, tires, furniture).
- **Related Concerns:**
 - **Non-Tariff Barrier:** EUDR requires certification that commodities like **cattle, soy, and palm oil** aren't from deforested land, which India sees as **Non-Tariff Barrier**.
 - **Compliance Burden:** Proving goods are deforestation-free imposes additional administrative and operational burdens, especially on **SMEs**.
 - **Global Policy Replication:** This could lead to **global certification schemes** becoming the norm creating further pressure on Indian exporters.
 - **Slowing FTA Negotiations:** EUDR has become contentious issues in the ongoing **India-EU FTA negotiations**.

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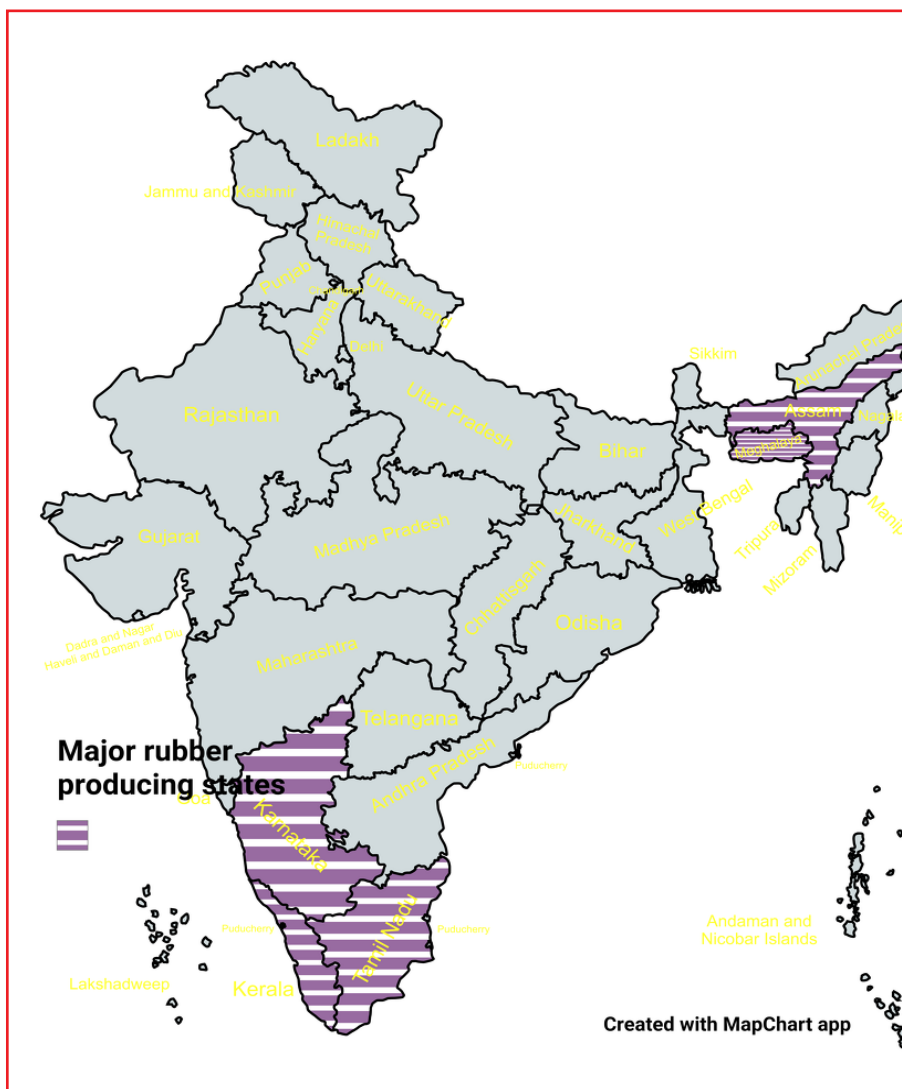
Note:

Rubber Board

- The **Rubber Board** is a **statutory body** constituted under the **Rubber Act, 1947**, for the overall development of the **rubber industry** in the country.
- It functions under the **Ministry of Commerce & Industry** of the Government of India.
- The Board's headquarters is situated in **Kottayam, Kerala**.
 - **Rubber Research Institute** works under the Rubber Board.

What are Key Facts About Rubber?

- **About:** Rubber is an **elastic material** derived from the **latex or milky sap** of certain plant species, primarily the **rubber tree (*Hevea Brasiliensis*)**.
 - This latex is mainly composed of **polyisoprene, a polymer**, along with various organic compounds.
 - Rubber is a **tropical tree**, native to the **Amazon rainforest**.
- **Production:** India is the **third largest producer**, **fourth largest consumer** of natural rubber and **fifth largest consumer** of natural rubber and synthetic rubber together in the world.



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Note:

- Kerala (over 90%) is the largest rubber producer in India, followed by Tripura (about 9%).
- Other prominent states/UTs include Karnataka, Assam, Tamil Nadu, Meghalaya, Nagaland, Manipur, Goa, and the Andaman & Nicobar Islands.
- **Required Climatic Conditions:** It requires temperatures between 20°-35°C and rainfall over 200 cm annually.
 - It grows in loamy or laterite soil, sloped or elevated land, requiring cheap, skilled labor for cultivation.
- **Trade Scenario:** In 2022-23, India exported 3,700 tonnes of Natural Rubber (NR), with the USA, Germany, UAE, UK, and Bangladesh as the largest markets.
 - In 2022-23, India imported 5,28,677 tonnes of NR, mainly from Indonesia, Thailand, China, South Korea, and Japan.

What is National Rubber Policy (NRP) 2019?

- **About:** It is a policy initiative by the Ministry of Commerce & Industry to support production, processing, consumption, and exports.
- **Objectives:**
 - **Value Chain Development:** Develop the entire rubber industry value chain from cultivation to manufacturing.
 - **Rubber Area Expansion:** Increase natural rubber plantations in non-traditional regions without harming ecosystems.
 - **Productivity Enhancement:** Improve rubber productivity through better agro management practices.
 - **Domestic Raw Material Supply:** Ensure domestic production meets raw material demand.
 - **Quality Standards:** Ensure processed NR meets international quality standards.
 - **Rubber Product Manufacturing:** Strengthen the rubber manufacturing sector and promote exports.
- **Policy Interventions:**
 - **National Rubber Status:** Recognize NR as an agricultural product to leverage existing policies for income enhancement.
 - **Production Goals:** Achieve 2 million tonnes of NR by 2030 and expand planting areas.
 - **Value Chain Synchronization:** Align activities in NR production, processing, and product manufacturing to boost domestic supply.

Government Initiatives for Promoting Production of Rubber:

- Sustainable & Inclusive Development of Natural Rubber Sector (SIDNRS)
- Rubber Plantation Development Scheme
- Rubber Group Planting Scheme
- 100% Foreign Direct Investment (FDI) in Rubber Plantation
- National Rubber Policy 2019

Centre-State Revenue Dynamics

Why in News?

In the past decade (Fiscal Year 2016 (FY16) to FY25), the share of States' revenue derived from Central transfers and grants has significantly increased, highlighting a growing dependence on the Centre.

- A significant rise in the Centre's share of state revenue, coupled with declining efficiency in states' tax collection efforts, has deepened this reliance.

What are the Key Trends in States' Revenue Composition?

- **Pandemic Aftermath:** States' revenue expenditures increased by 14% during the Covid pandemic due to welfare measures.
 - Capital expenditure for infrastructure slowed, affecting long-term economic growth.
- **Debt-to-GDP Ratio Trends:** While states' debt-to-GDP ratio (relative measure of debt compared to economic output) is at 28.5% in March 2024. This indicates that states' fiscal health is still under strain.
 - State debt levels exceed the Fiscal Responsibility and Budget Management committee's recommended debt-to-GDP ratio of 20% for states, highlighting the unsustainable debt burden faced by states.
- **Increased Central Transfers:** States' revenue from Central transfers has increased to 23-30% of their total revenue in the last decade, compared to 20-24% in the 2000s and early 2010s.
 - Grants from the Centre now account for 65-70% of States' non-tax revenue, up from 55-60% earlier.
- **States' Own Tax Revenue:** It has consistently remained below the 50% mark as a share of total revenue over the last decade, whereas it often exceeded 50% in the 2000s.

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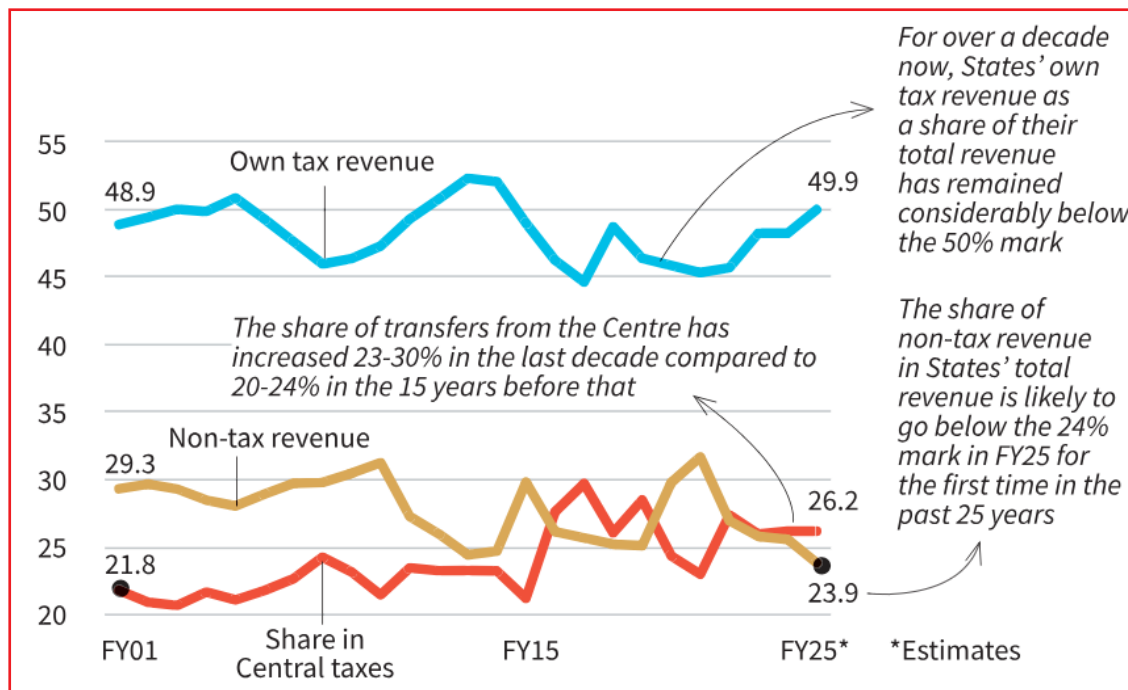


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Note:

- Despite **State Goods and Services Tax (SGST)** contribution increasing from **15% to 22% of States' total revenue between FY18 and FY25**, the share of own tax revenue (excluding SGST) has fallen from **34% to 28%**.
- **Reduced Non-Tax Revenue:** The share of non-tax revenue in total revenue is projected to **fall below 24% in FY25**, the lowest in 25 years.
 - Key components like **interest receipts** and dividends from **State public sector enterprises** remain negligible (**under 1%**).
 - **Earnings from services rendered**, such as public health (social service) and power (economic service), did not cross the **30% mark in the last decade**.
- **Inefficiency in Tax Collection:** Revenue from avenues like **stamp duty**, registration fees, and **motor vehicle taxes** has been insufficient due to sporadic and inefficient collection efforts.
 - The **own tax revenue to Gross State Domestic Product (GSDP) ratio** has declined in major States like Tamil Nadu, Kerala, and Karnataka, indicating a systemic issue in tax mobilisation.



What are the Implications of Increasing Dependency of States on Centre?

- **Fiscal Autonomy at Risk:** States often depend heavily on the Centre for funding due to the **uneven distribution of revenue-raising powers**.
 - The Centre controls dynamic taxes like **income tax** and **GST**, while states manage slower-growing taxes such as **sales tax and land revenue**.
 - This imbalance restricts states' fiscal independence, **limiting their capacity to tailor policies to local needs**.
 - Additionally, tax decisions like **SGST rates** are **influenced by the GST Council**, where **states have limited bargaining power**, further constraining their autonomy.
- **Constraints on Developmental Expenditure:** Weaker fiscal states often face inadequate resources as **central allocations may prioritize performance over need**, deepening inter-state inequalities and widening regional disparities.
 - **Inefficient tax mobilization** hampers states' ability to meet rising developmental demands.
 - Heavy dependence on the Centre also limits states' capacity for **counter-cyclical fiscal measures**, crucial for stimulating aggregate demand.

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Note:

- **Political Tensions:** Centralised decision-making in tax policies led to disagreements between the Centre and Opposition-ruled States.
- **Overburdened Central Government:** States' increasing dependence on the Centre could strain the **nation's overall fiscal health**, limiting the Centre's ability to support states during economic downturns or crises.

Sources of Revenue for States

- **States' Own Tax Revenue (OTR):** Includes taxes levied by state governments such as State GST (SGST) (a part of the GST collected by the Union Government), State **Excise Duty** on alcohol, **Sales Tax** or **Value Added Tax (VAT)** on items not covered by GST, **Stamps and Registration Duty** on property transactions, Vehicle Registration Tax, and Entertainment Tax on movie tickets.
- **States' Non-Tax Revenue:** Includes earnings from the **lease or sale of natural resources**, economic services like irrigation, health, and education, sale of lotteries, and interest receipts from loans provided to **public sector undertakings or local bodies**.
- **Grants from the Central Government:** These grants support states in areas like welfare, infrastructure, and disaster relief, providing critical financial assistance.
- **States' Share of Central Taxes:** Refers to the **portion of tax revenue collected by the Union Government** and shared with the states as mandated by the **Article 270 of Indian Constitution**.

How can States Improve Revenue Mobilisation?

- **Strengthen Fiscal Federalism:** Increase states' share in revenue through progressive recommendations by the **Finance Commissions**, as seen in the **14th and 15th Finance Commissions**, which raised the **tax devolution share** to 42% and 41% respectively.
- **Enhancing Tax Collection Efficiency:** Implement technology-driven solutions to improve collection from **property taxes, motor vehicle taxes, and registration fees**.
 - Modernising tax administration systems to **reduce evasion** and enhance compliance.
 - Incentivize states to improve their tax collection mechanisms and fiscal discipline through performance-based grants.
- **Broadening the Tax Base:** Explore new revenue sources, such as **environmental taxes or congestion**

charges, tailored to State-specific contexts. Rationalise **tax exemptions and subsidies** to maximise revenue.

- **Strengthening Non-Tax Revenue Sources:** Boost earnings from State public sector enterprises by improving **operational efficiency**. Monetise **underutilised State assets and services**.
- **Collaborative Policy Making:** Increase engagement with the **GST Council** to advocate for region-specific needs. Work towards harmonising tax policies across States to reduce disparities.
 - Foster inter-State knowledge sharing to replicate best practices.
- **Leverage Central Schemes:** Utilize programs like **Gati Shakti** and capital assistance schemes to spur economic activity and support infrastructure development.
- **Reduce Public Debt:** Tighten fiscal discipline with data-driven decision-making and prioritize reliance on own-source revenues (SOR).

Key Revenue Mobilization Initiatives by States

- **Property Tax Reforms:** Tamil Nadu, Telangana, and Kerala revised property taxes to enhance revenue.
 - According to the **World Bank**, India's property tax collection is just **0.2% of GDP**, far below the **Organisation for Economic Co-operation and Development (OECD) nations** average of 1.1%, emphasizing the critical need for reform.
- **Power Tariff Adjustments:** States like Tamil Nadu, Andhra Pradesh, Telangana, Karnataka, and others revised power tariffs in FY23 to boost revenues.
- **New Liquor Policies:** Uttar Pradesh introduced a new liquor policy, increasing license fees, renewal charges, and processing fees.
- **Privatization and Asset Monetization:** Several states privatized SPSEs and monetized assets during FY21 and FY22 to unlock funds tied in unproductive assets.

India's Demographic Transition

Why in News?

A report by McKinsey & Company highlights that **India has only 33 years left to leverage its demographic dividend** before transitioning into an **"aged" economy** (silver economy) **akin to developed nations by the 2050s**.

- The report also highlights slower growth, rising dependency, and fiscal pressures as India's working-age population declines relative to its elderly.

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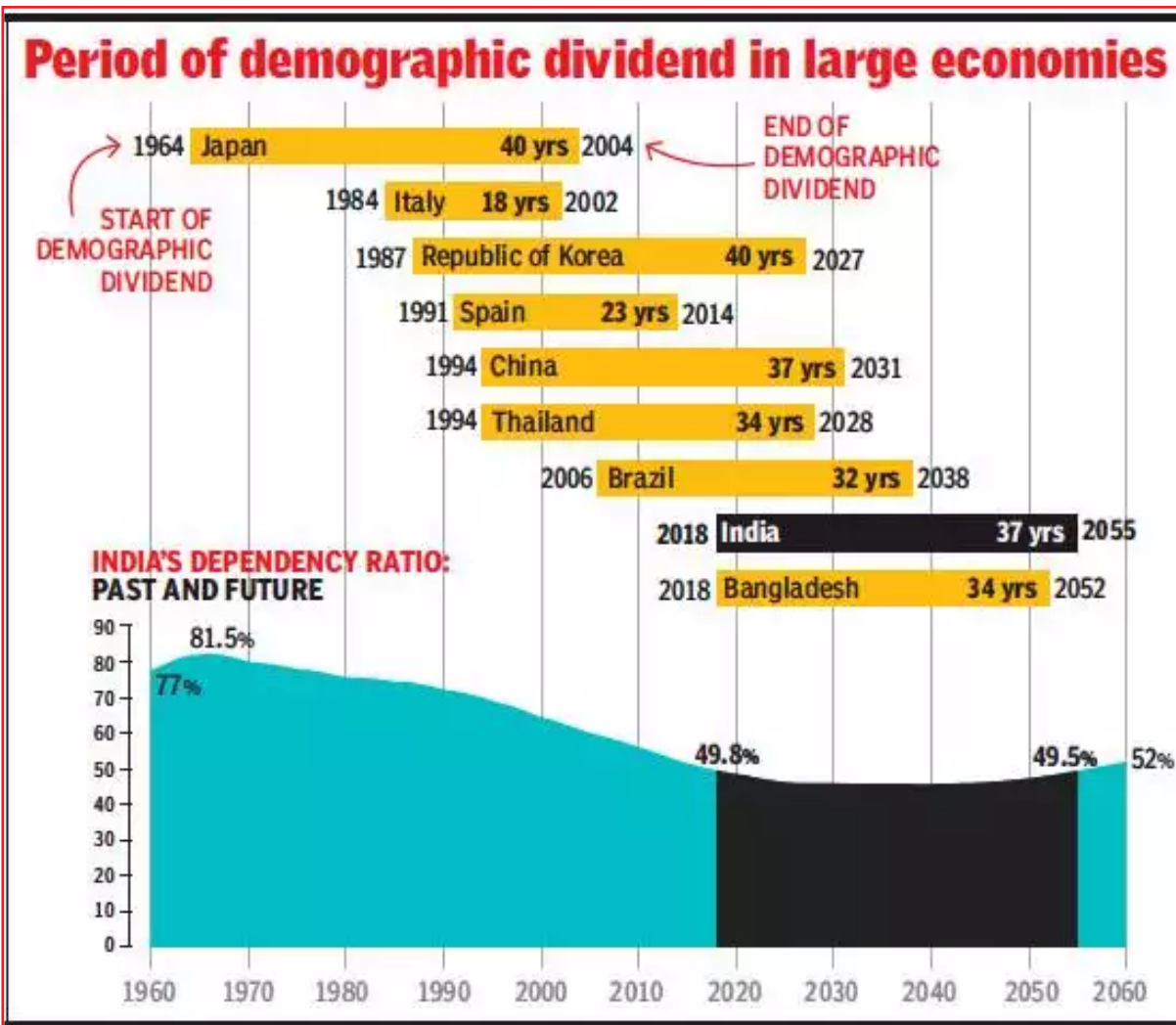
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Note:

Note: According to the [United Nations Population Fund](#), Demographic dividend is the economic growth potential when a country's working-age population (15-64 years) exceeds the dependent population (children and elderly), creating a "window of opportunity" for increased productivity and economic output.

- India entered the demographic dividend opportunity window in 2005-06 and will remain there until 2055-56, according to the [Economic Survey 2018-19](#).



What are the Key Highlights of the Report on India's Demographic Transition?

- **Declining Support Ratio:** India has 33 years until it reaches the same aging status as advanced economies by the 2050s.
 - India's **support ratio** (working-age individuals per senior aged 65 or older) has declined from **14:1 in 1997** to **10:1 in 2023** and is projected to drop further to **4.6:1 by 2050** and **1.9:1 by 2100**, reaching levels seen in advanced economies like Japan.
- **Rising Pressure on Public Finances:** By 2050, seniors will account for **15% of total consumption**, up from **8% today**.
 - An increasing elderly population will **strain pensions, public healthcare, and family resources**.
 - India's share in global consumption is projected to rise from **9% today** to **16% by 2050**.

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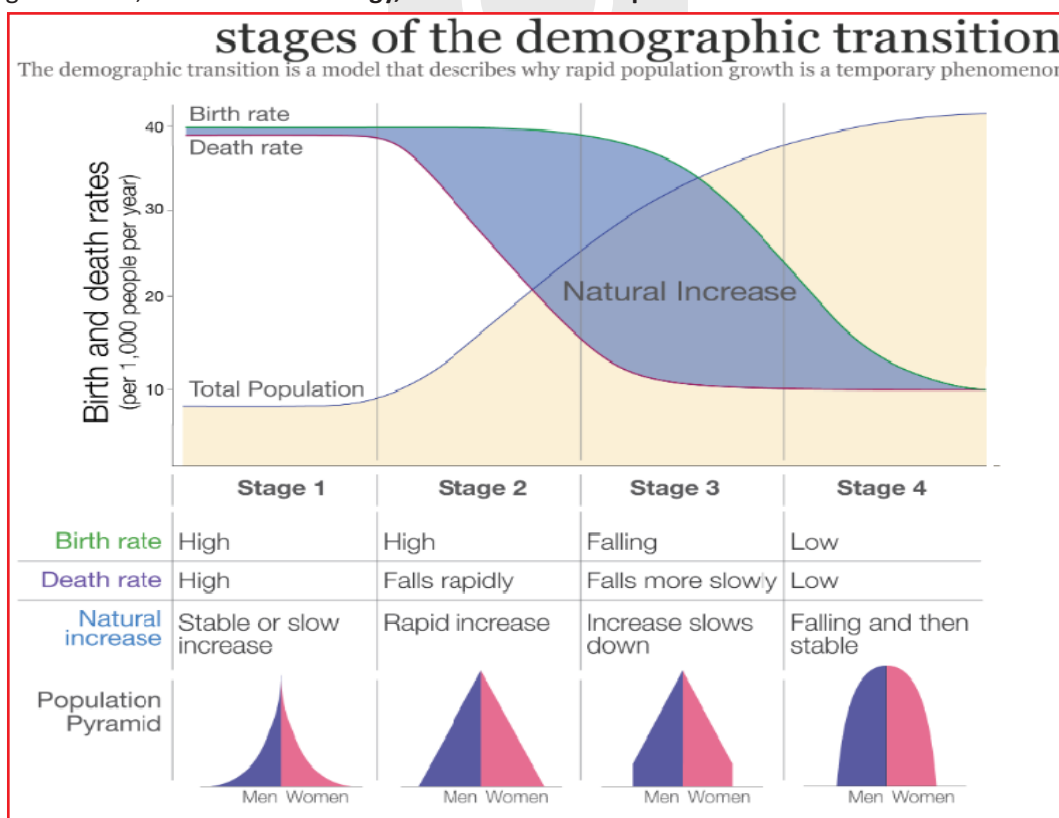


Note:

- **Low Labour Market and Productivity:** India's labor force participation, particularly among women, remains **low** and is a major area for improvement.
 - Worker productivity in India is USD 9 per hour, significantly lower than the USD 60 per hour average in high-income countries.
- **Birth Rate Decline:** The **global decline in birth rates is severe**, affecting both emerging like **India** and advanced economies.
 - This demographic trend will have wide-ranging impacts on **Gross Domestic Product (GDP) growth**, labor markets, pension systems, and consumer behavior.
- **Recommendations:** Increase labor force participation, particularly for women, to maximize the demographic dividend.
 - To boost worker productivity, **India must focus on technological adoption, foster innovation**, and make strategic investments in infrastructure, education, and skill development.
 - Prepare for a **demographic shift by strengthening public finances** and social support systems to address the needs of a growing elderly population.

What is Demographic Transition?

- **About:** **Demographic transition** is a model that describes the changes in **birth and death rates, along with shifts in population age structure**, as societies develop economically and technologically. It typically involves several stages.
 - **Stage 1: High birth and death rates** result in a stable population.
 - **Stage 2:** Death rates decline due to improvements in healthcare, sanitation, and food production, while birth rates remain high. This leads to **rapid population growth**.
 - **Stage 3:** Birth rates begin to fall, slowing population growth. Factors include urbanization, lower child mortality, access to contraception, and societal shifts favoring smaller families.
 - **Stage 4:** Both birth and death rates are **low**, leading to a stable or aging population. This stage reflects higher living standards, **advanced technology, and societal development**.



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Note:

- **India's Demography:** As per the **2011 Census**, India is in stage three of the four stage model of demographic transition, moving from high to low mortality and fertility rates.
- India's **Total Fertility Rate (TFR)** stands at **2.0** as per **National Family Health Survey-5 (2019-21)**, below the replacement rate of 2.1.
 - TFR is the **average number of children a woman would have** based on current fertility patterns throughout her reproductive years (15-49).
 - The replacement rate of fertility is the average number of children per woman needed to keep a population stable, in the absence of migration.
- The **World Population Prospects 2024** report by the **United Nations Department of Economic and Social Affairs (DESA)**, projects India's population to peak at **1.7 billion in the early 2060s** and decline by **12% thereafter**, while remaining the world's most populous country.

Malthusian Theory of Population

- The Malthusian Theory of Population, proposed by **Thomas Malthus**, English economist in 1798, suggests that **population grows exponentially, while food production increases arithmetically**.
 - This imbalance leads to overpopulation, resulting in famine, disease, and mortality, which would eventually reduce the population.
 - Malthus identified "preventive checks" (e.g., delayed marriage) and "positive checks" (e.g., famine and disease) as ways to control population growth.
 - While influential, the theory has been criticized for underestimating technological advancements and human adaptability.

Key Trends and Challenges in Retail Inflation

Why in News?

Retail inflation, based on the **consumer price index (CPI)**, fell to **5.22% in December 2024** from 5.48% in November 2024, driven by easing **food inflation**.

- Retail inflation measures the **rate at which the prices of goods and services purchased by consumers rise over time**, reflecting changes in the cost of living.

What are the Reasons for Easing of Retail Inflation?

- **Low Food Inflation:** Food inflation, as measured by the **Consumer Food Price Index (CFPI)**, fell to **8.39%** in December 2024 from 9.04% in November 2024.
- **Positive Agricultural Output:** A strong **kharif** harvest, favorable **rabi** sowing conditions, and **sufficient reservoir levels** eased food inflation.
- **Decline in Fuel Prices:** Inflation in **fuel prices** remained in **contraction at -1.39%**, while for **transport (2.64%)** and **education (3.89%)** it remained unchanged, contributing to reduced overall inflationary pressures.
 - **Core inflation**, which excludes volatile food and fuel items, fell to **3.5%** in December 2024.
- **Stability in Non-Food Categories:** Housing (2.71%), clothing and footwear (2.74%), and household goods (2.75%) inflation **remained stable with minor changes**.

What are the Concerns Related to Inflation?

- **Inflation Above RBI's Target:** Seven states recorded inflation above RBI's **6% threshold**, while **ten states** exceeded the **national average**.
 - **Chhattisgarh** reported the highest inflation at **7.63%**, followed by **Bihar (7.4%)** and **Odisha (7%)**, reflecting **localized inflation challenges**.

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Note:

- **Imported Inflation:** Rupee depreciation increases the cost of **imported crude oil and global commodities**, raising **domestic prices** and making it **harder to control inflation**.
 - The reliance on imported commodities, such as edible oils, exposes India to global price volatility.
 - A **weaker rupee** makes **imports more expensive** because more rupees are needed to buy the same amount of foreign commodities.
- **High Global Interest Rates:** High global interest rates could **deter foreign investment** in India, impacting financial stability and worsening **currency depreciation**.
 - It could lead investors to **shift capital to countries like the US and Europe**, offering **higher yields**, which reduces foreign investment inflows into emerging markets like India.

What is the Consumer Price Index?

- **About:** CPI measures the **overall change** in consumer prices based on a **representative basket of goods and services** over time, with **2012** as the base year.
 - The basket of goods includes **food, clothing, transportation, medical care, electricity, education, and more**.
 - The CPI is published **monthly** by the National Statistical Office (NSO) under the Ministry of Statistics and Program Implementation (MoSPI).
- **Objective:** CPI is used for targeting **price stability**, adjusting **dearness allowance**, and understanding **cost of living, purchasing power**, and the expensiveness of goods and services.
- **Calculation:** CPI is calculated by **dividing the cost of a fixed basket in the current year** by the cost in the base year, then multiplying by **100**.
- **Types:** There are **4 different types of CPI** measured.
 - **CPI for Industrial Workers (CPI-IW):** It tracks price changes in a fixed basket of goods and services used by **industrial workers** over time. The **Labour Bureau**, under the **Ministry of Labour and Employment**, compiles CPI-IW.
 - **CPI for Agricultural Laborers (CPI-AL):** The **Labour Bureau** compiles CPI-AL to assist in revising

minimum wages for agricultural workers across different states.

- **CPI for Rural Labourer (CPI-RL):** It measures changes in the retail prices of goods and services consumed by **agricultural and rural laborers**.
 - The **Labour Bureau** compiles CPI-RL.
- **CPI for Urban Non-Manual Employees (CPI-UNME):** CPI-UNME is compiled by **NSO**. An urban non-manual employee **earns 50% or more** of their income from **non-manual work** in the urban non-agricultural sector.
- **Components:** The following are the **primary components** of CPI (along with their weightage).
 - Food and Beverage (45.86%)
 - Housing (10.07%)
 - Fuel and Light (6.84%)
 - Clothing and Footwear (6.53%)
 - Pan, tobacco, and intoxicants (2.38%)
 - Miscellaneous (28.32%)

Consumer Food Price Index

- **About: Consumer Food Price Index (CFPI)** is a measure of **change in retail prices of food products** consumed by a defined population group in a given area with reference to a base year.
 - The base year presently used is **2012**.
- **Releasing Body:** **NSO, MoSPI** started releasing CFPI for three categories i.e., **rural, urban and combined** separately on an **all India basis** with effect from **May, 2014**.
 - Like CPI, the CFPI is also calculated on a **monthly basis**.

Note: FAO Food Price Index: Globally, **food price index** is being released by the Food and Agriculture Organization of the United Nations on a **monthly basis**.

- The basket of food commodities consists of the average of **5 commodity group** price indices (**Cereal, Vegetable Oil, Dairy, Meat and Sugar**) weighted with the average export shares of each of the groups for 2002-2004.

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INFLATION AND RELATED TERMS

INFLATION

- Rise in goods/services prices; corresponding decline in purchasing power
 - **Creeping Inflation:** Mild/moderate inflation where price level persistently rises over a period of time at a mild rate (single digit inflation rate)
 - **Galloping Inflation:** Occurs when mild inflation is not checked/controlled (inflation in double/triple digits - 20/100/ 200% annually)
 - **Hyperinflation:** Prices rise a million or even a trillion percent annually (witnessed by Germany in 1920s)

CORE INFLATION

- Change in costs of goods/services but **excluding those from food/energy sectors** (due to price volatility)

HEADLINE INFLATION

- **Headline Inflation** - Change in value of all goods in the basket (including food and energy)

Core = Headline - Food & fuel items

STAGFLATION

- When **Inflation, unemployment and economic stagnation/recession** occur simultaneously; **most difficult type of inflation** to manage
 - Witnessed by developed countries in the **1970s** (US, UK) when world oil prices rose dramatically

DEFLATION

- **Reverse of inflation** - a sustained decline in price of goods/services
 - Here, **annual inflation rate falls below 0%** resulting in an increase in the real value of money (Japan suffered for almost a decade in **1990s**)
 - **Can worsen into recession/depression**; hence, more dangerous than inflation

DISINFLATION

- When inflation rate decelerates
 - Implies that prices are rising (**inflation is happening**) but at a **slower rate** each passing month

Deflation is decline in prices, whereas disinflation is a decline in inflation rate



REFLATION

- Typically **follows deflation**
 - Policymakers try to **stimulate economic activity by producing inflation** (more govt spending, reduced interest rates etc.)

SKREWFLATION

- **Skewness of inflation** among different sectors of the economy - **some sectors facing huge inflation while some none** and some even deflation

GREEDFLATION

- Where (corporate) **greed** is fuelling inflation; **companies increasing their prices beyond just covering costs** to maximise profits

SHRINKFLATION

- **Hidden form of inflation**; often leads to **customer frustration/dissatisfaction**
 - Practice of **reducing the size of a product while maintaining its sticker price**



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Monetary Policy Committee



Monetary Policy

- It is formed and managed by **Reserve Bank of India** to control a nation's overall money supply and achieve economic growth
- It is **different from Fiscal Policy** which is managed by the **Ministry of Finance** that measures the spending and taxation in Indian Economy

Monetary Policy Committee (MPC):

- Ex-officio Chairperson:** RBI Governor
- Objective:** To determine the policy rate required to achieve the inflation target ($4 \pm 2\%$, Urjit Patel Committee)

- Legal Framework:** Under Section 452B of the amended RBI Act, 1934, the Central Government is empowered to constitute a six-member Monetary Policy Committee (MPC)
 - The MPC is required to meet at least four times in a year. Each member of the MPC has one vote, and in the event of an equality of votes, the Governor has a second or casting vote.
- Monetary Policy Report:** RBI once in every six months, releases Monetary Policy Report to explain the sources of inflation and the forecast of inflation for 6-18 months ahead



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Note:

International Relations

Highlights

- Strengthening India-Indonesia Ties
- Impact of US Policy Shifts on India
- Disputes Related to Indus Water Treaty
- Sri Lankan Tamil Refugees' Struggle for Indian Citizenship
- India- European Union Relations
- Martial Law in South Korea
- Global Risks Report 2025

Strengthening India-Indonesia Ties

Why in News?

The President of **Indonesia** was the Chief Guest at India's 76th **Republic Day** celebrations, marking the 75th anniversary of India-Indonesia diplomatic relations.

- Both countries signed several **MoUs** covering areas such as **health cooperation**, **digital infrastructure**, and **defence collaboration**.

What are the Key Highlights of the India-Indonesia Ties?

- **Comprehensive Strategic Partnership:** Both leaders reaffirmed their commitment to elevating the bilateral relationship, which was upgraded to a **Comprehensive Strategic Partnership** in 2018.
- **Defence Cooperation:** The leaders committed to strengthening defence ties through initiatives like Coordinated Patrol, **Ex Garuda Shakti (Army)**, and **Ex Samudra Shakti (Naval)**.
 - Both agreed to establish **Bilateral Maritime Dialogue** and **Cyber Security Dialogue**.
- **Trade Cooperation:** Both nations aim to boost bilateral trade, which reached **USD 38.8 billion in 2022-2023**, and agreed to resolve trade barriers and expedite the **AITIGA review**.
 - The MoU on **Local Currency Settlement Systems** aims to boost trade by enabling transactions in local currencies.
- **Energy, and Health Security:** Both nations are focusing on **biofuels** and joint exploration of **critical minerals** like nickel and bauxite.

- MoUs on **Health Cooperation** and **traditional medicine Quality Assurance** were signed, focusing on digital health and healthcare professional capacity-building.
- **Technological Cooperation:** India offered to share its expertise in **Digital Public Infrastructure**, **Quantum Communication**, and **High-Performance Computing** with Indonesia.
- **Cultural Cooperation:** India aims to assist in restoring the **Prambanan Temple** in Indonesia and reaffirmed the "**Kashi Cultural Pathway**" principles from the G20 Culture Ministers' Meeting.
 - The Kashi Cultural Pathway aims to **restore heritage structures** and return cultural artifacts to their countries of origin.
- **Multilateral Cooperation:** Both countries emphasized the importance of **ASEAN centrality** and cooperation on regional issues like the **ASEAN Outlook on Indo-Pacific**, **India-Indonesia-Australia Trilateral** and **Indo-Pacific Oceans Initiative (IPOI)**, **BRICS** and **Indian Ocean Rim Association (IORA)**.

How India-Indonesia Ties Evolved Overtime?

- **Early Post-Independence Period (1940s-1950s):** India, under Prime Minister **Jawaharlal Nehru**, strongly supported Indonesia's fight for independence from **Dutch colonial rule**.
 - The two countries signed a **Treaty of Friendship in 1951**, and cooperation in **trade, culture, and military matters** flourished.
 - Both nations aligned on **non-alignment**, **anti-colonialism**, and **peaceful coexistence**, leading to their active participation in the **1955 Bandung Conference** and **NAM's** formation in 1961.

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Note:

- **Deterioration in Ties (1960s):** Relations strained in the 1950s-60s as India's ties with China worsened post-1959 uprising and **Sino-Indian 1962 war**, while Indonesia stayed **cordial with China**.
 - In the 1960s, Indonesia **sided with Pakistan during the 1965 India-Pakistan conflict**, showing solidarity and providing military aid.
- **Cold War Era (1966-1980s):** Under **President Suharto**, Indonesia moved away from its previous alignment with China and sought to **rebuild ties with India**.
 - Indonesia and India improved ties with key agreements like the **1977 maritime boundary pact** and Suharto's 1980 visit to India.
- **'Look East' Policy 1991 (1990s):** Under India's **'Look East' policy 1991**, trade grew and both nations evolved a comprehensive partnership covering **economic, security, and cultural cooperation**.
 - India's 2014 **'Act East' 2014 policy** strengthened ties with Southeast Asia, making **Indonesia a key regional partner**.
- **Recent Developments (Since 2000s):** Indonesia is now India's **2nd largest trading partner** in the ASEAN region (1st- Singapore), and trade has grown significantly from **USD 4.3 billion in 2005-06 to USD 38.84 billion in 2022-23**. Indian investments in Indonesia amount to **USD 1.56 billion**.
 - India and Indonesia jointly called for resolving maritime disputes and finalizing the **South China Sea Code of Conduct** as per international law, including **UNCLOS**.
 - Indonesia is negotiating with India to acquire the **BrahMos missile system**, with a broad agreement on pricing, estimated at **USD 450 million**.

Why is Indonesia Significant to India?

- **Strategic Importance:** Indonesia occupies a **pivotal position** in the Indo-Pacific region, with control over key sea lanes such as the **Strait of Malacca, Sunda, and Lombok**, making it a critical partner in ensuring maritime security and the **free flow of trade in the region**.



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Note:

- **Natural Resources:** Indonesia, rich in resources like palm oil, tin, rubber, cocoa, coffee, nickel, copper, timber, gold, and coal, is a key supplier for global markets and offers opportunities for India in energy, agriculture, and infrastructure.
- **Defense Cooperation:** The potential USD 450 million **BrahMos missile** deal and growing defense ties highlight economic cooperation between Indonesia and India.
 - Their defense partnership can address emerging challenges like cyber threats, maritime security, and counter-terrorism.
- **Politics and Governance:** Indonesia, with the world's largest Muslim population, practices secularism through its unique **Panchashila Constitution**.
 - Indonesia has effectively tackled terrorism through consistent police efforts, avoiding military force. India can learn from this approach, given the shared challenges both countries face.
- **Global Influence:** Indonesia's leadership in ASEAN strengthens its cooperation with India, crucial for regional stability and mutual interests.
 - Indonesia, a regional pivot and emerging power in the **Indo-Pacific**, is a valuable partner for India.

Impact of US Policy Shifts on India

Why in News?

US President Donald Trump has signed multiple executive orders, including ending birthright citizenship, withdrawing from the **Paris Agreement**, exiting the **World Health Organization (WHO)**, and rejecting the **global corporate minimum tax (GCMT) deal**.

- These decisions carry significant implications on India, climate policy, and the lives of Indian professionals in the US.

What is the Impact of Revocation of Birthright Citizenship?

- **Birthright Citizenship in US:** In the US, there are two types of birthright citizenship **ancestry-based** and **birthplace-based (jus soli) (right of the soil)**, which grants citizenship to individuals born on US soil, regardless of parental nationality.

- **Executive Order:** The order asserts that children born to noncitizen parents are not subject to US jurisdiction and therefore **do not qualify for automatic citizenship**.
 - One of the main objectives of the executive order is to reduce **"birth tourism,"** where women travel to the US to give birth for automatic citizenship for their children.
 - This policy will particularly impact families from countries like India and Mexico, where birth tourism has been prevalent.
- **Impact:**
 - **Impact on H-1B Visa Holders:** Indian **H-1B visa holders** and **Green Card applicants** may see their US born children lose automatic citizenship, creating uncertainty for families.
 - Families with mixed citizenship statuses could face separation or be forced to reconsider their futures in the US.
 - This policy shift could discourage long-term migration and family planning among skilled workers.
 - Indian nationals may increasingly opt for migration to countries like Canada, the UK, Australia, and New Zealand, which have more favorable immigration policies.
 - **Rise in Deportations:** Approximately 7.25 lakh undocumented Indians in the US face increased risk of **deportation**.
 - **Legal Challenges:** Revocation of birthright citizenship contradicts the **14th Amendment to the US Constitution**, guaranteeing citizenship to all born on American soil. **Court challenges are likely**.
 - **Economic Impact on the US:** Skilled migrants contribute significantly to innovation, healthcare, and **Information Technology (IT)** sectors.
 - Such policies may create talent shortages in the US and disrupt businesses dependent on Indian professionals.

What are the Implications of US Withdrawal From the Paris Agreement?

- **Paris Agreement:** Adopted in 2015 by 196 nations (including India) at **United Nations Climate Change Conference (COP21)** in Paris, is a legally binding global accord under the **United Nations Framework Convention on Climate Change (UNFCCC)**.

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Note:

- It aims to **limit global warming to 1.5°C** above **pre-industrial levels**, with a fallback target of staying below **3.6°F (2°C)**.
- Encourage nations to **set increasingly ambitious emission reduction targets**.
- It requires developed nations, including the US, to commit to **funding climate adaptation and mitigation efforts** in developing countries.
- **Reasons For US Withdrawal:** Trump stated that the **Paris accord** does not reflect US values and redirects taxpayer dollars to countries that **"do not require or merit" financial assistance**.
- **Implications:** The US, as the **second-largest emitter of greenhouse gases**, holds a key role in global efforts to reduce emissions.
 - Its withdrawal from the Paris Agreement impacts **international climate finance, cutting funds for mitigation and adaptation efforts** in developing nations, including India.
 - The scaling back of **private climate finance**, heavily influenced by the US, could restrict resources for **renewable energy and green projects**.
 - Additionally, US focus on **fossil fuels** and rollback of energy regulations may lead to **4 billion tonnes of additional emissions over four years**, worsening global climate challenges.

CLIMATE FINANCE

Climate finance refers to local, national or transnational financing—drawn from public/ private/alternative sources of financing—to support mitigation and adaptation actions against climate change.

PRINCIPLES OF CLIMATE FINANCE

- ⌵ Polluter Pays
- ⌵ Common but Differentiated Responsibility and Respective Capability (CBDR-RC)

Multilateral Climate Funds Coordinated by UNFCCC

- ⌵ **Global Environment Facility (GEF):** Operating entity of financial mechanism (1994)
- ⌵ **Kyoto Protocol (2001):**
 - ⌵ **Adaptation Fund (AF):** Gives developing countries full ownership of adaptation projects
 - ⌵ **Clean Development Mechanism (CDM):** To carry out emission-reduction projects in developing nations
- ⌵ **Green Climate Fund (GCF):** estd. – 2010 (COP 16)
 - ⌵ Funds under it – **Least Developed Countries Fund (LDCF)** and **Special Climate Change Fund (SCCF)**
- ⌵ **Long-Term Climate Finance:**
 - ⌵ **Cancun Agreements (2010):** Mobilize and provide scaled-up funds in short and long term
 - ⌵ **Paris Agreement (2015):** Developed nations agreed to establish new collective goal of at least \$100 billion/year by 2025
- ⌵ **Loss and Damage Fund (2023) (COP27 & COP28):** Financial assistance to nations most vulnerable and impacted by effects of climate change

Climate Investment Funds (CIFs) under World Bank

- ⌵ Clean Technology Fund
- ⌵ Strategic Climate Fund

INDIA'S INITIATIVES REGARDING CLIMATE FINANCE

Fund	Objective
■ National Adaptation Fund for Climate Change (NAFCC) (2015)	■ For vulnerable Indian states
■ National Clean Energy Fund (2010-11)	■ Advancing clean energy (started with initial carbon tax on industrial coal use)
■ National Adaptation Fund (2014)	■ Bridging gap between required and available funds
■ Intended Nationally Determined Contributions (INDCs) (2015)	■ Nationally binding targets adopted under UNFCCC
■ Climate Change Finance Unit (2011)	■ Leads on global climate finance issues

Challenges to Climate Finance

- ⌵ Gap between national needs and climate finance under NDCs
- ⌵ Least Developed Countries receive much less approved funding in per-capita terms from the multilateral climate funds
- ⌵ Slow rate of approvals
- ⌵ Failure in securing viability-gap funding



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Note:

What is the Impact of the US Withdrawal From the WHO?

- **Reasons For US Withdrawal:** Trump cited the WHO's mishandling of **Covid-19 pandemic**, failure to implement urgent reforms, and susceptibility to political influence, especially from **China**, as reasons for the US withdrawal.
 - Expressed concern over the **US's disproportionate financial contributions compared to China**, despite China's larger population.
 - The **US contributed about 20% of the WHO's total funding**, both in assessed and voluntary contributions.
- **Impact:**
 - **Impact on the WHO:** US withdrawal creates a **funding vacuum** that could **disrupt global health programs**, including **polio eradication** and **pandemic preparedness**.
 - The executive order mandated the recall of all US personnel and contractors, resulting in a **loss of expertise in key areas like vaccine research, disease control, and health policy**, weakening WHO's advisory role globally.
 - **Domestic Implications for the US:** Withdrawing from the WHO could limit **Americans' access to global health intelligence** and diminish the US's influence on international health policies.
 - **Impact on India:** The US exit from the WHO could **slow down India's health programs**, including efforts on diseases like **Human Immunodeficiency Virus (HIV)** and **tuberculosis**.
 - With WHO's loss of funding and expertise, **India and other Global South** countries are expected to play a larger role in global health, with **India emerging as a leader in advocating for greater collaboration among developing nations**.

What is the Impact of the US Rejection of the Global Corporate Minimum Tax Deal?

- **GCMT Deal:** The deal, negotiated under the framework of the **Organization for Economic Cooperation and Development (OECD)**, established a **global minimum tax (GMT) rate** under the **GloBE Model Rules** for multinational companies.
 - It ensures they pay a **minimum tax in each jurisdiction**, reducing profit shifting and **ending the "race to the bottom"** in corporate tax rates,

aimed at preventing countries from **slashing tax rates to attract business**, which often results in minimal tax revenues.

- The deal, with its two-pillar solution, aims to **curb tax avoidance, tax havens** and **stabilize global tax competition**.
 - **Pillar 1:** This component focuses on **reallocating the profits of large multinational corporations to the jurisdictions** where they generate revenue.
 - **Pillar 2:** It establishes a **15% GMT rate** aimed at ensuring that companies pay a **fair share of taxes, no matter where they operate**.
- **Reasons for US Rejection:** President Trump argued that the GMT rate of 15% **infringed on US sovereignty and competitiveness**, claiming it would harm American businesses with **higher taxes than the US system**.
 - Under the 2017 Tax Cuts and Jobs Act, the US had a **10% global minimum tax**.
- **Impact:**
 - **Impact on Global Consensus:** The US withdrawal from the agreement could set back international efforts to reach a consensus on global tax rules.
 - **Impact on India:** Experts suggest that **India's tax policies and collection practices** will not be significantly impacted by the **US's exit from the global tax deal**.
 - India has adopted a **"wait and watch" approach**, refraining from introducing significant domestic legislation related to the **GloBE rules**.
 - As a result, the country's **tax landscape remains unaffected for the time being**.

Disputes Related to Indus Water Treaty

Why in News?

The **Neutral Expert (NE)** appointed by the **World Bank** under the **Indus Waters Treaty (IWT)** declared that he is **"competent"** to **adjudicate disputes** concerning the **Kishenganga** and **Ratle hydroelectric projects** in Jammu and Kashmir (J&K).

- This supports India's stance to exclude the **Permanent Court of Arbitration (PCA)**, reinforcing its diplomatic and legal efforts to assert rights over the **Indus waters**.

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Note:

What are the Key Disputes Regarding Indus Water Treaty (IWT)?

➤ Water Sharing Dispute:

- **Kishanganga Hydroelectric Project:** Kishanganga Hydroelectric Project (HEP) is located on the Kishanganga River (tributary of Jhelum) in J&K. Pakistan objected, claiming that water diversion for power generation violates the IWT.
- **Ratle Hydroelectric Project:** Ratle Hydroelectric Project is a run-of-the-river project on the Chenab River in J&K, Pakistan raised concerns that the dam's design, including the spillway gates, gives India excessive control over river flow.

➤ Dispute Over Resolution Procedure:

- Pakistan objected to the **Kishanganga and Ratle projects**, initially requesting a NE under the IWT in 2015 but later sought adjudication by the PCA.
- India opposed this, emphasizing the IWT's dispute resolution hierarchy, which prioritizes NE over PCA. **In 2022**, the World Bank initiated both NE and PCA processes.
 - India boycotted the PCA while engaging with the NE, asserting that only the NE has the authority to resolve disputes under the IWT.

INDUS WATERS TREATY: POINTS OF DIFFERENCE

Here's what the Neutral Commissioner will now decide upon

■ Whether the pondage provided in the two dams' designs meet restrictions imposed by the IWT.

■ Whether outlets below the dead storage level are in accordance with the IWT.

■ Whether the intakes for the turbines provided in the design are in accordance with the IWT.

■ Whether the designs of the gated spillways of each plant are in accordance with the IWT.

What is the Indus Waters Treaty?

- **About:** It is a **water-sharing agreement** between **India and Pakistan** signed in **1960** under the aegis of the **World Bank** to divide the waters of the **Indus River** and its 5 tributaries (**Sutlej, Beas, Ravi, Jhelum, and Chenab**) between the countries.
- **Key Provisions:**
 - **Water Sharing Arrangement:**
 - The Treaty grants **India unrestricted use of the 3 eastern rivers (Beas, Ravi, Sutlej)** and allocates the **3 western rivers (Chenab, Indus, Jhelum)** to Pakistan, with certain allowances for India to use these waters for **domestic, non-consumptive, agricultural, and hydroelectric purposes** under specific conditions.
 - As per this arrangement, **Pakistan is allocated roughly 80% of the water** from the Indus River system, while **India receives approximately 20%** of the water share.

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Note:

- **Permanent Indus Commission:** The treaty mandated the establishment of a **Permanent Indus Commission (PIC)** with **representatives from both countries**, which is required to **meet annually** to ensure the implementation of the treaty.
- **Dispute Resolution Mechanism:** Article IX of the IWT outlines a **3-tier dispute resolution process**:
 - **Resolution by PIC:** Initial disputes or questions regarding treaty interpretation or breaches are addressed by the PIC, a bilateral body of officials from India and Pakistan.
 - **Neutral Expert:** If the **PIC fails to resolve the issue**, it is referred to a Neutral Expert appointed by the World Bank, at the request of either Commissioner.
 - **Court of Arbitration:** If the matter is classified as a **dispute** or **outside the** Neutral Expert's mandate, and if **bilateral negotiations fail**, either party can invoke a **Court of Arbitration** set up by the **World Bank**.

Note: PCA was established in 1899 and based in The Hague, Netherlands, resolves disputes between states, offering arbitration and other mechanisms. It also provides a **Financial Assistance Fund** to help developing countries cover arbitration costs.

The Indus Waters Treaty (IWT)

■ The distribution of waters of the Indus and its tributaries between India and Pakistan is governed by the Indus Water Treaty (IWT).

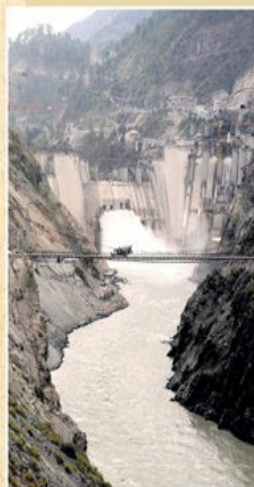
■ Was signed on Sept 19, 1960, between India, Pakistan and a representative of World Bank after eight years of negotiations.

■ Partition of India cut across the Indus river basin, which has the Indus river, plus five of its main tributaries.

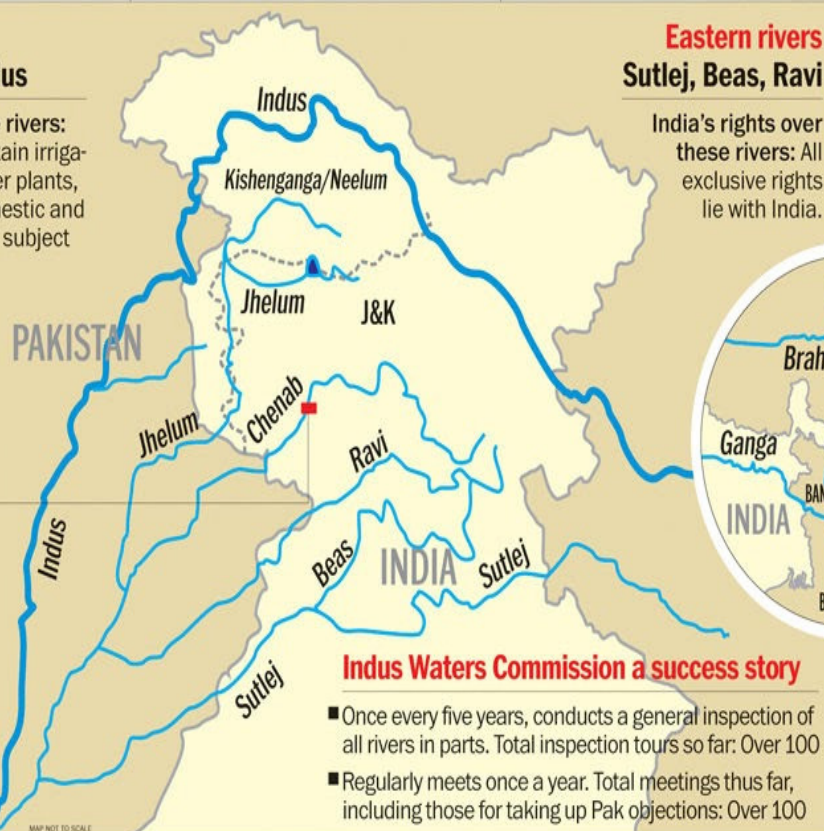
Western rivers

Chenab, Jhelum, Indus

India's rights over these rivers: Limited — can set up certain irrigation, run-of-the-river power plants, very limited storage, domestic and non-consumptive use, all subject to conditions



Baglihar dam on Chenab



Eastern rivers

Sutlej, Beas, Ravi

India's rights over these rivers: All exclusive rights lie with India.

Indus Waters Commission a success story

- Once every five years, conducts a general inspection of all rivers in parts. Total inspection tours so far: Over 100
- Regularly meets once a year. Total meetings thus far, including those for taking up Pak objections: Over 100

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Note:

Why are the Challenges Associated with IWT?

- **Outdated Provisions:** The IWT does **not** address **modern challenges** like **climate change**, which has altered hydrological patterns in the Indus basin, affecting water availability.
 - Climate change has led to **accelerated glacial melt**, **erratic rainfall**, and **increased evaporation**, **reducing water availability**, which challenges the IWT which was based on **historical hydrological patterns**.
- **Lack of Flexibility:** The **rigid allocation of water resources** under the treaty **limits the** ability to implement adaptive water management strategies in response to changing circumstances.
- **Irregularities of PCA:** The ongoing parallel proceedings initiated by the World Bank highlight the **ambiguities in the treaty's dispute resolution framework**, signaling the need for reform and clarification.
- **Geopolitical Tensions:** The broader **mistrust and hostilities between India and Pakistan** hinder the **treaty's effectiveness**, **complicating cooperation** on water-sharing and management.

Sri Lankan Tamil Refugees' Struggle for Indian Citizenship

Why in News?

The Madurai Bench of the Madras High Court has instructed the **Union Ministry of Home Affairs** to consider the **Indian citizenship application of a Sri Lankan Tamil refugee**, who has been residing in India since 1984.

- This directive emphasizes the rights of Sri Lankan Tamil refugees under Indian law.

Note: A Sri Lankan Tamil refugee, born in Sri Lanka in 1975, moved to **India in 1984** due to ethnic conflict. The individual applied for **Indian citizenship in 2022** under **Section 5(1)(a) of the Citizenship Act, 1955**, but no action was taken.

- Despite **residing in India for over 40 years**, the person remains without citizenship, hoping for legal recognition.
- The recognition could expedite citizenship for other long-term refugees, especially those who fled during the ethnic conflict in Sri Lanka.

What is the Plight of Sri Lankan Tamil Refugees?

- **Historical Background:** Indian-origin Tamils were brought to Sri Lanka by the British during colonial times as **indentured laborers** for plantation work.
- **Social Isolation:** These Tamils were largely excluded from the **political and civil life of Sri Lanka**, facing marginalisation from both the **Sinhalese** (people of Sri Lanka) and native Tamil communities.
- **Post-1948 Struggles:** After Sri Lanka's independence (1948), rising **Sinhalese nationalism** further **disenfranchised Indian-origin Tamils**, who were denied citizenship rights and relegated to statelessness (a person is not recognized as a citizen by any country).
- **Bilateral Agreements:** The **Sirimavo-Shastri Pact (1964)** and **Sirimavo-Indira Gandhi Pact (1974)** outlined that up to **six lakh Indian-origin Tamils** and their descendants could be **granted Indian citizenship**, but this process stalled due to various factors, including the **Sri Lankan civil war**.
- **CAA 2003:** Indian-origin Tamils who returned to **India before 1982** were **granted citizenship**, but subsequent arrivals **after 1983** were categorized as **'illegal migrants'** under the **Citizenship (Amendment) Act (CAA) 2003**.
 - Indian-origin Sri Lankan Tamil refugees, who fled the **Civil War in Sri Lanka** fought between the separatist Tamil forces (**Liberation Tigers of Tamil Eelam (LTTE)**) and the Sri Lankan government from **1983 to 2009**, are not eligible for Indian citizenship despite living in India for decades.
 - The lack of a **formal refugee law** leaves refugees in legal uncertainty, with no clear path to citizenship or permanent status.
- **Court Rulings:** Madras High Court in **P. Ulaganathan vs Government of India, 2019** case, emphasized that their **exclusion** infringes upon the **right to life and personal liberty (Article 21 of the Constitution)**, making the case for an urgent resolution.
 - In the **Abirami S. vs Union of India (2022)** case, the Madras High Court called for a **humanitarian approach** to grant citizenship to Indian-origin Tamils, supporting the principles of the **Citizenship (Amendment) Act (CAA) 2019**, which eases citizenship conditions for Hindus from Afghanistan, Pakistan, and Bangladesh.

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Note:

Refugees In India

- **About:** Refugees are individuals who have fled their countries due to severe threats to their life, safety, or freedom, requiring international protection from persecution, armed conflict, violence, or public unrest.
- **India's Refugee Asylum History:** India has historically hosted various refugee groups, including **Tibetans** fleeing Chinese occupation, **Bangladeshi refugees** post-1971 war, **Sri Lankan Tamils**, and **Rohingya refugees (Myanmar)**.
- **India's Challenges in Managing Refugees:**
 - **Lack of Legal Framework:** India is not a signatory to the **1951 Refugee Convention**, leading to no clear legal definition of refugees, which complicates distinguishing between **economic migrants and genuine refugees**.
 - Indian law does **not recognize any illegal immigrant as a refugee** and is concerned about compromising **sovereignty and potential security risks from refugees**.
 - **Porous Borders:** India's porous borders make **regulating refugee entry difficult**, leading to influxes, especially in Assam and West Bengal, overwhelming local resources and infrastructure.
 - **Limited Resources:** India's limited resources and infrastructure hinder its ability to assist and integrate refugees, restricting access to basic services like education, healthcare, and employment.

Statistical Data of Refugees



108.4 M (Approx.)

Forcibly displaced people worldwide

2000 2007 2013 2022

Türkiye (Turkey)

Hosts maximum **3.6 M** refugees



Syria

Originates maximum **6.8 M** refugees

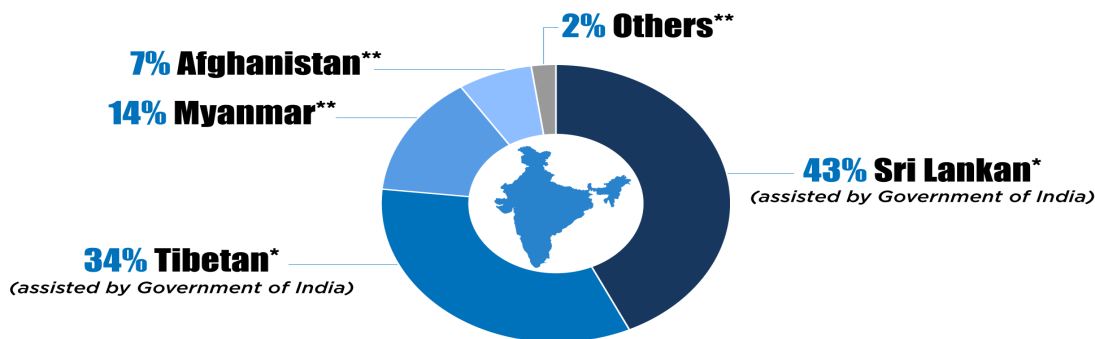


40% (Approx.)

Children below **18** years of age



India hosts approx. 2.5 Lakh Refugees and Asylum-Seekers



*Refugees registered by the Government of India | Source- <https://www.unhcr.org/in/>
 ** Refugees and Asylum-Seekers registered with UNHCR India (as of 31 March 2023)

What are the Challenges Faced by Stateless Individuals?

- **Lack of Basic Rights:** Stateless individuals are often denied fundamental rights like **education, healthcare, and social services**, as they don't have recognized citizenship.
- **Limited Legal Protection:** Without legal status, stateless refugees are vulnerable to **exploitation, including forced labor, human trafficking**, and other forms of abuse, as they lack the protection that **nationality** and legal status afford.

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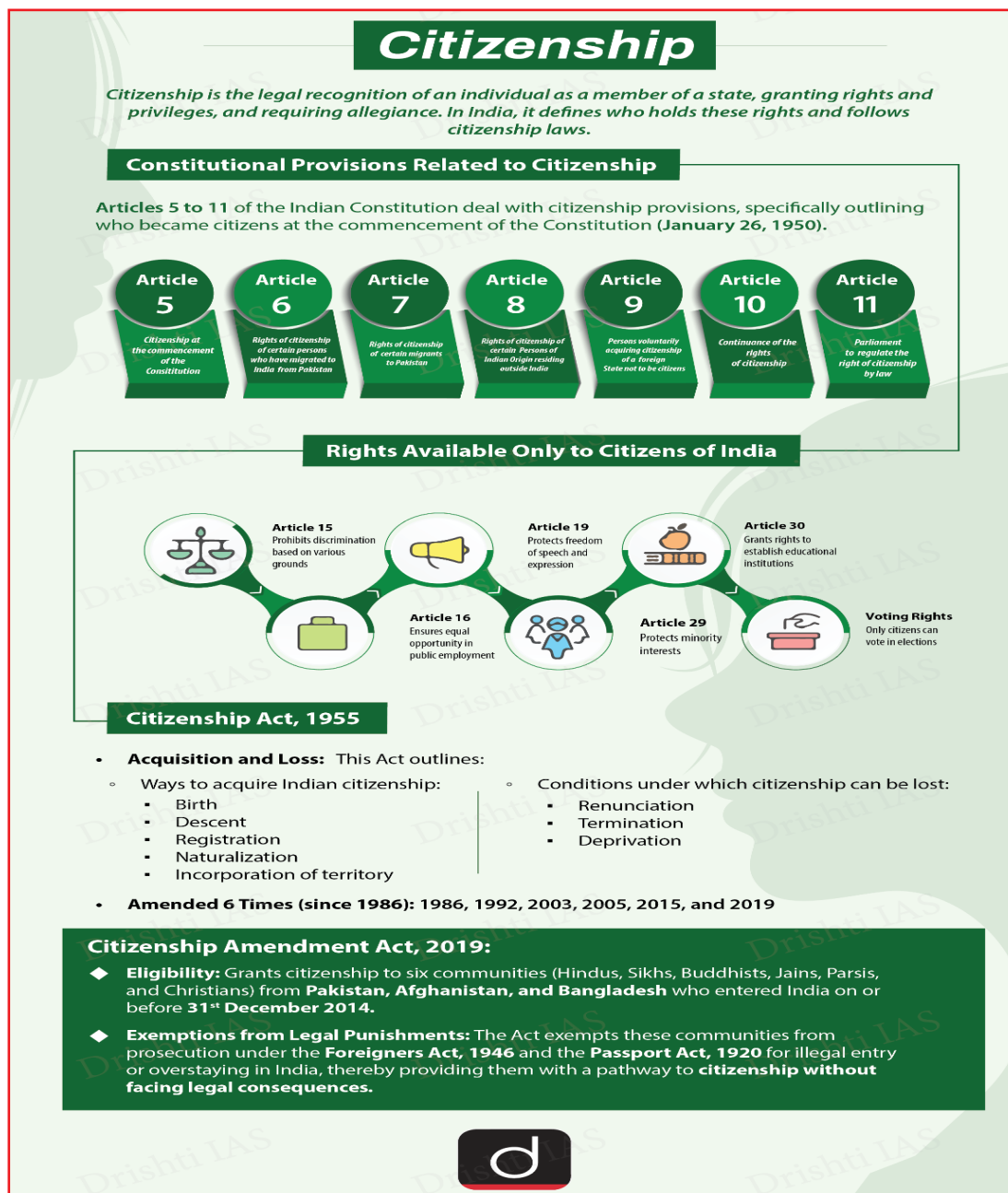
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Note:

- **Economic Exclusion:** They often **cannot work legally**, open bank accounts, or access public welfare programs, leading to **economic insecurity**.
- **Social Marginalization:** Stateless individuals face **social exclusion and discrimination**, both from state authorities and society, leading to isolation and a lack of integration.
- **Intergenerational Impact:** Statelessness can be passed down through generations, leading to a **cycle of deprivation and disenfranchisement**.
 - Stateless children may **lack property inheritance, parental support, and legal protections**. This uncertainty can lead to **mental health issues like anxiety, and depression**.

What is the Process of Acquisition of Indian Citizenship?



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Note:

- India's citizenship laws incorporate both **jus soli** and **jus sanguinis principles**, balancing birthright and descent in the framework.
 - '**Jus soli**' grants citizenship based on birthplace, while '**jus sanguinis**' recognizes blood ties.
- Indian citizenship can be acquired by birth, descent, registration and naturalization, as outlined in the **Citizenship Act, 1955**.
 - **By Birth:** Persons born in India between **26th January 1950 and 1st July 1987** are Indian citizens regardless of parentage.
 - Between **1st July 1987 and 2nd February 2004**, if at least one parent is an Indian citizen, the child is a citizen.
 - After **3rd December 2004**, both parents must be Indian or one must be Indian and the other not an illegal migrant.
 - **By Registration:** Citizenship can be acquired by registration under certain conditions, such as a **person of Indian origin who has resided in India for 7 years (Section 5(1)(a))**.
 - Persons of Indian origin who are ordinarily residents in any country or place outside undivided India.
 - Spouses of Indian citizens who have been residing in India for 7 years before applying for registration.
 - Minor children of Indian citizens.
 - **By Descent:** A person born outside India on or after 26th January 1950, is a citizen by **descent if their father was an Indian citizen by birth**.
 - For those born between 10th December 1992, and 3rd December 2004, either parent must be an Indian citizen by birth.
 - After **3rd December 2004**, parents must declare **the child does not hold another passport**, and the birth must be registered at an Indian consulate within one year.
 - **By Naturalization:** Requires 12 years of residence in India, and fulfills all qualifications in the third schedule of the Citizenship Act.

Citizenship Amendment Act (CAA), 2019

- **About:** The CAA, 2019 amends the **Citizenship Act, 1955**, that provides a path to **citizenship in India** for **certain illegal migrants from Afghanistan, Bangladesh, and Pakistan**.
- **Eligible for Indian citizenship under CAA, 2019:** Persons from the **Hindu, Sikh, Buddhist, Jain, Parsi, or Christian communities** in Afghanistan, Bangladesh, or Pakistan.
 - Entered India on or before **31st December 2014**.
 - Exempted individuals under **section 3(2)(c) of the Passport (Entry into India) Act, 1920** or from the application of the provisions of the **Foreigners Act, 1946** or any rule or order made thereunder.
 - These laws penalize illegal entry and overstaying in India.

India- European Union Relations

Why in News?

As democracies, India and the European Union face increasing pressure from authoritarian regimes, making their cooperation crucial. The **EU - India partnership** is key to addressing the needs of people across Europe and the Indian subcontinent, offering immense potential but facing issues with consistent delivery.

What Defines the India-EU Relationship?

- **Shared Values:** Both India and the EU emphasize **democracy, multilateralism, and prosperity**.
- **Economic Synergy:** India provides the **EU access to a growing market** and acts as a strategic partner in the **Indo-Pacific**, while the EU contributes investments, technology, and market access, supporting India's economic growth.
 - Sectors like **green technology**, textiles, and electronics offer opportunities for EU investment and collaboration.

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Note:

➤ Trade and Economic Relations:

- **Bilateral Trade:** In 2023-24, India's trade in goods with the EU stood at USD **137.41 billion**, making the **EU India's largest trading partner in goods**. **Bilateral trade in services** was valued at USD 51.45 billion in 2023.
- **Foreign Direct Investment (FDI):** The EU is a major investor in India, accounting for 17% of total **FDI** inflow, contributing to significant employment opportunities.

➤ Maritime Security: The EU's **Enhancing Security Cooperation in and with Asia (ESIWA)** initiative strengthens security cooperation with Asia, including India, to secure sea lanes, as the **Indian Ocean** is a vital route for the EU.

- India's naval expansion to counter **China's presence in the Indian Ocean** aligns with the EU's goal to enhance its security role.

➤ Military Exercises: The **first India-EU joint naval exercise** in the **Gulf of Guinea** in 2023.

Key Facts About European Union

- **Founded:** In 1951 after the **Second World War** (1939–45) by six countries (Belgium, France, Germany, Italy, Luxembourg, and the Netherlands).
- **Current Member States:** 27 countries (Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden).
 - The UK joined the EU in 1973 and left (**brexit**) in 2020.
- **Demography:** In EU, Germany has the largest population, France is the largest by area and Smallest Country is Malta.
- **Open Borders:** The **Schengen Area** allows free movement for most EU members, excluding Cyprus and Ireland.
 - Four non-EU countries (Iceland, Norway, Switzerland, and Liechtenstein) are also part of Schengen.
- **Single Market:** Goods, services, capital, and people circulate freely within the EU.
- **Climate Goals:** Aim to become **climate-neutral by 2050, reduce emissions by 55% by 2030**.

What are the Challenges in India-EU Relations?

- **Geopolitical Differences:** The EU envisions a comprehensive partnership, including trade, security, and **human rights cooperation**, while India prioritizes strategic **autonomy and avoids deep alliances**.
 - India's neutral stance on **Russia's invasion of Ukraine** contrasts with the European Union's approach, which has imposed sanctions against Russia and faced difficult relations due to Russia's attacks on Ukraine and assaults on democracy.
 - This creates a trust deficit and complicates policy-level coordination between India and the EU.
 - India views **China as a strategic competitor** due to border disputes and economic rivalry, while **Europe continues significant trade with China** despite concerns over its human rights and economic practices.
 - This contrast hinders a unified approach on **Indo-Pacific policies**.
- **Economic and Trade Barriers:** FTA negotiations between India and the EU, initiated in 2007, have faced delays due to disagreements.
 - **Stricter EU intellectual property rights (IPR)** norms conflict with India's focus on affordable generic pharmaceuticals.
 - Additionally, the **EU's insistence on stringent labor and environmental standards** like **Carbon Border Adjustment Mechanism** poses challenges for India's domestic industries.
- **Defence and Strategic Divergences:** India's dependence on **Russian defence systems** limits deeper collaboration with Europe on advanced military technology.
 - Despite projects like submarine collaborations with France and **C-295 Aircraft with Spain**, EU-India defense ties lag behind those with the US or Russia.
 - The lack of a dedicated strategic dialogue and the EU's restrictive approach to knowledge sharing further hinder cooperation, while **Russia supports joint manufacturing with India**.
- **Technology and Innovation Gaps:** India prioritizes **affordable technology**, while Europe focuses on sustainability and advanced manufacturing.

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Note:

- China's dominance in emerging technologies like **Artificial intelligence** and **Quantum computing** poses a threat, but the lack of coordinated response hinders joint progress.
- **Structural Barriers:** Divergences among EU member states complicate a unified foreign policy approach toward India. This **fragmentation hampers effective collaboration**.

What is the Need for Strengthening India-EU Relations?

- **Countering Authoritarianism:** As democracies, India and the EU face increasing pressure from authoritarian regimes, particularly **China for India and Russia for the EU**.
 - Strengthening ties would help both sides form a united front in **defending democratic values** and opposing autocratic expansionism.
- **Economic Growth:** A successful FTA between India and the EU would boost trade and investment. The **EU is the largest economic bloc** and by 2030, **India is projected to be the third-largest economy**.
 - They offer each other market access, technological exchange, economic growth and create alternative supply chains to reduce dependency on China.
- **Technological Collaboration:** India's rise in tech innovation and the EU's R&D capabilities can drive joint initiatives in **AI, quantum computing, biotech, and space**, countering China's dominance.
 - Strengthening collaboration through the **EU-India Trade and Technology Council (TTC)** can align strategies on emerging technologies, boosting cybersecurity, green tech, and clean energy.
 - India's **sunrise sectors** can help revive manufacturing in Europe, benefiting both regions.
- **Environmental Action:** India and the EU can drive global climate action through joint initiatives on clean energy, **carbon reduction**, and sustainable development, leveraging **India's renewable potential** and the EU's environmental leadership.

- India and the EU can jointly invest in green technologies like solar power, electric vehicles, and **sustainable agriculture**, contributing to global sustainability.

Martial Law in South Korea

Why in News?

On 15th January 2025, **South Korea** witnessed the **arrest of impeached President** Yoon Suk-yeol. His declaration of **martial law** in December 2024, **further escalated the political turmoil in the country**.

- Although martial law was lifted a day later, **public outrage, mass protests, and rapid legislative action led to his impeachment**.

Note: The President of India **can be impeached for violating the Constitution**, requiring a two-thirds majority in both **Houses of Parliament**.

History of South Korea's Path to Democracy

- **Colonialism and Division of Korea (1910-1945):**
 - Korea endured brutal colonial rule under Japan from 1910 to 1945.
 - After **World War II**, the peninsula was **divided into two zones at the 38th parallel** between Soviet-controlled **North Korea** and US-controlled **South Korea**.
- **Rhee Syngman's Autocracy (1948-1960):** Rhee Syngman, supported by the US, became South Korea's first president in 1948.
 - His **administration was marked by authoritarianism and repression** until a student-led uprising forced his resignation in April 1960.
- **Military Rule:** Since the establishment of the Republic of Korea, **martial law has been declared 16 times**. It was last declared in 1980.
- **Democratic Transition (1987 Onwards):** Elections held in 1987 resulted in Roh Tae-woo becoming president.
 - By February 1988, **South Korea began its journey toward becoming a liberal democracy**.

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Note:



What Does Martial Law Entail?

- **About:** Martial law (Military Rule) refers to a situation where civil administration is run by the military authorities according to their own rules and regulations framed outside the ordinary law.
 - It thus **implies the suspension of ordinary law** and the government by military tribunals.
 - It is **different from the military law** that is applicable to the armed forces.
- **Imposition of Martial Law:** The law is enforced **when a government faces** widespread civil unrest, natural disasters or threats of invasion.
- **Scope of Control Under the Law:** The military authority takes control of normal civil functions as well as the security of the state when martial law is imposed.
 - It also involves **restrictions on freedoms, curfews, and military involvement** in law enforcement and public order.

How is Martial Law in South Korea Different From Martial Law in India?

- **Martial Law in South Korea:**
 - **Conditions for Declaration:** As per **Article 77 of the Republic of Korea's constitution**, Martial law can be declared by the President of South Korea during war, armed conflict, or similar national emergencies when military forces are required for public safety and order.
 - This **allows the mobilization of military forces** to deal with military necessity or to ensure national security.

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Note:

- **Scope of Powers:** Martial Law allows **special measures to be taken concerning rights such as warrants, freedom of speech, the press, assembly, and association.**

- The Constitution allows for the **suspension or alteration of regular judicial and executive powers** under martial law.

➤ **Martial Law in India:**

- **About:** **Article 34** provides for restrictions on fundamental rights while martial law is in force in any area within the territory of India.
 - The concept of martial law has been borrowed in India from the English common law. However, **the expression 'martial law' has not been defined anywhere in the Constitution.**
 - The declaration of martial law under Article 34 is different from the declaration of a **national emergency under Article 352.**
- **Indemnity for Actions Taken During Martial Law:**
 - Article 34 empowers the Parliament to **indemnify any government servant or any other person** for any act done by him in connection with the maintenance or restoration of order in any area where martial law was in force.
 - The Parliament **can also validate any sentence passed**, punishment inflicted, forfeiture ordered or other act done under martial law in such an area.
 - The Act of Indemnity made by the Parliament **cannot be challenged in any court** on the ground of contravention of any of the fundamental rights.
- **Conditions for the Imposition:**
 - There is also **no specific provision in the Constitution** that authorises the executive to declare martial law.
 - The martial law is **imposed under extraordinary circumstances like war, invasion, insurrection, rebellion, riot or any violent resistance to the law.**
- **Scope of Powers:**
 - During the operation of martial law, the military authorities are vested with abnormal powers to take all necessary steps.

- The **Supreme Court** held that the declaration of martial law does not ***ipso facto*** (by that very fact) **result in the suspension of the writ of habeas corpus.**

Martial Law vs. National Emergency	
Martial Law	National Emergency
➤ It affects only Fundamental Rights.	➤ It affects not only Fundamental Rights but also <u>Centre-state relations</u> , distribution of legislative powers between centre and states and may extend the tenure of the Parliament.
➤ It suspends the government and ordinary law courts.	➤ It continues the government and ordinary law courts.
➤ It is imposed to restore the breakdown of law and order due to any reason.	➤ It can be imposed only on three grounds —war, external aggression or armed rebellion.
➤ It is imposed in some specific areas of the country	➤ It is imposed either in the whole country or in any part of it.
➤ It has no specific provision in the Constitution. It is implicit.	➤ It has specific and detailed provisions in the Constitution. It is explicit.

How have Relations Between India and the Republic of Korea Been?

- **Diplomatic Relations:**
 - India-Republic of Korea (ROK) **established diplomatic relations in 1973**. Consular relations were established in 1962.
 - Both countries **formed a "Strategic Partnership" in the year 2010**, which was elevated to a "Special Strategic Partnership" in the year 2015.

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Note:

➤ **Historical Ties:**

- According to the 13th-century Korean historical text **Princess Suriratna (Ayodhya)** married King **Kim-Suro**, forming ancestral ties with Korea.
- Nobel Laureate **Rabindranath Tagore** composed a short poem titled– '**Lamp of the East**', which is fondly remembered by the Koreans and finds mention in Korean school textbooks.

➤ **India's Role in the Korean War:** India played a significant role in the Korean Peninsula following Korea's independence in 1945.

- Former Indian diplomat **Shri K.P.S. Menon** served as the **Chairman of the United Nations (UN) Commission** established in 1947 to oversee the elections in Korea.
- During the war, India sent an Army medical unit, the **60th Parachute Field Ambulance**, to provide medical assistance during the conflict.
- Additionally, **both warring sides accepted a UN resolution** sponsored by India, leading to the declaration of a ceasefire in 1953.
- India **dispatched one Brigade Group designated as Custodian Forces -India (CFI)** to Korea, which was instrumental in resolving the **Prisoners of War** issue.

➤ **Economic Relations:**

- Trade and economic relations gathered momentum following the implementation of the **Comprehensive Economic Partnership Agreement (CEPA)** in 2010.
- Bilateral trade in 2023 was **USD 24.4 billion**.
 - India's import volume was USD 17.9 billion, while the export volume was USD 6.7 billion.
- ROK's total **Foreign Direct Investment (FDI)** to India until June 2023 stands at USD 8.02 billion.
- India and ROK **launched an initiative 'Korea Plus'** to promote and facilitate Korean investments in India.

➤ **Defence:**

- A **Roadmap for Defence Industries Cooperation** was signed between the two countries in 2019.

- For the first time, an **India pavilion** was set up at **ADEX-2023 (Seoul International Aerospace & Defense Exhibition 2023)**, showcasing India's defense manufacturing capabilities.

➤ **Cultural:**

- An Indian Cultural Centre (**renamed later as Swami Vivekananda Culture Centre (SVCC)**) was established in 2011 in Korea as a cultural wing of India.
- **SARANG, the festival of India in Korea** is organised every year to showcase India's diverse art and music in various regions of ROK.

Global Risks Report 2025

Why in News?

The World Economic Forum (WEF) released the **20th Global Risks Report 2025**.

Note: Global Risks Report is an annual report published by the WEF. It presents an analysis of the **most pressing global risks** anticipated over **short-term (2 years)** and **long-term (10 years)** periods.

- Global risk is the **potential** for an event to **significantly harm global GDP, population, or natural resources**.

What are Key Findings of the Global Risks Report 2025?

- **Top Risks for India:** The report highlighted the **top five risks** for India include **water supply shortages**, **misinformation and disinformation**, **erosion of human rights** and **civic freedoms**, **pollution** (air, water, and soil), and **labour and talent shortages**.
- **Top Global Risks:**
 - **Immediate Risks (Next 2 years):** **Misinformation and disinformation**, **Extreme weather events**, and **State based armed conflict**.
 - **Long-Term Risks (Next 10 Years):** **Extreme weather events**, **Biodiversity loss and ecosystem collapse** and **Critical changes to earth systems**.

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Note:

Risk categories	2 years	10 years
Economic	1 st Misinformation and disinformation	1 st Extreme weather events
Environmental	2 nd Extreme weather events	2 nd Biodiversity loss and ecosystem collapse
Geopolitical	3 rd State-based armed conflict	3 rd Critical change to Earth systems
Societal	4 th Societal polarization	4 th Natural resource shortages
Technological	5 th Cyber espionage and warfare	5 th Misinformation and disinformation

- **Geopolitical Bridges:** India and Gulf countries are emerging as **key multilateral alternatives** amid rising US-China rivalry, **bridging the West and East** to reduce tensions and promote cooperation.
- **Trade Protectionism:** Inflation Reduction Act, 2022 of US and **Make in India** in India highlights the growing trend of **gloeconomic confrontation** and **trade protectionism**.
 - **Non-tariff barriers**, such as **subsidies** and **industrial policy**, are emerging as key drivers of **protectionism**.
- **Multilateral Solutions:** Rising geopolitical tensions, the **fracturing of global trust**, and the **climate crisis** need **multilateral solutions** for achieving cooperation across borders.

World Economic Forum (WEF)

- **About:** WEF is an international organization for **public-private cooperation**, headquartered in **Geneva, Switzerland**.
 - It engages global leaders to shape agendas across **industries, regions, and globally**.
- **Foundation:** It was founded by **Klaus Schwab** in **1971** as the **European Management Forum**, WEF emphasizes long-term benefits for all stakeholders, **not just short-term profits** for shareholders.
- **Evolution:** In **1973**, the WEF expanded its focus to **economic and social issues**. It introduced membership for the world's leading **1,000 companies** in **1975**.
 - In **1987**, it became the **World Economic Forum**, broadening its role as a platform for dialogue. It was recognized as an international organization in 2015.
- **Major Reports:** WEF publishes key reports, including the **Global Competitiveness Index**, **Global Gender Gap Index**, **Energy Transition Index**, **Global Risk Report**, and **Global Travel and Tourism Competitiveness Index**.



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Note:

Social Issues

Highlights

- Reorganising Denotified Tribes as SC, ST and OBC
- Nicobarese Tribe
- Snakebites and Antivenom in India
- ASER 2024 and Elementary Education
- Impact of Early Smartphone Use on Adolescents
- Underutilization of Funds Under the BOCW Act, 1996
- Decline in India's Total Fertility Rate
- Strengthening Accessibility Measures in India
- Challenges Related to Aging Population
- Rising Global Inequality
- UNICEF's Prospects for Children in 2025 Report
- Reforms for Combating Honour Killings
- Combating Adolescent Pregnancy in India

Reorganising Denotified Tribes as SC, ST and OBC

Why in News?

An ethnographic study by the [Anthropological Survey of India \(AnSI\)](#) and [Tribal Research Institutes \(TRIs\)](#) recommended the inclusion of **179 Denotified Tribes (DNTs), Nomadic Tribes (NTs), and Semi-Nomadic Tribes (SNTs)** in the **SC, ST, and OBC** lists of various states and union territories.

- The August 2022 study is under [NITI Aayog](#) panel review and awaits final approval.

Tribal Research Institutes (TRIs)

- **About:** TRIs are research bodies under the **Ministry of Tribal Affairs**, operating at the **state level**. There are 28 TRIs across India.
- **Primary Focus:**
 - **Knowledge and Research:** Act as a **think tank** for tribal development.
 - **Cultural Heritage:** Preserve and promote **tribal culture** and traditions.
 - **Evidence-Based Planning:** Provide data and insights to **state governments** for **tribal development policies** and legislations.
 - **Capacity Building:** Enhance the skills and capabilities of **tribals** and **institutions** working with tribal communities.

Anthropological Survey of India (AnSI)

- AnSI is a government-funded research organization established in **1945** that **studies the cultural, biological, and linguistic diversity of India**.
- **Functions:** Collects, preserves, and publishes research data; conducts field surveys; and collaborates with international research bodies.
- **Headquarters:** Located in Kolkata, West Bengal.

What are the Key Highlights of the Study on Denotified, Nomadic, and Semi-Nomadic Tribes?

- **New Additions:** Of the 179 recommended communities, **46 are proposed for OBC**, 29 for **SC**, and 10 for **ST** status.
 - Uttar Pradesh, Andhra Pradesh, Tamil Nadu, Madhya Pradesh, and Rajasthan are most impacted, with **Uttar Pradesh having the highest** number of proposed changes.
- **Issues of Non-Traceability:** **63 communities** were **"not traceable,"** suggesting they have **assimilated, changed names, or migrated**.
 - This challenges the categorization process and raises concerns about identifying communities that have undergone significant social integration.
- **Categorization of Existing Communities:** The study also suggests correcting the **categorization of 9 existing communities** that were either misclassified or inadequately listed in state or central lists.

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Note:

What are the Procedure for Altering the SC/ST/OBC List in India?

➤ Inclusion Criteria:

- **Scheduled Castes (SC):** Extreme social, educational, and economic backwardness, often linked to the historical practice of **untouchability**.
- **Scheduled Tribes (ST):** Indications of **primitive traits, distinct cultural practices**, geographical isolation, and a general state of backwardness.
- **Other Backward Classes (OBC):** Social, educational, and economic backwardness, as well as **inadequate representation in government services**.

➤ Procedure:

- **Initiation and Scrutiny:** The proposal is first initiated by **State Governments/UTs** for the inclusion or exclusion of a community in the SC/ST/OBC list which is then supported by the **Registrar General of India (RGI)** and the **NCSC** or **NCST**.
 - Inclusion in the Central OBC list requires recommendations from the **National Commission for Backward Classes (NCBC)** as per **Section 9 of the NCBC Act, 1993**.
 - **Procedure for inclusion in the SC/ST category** is governed by **Article 341 (for SC)** and **Article 342 (for ST)** of the Constitution.
 - The proposal is scrutinized by the **Ministry of Social Justice and Empowerment**, which evaluates it based on socio-economic factors and historical data, with inputs from the **RGI**.
 - Amendments to lists are subject to proposal reviews and approval by the Union Cabinet.
- **Parliamentary Process:** A **Constitutional Amendment Bill** is introduced in Parliament to formalize the proposed changes to the SC/ST/OBC list.
 - The Bill requires a **special majority**, i.e., a two-thirds majority of members present and voting, along with the **support of more than 50% of the total strength of the House**.
- **Presidential Assent and Implementation:** After being passed by both Houses of Parliament, the Bill is sent to the **President** for assent. Once the **President grants assent**, the amendments to the SC/ST/OBC list are officially enacted.

Registrar General of India (RGI):

- Established in **1961** under the **Ministry of Home Affairs**, the RGI oversees the demographic surveys of India, including the **Census** and the **Linguistic Survey of India**.

What are the Constitutional Provisions Related to SC, ST, and OBC in India?

➤ Fundamental Rights:

- **Articles 17 and 23** prohibit **untouchability** and **human trafficking**, ensuring protection for SCs.
- **Article 15(4)** permits special provisions for the advancement in **educational institutions**.
- **Article 16(4)** provides for **reservation** in public employment.
- **Political Representation:** **Article 330, Article 332**

➤ Article 340, Article 341 & Article 342:

- **Article 340:** Authorizes the **President to appoint a commission** for investigating backward classes and recommending welfare measures.
- **Article 341:** Empowers the President to **specify SCs for any state or union territory**.
- **Article 342:** Empowers the President to **specify STs for any state or union territory**.

➤ Article 46: Article 46 directs the State to promote the educational and economic interests of SCs, STs, and other weaker sections of society.

➤ Article 338 and 338A: Establish the NCSC and NCST to safeguard the interests of SC/STs.

➤ National Commission for Backward Classes (NCBC): Established through the **102nd Constitutional Amendment Act (2018)** under **Article 338B**.

➤ Special Administration for STs: **Fifth Schedule** and **Sixth Schedule**.

Nicobarese Tribe

Why in News?

A study published in the *European Journal of Human Genetics* has revised the timeline of Nicobarese migration to the **Nicobar Islands**.

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Note:

What are the Key Findings of the Study on Nicobarese Tribe?

- **Revised Migration Timeline:** Previous studies estimated that the Austroasiatic ancestors of the Nicobarese arrived to Nicobar Islands over **11,000 years ago**.
 - The new study, using advanced **Deoxyribonucleic acid (DNA)** analysis, corrected this estimate to **approximately 5,000 years ago**.
- **Genetic Link:** The study found that the Nicobarese share ancestral ties with the **Htin Mal community** (ethnic group native to **Laos-Thailand region**).
 - This supports the idea that their ancestors migrated from **Southeast Asia**, rather than South Asia.
- **Preservation of Genetic Identity:** Due to their **geographical isolation**, the Nicobarese have maintained their **genetic identity** with minimal external influence.
 - This has allowed researchers to trace their ancestry more precisely.
- **Linguistic Continuity:** Despite their genetic ties to Southeast Asia, the Nicobarese have retained their **Austroasiatic language roots** (Khmuic branch), linking them to other Southeast Asian populations.

WHAT CCMB-BHU STUDY UNVEILS

● Researchers made genetic analysis using DNA markers from mothers & fathers

● Study indicates Nicobarese share significant ancestral link with Austroasiatic people



● Findings suggest Nicobar islanders settled about 5k years ago, not 11,700 years ago

● Study highlights genetic affinity between Htin Mal community in Southeast Asia & Nicobarese people

What are the Key Facts About the Nicobarese Tribe?

- **Geography:** The Nicobarese live on the Nicobar Islands in the **Bay of Bengal**, part of India's **Andaman and Nicobar Islands** Union Territory.
 - The Nicobar Islands consist of 19 islands, the major islands are **Car Nicobar, Kamorta, Nancowrie, and Great Nicobar**, which have both hilly and flat terrains.
 - Great Nicobar is the southernmost and largest of the Nicobar Islands.
- **Ethnic Group:** The Nicobarese belong to the **Mongoloid ethnic group** and have a population of over 27,000.
 - While not divided into tribes, they are classified into **six territorial groups: Car Nicobar, Chowra, Teresa with Bompoka, Central Group, Southern Group, and the Shompen** (inland tribe of Great Nicobar).
- **Social Structure:** Patriarchal joint family system known as **Tuhet**.
 - **With no individual ownership**, the **Tuhet** collectively owns land, coconut trees, and pigs.

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Note:



Snakebites and Antivenom in India

Why in News?

India accounts for nearly **half of global snakebite deaths**, with around **58,000 fatalities annually**.

- Despite being the **largest producer and consumer of antivenoms**, challenges like delayed access, poor rural healthcare, and infrastructure gaps hinder effective treatment.

What are the Key Facts Regarding Snakebite?

- **Global Scenario:**
 - According to **WHO**, **5.4 million people are bitten** by snakes annually, with 1.8 to 2.7 million cases resulting in venom exposure.

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Note:

- Snake bites cause around **81,410 to 137,880 deaths annually**, and many more people suffer from **amputations and permanent disabilities** due to snake bites.
- The **WHO** has classified **snakebite envenoming** (poisoning from snake bites) as a **neglected tropical disease** of high priority.

➤ **In India:**

- **Diversity of Venomous Snakes:** India hosts over **300 snake species**, with **more than 60 being venomous**.
 - The **Big Four** (Indian cobra, common krait, **Russell's viper**, and **saw-scaled viper**) are responsible for **most snakebite deaths in India**.
- **Snakebite Mortality and Disability:** A study estimates that **between 2001 and 2014**, India witnessed approximately **1.2 million deaths and 3.6 million cases of permanent disabilities** due to snakebites.
 - **One in 250 Indians** is at **risk of dying** from a snakebite **before 70**.
- **Vulnerable Populations:** Rural communities, especially agricultural workers, are at higher risk, particularly during the **monsoon**, with **inadequate healthcare** worsening outcomes.
- **Urban Risks:** Rapid **urbanisation**, poor waste management, and **urban flooding** have **increased snake-human encounters**, raising risks even in cities.

~ Snakebites in India ~

A significant number of snake bites in India are attributed to the widely distributed **'Big Four'** species.

As of 2023, India only has polyvalent antivenom to neutralise venoms of the Big Four.

Indian cobra (<i>Naja naja</i>)	Saw-scaled viper (<i>Echis carinatus</i>)	Russell's viper (<i>Daboia russelii</i>)	Common krait (<i>Bungarus caeruleus</i>)
			
Found in forests, grasslands, and agricultural lands; Mainly diurnal.	Found in both desert areas and dense grassland; Mainly nocturnal.	Found in large variety of habitats, often in urbanized areas; Mainly nocturnal.	Usually seen in scrub jungle and sandy areas; Mainly nocturnal.
			

What are Antivenoms?

- **Snake Venom:** It is a potent mixture of **toxic proteins** that **causes** severe damage to the human body.
- **Haemotoxins** destroy blood cells and disrupt clotting.
 - **Neurotoxins** block nerve signals and paralyse.
 - **Cytotoxins** dissolve tissue at the bite site.

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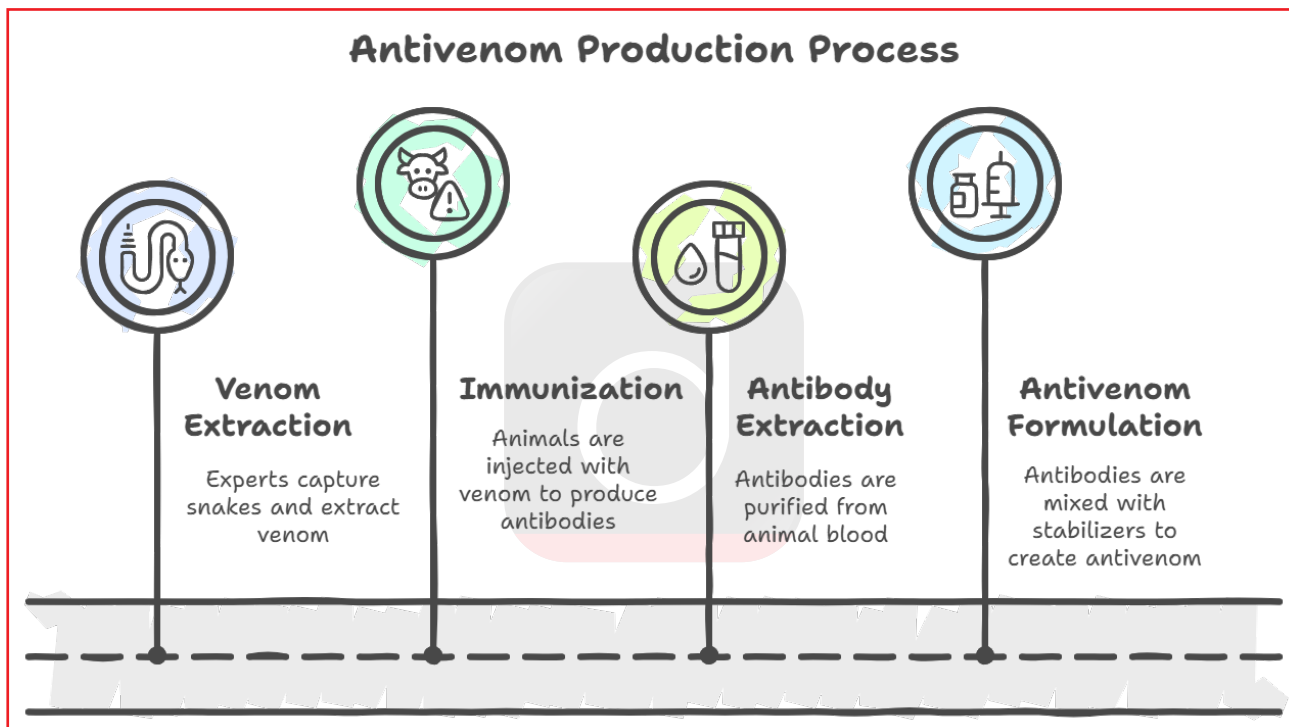


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Note:

- **Antivenoms:** Antivenoms or antivenins are life-saving medicines used to treat snake bites.
 - Antivenoms work by **binding to the venom toxins, neutralizing them**, and allowing the body's immune system to **safely eliminate them over time**.
 - **Polyvalent Antivenoms** in India are **made from the venom of the "Big Four"** but **do not cover other venomous species** like the **king cobra and pit vipers**.
- **Production of Antivenom:**
 - Antivenom production involves **extracting venom from snakes**, immunizing animals like horses or sheep to **produce antibodies**, and then **extracting and purifying these antibodies** from the animal's blood to **formulate the antivenom**.



- **Production In India:**
 - Several companies produce antivenoms. The **Irula tribe** of Tamil Nadu plays a vital role in **venom extraction** (supplying nearly 80% of the venom).

Note:

- Snakes are protected under various **schedules of the Wildlife Protection Act, 1972**, and **capturing, killing, or milking venomous species is prohibited in India**.
- The **Chief Wildlife Warden** may grant a permit to hunt wild animals, including for **snake venom extraction** for life-saving drugs, with written approval.
 - However, for **Schedule I animals**, prior **Central Government permission** is required.

What are the Challenges Accessing Antivenoms in India?

- **Geographical Barriers:** Remote areas **lack proximity to healthcare facilities** equipped with antivenom, **hindering timely treatment**.

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Note:

- **Cultural and Social Factors:** Superstitions and reliance on traditional practices in rural areas often delay seeking medical care, worsening outcomes.
- **Economic Constraints:** The high production cost of antivenoms limits access, especially for economically disadvantaged communities.
- **Logistical Issues:** Insufficient cold storage and inadequate infrastructure in rural areas result in degraded antivenom quality, reducing its efficacy.

What are the Emerging Solutions and Innovations in Antivenoms?

- **National Action Plan for Prevention and Control of Snakebite Envenoming (NAP-SE):** NAP-SE aims to halve the number of deaths and disabilities caused by snakebites by 2030.
- **Synthetic Antivenoms:** Recombinant DNA technology and AI-designed proteins, as demonstrated by 2024 Nobel laureate David Baker's team, offer safer and more effective alternatives to traditional antivenoms.
- **Region-Specific Antivenoms:** IISc Bengaluru researchers are developing antivenoms tailored to specific snake species and regional venom variations.
- **Rapid Diagnostic Tools:** Portable venom-detection kits can guide accurate and timely administration of antivenoms, improving patient outcomes.
- **Public Education Campaigns:** Raising awareness about snakebite prevention and timely medical intervention can significantly reduce fatalities.

ASER 2024 and Elementary Education

Why in News?

The NGO Pratham Foundation released the **Annual Status of Education Report (ASER) 2024** on learning outcomes of school students in rural India.

- It is based on a 2024 survey conducted in 17,997 villages across 605 rural districts.
- It reached 649,491 children in the 3-16 years age group, and tested the reading and arithmetic skills of over 500,000 children in the 5-16 years age group.

What is ASER?

- **About:** ASER is a nationwide, citizen-led household survey that offers an insightful snapshot of children's schooling and learning in rural India.

- Launched in 2005, ASER tracks educational trends and challenges in rural areas, evolving in coverage, focus, and frequency.

Focus Areas:

- **Enrollment:** ASER tracks school and preschool enrollment trends, highlighting improvements and challenges by state and age group.
- **Learning Outcomes:** It assesses basic reading and arithmetic skills, showing children's progress at primary and secondary levels.
- **Digital Literacy:** ASER 2024 evaluates older children's smartphone skills, including tasks like setting alarms, browsing, and messaging.

What are the Key Findings of the Report?

➤ Pre-primary (Age Group 3-5 Years):

- **Enrollment:** Enrollment in pre-primary institutions (**Anganwadi**, government pre-primary class, or private LKG/UKG) has steadily increased since 2018.
 - E.g., Enrollment of 3-year-olds rose from 68.1% in 2018 to 77.4% in 2024.
- **Pre-primary Institutions:** Anganwadi centres are the main provider of pre-primary education, enrolling over half of 3-4-year-olds, while one-third of 5-year-olds attend private schools or preschools.

➤ Elementary (Age Group 6-14 Years):

- **Overall Enrollment:** Enrollment dropped slightly from 98.4% in 2022 to 98.1% in 2024, with government school enrollment declining from 72.9% to 66.8%.
- **Reading and Arithmetic Skills:** In 2024, 23.4% of Standard (Std) III children in government schools could read Std II-level text, up from 16.3% in 2022.
 - In 2024, 45.8% of Std VIII students could solve basic arithmetic problems, showing slight improvement.
 - Arithmetic abilities improved more than reading skills, with government schools showing faster progress than private schools.

➤ Older Children (Age Group 15-16 Years):

- **Enrollment:** The dropout rate for 15-16-year-olds decreased from 13.1% in 2018 to 7.9% in 2024, with girls at a higher rate of 8.1%.

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Note:

- **Smartphone Access and Usage (Digital Literacy):**
 - **Access:** Nearly **90% of 14-16-year-olds** have smartphone access, with **boys (85.5%)** using them more than girls (**79.4%**).
 - **Ownership:** **27%** of 14-year-olds and **37.8%** of 16-year-olds own smartphones.
 - **Use:** **82.2%** of children use **smartphones**, with **57% for education** and **76% for social media**.
 - **Digital Safety:** **62%** of children know how to **block/report profiles**, and **55.2%** know how to make profiles private.
- **School Observations:**
 - **Foundational Literacy and Numeracy (FLN):** Over **80%** of schools implemented **FLN activities**, with at least one teacher in **75%** of these schools receiving FLN training.
 - **Attendance:** Student attendance increased from **72.4% in 2018 to 75.9% in 2024**, and teacher attendance increased from **85.1% to 87.5%**.
 - **School Facilities:** There were slight improvements in the availability of **basic school facilities**:
 - Usable **girls' toilets** increased from **66.4% in 2018 to 72% in 2024**.
 - **Drinking water** availability rose from **74.8% to 77.7%**.
 - The use of **non-textbook books** (e.g., novels, short stories, folk tales) by students increased from **36.9% to 51.3%**.
 - The percentage of schools with **playgrounds** remained stable at around **66%**.
- **Difference in Outcome:** There are significant **state-level differences in learning outcomes and improvement** since the **Covid-19 pandemic**.
 - In **Std III**, **reading ability** lagged behind 2018 levels in over half the states, but **arithmetic improved** in all but six.
 - In **Std V and VIII**, many states **did not reach pre-pandemic levels**, even in arithmetic.

What is Elementary Education?

- **About:** **Elementary Education** is the **foundation** of the entire educational system, typically beginning at the **age of six**.

- It marks the start of **formal education**, crucial for a child's **physical, mental, emotional, intellectual, and social development**.
- **Significance:**
 - **Foundation for Future Learning:** It provides **core skills (reading, writing, math, problem-solving)** essential for higher education and careers.
 - **Development of Social Skills:** Children learn **teamwork, communication, and empathy** through peer and teacher interactions.
 - **Personal and Emotional Growth:** It builds **self-confidence and motivation**, allowing children to explore their potential and creativity.
 - **Promotion of Motor Skills:** Activities like **sports and creative expression** develop fine and gross motor skills.
 - **Building Social Awareness:** Children learn **hygiene, social responsibilities, and civic duties**, fostering informed future citizens.
 - **Long-Term Economic Impact:** Investment in elementary education drives **economic growth, innovation, and productivity**.
- **Challenges:**
 - **Poor School Infrastructure:** Of over **14.71 lakh schools** in India, **1.52 lakh** lack functional **electricity**, hindering the use of technology like computers and the internet in teaching.
 - **67,000 schools**, including 46,000 government-run, **lack functional toilets**. Only **3.37 lakh government schools (33.2%)** have disabled-friendly toilets, with less than a **third being functional**.
 - **Limited Access to Technology:** Only **43.5%** of government schools have **computers** for teaching, compared to **70.9% in private, unaided schools**.
 - **Poor Teacher Student Ratio:** India has nearly **lakh schools** with just **one teacher each**.
 - **Social Divides:** Social divides, such as **caste-class, rural-urban, religious, and gender disparities**, affect the quality of education.
 - **Language Barriers:** The **lack of textbooks and materials in regional languages** limits education access for those **not proficient in Hindi/English** medium of instruction.

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Note:

What are the Government Initiatives Related to Education?

- [National Programme on Technology Enhanced Learning](#)
- [Sarva Shiksha Abhiyan](#)
- [PRAGYATA](#)
- [Mid Day Meal Scheme](#)
- [Beti Bachao Beti Padhao](#)
- [PM SHRI Schools](#)
- [National Education Policy \(NEP\) 2020](#)

Impact of Early Smartphone Use on Adolescents

Why in News?

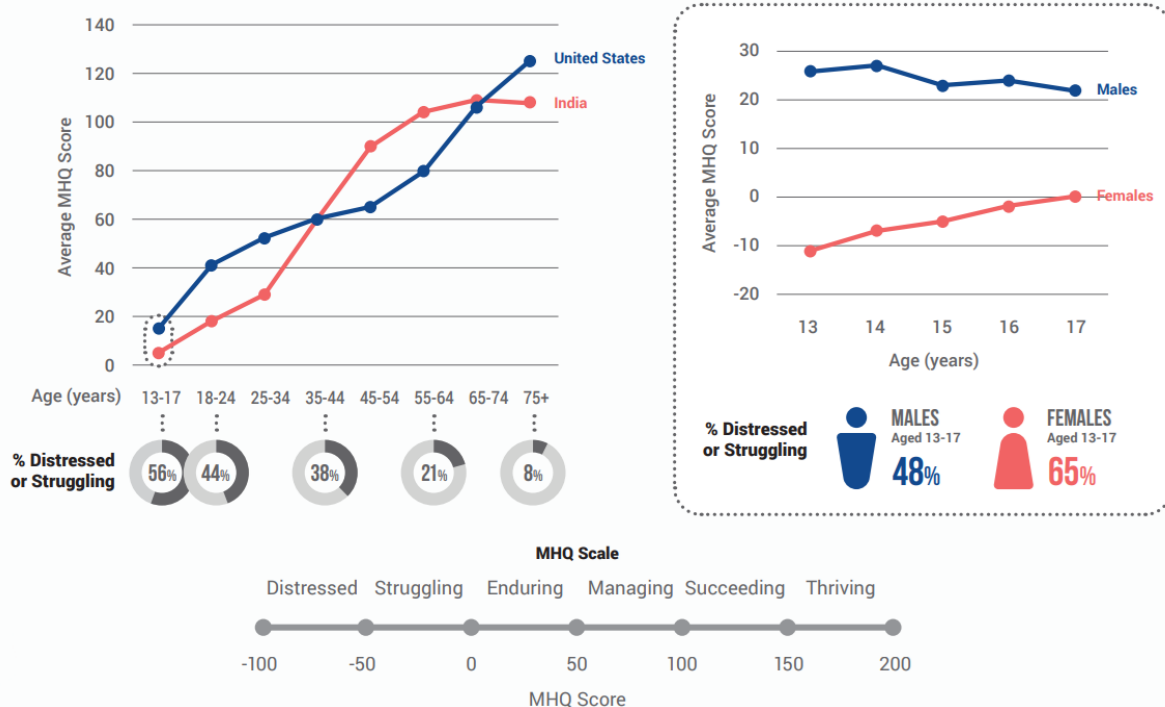
A study by Sapien Labs, titled “*The Youth Mind: Rising Aggression and Anger*”, highlights the troubling link between early smartphone use and deteriorating **mental well-being** in adolescents aged 13-17 in India and the US.

What are the Key Findings of the Study?

- **Smartphone Use and Mental Health:** The study based on **Mind Health Quotient (MHQ)** of adolescents reveals a significant correlation between the **early initiation of smartphone use** and the **decline in mental health among adolescents**, with symptoms such as aggression, anger, irritability, and **hallucinations** becoming more prevalent.
 - Adolescents who start using smartphones at a younger age show more pronounced mental health issues.
 - In addition to sadness and **anxiety**, new symptoms like **intrusive thoughts** and **detachment from reality** were observed, indicating a deeper **mental health crisis**.

Left: MHQ scores declines and the percentage distressed/struggling increases with successively younger generations (age 75 to 13-17) in both US and India.

Right: Females aged 13-17 have lower MHQ scores and higher percentage distressed/struggling compared to males, in both US and India.



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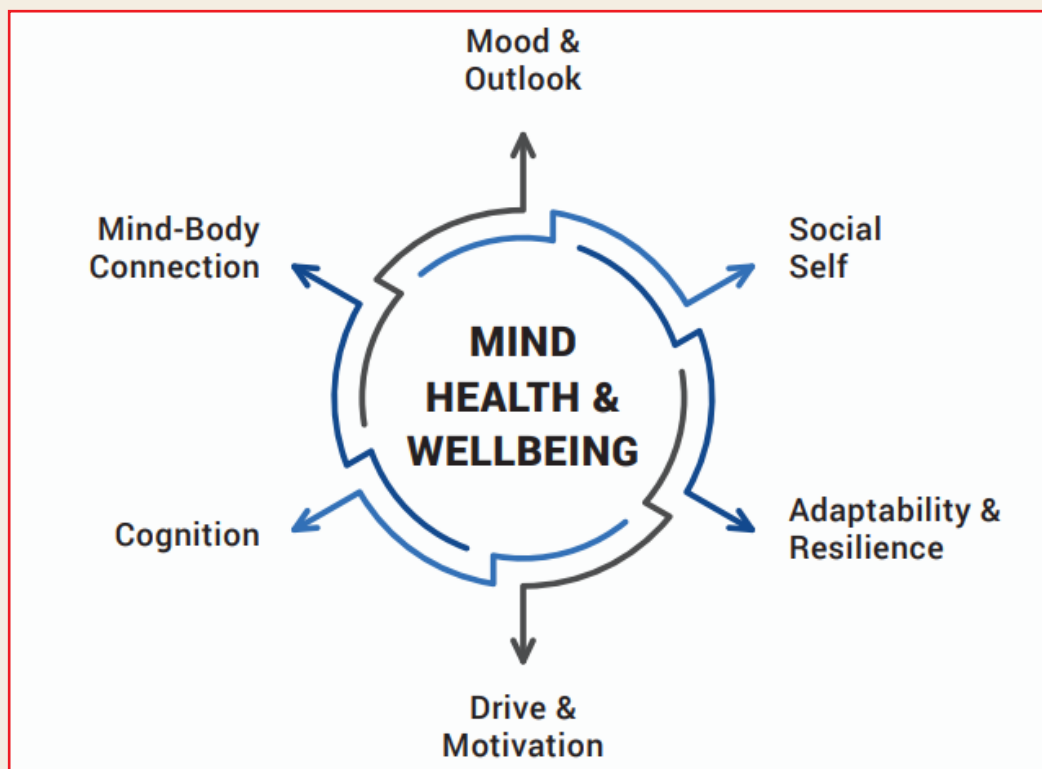


Note:

- **Online Exposure Risks:** Early smartphone access exposes young people to **inappropriate content**, disrupts sleep, and **reduces in-person interactions**, which are vital for developing social skills and **coping with conflict**.
- **Gender Differences:** The study points out that **females are particularly vulnerable**, with **rising aggression and anger** being observed more frequently among girls.
 - Notably, 65% of adolescent girls reported distress, significantly higher than boys.
- **Cultural Differences:** The decline in mental well-being is slower in India compared to the US.
 - The decline in **mental well-being** is evident in both males and females in the US, but **only females in India show a decline**, with some aspects improving in males.
- **Educational Technology as a Solution:** The study suggests using **educational technology and restricted access to smartphones** with parental controls as potential solutions to mitigate the mental health impact.

Mind Health Quotient (MHQ)

- **About:** The MHQ is a comprehensive assessment of **47 aspects of mental function**, measured across six dimensions (Mood and Outlook, Adaptability and Resilience, Social Self, Drive and Motivation, Cognition, and Mind-Body Connection).
 - The aggregate MHQ score correlates with **functional productivity**, with **higher scores linked to more productive days**.
 - Unlike “mental wellbeing,” which focuses on emotional states, “mind health” encompasses both **emotional and functional aspects**, emphasizing the ability to navigate life’s challenges and maintain productivity.
- **MHQ Vs IQ and EQ:** MHQ differs from **Intelligence Quotient (IQ)** (measures cognitive abilities) and **Emotional Quotient (EQ)** (measures **emotional intelligence (EI)**).
 - MHQ encompasses a broader range of mental functions, including mood, resilience, and mind-body connection.



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Note:

What is the Impact of Early Digital Access to Children?

- The proliferation of the internet and social media has been a **double-edged sword for children**. While on one hand it has **democratized learning for millions**, on the other it has exposed **children to harmful and toxic behaviours**.
- **Positive Impacts:**
 - **Enhanced Learning Opportunities:** Digital access offers a wealth of educational resources, and India's initiatives like **tablet sets pre-loaded with educational content**, and **PRAGYATA guidelines** ensure that students focus on learning while limiting distractions.
 - **E-PG Pathshala** provides access to online courses and collaborative learning, especially for students in remote areas.
 - **Personalised Learning:** **Machine Learning and Artificial Intelligence**-based platforms adapt to students' **learning styles**, providing customized educational experiences.
 - Digital tools like **games, simulations, and interactive platforms** can make learning more **engaging**, helping children develop skills in various subjects, **such as math, language, and science**.
 - **Skills Development:** Exposure to digital technology can help children develop important skills like **problem-solving, coding, and digital literacy, which are vital in today's technology-driven world**.
 - In recent years, "**Kidfluencers**" have driven a **booming social media advertising industry**, with children earning significant amounts through sponsored content.
 - **Social Connection:** Helps **reduce loneliness** by keeping kids connected with family and friends.
 - **Access to Support:** Provides easy access to **mental health resources and coping strategies**.
- **Negative Impacts:**
 - **Physical Inactivity:** Adolescence is crucial for developing **emotional habits**, with factors like sleep, physical activity, coping skills, and supportive relationships promoting well-being.
 - However, early digital access to children leads to **sedentary behavior**, affecting **both physical and mental health**.
 - **Screen Addiction** can cause **anxiety, depression, and sleep problems and brain rot**, leading to **mental stagnation and reduced cognitive function**.
 - **Privacy:** Violations by tech companies, hackers, or advertisers can lead to **identity theft, fraud, manipulation**, and exposure to harmful content.
 - **Cyberbullying:** Increases vulnerability to **online harassment**, impacting **self-esteem**.
 - Children can fall victim to **extortion or online exploitation** by predators who manipulate or threaten them using **personal information or explicit content**.
 - The internet exposes children to the risk of encountering **pornography**, as **unfiltered content can lead to accidental exposure or targeted exploitation**, raising serious legal, psychological, and safety concerns.
 - In the realm of the **Metaverse** and **Virtual Reality**, virtual predators exploit children through **scams, harassment, and discrimination**, fostering an environment ripe for **cyberbullying**.
 - **FOMO:** Social media often presents an **idealised life**, causing young people to feel like they're missing out (**Fear of Missing Out (FOMO)**), leading to anxiety, stress, and inadequacy.
 - **Reduced Social Interaction:** Excessive phone use can decrease **face-to-face interactions**, hindering social skills.
 - **Violence:** Exposure to online violence, including **violent games and graphic content**, can desensitize children, **normalize aggression**, and lead to **increased fear and emotional distress**.
 - Young internet users are **vulnerable to recruitment by extremist and terrorist groups**.

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Note:

Online Child Safety Statistics

- **Mental Health:** According to the **World Health Organization (WHO)** globally, **1 in 7 adolescents faces a mental disorder**, contributing to **15% of the disease burden**, with depression, anxiety, and behavioral disorders as leading causes, and early digital access being a key contributor.
 - Neglecting adolescent mental health can lead to lasting physical and mental health issues, limiting opportunities for a fulfilling adult life.
- **Cyberbullying:** Over a third of young people in 30 countries report being cyberbullied, with **1 in 5 skipping school because of it**.
- **Online Sexual Exploitation:** 80% of children in 25 countries report feeling in danger of online sexual abuse or exploitation.
 - Children in India are at **high risk of exposure to child sexual abuse material (CSAM)** due to the rapid increase in internet usage and the availability of harmful content.
 - According to the **National Human Rights Commission (NHRC)**, India accounted for 5.6 million reports of CSAM out of 32 million globally in 2022, highlighting a significant problem.

What are India's initiatives to Protect Children Online and Productive Digital Access?

- **Protect Children Online:**
 - **POSCO Act (Protection of Children from Sexual Offences Act), 2012:** The **POSCO Act** has provisions to protect children from online sexual offences, including mandatory reporting and child-friendly procedures.
 - **CHILDLINE 1098:** It is a National, 24 Hour, Emergency **toll free phone service for children** in need of care and protection. It is a project of The Ministry of Woman and Child Development.
 - **Digital Literacy Programs:** The Ministry of Education and CBSE have incorporated **cyber safety** in school curricula to educate children on safe internet use.
 - **Information Technology (IT) Act, 2000:** Section 67B of the **IT Act**, imposes stringent punishments for **publishing or viewing CSAM online**.

- **Cyber Crime Prevention against Women and Children (CCPWC):** The **CCPWC** is a **Nirbhaya Fund** project that raises awareness, strengthens law enforcement capacity, and enhances cyber forensic facilities.

➤ Productive Digital Access:

- **Digital Infrastructure for Knowledge Sharing (DIKSHA)**
- **PM eVidya.**
- **Swayam Prabha TV Channel**
- **SWAYAM portal**
- **National Educational Alliance for Technology (NEAT 3.0)**
- **National Programme on Technology Enhanced Learning**

Underutilization of Funds Under the BOCW Act, 1996

Why in News?

A **Right to Information (RTI)** query has revealed that welfare boards across various states have **failed to utilize Rs 70,744 crore of the total cess** collected under the **Building and Other Construction Workers (Regulation of Employment and Conditions of Service) (BOCW) Act, 1996**.

What is the BOCW Act, 1996?

- **About:** BOCW Act, 1996, is a legislative framework aimed at safeguarding the rights, welfare, and working conditions of **building and construction workers in India**.
 - It provides for their **safety, health, and welfare measures** and addresses employment regulations, ensuring better working conditions for one of the most vulnerable labor sectors.
 - The Act was framed in accordance with the principles of the **International Labour Organisation (ILO)**, particularly aligning with **ILO Convention No. 167 on construction safety and health**.
- **Key Features:**
 - **Welfare Measures:** Empowers state governments to collect a **cess of 1% to 2% from employers** for the welfare of construction workers.

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Note:

- The collected funds are **intended to provide benefits such as health, education, and social security**, including temporary accommodation, drinking water, and latrines.
- Encourages State/Union Territories (UT) Welfare Boards to implement welfare schemes using cess funds effectively.
- **Safety Provisions:** The Act mandates the preparation of an emergency **action plan** for sites employing more than 500 workers.
- **Applicability:** The Act applies to establishments employing **10 or more construction workers**, except for private residential construction projects costing less than **Rs 10 lakh**.
 - Employers are mandated to register their establishments under this Act within **60 days of its applicability**.
- **Enforcement Mechanism:** The **Chief Labour Commissioner (Central)** and its field offices enforce the provisions of the Act, conducting regular inspections to ensure compliance with safety and welfare measures.
 - Additionally, State and UT BOCW Welfare Boards implement welfare schemes and utilize cess funds collected under the Act.

Note: ILO Convention No. 167 adopted in 1988 (India ratified) aims to ensure the safety and health of workers in the **construction industry by establishing standards for improving working conditions in construction sites**.

What are the Concerns Regarding the BOCW Act, 1996?

- **Underutilisation of Collected Cess:** A major concern is the underutilisation of Rs 70,744 crore in collected cess, highlighting a significant **gap between the funds raised and the benefits allocated to workers**.
 - Maharashtra, Karnataka, and Uttar Pradesh spent Rs 13,683.18 crore, Rs 7,921.42 crore, and Rs 7,826.66 crore from the cess, leaving balances of Rs 9,731.83 crore, Rs 7,547.23 crore, and Rs 6,506.04 crore.

- The large cess balances in these states raise concerns about their commitment to utilizing the funds for workers' welfare.
- Except for Kerala, most state governments and UT administrations are not enforcing the Building and Other Construction Workers Act.
- **Cess Evasion and Misreporting:** Concerns about large-scale **cess evasion by employers and builders persist**, with Maharashtra's reported cess collection seeming **inconsistent with its construction activity**.
 - Additionally, there is a **lack of transparency in details on the actual cost** of approved construction projects.
- **Delayed Welfare Measures:** The Act's provisions for workers' accommodation, **water, and sanitation were poorly enforced**, especially during the **Covid-19 lockdowns**, leaving workers without support.
 - Additionally, promised welfare benefits, including **financial aid during crises, remain unmet**, highlighting the Act's ineffectiveness..
- **Implementation Concerns:** Except Kerala, most states and UTs are not implementing the BOCW Act, 1996, limiting stipulated benefits.
 - Many states are also avoiding reconstituting welfare boards, and concerns exist that unspent welfare **funds could be diverted** to state exchequers.
- **Impact of the Code on Social Security:** The proposed **Code on Social Security (CSS), 2020** may dilute cess collection, as it allows **employers to self-assess the cess and reduces the cess rate and interest**.
 - It also reduces workers' entitlements, making essential benefits like accommodation optional rather than guaranteed.

Other Schemes Related to Construction Workers

- **National Initiative for Promotion of Upskilling of Nirman workers (NIPUN)**
- **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)**
- **Pradhan Mantri Suraksha Bima Yojana (PM-SBY)**
- **Ayushman Bharat**
- **Mahatma Gandhi National Rural Employment Guarantee Act, 2005.**
- **Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM)**
- **e-shram**

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Decline in India's Total Fertility Rate

Why in News?

The **Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2021** has revealed a **steep decline in India's Total Fertility Rate (TFR)** over the decades.

- This raises concerns about **socio-economic and political repercussions**, particularly in southern states.

What are the Key Findings of the Study?

- **India's Fertility Trends:** India's TFR dropped from **6.18 in the 1950s to 1.9 in 2021**, below the replacement level of **2.1**.
 - By 2100, the TFR in India is projected to fall further to **1.04 (barely one child per woman)**.
- **Regional Variations in India:** Southern states like **Kerala, Tamil Nadu, and Karnataka** achieved **replacement-level fertility** earlier than northern states.
 - By 2036, Kerala's aged population is **expected to surpass children (23%)**. High **labor wages, quality of life, and internal migration** are expected to bring migrant labor to **60 lakh by 2030** (about one-sixth of the State's population).
 - The demographic shift was driven by **high literacy, women's empowerment**, and advances in social and health sectors.
- **Reasons for Fertility Decline:**
 - **Socio-Economic and Cultural Factors:** India has one of the **oldest birth control/family planning programs**, but factors like **female literacy, workforce participation, and women's empowerment** have had a greater influence on **fertility decline**.
 - Changing attitudes toward **marriage and reproduction, including delays or avoidance of marriage and motherhood**, played a significant role.
 - **Health and Migration Issues:** Increasing cases of **infertility in both men and women** contribute to the decline.
 - The availability and **social acceptance of abortions** have likely contributed to the falling fertility rates.

- More young people are **moving abroad for education and jobs**, settling there, which reduces fertility rates in India.

Total Fertility Rate and Replacement Level

- **Total Fertility Rate (TFR):** The TFR is the **average number of children a group of women would have by the end of their reproductive years (ages 15 to 49)** if they followed the current fertility rates throughout their lives, **assuming no mortality**. It is expressed as **children per woman**.
 - As per the **National Family Health Survey (NFHS-5) (2019-21)**, the TFR has declined to **2.0 children per woman from 2.2 children per woman (NFHS-4 (2015-16))**.
- **Replacement Level:** A TFR of **2.1 is considered the replacement level**, where each generation replaces itself without significant **population growth or decline**.
 - A TFR **lower than 2.1**, however, can lead to **negative population growth**, potentially causing long-term demographic challenges, including an **ageing population**.

What are the Consequences of Low Fertility Rates?

- **Aging Populations:** With fewer births and **longer life expectancy**, the population is **aging rapidly**.
 - India currently has **149 million people aged 60 years or above**, comprising **10.5% of the total population**. By 2050, this number is expected to surge to **347 million, or 20.8% of the population**.
- **Economic Impact:** A **shrinking young workforce** and a growing elderly population lead to higher **dependency ratios** and strain **social welfare** and healthcare systems.
 - The rising costs of **pensions and elder care** will burden both governments and families.
 - Unlike **developed nations that experienced population ageing with higher per capita incomes**, India faces the challenge of **ageing without the same economic luxury**.
 - India risks getting caught in the **middle-income trap** if its economy cannot sustain rapid growth.

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Note:

- **Impact on Labour Market:** The decline in fertility could reduce the **size of the workforce**, negatively impacting productivity.

Global Approaches in Tackling Declining Fertility Levels

- **Germany:** Liberal labor laws, parental leave, and benefits have seen success in increasing birth rates.
- **Denmark:** Offers state-funded **in vitro fertilization (IVF)** treatments for women below 40 years of age.
- **Russia and Poland:** Russia provides **one-time financial incentives** for families with more children, and Poland offers cash payments for families with multiple children.

Strengthening Accessibility Measures in India

Why in News?

The **Supreme Court of India** in *Rajive Raturi v. Union of India Case, 2024*, held that **Rule 15** of the **Rights of Persons with Disabilities (RPwD) Rules, 2017**, is inconsistent/ violative with the **Rights of Persons with Disabilities Act, 2016**.

- The Court observed that while the Act mandates the government to ensure accessibility, **rule 15 adopts a discretionary approach**, creating a **conflict with the statutory provisions**.

Why SC Invalidated Rule 15 of RPwD Rules, 2017?

- **Rule 15 of the RPwD Rules, 2017:** Rule 15 of the **RPwD Rules, 2017**, established a **framework for accessibility guidelines** across **government departments**, granting **statutory authority** to **guidelines issued by ministries**.
- **SC's Observation:**
 - **Discretionary Nature:** The **Supreme Court** held that **Rule 15 contradicted the mandatory provisions of the RPwD Act** (Sections 40, 44, 45, 46, and 89) as it allowed ministries to **create accessibility guidelines without a binding obligation**.
 - **Compliance and Social Audits:** The RPwD Act requires **regular social audits** to ensure that

government schemes do not adversely affect persons with disabilities.

- However, due to a **lack of standardized guidelines under the RPwD Rules**, there has been inconsistency in how these audits are conducted.
- **Accessibility Vs Reasonable accommodation:** The SC ruling differentiated between **accessibility**, which ensures universal design, and **reasonable accommodation**, which addresses specific needs.
 - Both are crucial for achieving substantive equality under constitutional principles.
- **Need for New Guidelines:** The **SC directed the government** to create new mandatory accessibility guidelines within 3 months, focusing on **4 principles**: **universal design for all**, **comprehensive inclusion of various disabilities**, **integration of assistive technologies** like screen readers and accessible digital platforms, and **ongoing consultation with persons with disabilities**.

What is the Rights of Persons with Disabilities Act, 2016 (RPwD Act)?

➤ About:

- The **Rights of Persons with Disabilities (RPwD) Act, 2016** is a law that protects people with disabilities from discrimination and promotes their equal rights and opportunities.
- The **Act** was enacted to give effect to the **United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)** ratified by India in 2007.
- The **Rights of Persons with Disabilities Rules** were formulated to operationalize and provide procedural clarity for the implementation of the **RPwD Act, 2016**.
- **Differently-Abled in India:** As per the **Census 2011**, approximately **26.8 million** individuals (**2.21%** of India's population) live with disabilities.
- **Definition of Disability:** The Act **redefined disability** as an **evolving and dynamic concept** and **expanded the recognized categories** of disability from **7 to 21**, allowing the Central Government to add more.

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Note:

➤ Rights and Entitlements:

- **Government Responsibility:** Appropriate governments are obligated to take effective measures to ensure that persons with disabilities (PwDs) enjoy their rights on an equal basis with others.
- **Special Benefits:** Provisions are made for individuals with benchmark disabilities and high support needs, including:
 - **Free Education:** Children aged 6 to 18 years with benchmark disabilities are entitled to **free education**.
 - **Reservation:** Persons with **benchmark disabilities** are entitled to **5% reservation in government and government-aided higher education** and **4% reservation in government jobs**.
 - Individuals with “**benchmark disabilities**” are identified as those who have been certified to possess **at least 40% of the specified disabilities**.
- **Accessibility:** A strong emphasis is placed on ensuring accessibility in public buildings, including government and private establishments, within a prescribed timeframe.
- **Regulatory and Grievance Redressal Mechanisms:** Strengthening the Offices of the **Chief Commissioner for Persons with Disabilities** and **State Commissioners for Disabilities** to function as regulatory authorities and grievance redressal agencies.
 - These bodies are tasked with monitoring the implementation of the Act.

Note:

- The **21 disabilities**, in RPWD Act, 2016, include Blindness, Low-vision, **Leprosy Cured Persons**, Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, Autism Spectrum Disorder, **Cerebral Palsy**, Muscular Dystrophy, Chronic Neurological Conditions, Specific Learning Disabilities (Dyslexia), Multiple Sclerosis, Speech and Language Disability, Thalassemia, Hemophilia, **Sickle Cell Disease**, Multiple Disabilities including deaf-blindness, **Acid Attack victim**, and **Parkinson's disease**.

What are the Other Initiatives Related to the Empowerment of the Disabled?

- **Unique Disability Identification Portal.**
- **DeenDayal Disabled Rehabilitation Scheme.**
- **Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances.**
- **National Fellowship for Students with Disabilities.**
- **Divya Kala Mela 2023.**
- **Accessible India Campaign**

What are the Challenges Faced by the Person with Disabilities?

- **Inaccessible Infrastructure:** Lack of infrastructure in accessing public establishments and services.
 - According to a 2018 report by the **Department of Empowerment of Persons with Disabilities**, only **3%** of buildings in India were found to be fully accessible.
- **Educational Exclusion:** PwD faces a lack of inclusive schools, trained teachers, and assistive technologies that hinder quality education.
 - As per **Census 2011**, the **literacy rate of the total PwD population is about 55%** (male- 62%, female-45%) and only about 5% of PwDs are graduates and above.
- **Employment Challenges:** PwDs face workplace discrimination, inadequate accommodations, and societal prejudices, creating a “**glass ceiling**.”
 - Though **1.3 crore PwDs are employable**, only **34 lakh are employed**.
- **Inadequate Political Representation:** PwDs are **underrepresented** across all three tiers of legislature- **Lok Sabha, state legislatures, and local bodies**, limiting their political participation and representation.

Challenges Related to Aging Population

Why in News?

The **Supreme Court** of India refused to entertain a **writ petition** that sought the establishment of a dedicated Ministry for senior citizens.

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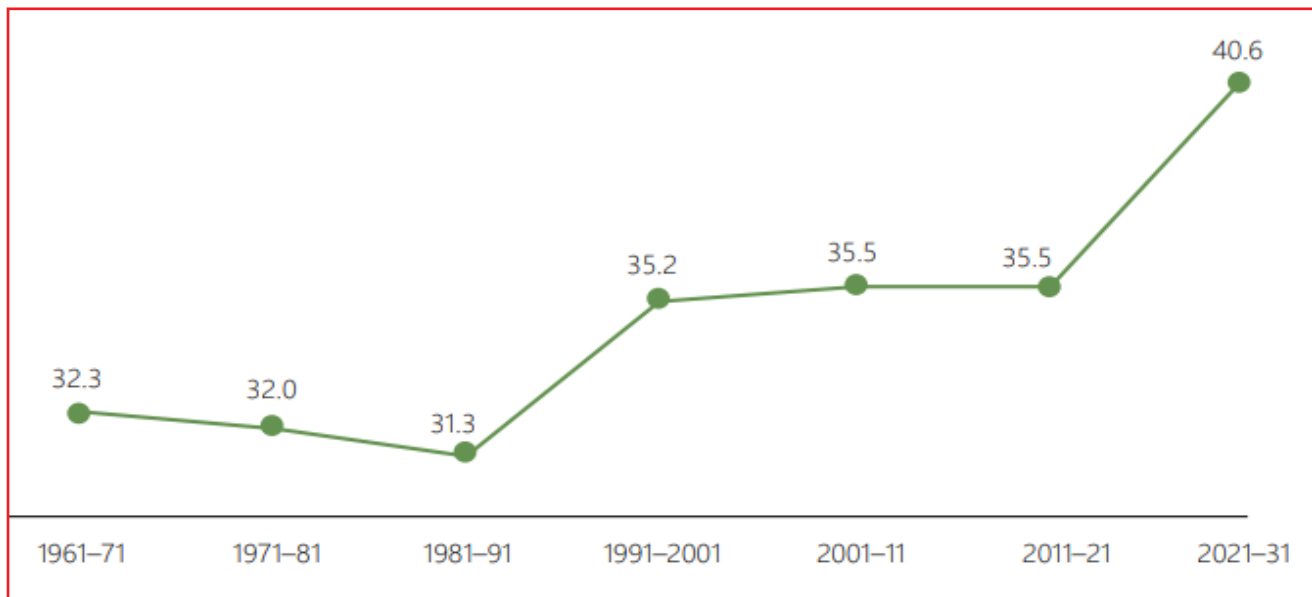
Note:

- The writ petition referred to **senior citizens** (population ageing) as a **vulnerable class** that deserves special attention under **Article 21** of the Constitution, which ensures the **right to a dignified life**.

Note: According to the **Maintenance and Welfare of Parents and Senior Citizens Act, 2007**, a senior citizen means any person who has **attained the age of 60 years or above**.

What is the Status of Senior Citizens in India?

- **Current Trends:** India's elderly population (60+) is projected to **grow from 10.5% in 2022 to 20.8% by 2050** and exceed 36% by 2100.
 - By 2046, India's elderly population will **outnumber children (0–14)**, and the working-age population (15–59) will decline by 2050.
- **Pace of Ageing:** Between 2010 and 2020, India's elderly population **doubled** at a rate of **15 years** while **South and East Asia took 16 years** to double their elderly population.
 - The **decadal growth rate** of the elderly population increased from **31% (1981–1991)** to **41% (2021–2031)**, indicating accelerated ageing.



- **Ageing Index:** States in southern India with a **higher elderly share** have a **higher ageing index**, reflecting **declining fertility** and more older persons than children.
 - The ageing index that measures the number of **elderly persons (60+ years)** per **100 children (below 15 years)** was **39** in India in 2021.
- **Old-Age Dependency Ratio:** In 2021, India had **16 elderly per 100 working-age persons**, with **southern India at 20**, **western India at 17**, and **Union Territories and northeastern India at around 13**.
 - The **old-age dependency ratio** represents the number of **elderly persons (60+ years)** per **100 working-age persons (15–59 years)**.
- **Life Expectancy at 60 Years:** In India, the **average life expectancy at 60 years** is **18.3 years**, with **females living longer than males** (19 years for females, 17.5 years for males).
- **State Variations:** Southern states and northern states like **Himachal Pradesh and Punjab** had a higher elderly population than the national average in 2021 (**10.5%**).
 - States with **higher fertility rates**, like Bihar and Uttar Pradesh, will see an increase in the elderly population by 2036.

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Note:



- **Regional Comparisons:** By 2050, **South Asian Association for Regional Cooperation (SAARC)** countries will have an elderly population average of **19.8%**.
 - In SAARC, **Maldives (34.1%)** and **Sri Lanka (27%)** will have higher elderly proportions, while India's share will remain **around 20%**, though the numbers will be significant (**around 34.7 crore**).

What are the Challenges with the Aging Population?

- **Feminization of Aging:** Women live longer than men, leading to **more elderly women, especially widows**, who **live alone** and rely on family support, making them **more vulnerable**.
- **Ruralization of Ageing:** According to the **Census of India 2011**, around **71% of the elderly population** lives in rural areas.
 - **Limited access to healthcare, income insecurity, and social isolation** are exacerbated by the remoteness of rural areas.
- **Aging of the Aged:** The aging of the aged means a **growing share of the elderly will be 75+**, placing **additional pressure** on healthcare, caregiving, and social welfare systems.
 - An **underdeveloped silver economy** further exacerbates the **mismatch between the demand and supply of services**.
 - The **silver economy** involves **market opportunities** for the **aging population (60+)**, focusing on **goods, services, and innovations** to enhance their **quality of life, health, and financial well-being**.
- **Economic Dependency:** Only **11% of elderly men** receive **work pensions**, while **16.3% get social pensions**. For elderly women, **27.4%** receive only **social pensions**, and just **1.7%** get **work pensions**.
 - Around **one-fifth** of the elderly have **no income**, resulting in **financial insecurity**.
- **Lack of Geriatric Care Facilities:** **30% of elderly women** and **28% of elderly men** suffer from at least one **chronic morbid condition**, such as **hypertension, diabetes, arthritis** etc impairing their ability to perform **daily activities**.
 - Aging worsens health conditions, **raising healthcare costs** and increasing reliance on family or **informal support** for caregiving and medical care.
- **Employability Challenges:** Senior citizens face a range of **employability challenges** like **age discrimination** (presumed less tech-savvy, or energetic), **outdated skills, rigid work hours, lower wages** etc.
- **Social and Family Abuse:** Seniors may face **verbal abuse, isolation, and physical harm** from **family members or caregivers**, often going unreported due to fear or limited mobility.

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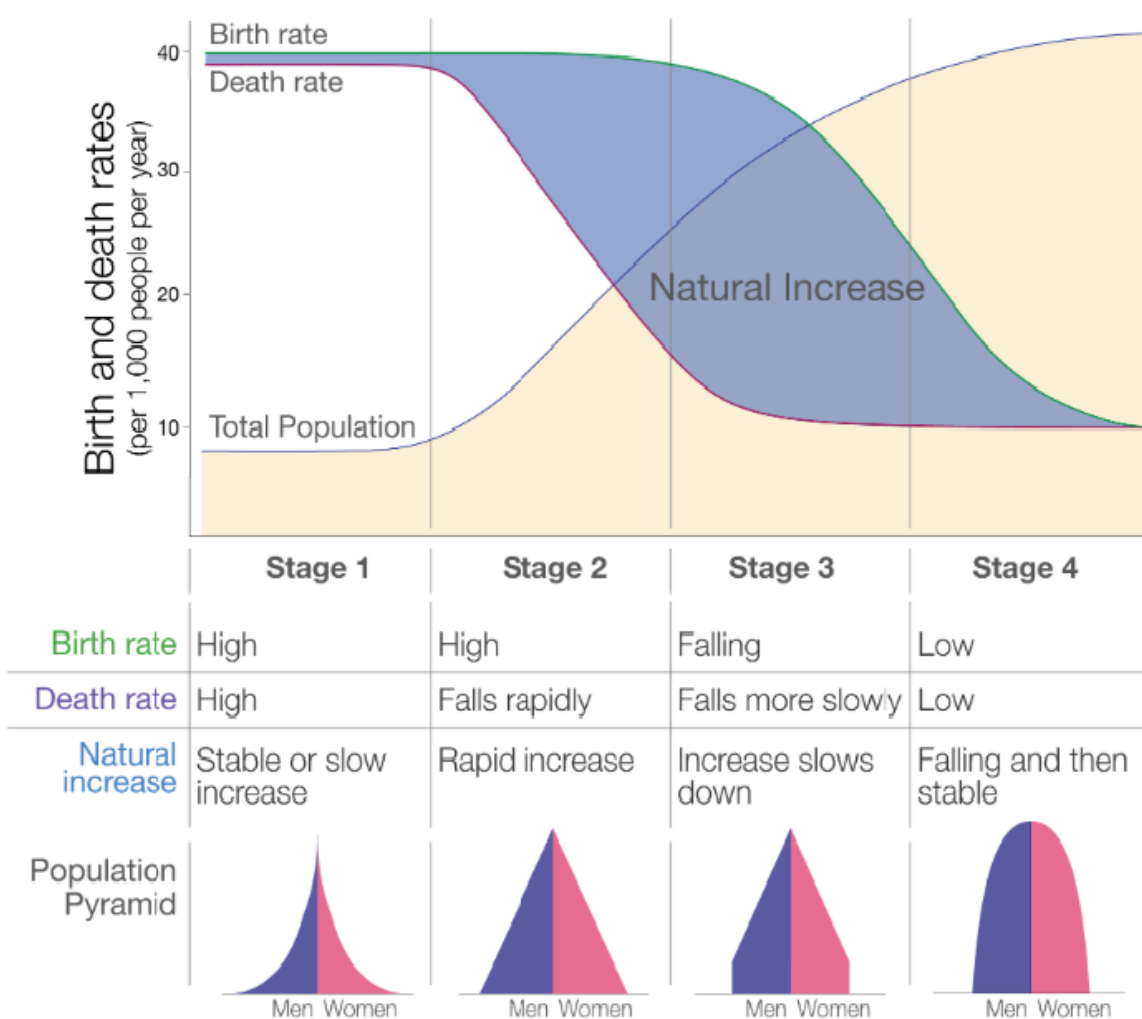
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What is Demographic Transition?

- **About:** Demographic transition is a model that explains **changes in birth and death rates**, along with **shifts in the age structure** of the population, as societies **progress economically and technologically**.
- **Stages:** It typically involves **several stages**:
 - **Stage 1: High birth and death rates** result in a stable population.
 - **Stage 2: Death rates decline** due to improvements in healthcare, sanitation, and food production, while **birth rates remain high**. This leads to rapid population growth.
 - **Stage 3: Birth rates begin to fall**, slowing population growth. Factors include urbanization, lower child mortality, access to contraception, and societal shifts favoring smaller families.
 - **Stage 4: Both birth and death rates are low**, leading to a stable or **aging population**. This stage reflects higher living standards, advanced technology, and societal development.

stages of the demographic transition

The demographic transition is a model that describes why rapid population growth is a temporary phenomenon



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Note:

What are the Major Elderly Care Schemes in India?

- [Atal Vayo Abhyudaya Yojana](#)
- [Rashtriya Vayoshri Yojana \(RVY\)](#)
- [National Social Assistance Programme \(NSAP\)](#)
- [National Programme for the Health Care of Elderly \(NPHCE\)](#)
- [Atal Pension Yojana \(APY\)](#)

Note: India's Commitments: India formulated the [National Policy on Older Persons \(NPOP\)](#) in 1999 and is a signatory to the [Madrid International Plan of Action on Ageing \(2002\)](#).

- The [UN Decade of Healthy Ageing \(2021-2030\)](#) aligns with [SDG-3](#) on Good Health and Well-Being.

Rising Global Inequality

Why in News?

Oxfam International's report titled *"Takers Not Makers: The Unjust Poverty and Uneared Wealth of Colonialism"* highlights rising global [inequality](#), where [billionaires'](#) wealth grows while the poor face continued hardship, with historical colonialism fueling this divide.

Note: Oxfam International, formed in 1995, is a confederation of **non-governmental organizations (NGOs)** working to reduce global poverty and injustice.

- It operates in 79 countries, including India, focusing on emergency relief, livelihood rebuilding, and advocating for lasting change, with women's rights at the core.

What are the Key Highlights of the Oxfam's Report?

- **Billionaire Wealth Growth:** Total billionaire wealth increased by USD 2 trillion in 2024, with 204 new billionaires created.
 - Billionaire wealth **grew three times faster in 2024 compared to 2023**, with each billionaire's fortune growing by **USD 2 million daily**.
- **Rising Inequality:** The gap between billionaires and the rest of the world has dramatically widened as [poverty](#) remains stagnant since 1990 due to crises.
 - The richest 1% own 45% of global wealth, while 3.6 billion people still live on less than USD 6.85 per day ([Purchasing Power Parity \(PPP\)](#)) and 1 in 10 women in the world lives in extreme poverty.
 - In 1820, the wealth of the richest 10% was 18 times greater than that of the poorest 50%, and by 2020, this gap had increased to 38 times.
 - Inequality is evident in various measures of progress, such as the **average life expectancy of Africans** is over 15 years shorter than that of Europeans.
- **Colonial Legacy and Power Imbalances:** Historical [colonialism](#) continues to shape global inequality, with the richest countries and individuals benefiting from colonial exploitation, and the [Global South](#) facing ongoing consequences like **weak states, arbitrary borders, and conflict**.
 - USD 30 million per hour is transferred from the Global South to the [Global North](#) through financial systems.
 - Between 1765 and 1900, the UK extracted USD 64.82 trillion from India during colonial rule, of which USD 33.8 trillion went to the wealthiest 10%.
 - Countries in the Global North dominate global institutions like the [International Monetary Fund \(IMF\)](#), [World Bank](#), and [United Nation Security Council](#), perpetuating inequality.
 - Today's education system reflects inequality, with 39% of global heads of state in 2017 educated in the UK, USA, or France.
- **Inheritance:** In 2023, more billionaires were created through **inheritance than entrepreneurship** for the first time.
 - Nearly 60% of billionaire wealth stems from inheritance, cronyism, or [monopoly power](#).
- **Recommendations:** As 2025 marks 70 years since the [Bandung Conference \(Non-Aligned Movement \(NAM\)\)](#), governments must promote [South-South cooperation](#) and dismantle colonial-era systems to establish a [New International Fair Economic Order](#).
 - Implement progressive taxation to address extreme wealth inequality.
 - Set clear **global and national goals** to reduce inequality and improve the wellbeing of the global poor.

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Note:

What is Global Inequality?

- **About:** It is the unequal distribution of resources, opportunities, and power among the **8 billion people globally**. It is a key factor that exacerbates **poverty and hinders well-being**.
 - In the early 1800s, global wealth disparities were smaller, but with the **Industrial Revolution**, income grew disproportionately in Western nations, leading to rising global inequality.
- **Income Inequality Between Countries:** Since the 1990s, income inequality between countries has decreased, largely due to rapid economic growth in countries like **China and other emerging economies in Asia**.
 - Despite this progress, substantial gaps remain. For instance, the average income in **North America is 16 times higher than in sub-Saharan Africa**.
- **Income Inequality Within Countries:** Income inequality within countries has worsened, with **71% of the global population living in countries where inequality has increased**.
- **Drivers of Inequality:**
 - **Social Factors:** Gender, race, ethnicity, and geography are significant drivers of inequality. **Discrimination against women**, ethnic minorities, and marginalised groups continues to perpetuate inequality across the world.
 - Women and girls continue to face income inequality, though the **gender pay gap** has reduced in some fields. Despite progress, they perform **12.5 billion hours of unpaid care work daily**.
 - **Economic Growth:** While economic growth in some countries has helped **reduce global inequality**, it has often been uneven, with the **wealthiest benefitting most from the growth**.
 - Wealth concentration, and **crony capitalism** deepen inequality, as the **rich pass advantages to heirs**, many remain landless, and **corruption** fosters wealth for a select few.
 - **Regressive tax policies**, and **weak social safety nets** worsen **income inequality**, leaving vulnerable populations unsupported and benefiting the wealthy.

- **Emerging Drivers:** Climate change exacerbates environmental degradation and **disproportionately affects the poorest communities**.
 - **Technology has the potential to be an equalizer**, but those without access to digital infrastructure may face **greater marginalization**.
- **Impact:** Inequalities extend beyond income to impact **life expectancy, education, and basic services**.
 - High inequality **limits human rights, access to justice, and healthcare**, contributing to a **decline in global freedom in 71 countries in 2018**.
 - High levels of inequality **discourage social mobility and economic development**, leading to social discord, violence, and conflict. Extreme inequality is also fueling the rise of **nativism and nationalism**.

What are the Trends of Inequality in India?

- **India's Gini Coefficient:** The **Gini coefficient** for India in 2023 stands at 0.410. This is higher than the 1955 Gini coefficient of 0.371.
 - The **Gini index ranges from 0 (perfect equality) to 1 (perfect inequality)**. A higher number reflects greater income disparity within the country.
- **Income Distribution:** India is highly unequal, with the **top 10% holding 77% of wealth and the richest 1% owning 53%**.
 - The top 10% and 1% control 57% and 22% of national income, while the bottom **50% account for just 13%**, underscoring the widening wealth and income disparity.
- **Factors Driving Rising Inequality in India:** **Covid-Pandemic** worsened wealth disparities, enriching billionaires while increasing poverty.
 - India's regressive **indirect tax** system burdens the bottom 50%, who pay 64% of total **Goods and Services Tax (GST)**, while the top 10% contribute only 4%. Corporate tax cuts further widen this inequality.
 - Lack of access to **quality education and healthcare limits economic mobility**, especially for marginalized groups, trapping them in **low-income jobs** and perpetuating **intergenerational poverty**.

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Note:

- The benefits of **liberalization, privatization, and globalization (LPG) reforms** have been uneven, favoring sectors like **telecom and aviation**.

- **Agriculture** and small-scale industries, which employ a significant portion of the population, have been neglected, often facing poor wages and lack of social security.

➤ **India's Initiatives to Reduce Inequality:**

- **Mahatma Gandhi National Rural Employment Guarantee Act Scheme (MGNREGA)**
- **Prime Minister's Employment Generation Programme (PMEGP)**
- **Deendayal Antyodaya Yojana- National Urban Livelihoods Mission (DAY-NULM)**
- **Samagra Shiksha Scheme 2.0**
- **National Health Mission**
- **Mission Ayushman**
- **Pradhan Mantri Jan Dhan Yojana**
- **Mission Indradhanush**
- **Pradhan Mantri Mudra Yojana**
- **Lakhpati Didi Initiative**
- **Pradhan Mantri Gram Sadak Yojana (PMGSY)**

UNICEF's Prospects for Children in 2025 Report

Why in News?

The **United Nations Children's Fund (UNICEF)** report "*Prospects for Children in 2025: Building Resilient Systems for Children's Futures*" warns of escalating global crises and their potential impacting children.

- It highlights the urgent need to strengthen national systems to protect children and provide essential support.

What are the Key Highlights of the UNICEF Report on Children's Challenges?

- **Impact of Conflict on Children:** In 2023, over **473 million children**, or more than **one in six globally**, lived in conflict zones. The proportion of children

affected by conflict has nearly doubled from **10% in the 1990s to 19%**.

- Children face risks such as **displacement, starvation, disease, and psychological trauma**.

- **Debt Crisis and its Impact on Children:** Nearly **400 million children live in countries burdened by debt**, limiting investments in education, healthcare, and social services.

- The **World Bank** estimates that a 5% rise in external debt for **low- and middle-income countries** could cut education spending by USD 12.8 billion. In 15 African countries, debt servicing exceeds education spending, while over 40 low-income nations spend more on debt than health.

- Debt service now outpaces **social protection** by 11 times, leaving 1.8 billion children vulnerable to economic shocks and deepening poverty.

- **Climate Change Impact:** Only **2.4% of global climate finance** is allocated to child-responsive initiatives, weakening social services crucial for children.

- **Digital Inequality:** **Digital Public Infrastructure (DPI)** is transforming how governments deliver essential services like education, healthcare, and social protection to children.

- However, a significant **digital divide** exists, with youth (15-24 years) in high-income countries enjoying internet access, while **only 53% of youth in Africa have internet access**, especially in low-income countries.

- Adolescent girls and children with disabilities are particularly impacted, with **9 out of 10 adolescent girls in low-income countries being offline**.

- **Recommendations for Action:** The report calls for **additional financing for climate recovery efforts**, including support for children's **healthcare, education, and psychological well-being during climate disasters**.

- Create inclusive, fair, and responsible systems that prioritize children's rights and needs.
- Ensure better **integration of child rights** in digital initiatives to bridge the inequality gap.

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Note:

What are the Key Facts About UNICEF?

- **Established:** UNICEF established in 1946, to help children affected by World War II. It currently operates in over 190 countries and territories, including India.
- **Global Headquarters:** New York City, USA.
- **Mandate:** To protect the rights of children, provide aid to children in need, and advocate for their welfare worldwide.
- **Funding:** UNICEF's programs are supported by voluntary contributions from governments, intergovernmental organizations, foundations, the private sector, and individuals.
- **Awards:** **Princess of Asturias Award** (2006), **Indira Gandhi Prize** (1989), and **Nobel Peace Prize** (1965).
- **Key Reports:** The State of the World's Children, Humanitarian Action for Children.
- **UNICEF and India:** UNICEF began its work in India in 1949. Currently, UNICEF has a significant presence in 17 states, covering 90% of India's child population.
 - **Key UNICEF- India Initiatives:**
 - **ICDS (1975):** UNICEF played a pivotal role in the **Integrated Child Development Services (ICDS)**, reaching nearly 40 million children.
 - **Polio Campaign (2012):** Contributed to India's success in eliminating **polio**.
 - **Maternal and Child Nutrition (2013):** Promoted nutrition awareness through a nationwide campaign.
 - UNICEF helped reduce the **Maternal Mortality Rate (MMR)** and **Infant Mortality Rate (IMR)**.
 - **India Newborn Action Plan (2014):** Helped launch the **India Newborn Action Plan** to reduce neonatal mortality and stillbirths.
 - **Guiding Framework:** UNICEF follows the **Convention on the Rights of the Child, 1989** (India ratified the **Convention in 1992**) aiming to establish children's rights as universal ethical principles and global standards of behavior towards children.

What are the Challenges Faced By Children in Contemporary India?

- **Climate and Environmental Hazards:** India ranks 26th out of 163 countries in the **Children's Climate**

Risk Index, with children facing escalating risks from extreme heat, floods, and air pollution.

- Exposure to **heatwaves** is expected to increase eightfold compared to the 2000s. These climate crises will further **strain children's health and education**, particularly in rural and low-income areas where access to healthcare and education is already limited.
- **Child Trafficking:** India faces widespread **child trafficking**, where children are exploited for **labor, begging, sexual services, and child pornography**.
- **Child Labor:** As per Census 2011, 259.6 million children (5-14 years) reside in India, with **10.1 million working**, mostly in agriculture, domestic work, and small industries.
 - Despite laws like the **Child Labor (Prohibition and Regulation) Act (1986)**, which regulate rather than **ban child labor**. Recent amendments allow children to **work in family enterprises**, raising concerns about potential exploitation, especially in rural and informal economies.
- **Juvenile Crimes:** In India, a total of **30,555 crimes were committed by minors** in 2022. The root causes include factors like poverty and lack of education.
- **Child Marriage:** India ranks **4th in South Asia** for **child marriage**, following Bangladesh, Nepal, and Afghanistan.
 - Early marriage not only limits educational and health opportunities for girls but also perpetuates cycles of poverty and inequality.
- **Gender Inequality:** Girls in India, particularly from low-income or rural backgrounds, face higher risks of **dropping out of school, early marriage, and inadequate healthcare**.
- **Disadvantaged Children:** Children from rural areas, slums, **scheduled castes and tribes**, and urban poor families face severe deprivation in key areas such as **Poverty**, malnutrition, poor school attendance, inadequate sanitation, and poor access to clean water.
- **Population Growth:** By 2050, India will have **350 million children**, making up **15% of the global child population**. With **urbanization**, nearly half of India's population will live in cities, requiring climate-resilient, child-friendly urban planning.

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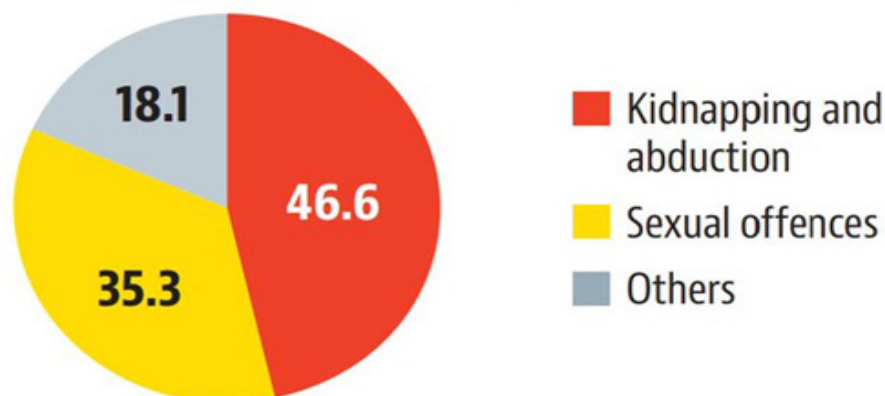


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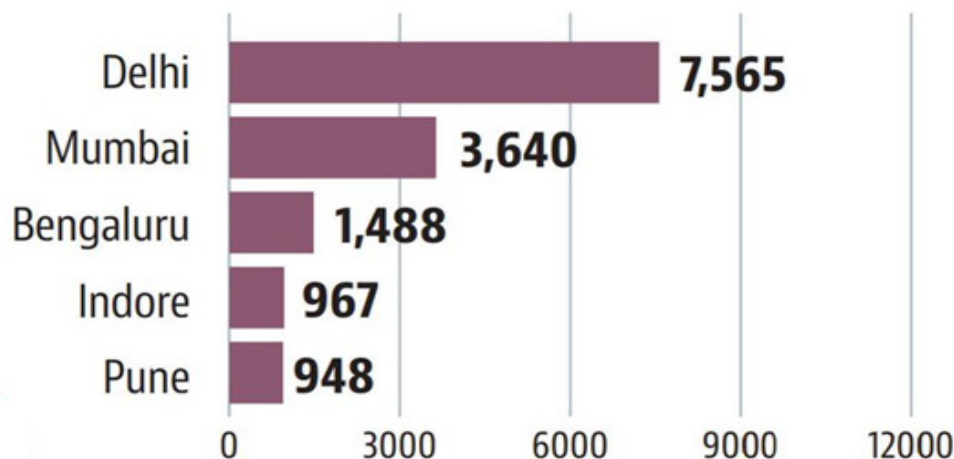
ABDUCTION MOST COMMON CRIME AGAINST CHILDREN

Against children, kidnapping and abduction, which formed 46.6% of all offences, was the most common crime, while sexual offences was on the second spot

SHARE (%) IN CRIMES AGAINST CHILDREN



CRIME AGAINST CHILDREN, BY CITIES



Source: 'Crime in India' by the National Crime Records Bureau; Note: NCRB's city-wise data for 19 metropolitan cities which have a population of more than 2 million

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Note:

What are India's Initiatives Related to Children Welfare?

- [Saksham Anganwadi & Poshan 2.0](#)
- [Mission Vatsalya](#)
- [Beti Bachao Beti Padhao](#)
- [PM CARES Fund](#)
- [Digital Infrastructure for Knowledge Sharing \(DIKSHA\)](#)
- [The Right to Education Act 2009](#)
- [Child Labour Prohibition and Regulation Act, 2016](#)
 - [Pencil Portal](#)
- [National Child Labour Project \(NCLP\) Scheme, 1988](#)
- [Protection of Children from Sexual Offences \(Amendment\) Act, 2019](#)
- [Child Abuse Prevention and Investigation Unit](#)
- [The Juvenile Justice \(Care and Protection of Children\) Act, 2015](#)
- [Digital Personal Data Protection Act \(DPDPA\) 2023](#)

Reforms for Combating Honour Killings

Why in News?

In an **honour killing** case in Madhya Pradesh, a girl was shot dead by her family for wanting to marry someone of her choice, against their wishes.

What is Honour Killing?

- **About:** Honour killing is the murder of a family member, typically a woman, by relatives or community members in response to **perceived dishonor or shame brought** to the family.
 - These acts are often rooted in strict **cultural, social, and religious norms** regarding family honor, morality, and social behavior.
 - The concept of **honor** is often tied to women's behavior regarding issues like **marriage, relationships, sexuality, and modesty**.
- **Key Statistics:** As per the [National Crime Records Bureau data \(NCRB\)](#), the number of honour killings reported in India was **25 each in 2019 and 2020, and 33 in 2021**. But these figures could be much higher than mentioned.

Causes:

- **Caste System:** Fear of losing **caste status** drives violence, especially against **inter-caste or same gotra marriages**.
- **Patriarchal Norms:** Women's right to choose a partner is often denied, with marriage seen as a **family honour transaction**.
- **Caste Panchayats:** These informal bodies, controlled by **dominant caste males**, impose punishments, including killings, for **violating caste norms**. E.g., [Khap Panchayats](#).
- **Gender Imbalance:** Skewed **sex ratios** lead to violence against women, especially when marriage choices defy traditional norms.
- **Social Status:** Ascribed **social status is prioritized** over personal achievements, causing family honour to override personal choice.

Consequences:

- **Violation of Human Rights:** It is a blatant violation of the fundamental human **right to life**. It perpetuates **gender inequality**, reinforcing patriarchal norms.
- **Social Impact:** Surviving families and communities suffer **deep psychological trauma** and long-term mental health issues.
- **Governance Challenges:** Weak legal frameworks or societal acceptance result in **perpetrators evading justice**, undermining the rule of law.
- **Cultural Backwardness:** It prevents women's education and employment, reinforcing **regressive traditions** and hindering progress.
- **International Repercussions:** Honor-based violence draws **global human rights scrutiny**, impacting diplomatic relations.

Note: Honour killings are considered "murders" since the law **does not handle them expressly**. As such, they are subject to the provisions of [Indian Penal Code, 1860](#).

- Entitled "**Prohibition of Unlawful Assembly (Interference with the Freedom of Matrimonial Alliances) Bill, 2011**" the bill dealt primarily with the "**unlawful assemblies**" called by caste panchayats to prevent a self-choice.
 - Despite initial support, the bill **failed to progress in Parliament** and was **not enacted into law**.
- The [Law Commission of India's 242nd Report \(2012\)](#) emphasised the need for **anti-honor killing laws** that would provide clear guidelines for **investigation, prosecution, and punishment** in such cases.

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Note:

What are Legal Provisions to Check Honour Killing?

- **Sections 299-304 of IPC (Now BNS):** Penalises any person guilty of **murder and culpable homicide** not amounting to murder.
 - **Murder and culpable homicide** can result in **life imprisonment or death**.
 - Culpable Homicide is causing death with **criminal intent or negligence**.
- **Section 307 of IPC:** Penalises attempt to murder with imprisonment for **up to 10 years** and a fine.
 - **Section 308 of IPC** penalises attempt to commit culpable homicide by **imprisonment** for up to 3 years or with fine or with both.
- **Section 34 and 35 of IPC:** Penalises **criminal acts done by several persons** in furtherance of common intention.

What is the Judicial Stand on Honour Killing?

- **Lata Singh vs State Of UP Case, 2006:** The **Supreme Court (SC)** condemned the harassment and violence faced by young couples in **inter-caste marriages**, calling honour killings **barbaric** and stressing **harsh penalties** for perpetrators.
- **State Of U.P vs Krishna Master Case, 2010:** SC held the perpetrators of an honour killing **accountable** and sentenced them to **life imprisonment**.
 - SC stressed the importance of **accountability for heinous crimes**.
- **Arumugam Servai vs. State Of Tamil Nadu Case, 2011:** SC clarified that parents can **sever ties** but **cannot intimidate or harass** children for inter-caste marriages.
 - SC directed the government to provide **legal protections** for inter-caste couples and take action to prevent harassment or violence.
- **Shakti Vahini Case, 2018:** SC ruled that honor killings are a **violation of fundamental rights** and emphasized the need for **strict action** against such crimes.
 - SC directed State Governments to **prevent honour killings by setting up special cells** and protecting couples facing family threats.

Combating Adolescent Pregnancy in India

Why in News?

The study, **Teenage Pregnancy and Motherhood in India: Exploring Status and Identifying Prevention and Mitigation Strategies**, highlights the ongoing challenge of adolescent pregnancies in the country.

What are the Findings of the Study Regarding Adolescent Pregnancies in India?

- **Teenage Pregnancy and Child Marriage:** Teenage pregnancy in India is linked to **child marriage** and **gender inequality**.
 - While **child marriage rates have dropped (from 47% in 2005 to 24% in 2020)**, teenage pregnancies remain high (**6%**), especially in states like **West Bengal, Bihar, and Rajasthan**.
- **Societal and Economic Factors:** Key drivers of teenage pregnancies include **poverty, societal norms, and lack of reproductive education**.
 - Early marriage is often seen as a **financial solution**, and young brides face pressure for **early motherhood to prove marital success**.
- **Regional Variation:** The **National Family Health Survey (NFHS)-5 (2019-21)** found that **6.8%** of women aged 15-19 were pregnant or had given birth, with **West Bengal (16%) and Bihar (11%)** having the highest rates.
- **Lack of Support and Welfare Gaps:** Teenage mothers face **stigmatization** and lack **institutional support**, leading to **school dropout** and perpetuating **poverty**.
 - **Welfare schemes** often exclude them due to **age-based eligibility**, denying vital resources.
- **Policy Gaps:** Despite efforts, **policy bottlenecks** prevent effective services for teenage mothers.
 - **Exclusion** from welfare programs intended to reduce teenage pregnancies worsens their socio-economic situation.

What are the Impacts of Adolescent Pregnancy?

- **Maternal Health Risks:** Adolescent mothers face higher risks of **anaemia, preterm labor, and maternal mortality**.

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Note:

- According to **NFHS-5**, many adolescent mothers lack access to essential **healthcare services**, exacerbating risks.
- **Child Health and Stunting**: Children born to adolescent mothers are at a higher risk of **low birth weight**, **stunted growth**, and **higher infant mortality** rates.
 - A study by the **International Food Policy Research Institute (IFPRI)** revealed that **stunting and underweight prevalence** was **11% points higher** among children born to teenage mothers.
- **Societal Consequences**: Teenage pregnancy poses **health risks** for both mother and child, such as **maternal complications** and **child malnutrition**, while severely limiting **economic** and **educational opportunities** for young mothers.
 - Teenage mothers often **drop out** of school, limiting their **economic opportunities** and perpetuating **poverty cycles (Intergenerational Poverty)**.
 - According to **2019 data**, **55%** of unintended pregnancies among adolescent girls result in abortions, many of which are unsafe in **low- and middle-income countries (LMICs)**.
- **Gender Inequality & Violence**: **Gender inequality** and patriarchal norms further marginalize adolescent mothers, denying them opportunities to rebuild their lives.
 - **Child marriage** leads to increased **domestic violence**, and perpetuates gender inequality. Also, these practices limit opportunities for young girls.

What are the Schemes for Maternity Health, Education, and Avoid Teenage Pregnancy?

- **Pradhan Mantri Matru Vandana Yojana (PMMVY)**: **PMMVY** provides **Rs 5,000** to pregnant and lactating

mothers **aged 19 years and above** for their first live birth, promoting better maternal health and nutrition.

- The age requirement reinforces efforts to **combat adolescent pregnancies** and **child marriage**.
- **Janani Suraksha Yojana (JSY)**: **JSY** promotes institutional deliveries by providing financial incentives to pregnant women **aged 19 years and above**, especially in rural areas, and **ASHAs**.
 - The age criterion is a significant measure to counter adolescent pregnancies and child marriage.
- **Rashtriya Kishor Swasthya Karyakram (RKSK)**: **RKSK** targets **adolescents aged 10-19 years**, focusing on nutrition, **reproductive health**, and **mental well-being**, thereby directly addressing issues related to adolescent health and early marriages.
- **Balika Samridhhi Yojana**: **BSY** provides financial incentives to **BPL families** for **girl child education**, encouraging school retention and **delaying marriage**, thereby improving girls' socio-economic and **educational status**.
- **Integrated Child Development Services (ICDS)**: **ICDS** provides **nutrition**, **immunization**, **health check-ups**, and pre-school education for children under six years of age, along with support for pregnant and lactating women.
- **School Health and Wellness Program**: Introduced in 2020 under **Ayushman Bharat**, it focuses on adolescent health for students **aged 6-18 years**, including sexual and **reproductive health education**, mental health counseling, and hygiene awareness.
- **Beti Bachao Beti Padhao Scheme**: It aims to prevent **gender-biased sex selection** and **promote education** and empowerment of girls up to 18 years of age, with a focus on improving the **child sex ratio** and ensuring **equal opportunities**.



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Note:

Science & Technology

Highlights

- One Nation One Time
- Use of Fingerprint Evidence in Crime
- Exercise Stimulates Neuronal Growth
- Global Cybersecurity Outlook 2025
- Advancing Robotics in Healthcare
- Semiconductor Partnership with Singapore
- Twigstats
- Gravity Energy Storage
- Semi-Dirac Fermion and Fundamental Particles

One Nation One Time

Why in News?

The **Department of Consumer Affairs** in collaboration with the **Council of Scientific & Industrial Research - National Physical Laboratory (CSIR - NPL)** and the **Indian Space Research Organisation (ISRO)**, has drafted the **Legal Metrology (Indian Standard Time (IST)) Rules, 2025**.

- The rules aim to standardize and mandate **Indian Standard Time (IST)** adoption across all sectors, reinforcing the vision of "One Nation, One Time."

What are the Key Features of the Legal Metrology (IST) Rules, 2025?

- **Mandatory Adoption of IST:** IST, as maintained by the **CSIR-NPL**, will be the **only legally recognized time standard in India**, reinforcing "One Nation, One Time."
 - The use of **foreign time references (such as Global Positioning System (GPS) time)** will be prohibited unless specifically approved by the government.
- **Synchronization of Critical Sectors:** All **government institutions, financial entities, telecom service providers, power grids, and digital infrastructure** must synchronize their systems with IST.
- **Regulatory Framework & Compliance:** Compliance will be **monitored through periodic audits**, and penalties will be imposed for non-adherence.
- **Special Provisions:** Scientific research, astronomy, and navigational applications may use alternative time references **with prior government approval**.
 - The rules provide **flexibility for strategic and national security applications**.

Indian Standard Time

- The IST is based on a **longitude of 82.5°**, which passes through Mirzapur, Uttar Pradesh.
- It is 5 hours 30 minutes ahead of **Greenwich Mean Time (GMT)**, now called the **Universal Coordinated Time (UTC)**.
 - IST was established in 1906, replacing three regional **time zones from the British era (Bombay, Calcutta, and Madras Time)**.

What is One Nation, One Time?

- **About:** 'One Nation, One Time' aims to establish a **unified and precise timekeeping framework** for all governmental, industrial, technological, and societal applications.
 - The government plans to set up **five Legal Metrology laboratories** across India to achieve microsecond-level accuracy in time dissemination.
- **Need for Self-reliant Timekeeping:** India's reliance on GPS satellites (controlled by the US) poses national security and **cybersecurity** risks. During the **Kargil War, 1999**, this dependence compromised India's ability to accurately target enemy positions.
 - A self-reliant system would reduce dependence and protect critical infrastructure.
- **Function:** The **NPL** will utilize **atomic clocks** to provide accurate time, synchronized via **NavIC (Navigation with Indian Constellation)**.
 - The NPL's advanced atomic clocks, which **lose only one second over millions of years**, will serve as the reference for IST.

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Note:

- Synchronization protocols such as **Network Time Protocol (NTP)** and **Precision Time Protocol (PTP)** will be adopted by government institutions and public organizations.
- **Benefits:** Critical sectors like **5G, Artificial Intelligence, Internet of Things, navigation, and power grid synchronization** will operate with **higher precision**.
- **Financial transactions** and regulatory compliance will become more **accurate and fraud-resistant**.
- Digital devices and **communication networks will be synchronized**, improving operational efficiency and consumer services.
- Strengthens India's digital infrastructure, making it an **attractive hub for global tech investments**.
 - Aligns with international best practices in **timekeeping, aviation, and telecommunication standards**.

NAVIGATION WITH INDIAN CONSTELLATION (NavIC)

Navigation with Indian Constellation, also known as NavIC, is a stand-alone satellite navigation system, which is similar to GPS.

+ DEVELOPED BY

- Indian Space Research Organisation (ISRO)

+ NUMBER AND POSITIONING OF SATELLITES

- 8 (only 7 active): 3 in geostationary and 4 in geosynchronous orbits

+ PREVIOUSLY KNOWN AS

- Indian Regional Navigation Satellite System (IRNSS)

NavIC is recognised by IMO as a part of World-Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean Region.

+ APPLICATIONS

- Navigation - Terrestrial, aerial and marine
- Tracking and Mapping - Vehicle and fleet management
- Location Based - Precise timing for ATMs and power grids
- Resource Monitoring - Surveying and geodesy, scientific research
- Safety-of-life alert dissemination
- Time dissemination and synchronization
- Integration with mobile phones

+ SIGNIFICANCE

- Real time information for civilian as well as strategic users
- India's reduced dependence on other countries
- Scientific & technological advancement
- Regional integration and India's diplomatic goodwill gesture

+ ISSUES

- Constellation satellites exceeding their operational lifespan
- Mobile phones lacking compatibility with NavIC
- Limited coverage of NavIC (extends only 1,500 km beyond India)

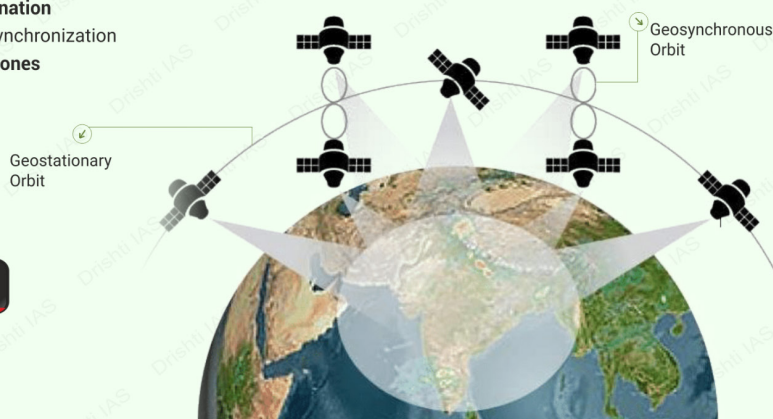
+ OTHER NAVIGATION SYSTEMS

Global Systems

- GPS (US), GLONASS (Russia), Galileo (European Union) and BeiDou (China)

Regional Systems

- Quasi-Zenith Satellite System (QZSS) from Japan



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Note:

CSIR- National Physical Laboratory

- **About:** The **NPL** is one of India's earliest national laboratories. Its foundation stone was laid by **Jawaharlal Nehru** in **1947**, and it was formally inaugurated by **Sardar Vallabhbhai Patel** in **1950**.
- **Functions:** Responsible for realizing and maintaining physical measurement units based on the **International System (SI units)**, including **metre, kilogram, second, kelvin, ampere, and candela**.
 - NPL aids industries with precision measurements and certifies emission-monitoring instruments.
- **Key Contributions:** Develops advanced **atomic clocks** and maintains **Indian Standard Time (IST)** using **Cesium atomic clocks (work using Cesium atoms)** and **Hydrogen maser** (uses hydrogen atoms to serve precision frequency).
 - Provides **apex calibration services** and supports **National Accreditation Board for Testing and Calibration Laboratories (NABL)**.

What are the Challenges in Implementing One Nation One Time?

- **Adoption by Telecom and ISPs:** **Internet Service Providers (ISPs)** and telecom operators rely on foreign time sources, mandating IST adoption requires tech upgrades, regulatory enforcement, and a centralized monitoring authority.
- **Global Integration:** Businesses engaged in international trade and financial markets require **synchronization with global time standards (UTC, GMT, etc.)**.
 - Mechanisms for seamless transition and dual compliance need to be established.
- **Infrastructure Development:** Ensuring seamless time synchronization across the country, including regions with **limited connectivity**, integration with existing networks and systems in **underserved areas may face logistical and technical hurdles**.
- **Cybersecurity Concerns:** Time synchronization systems are potential targets for cyberattacks. Requires **secure encryption** and alternative time dissemination methods.

Use of Fingerprint Evidence in Crime

Why in News?

The **investigation** into the attack on a Bollywood actor highlighted the significance of **fingerprints** in solving crimes.

What is the Legal Stand of Fingerprints as Evidence Material?

- **About Fingerprint Use:** Fingerprints are used to establish if the accused has a **prior criminal record** or to match **prints lifted from the crime scene**.
 - The **Criminal Procedure (Identification) Act, 2022** allows the **storage of fingerprints** of individuals arrested for crimes carrying **more than a year of imprisonment**.
 - The **top one-third part** of the finger, under the **Henry Classification System (HCS)**, that has **unique patterns (whorls and arches)** in each individual are considered for ascertaining identity.
- **Constitutional Basis:** Under **Article 20(3)**, **no person** accused of any offence shall be compelled to be a **witness against himself**.
 - The **protection against self-incrimination** extends to both **oral evidence and documentary evidence**.
 - However, it **does not extend** to compulsory production of material objects, thumb impressions, specimen signatures, blood specimens, or compulsory **exhibition of the body**.
 - Further, it extends only to **criminal proceedings** and **not to civil proceedings** or proceedings which are not of criminal nature
- **Judicial Stand:** In the **Kathi Kalu Oghad Case, 1961**, the **Supreme Court (SC)** held that compelling an accused to provide **specimen handwriting, signature, or fingerprints or footprints** for investigation **does not violate** their right against self-incrimination under **Article 20(3)** of the Indian Constitution.
 - In **Ritesh Sinha vs State of Uttar Pradesh Case, 2019**, the SC **broadened** the parameters of **handwriting samples** to include **voice samples**, adding that this would not violate the right against self-incrimination.
 - In **Selvi vs Karnataka Case, 2010**, the SC prohibited forcing an accused to undergo **narco-analysis** or **lie-detector tests**, which could produce self-incriminating statements.

Note: Section 29 of the **Aadhaar Act, 2016** prohibits **Unique Identification Authority of India (UIDAI)** from sharing **core biometric information — fingerprint, iris scan or any such biological attribute —** with any agency **"for any reason whatsoever"**.

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Note:

Exercise Stimulates Neuronal Growth

Why in News?

A study by the *Massachusetts Institute of Technology (MIT)* has revealed that exercise **not only strengthens muscles** but also **stimulates neuron growth** through biochemical and physical mechanisms.

Note: Muscle is a specialized tissue that **generates force and enables movement**. Composed of contractile proteins like **actin and myosin**, it facilitates contraction and relaxation.

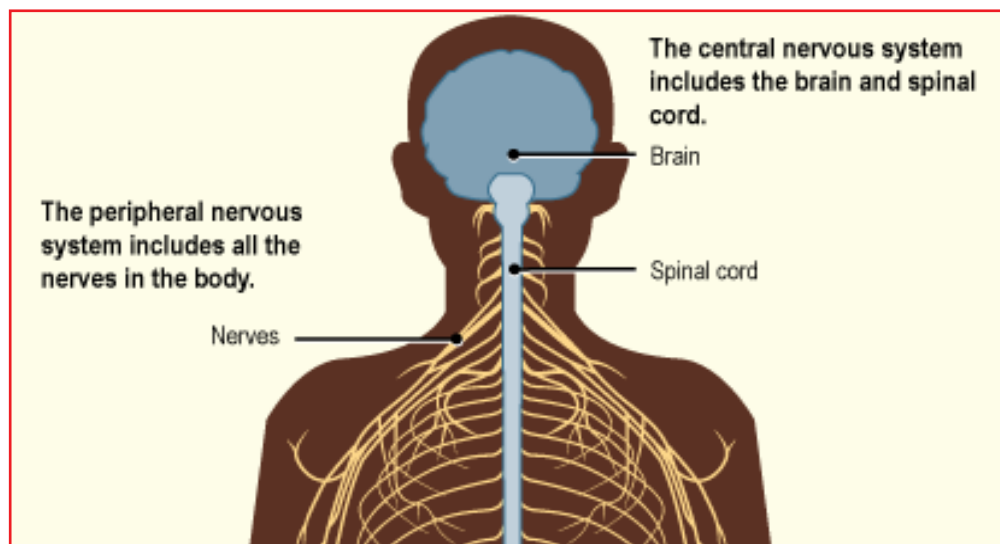
- The human body has three muscle types: **Skeletal** (voluntary, striated, controls movement and posture), **Cardiac** (involuntary, striated, pumps blood), and **Smooth** (involuntary, non-striated, maintains organ functions).

What are the Key Findings of the Study?

- **Nerve-Muscle Crosstalk:** The study challenges the traditional view that nerves only control muscles, revealing a **bidirectional relationship**:
 - In which muscles promote nerve growth by releasing **chemical signals**, while the **mechanical forces** from muscle contractions help improve nerve structure and support regeneration.
- **Role of Myokines:** Exercise increases the secretion of **myokines**, a **biochemical compound** released by muscles. Which significantly enhance **neuronal growth** (4x faster) and improve **neural maturity** and functional abilities.
- **Physical Stress and Neuronal Growth:** Physical forces generated during muscle contraction mechanically stimulate nerves, promoting neuronal growth comparable to myokine exposure.

What are Key facts about Nervous System and Neurons?

- **Nervous System:** The nervous system facilitates communication between body parts using **electrical and chemical signals**, enabling responses to internal and external changes.
- **Types and Function:** It has two main components like the **Central Nervous System (CNS)** and the **Peripheral Nervous System (PNS)**.
 - The CNS includes the **brain** (controls **body functions and consciousness**), and the **spinal cord** (transmits signals to and from the body).
 - The PNS consists of all nerves outside the CNS and is divided into the **Autonomic Nervous System** (which **regulates involuntary functions**, like heart rate and digestion) and the **Somatic Nervous System** (which controls **voluntary movements** and sensory input).



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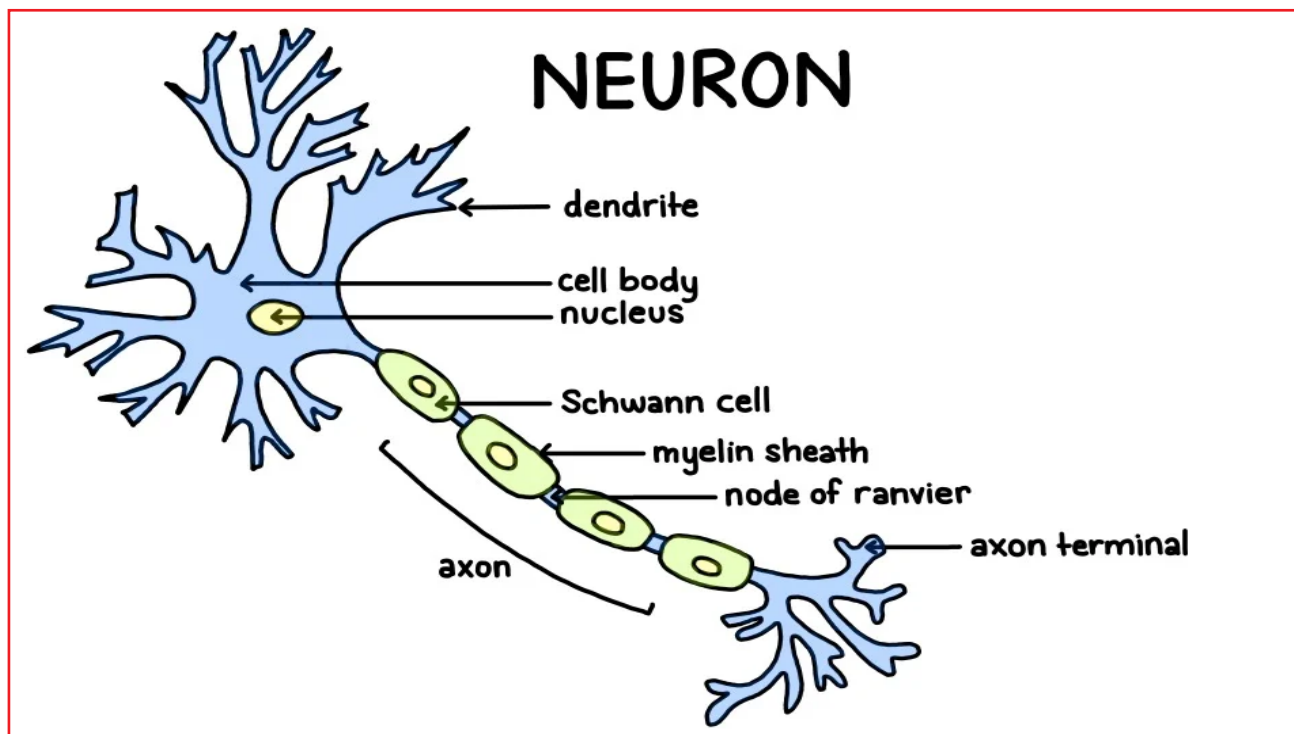


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Note:

- **Neurons:** Neurons (also called neurones or nerve cells) are the **fundamental units of the brain and nervous system.**
 - The cells responsible for **receiving sensory input from the external world**, for sending motor commands to our muscles, and for transforming and relaying the electrical signals at every step in between. Each neuron has three main parts:
 - **Dendrites:** Receive incoming signals from other neurons or sensory receptors.
 - **Axon:** Carries electrical impulses away from the cell body to other neurons or muscles.
 - **Axon Terminals:** Release neurotransmitters to pass signals to the next cell.
 - **Neurons communicate with each other through synapses**, where neurotransmitters bridge the gap between cells.



Global Cybersecurity Outlook 2025

Why in News?

The **World Economic Forum (WEF)** has recently released the **Global Cybersecurity Outlook 2025** report.

- The report highlights **rising cyber threats to critical infrastructure**, driven by **geopolitical tensions**, **outdated systems**, and a **cybersecurity skills gap**, stressing the need for enhanced security and resilience.

World Economic Forum (WEF)

- **About:** The **WEF** is an international organization for public-private cooperation, engaging global leaders from politics, business, culture, and other sectors to **shape agendas at global, regional, and industry levels.**
- **Headquarters:** Geneva, Switzerland.
- **Foundation:** Established in **1971** by **Klaus Schwab**, a German professor. Initially named the **European Management Forum.**

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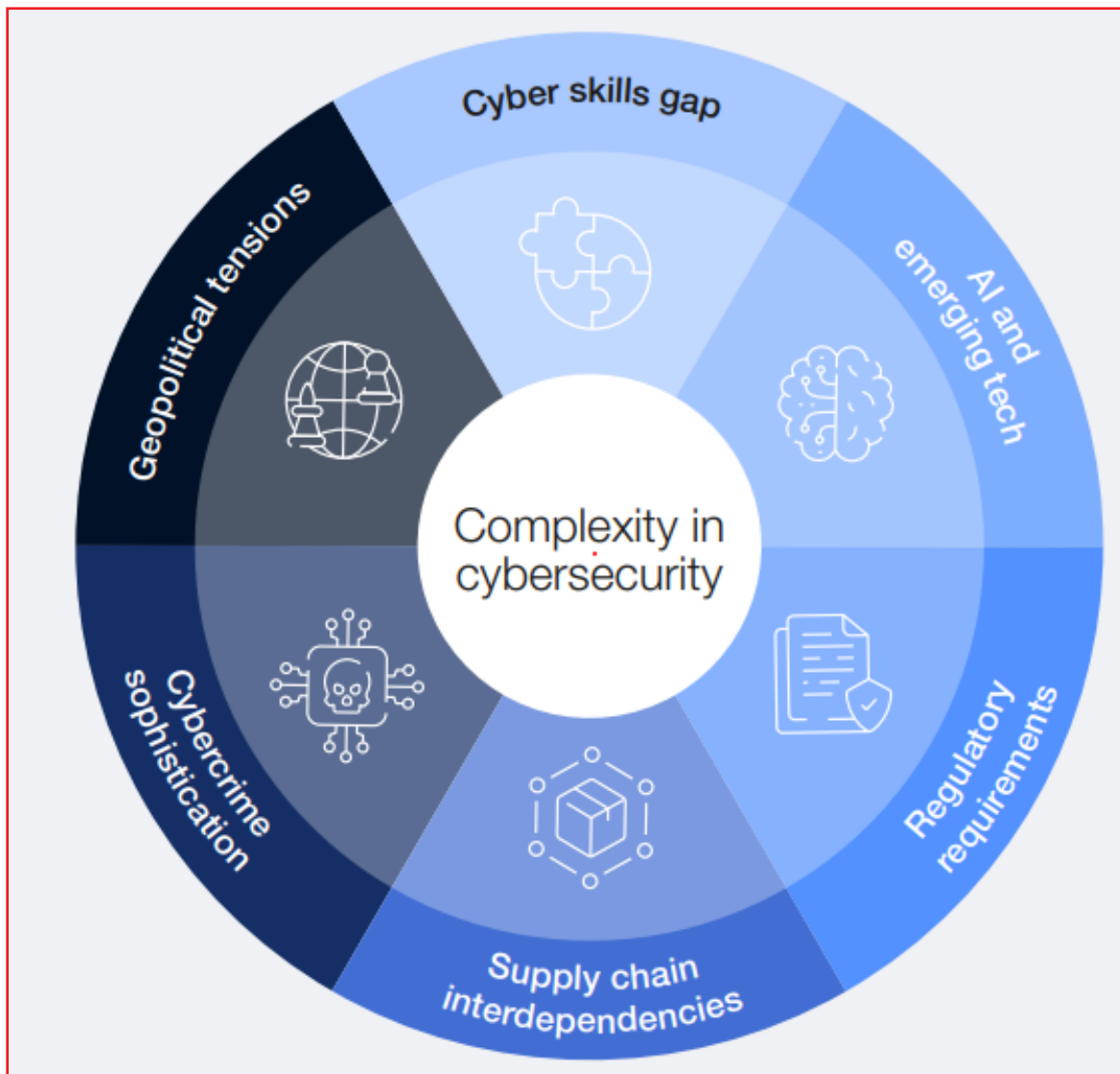
Note:

Note:

- The index, named **Global Cybersecurity Index (GCI)**, is published by the **International Telecommunication Union (ITU)** to assess and rank countries based on their **commitment to cybersecurity**.
- India has achieved a major milestone in cybersecurity by securing **Tier 1 status in the 5th edition of GCI 2024**.

What are the Key Issues Highlighted in Global Cybersecurity Outlook 2025?

- **Vulnerability of Critical Infrastructure:** Critical infrastructure sectors like **water**, **biosecurity**, **communications**, **energy**, and **climate** are vulnerable to **cyberattacks** due to **outdated technologies** and **interconnected systems**.
 - Cybercriminals and state actors **target operational technology**, including **undersea cables**, risking global data flow.
 - In 2024 there was a **sharp increase in phishing and social engineering attacks**, with 42% of organizations reporting such incidents.
 - **Example:** A **2024 cyberattack on a US water utility** disrupted operations, highlighting vulnerabilities in water treatment facilities.

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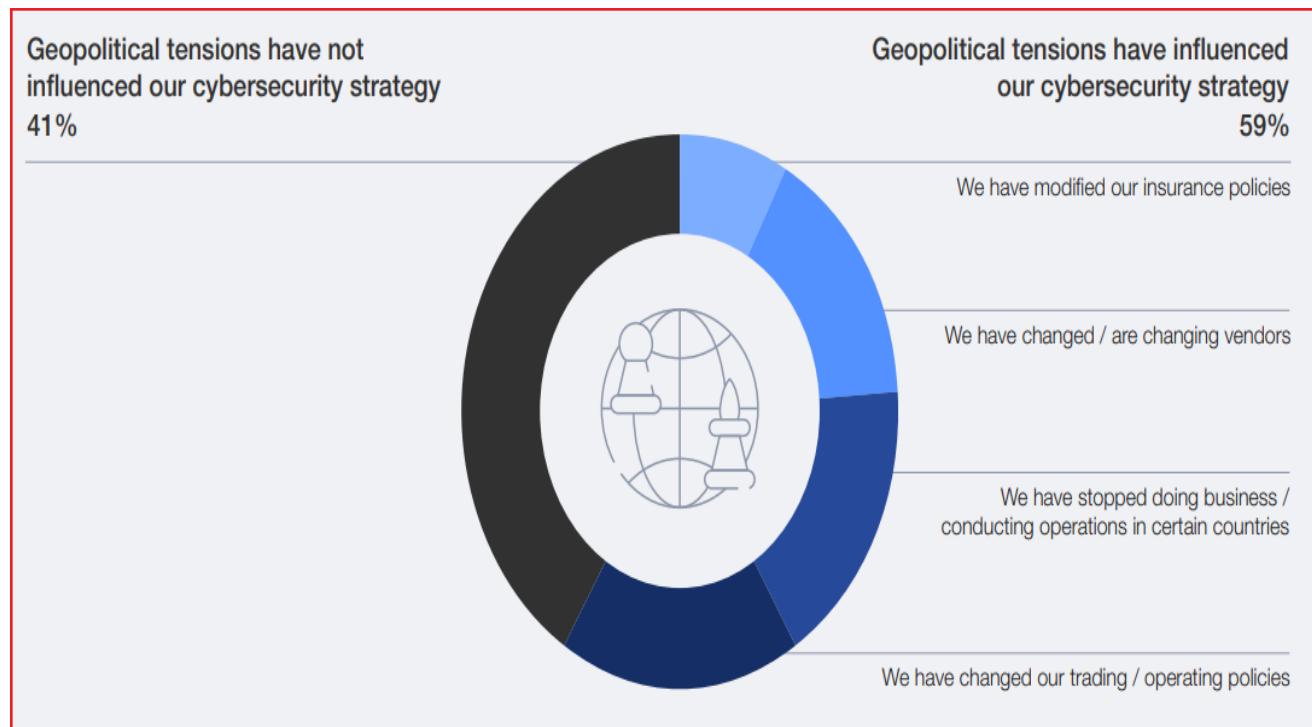


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Note:

- **Geopolitical Tensions:** Geopolitical conflicts, like the **Russia-Ukraine war**, have **heightened cyber and physical attacks on critical sectors** such as energy, telecommunications, and water.
 - Nearly **60% of organizations** state that **geopolitical tensions have affected their cybersecurity strategy**.



- **Biosecurity Threats:** Advancements in **Artificial intelligence (AI)**, **genetic engineering**, and **biotechnology** have **heightened biosecurity risks**, with cyberattacks on bio-laboratories **threatening research and safety protocols**.
 - The **World Health Organization (WHO)** has warned of these dangers, as seen in **2024 attacks on labs in South Africa and the UK**.
- **Cybersecurity Skills Gap:** The report highlights a **critical cybersecurity skills gap**, with a **shortage of up to 4.8 million professionals globally**.
 - Two-thirds of organizations face notable skills gaps, with **only 14% having the required skilled personnel** for the current cyber landscape.
- **Cyber Resilience:** **35% of small organizations** feel their **cyber resilience is insufficient**.
 - **Public-sector organizations** face greater challenges, with **38% reporting low resilience** and 49% lacking cybersecurity talent, a 33% rise from 2024.
- **Regional Cybersecurity Disparities:**
 - The report highlights global cybersecurity disparities, with low confidence in **incident response rising from 15% in Europe/North America to 36% in Africa and 42% in Latin America**.
- **Losses Due to Cybercrime:** Cybercrime has become a **highly profitable venture**, with minimal operational costs and potentially high returns.
 - The **US Federal Bureau of Investigation (FBI)** estimates losses from cybercrime exceeded **USD 12.5 billion in 2023**.

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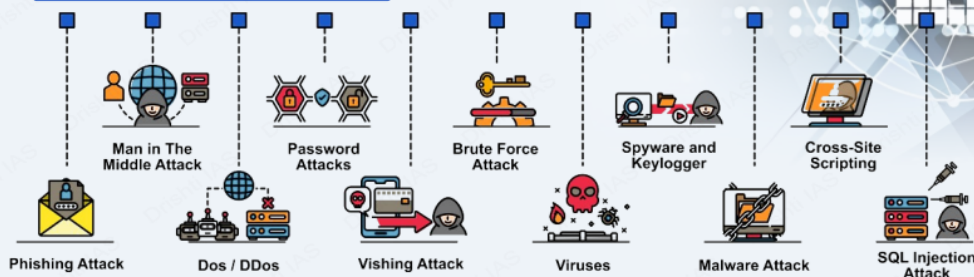


Note:

CYBER SECURITY

Cybersecurity refers to any technology, measure, or practice for preventing cyberattacks or mitigating their impact.

CYBER SECURITY ATTACKS



'Crime in India' Report 2022 (NCRB) highlighted 24.4% surge in cybercrimes in India since 2021.

Common Cybersecurity Myths

- Strong passwords alone are adequate protection
- Major cybersecurity risks are well-known
- All cyberattack vectors are contained
- Cybercriminals don't attack small businesses

Cyber Warfare

- Digital attacks to disrupt vital computer systems, to inflict damage, death, and destruction.

CYBER THREAT ACTORS

CYBER THREAT ACTOR

MOTIVATION

NATION-STATES	Geopolitical
CYBERCRIMINALS	PROFIT
HACKTIVISTS	IDEOLOGICAL
TERRORIST GROUPS	IDEOLOGICAL VIOLENCE
THRILL-SEEKERS	SATISFACTION
INSIDER THREATS	DISCONTENT

Types of Cybersecurity

- Critical infrastructure security (Robust access controls)
- Network security (Deploying firewalls)
- Application security (Code reviews)
- Cloud Security (Tokenization)
- Information security (Data masking)

Recent Major Cyber Attacks

- WannaCry Ransomware Attack (2017)
- Cambridge Analytica Data Breach (2018)
- Financial data of 9M+ cardholders, including SBI, leaked (2022)

Regulations & Initiatives

International:

- UN Group of Governmental Experts (GGE) on Advancing Responsible State Behaviour in Cyberspace
- NATO's Cooperative Cyber Defense Centre of Excellence (CCDCOE)
- Budapest Convention on Cybercrime, 2001 (India not a signatory)

India:

- IT Act, 2000 (Sections 43, 66, 66B, 66C, 66D)
- National Cyber Security Policy, 2013
- National Cyber Security Strategy 2020
- Cyber Surakshit Bharat Initiative
- Indian Cyber Crime Coordination Centre (I4C)
- Computer Emergency Response Team-India (CERT-In)

Steps Needed for Cyber Security

- Network Security
- Malware Protection
- Incident Management
- User Education and Awareness
- Secure Configuration
- Managing User Privileges
- Information Risk Management Regime



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Note:

What is the Current Framework for Cybersecurity in India?

- **Legislative Measures:**
 - [Information Technology Act, 2000 \(IT Act\)](#)
 - [Digital Personal Data Protection Act, 2023](#)
- **Institutional Framework:**
 - [Indian Computer Emergency Response Team \(CERT-In\)](#)
 - [National Critical Information Infrastructure Protection Centre \(NCIIPC\)](#)
 - [Indian Cyber Crime Coordination Centre \(I4C\)](#)
 - [Cyber Swachhta Kendra](#)
- **Strategic Initiatives:**
 - [Bharat National Cybersecurity Exercise 2024](#)
 - **National Cyber Security Policy, 2013:** Provides vision and strategies for securing cyberspace and protecting critical information infrastructure.
- **Sector-Specific Regulations:**
 - **Cybersecurity Framework for SEBI Regulated Entities:** Mandates cybersecurity policies for securities markets.
 - [Telecommunications \(Critical Telecommunication Infrastructure\) Rules, 2024](#)

Advancing Robotics in Healthcare

Why in News?

India achieved a significant milestone by performing **two complex heart surgeries** using the country's **first indigenous surgical tele-robotic system**, the **SSI Mantra**, over a physical distance of 286 km.

- These procedures represent a breakthrough in **robotic-assisted surgeries**, reducing geographical barriers to [advanced healthcare](#).

What is SSI Mantra?

- **About:** SSI Mantra is **India's first indigenous surgical robotic system** to receive regulatory approval for telesurgery. It is developed by **SS Innovations**.
- It was approved by the **Central Drugs Standard Control Organization (CDSCO)**, the central regulatory authority under the **Drugs & Cosmetics Act, 1940**.

Key Features:

- **Ultra-low Latency:** Operates at a latency of **35–40 milliseconds**, enabling seamless remote operations without delay.
- **High-precision Surgeries:** Designed for procedures like **Totally Endoscopic Coronary Artery Bypass (TECAB)**, one of the most intricate cardiac surgeries.
- **Regulatory Approval:** Recognized as the first robotic system certified for both telesurgery and remote surgical training (tele-proctoring).
- **Working Mechanism:** It operates on a **Master-Slave Console Model**, where:
 - The **Master surgeon** console remotely controls the surgery, allowing the lead surgeon to perform precise movements.
 - While the **Slave Console** near the patient executes commands with robotic instruments, enabling effective surgical care despite geographical distance.
- **Significance:** Facilitates **access to expert surgical care** in underserved or remote regions with limited medical facilities.
 - Overcomes **geographical barriers**, ensuring that world-class surgical expertise is available even in distant locations.
 - Minimally invasive techniques result in faster recovery times, fewer complications and reduced trauma and **Improved overall patient experiences**.

What are Robots?

- **Definition:** Robots are **automatic, self-controlled machines** capable of performing tasks with minimal human intervention.
 - It is a multidisciplinary field combining materials science, computer science, electronics, mechanics, and more.
- **Parts of Robots:** Includes **end-effectors** (similar to human hands), **manipulators** (analogous to arms), **locomotion devices**, **controllers**, and **sensors**.
- **Types of Robots:**
 - **Mobility-based:**
 - **Fixed/Static:** E.g., assembly robots.
 - **Mobile/Moving:** Wheeled or legged robots.
 - **Ability-based:**

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Note:

- **Type I:** Perform tasks better than humans (e.g., cutting).
- **Type II:** Perform dangerous tasks to protect humans (e.g., space exploration).
- **Shape-based:**
 - **Mechanical Robots:** Industrial robots.
 - **Animal Robots: Robo Dog:** AIBO, developed by Sony.
 - **Humanoid Robots:**
 - **Gynoid Robot:** Female-looking robots, such as Sofia.
 - **Android Robot:** Male-looking robots.
- **Laws of Robotics: Isaac Asimov's Three Laws of Robotics** create an ethical framework for robot-human interactions.
 - A robot **must not harm** a human or allow harm through inaction.
 - A robot **must obey human orders**, unless it conflicts with the First Law.
 - A robot **must protect its own existence**, as long as it doesn't conflict with the first two laws.
- **Note: Asimov's Zeroth Law** states that a **robot must prioritize humanity's well-being** above individual humans, prohibiting harm to humanity or allowing harm through inaction.
 - These **ethical, non-binding laws** discourage the use of **robots for military purposes** involving human harm.

What are the Various Applications of Robots?

- **Health Sector: Robotic Prosthetics** where advanced robotic limbs and exoskeletons enhance mobility and functionality for amputees, improving their quality of life.
 - **Robotic Surgery:** Minimally invasive procedures, faster recovery, and higher precision.
 - **Medical Service Robots:** Robots for tasks like sanitization, patient monitoring, and telemedicine.
 - Utilize UV-C light or hydrogen peroxide vapor to disinfect healthcare environments, ensuring clean and safe conditions.

- **Industries:** Robots are widely used in **electronics, automotive, and metal industries**, with China being the leader in installations.
 - In India, around **8,500 robots** were installed in 2023, a **59% increase** from the previous year.
- **Defense Sector:** Robots in warfare can either serve as autonomous killing machines (e.g., **Israel's REX Mark II**) or assist soldiers in logistics, mine detection, and surveillance.
- **Agriculture:** Agricultural robots help in tasks like crop management, precision farming, and harvesting. In India, the development of robots like **Agribot** is underway.
- **Disaster Management:** Robots are used for search and rescue operations, such as navigating collapsed buildings (e.g., **Bandicoot robot** for sewer cleaning).
- **Space Sector:** Robotic systems are integral for space missions, such as the **Pragyan Rover** on **Chandrayaan-3** and **NASA's Mars rovers**.

What is the Current Status of Robotics in India?

- **Current Status:** Between 2016 and 2021, the **operational stock of industrial robots in India doubled**. According to the **World Robotics Report 2024**, India ranked **7th** globally in terms of annual industrial robot installations.
 - However, India's robotics ecosystem has grown more slowly compared to some developed nations.
- **Made-in-India Robots:** India has developed several notable robots like
 - **DAKSHA (Defense):** Automated mobile platform with stair-climbing and IED handling capabilities.
 - **Vyom Mitra (Space):** ISRO's humanoid robot for Gaganyaan missions.
 - **MANAV (Technology):** India's first 3D-printed humanoid robot with vision, sound processing, and interactive abilities.
- **Government Initiatives:**
 - **National Health Policy, 2017:** Recognizes the role of technology in improving healthcare services, emphasizing robotics and other advanced solutions.

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Note:

- **Draft National Strategy on Robotics (2023):** Aims to establish a **Robotics Innovation Unit (RIU)** to foster the development of robotics in healthcare and other sectors. The Indian government has established several research centres to foster robotics development:
- The **Artificial Intelligence and Robotics Technology Park (ARTPARK)** and the **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)** focus on leveraging AI and robotics.
- **Center for Advanced Manufacturing for Robotics and Autonomous Systems (CAMRAS)** aims to reduce India's reliance on imported robotics systems.
- **The I-HUB Foundation for Cobotics (IHFC)** at IIT Delhi has launched various projects in healthcare, medical simulators, and drone applications.
- **ISRO and Robotics:** India's space agency, ISRO, is developing humanoid robots for future manned missions. Vyom Mitra, a female robot astronaut, is set to be launched as part of India's Gaganyaan project.

What are the Challenges in Adopting Robotics in Healthcare?

- **High Initial Costs:** Robotic systems like **SSI Mantra** are expensive to acquire and maintain, posing financial challenges for many healthcare facilities, especially those with limited resources.
 - The **high upfront cost**, along with **ongoing maintenance and consumables**, makes adoption difficult for smaller or rural hospitals, widening healthcare disparities.
- **Training and Skill Gaps:** Operating robotic surgery systems requires specialized training for surgeons and medical staff. The **setup time for robotic systems** poses challenges in emergency cases like accidents.
 - The **steep learning curve and global shortage** of trained professionals delay adoption, particularly in developing countries.
- **Ethical Concerns:** Telesurgery raises **accountability and patient safety concerns**, as errors may **blur responsibility** between the surgeon, institution, or

system provider, while technical issues like connectivity failures could compromise outcomes and trust.

- **Patient Trust:** Patients may hesitate to trust remote surgeries, fearing that the absence of a surgeon in the room compromises safety.
- **Job Loss:** Automation leads to job displacement, especially in manufacturing, with estimates suggesting that 300 million jobs could be lost due to automation.
- **Cybersecurity Risks:** Increased connectivity exposes robots to cyber-attacks, as seen in the 2017 **WannaCry** ransomware attack.

Semiconductor Partnership with Singapore

Why in News?

During his recent visit to India, the **President of Singapore** announced plans to explore initiatives such as **semiconductor manufacturing** and developing a **semiconductor ecosystem** in India apart from participating in the creation of a **new generation of technological solutions**.

How is Singapore's Semiconductor Landscape?

- **Economic Contribution:** Singapore's semiconductor sector contributes about **8% to its GDP**.
 - It produces around **10%** of the world's **semiconductor output**, **5%** of global **wafer fabrication capacity**, and **20%** of **semiconductor equipment production**.
- **Global Semiconductor Presence:** Major global semiconductor companies have established significant operations in Singapore, covering the **entire semiconductor value chain** from **integrated circuit (IC) design to assembly**, packaging, testing, and **wafer fabrication**.
 - Singapore's four major **wafer fabrication parks** span 374 hectares and are equipped with **cutting-edge facilities**.
- **Challenges:** Singapore's semiconductor industry specializes in **mature-node chips (28 nm and above)** for automotive and consumer electronics, but **hasn't yet entered** high-end logic chips for **AI and advanced computing (7 nm and below)**.

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Note:

SEMICONDUCTORS

Semiconductors are materials having conductivity between conductors and insulators

EXAMPLES

- **Pure Elements:** Silicon and Germanium
- **Compounds:** Gallium Arsenide and Cadmium selenide

SIGNIFICANCE

- Essential to almost all sectors of the economy – **aerospace, automobiles, communications, clean energy, information technology** and **medical devices** etc.

SEMICONDUCTORS AND INDIA

- **India Imports from:** China, Taiwan, USA and Japan
- **Indian Semiconductor Market:** Expected to reach **USD 55 bn** by 2026

SCHEMES

- **Production-Linked Incentive (PLI) scheme**
- **Design Linked Incentive (DLI) Scheme**
- Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECES)

OBJECTIVES

- Encourage semiconductor and display manufacturing in the country.
- Nurture >20 domestic companies in semiconductor design
Achieve a turnover of > Rs.1500 crore in next 5 years
- Manufacture electronics components and semiconductors

INDIA'S SEMICONDUCTOR MISSION (ISM)

VISION

- Build a **vibrant semiconductor** and **display design** and **innovation ecosystem**

LAUNCHED

- 2021

NODAL MINISTRY

- Ministry of Electronics and Information Technology (MeitY)

TOTAL FINANCIAL OUTLAY

- Rs 76,000 crore

COMPONENTS

- Scheme for setting up of Semiconductor Fabs
- Scheme for setting up of Display Fabs
- Scheme for setting up of Compound Semiconductors/Silicon Photonics/Sensors (including MEMS) Fabs/ Discrete Semiconductors Fab and Semiconductor ATMP/OSAT
- DLI Scheme



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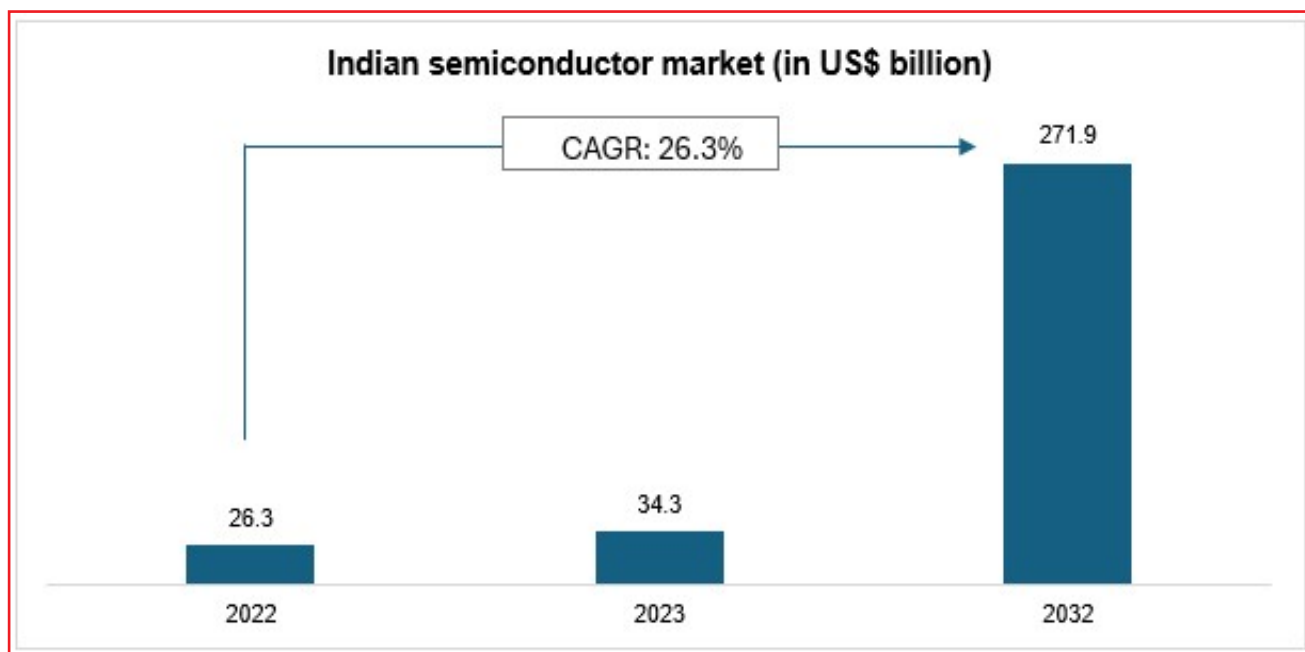
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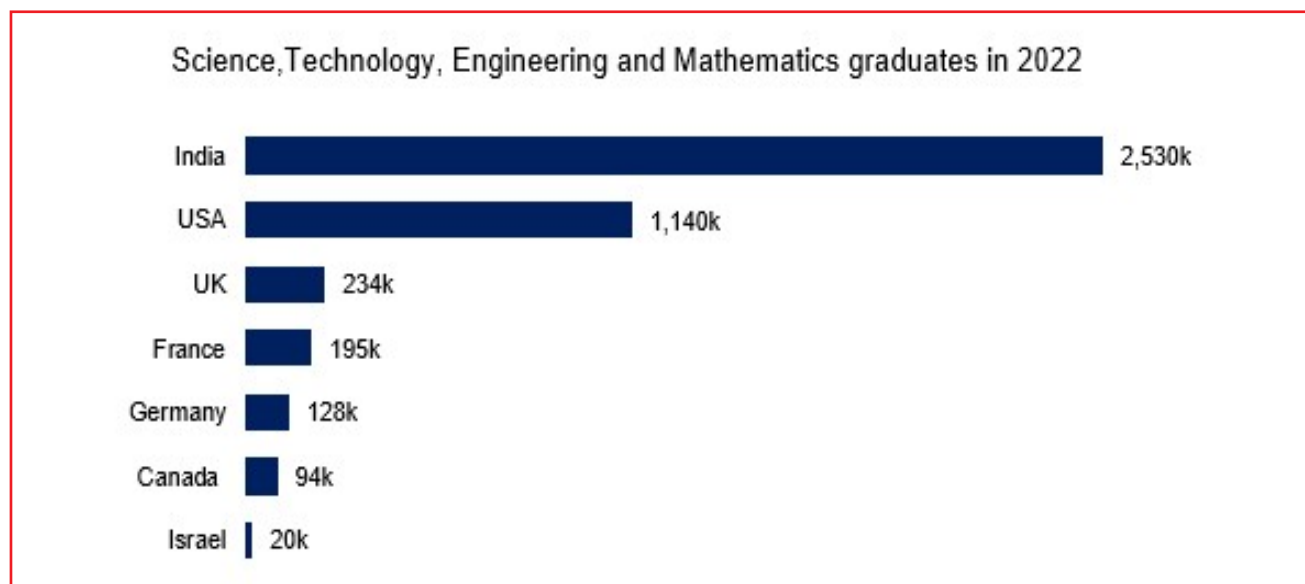
Note:

What are Key Points about India's Semiconductor Industry?

- **Market Value:** In 2022, India's semiconductor market was valued at **USD 26.3 billion**, with projections to grow to **USD 271.9 billion** by 2032.



- **Import Dependence:** India heavily relies on imports for semiconductor devices, with imports in 2022 at **USD 5.36 billion**, compared to **USD 0.52 billion** in exports.
- **Positive Factors:**
 - **Skilled Workforce:** India produces a large number of **STEM graduates**, providing a ready workforce for semiconductor **manufacturing, design, and R&D**.



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Note:

- **Cost Advantage:** India offers a significant **cost advantage** for semiconductor manufacturing due to lower labor and operational costs.
- **Global Supply Chain Diversification:** The shift away from China, influenced by **geopolitical tensions**, has opened opportunities for **India** to become a **preferred destination** for semiconductor manufacturing.
- **Foreign Partnerships:** India has actively engaged in international collaborations to advance its semiconductor development. E.g.,
 - MoU on **Semiconductor Supply Chain and Innovation Partnership** with US.
 - Memorandum of Cooperation (MoC) on the **Japan-India Semiconductor Supply Chain Partnership** with Japan.
 - MoU between **India** and **European Commission**.
 - **Powerchip Semiconductor (Taiwan)** and **Tata Group** have partnered to build a semiconductor facility in **Dholera, Gujarat**.
- **Government Initiatives:**
 - **India Semiconductor Mission (ISM)**
 - **Semiconductor Fab Scheme** and **Display Fab Scheme**
 - **Semicon India Program**
 - **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs)**

How Singapore can Help Develop India's Semiconductor Industry?

- **Expanding Manufacturing Capabilities:** Indian companies can partner with Singaporean firms to **outsource assembly and testing**, reducing costs for Singapore and enabling India to adopt **advanced manufacturing technologies**.
- **Talent Development:** Singaporean universities offer programs in **microelectronics and semiconductor engineering**, and Indian institutions can **collaborate** for research, **student exchanges**, and **PhDs** to build a **skilled workforce** for India's semiconductor goals.
- **Industrial Park Development:** On the lines of **Wafer Fab Parks** (industrial zones specifically designed for semiconductor manufacturing) in Singapore, India can establish similar industrial parks for **attracting global players**.
 - Partnerships with Singaporean firms can provide Indian companies access to **advanced semiconductor technologies** and essential materials for **chip production**.

India-Singapore Relations

- **Background:** India was one of the first countries to **recognise Singapore's independence in 1965**.
 - Relations date back to **Stamford Raffles** establishing a **trading post in Singapore in 1819**, which became a **British colony** governed from **Kolkata until 1867**.
- **Trade and Economic Cooperation:** The **Comprehensive Economic Cooperation Agreement (CECA)** between India and Singapore was signed in **2005**.
 - Singapore is India's **6th largest trade partner (FY24)**, accounting for 3.2% of India's overall trade.
 - India is Singapore's **12th largest trade partner** with a 2.3% share in Singapore's overall trade.
 - Singapore is India's **largest trade partner in the ASEAN region**.
- **Security Cooperation:** Military exercises between India and Singapore include **SIMBEX (Navy)**, **SINDEX (Air Force)**, and **Bold Kurukshetra (Army)**.
- **Culture:** Singapore's four official languages are **Malay, Mandarin, Tamil and English**. As per the data of government of Singapore, ethnic Indians constitute about **7.6%** of the resident population of 4.18 million in Singapore.

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Note:



What is the Significance of Semiconductors for India?

- **Industrial Development:** The global semiconductor industry is poised for a decade of growth and is projected to become a **trillion-dollar industry by 2030**, and India aims to capture a significant share.
 - The Indian semiconductor market was worth **USD 15 billion in 2020** and is estimated to reach **USD 63 billion by 2026**.

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Note:

- **Technological Sovereignty:** By developing domestic semiconductor capabilities, India can ensure a **stable supply for critical defense systems** and secure communication networks.
- **Global Supply Chain:** India's participation in the semiconductor sector can **boost global supply chain** influence, attract investments, and enhance its **strategic geopolitical role**.
- **Digital Transformation:** Semiconductors are key to **AI, quantum computing, and 5G**, making domestic development crucial for India's digital and technological progress.
 - It will support **data centers, communication networks, and smart cities**, aiding national growth.
- **Skill Development:** The semiconductor industry's demand for **specialized skills** will boost **STEM education and research** in Indian institutions.

What are the Challenges in Semiconductor Manufacturing?

- **Capital and Investment:** Semiconductor manufacturing is **extremely capital-intensive**, with significant investments required in both **R&D and infrastructure**.
 - The import semiconductor manufacturing **price index** grew by **4.9% in 2021** and an **additional 2.4% in 2022**.
- **Talent Shortage:** The industry faces a significant **talent gap**, with **over 1 million skilled professionals needed by 2025**.
 - India faces a shortage of skilled workers capable of **operating fabrication plants**.
- **Limited Access to Advanced Technology:** The dominance of countries like **Taiwan and South Korea** in the semiconductor ecosystem which have **exclusive access** to critical technologies limits India's ability to scale its capabilities swiftly.
- **Environmental Concerns:** The semiconductor industry is **energy-intensive** and contributes **31% of global greenhouse gas emissions**.
- **Competition from Other Emerging Markets:** India faces competition from emerging markets like **Vietnam**,

Malaysia, and Indonesia, with **Malaysia** successfully attracting companies like **Infineon** in the first wave of semiconductor investments.

Twigstats

Why in News?

The new **genetic analysis tool**, **Twigstats**, has significantly improved the precision of tracing individual-level ancestry using **ancient Deoxyribonucleic acid (DNA)** samples from northern and **Central Europe**, dating from **500 BC to 1000 AD**.

What is Twigstats?

- **About:** Twigstats is an **advanced analytical tool** developed for **genetic studies**, particularly focused on **ancestry analysis** with high precision.
 - It is designed to **enhance the understanding of population dynamics** by utilizing **genetic data, archaeological findings, and historical context**.
- **Working:** Twigstats reconstructs genetic family trees by **analyzing shared genetic mutations between individuals**.
 - It uses recent **mutations** to **trace ancestry** and establish connections between people from different time periods, **linking modern DNA with that of ancient populations**.
- **Key Features:**
 - **Time-Stratified Ancestry Analysis:** Twigstats uses a **time-stratified approach** to analyze genetic data, enhancing accuracy by studying how ancestry and populations evolved across historical periods
 - **Integration of Genetic Techniques:** The tool combines **haplotypes (shared DNA segments)**, **rare variants**, and **Single Nucleotide Polymorphisms (SNPs)** to offer a comprehensive understanding of ancestry and population structure which provides **deeper insights into demographic transitions** across time, enhancing the accuracy of genetic analysis.
 - **Compatibility with R:** It utilizes **statistical languages R and C++** to assist researchers in analyzing genetic data with greater precision.

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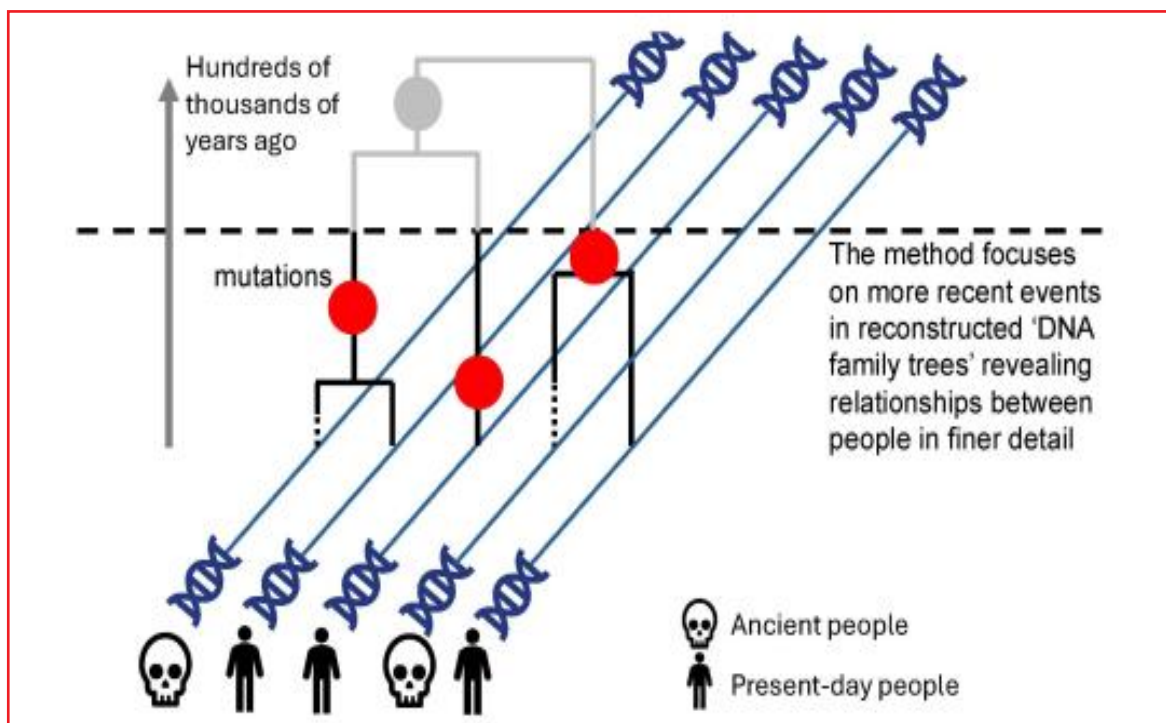
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Note:



What are the Techniques Used for Genetic Analysis?

- **Single Nucleotide Polymorphisms (SNPs):** SNP is a laboratory method used to **find differences in a DNA sequence** where **one nucleotide** (A, C, G, or T) **varies between individuals** at certain points.
 - It is widely used to reconstruct genetic histories and ancestry models from ancient genetic material (aDNA).
 - SNP analysis requires **high-quality DNA samples** and faces challenges with **closely related ancestral groups**.
- **Haplotypes Method:** The study involves **combinations of genetic markers** that are **inherited together on the same chromosome**.
 - This technique helps researchers **understand disease patterns and population genetics**, offering insights that might be missed by analyzing individual markers alone.
 - It focuses on **haplotypes**, which are groups of alleles inherited together.
- **Genealogical Tree Inference:** This method is used to **trace the ancestry and genetic relationships** of individuals by **constructing family trees or genealogical trees**.
 - It **analyzes both modern and ancient genomes** to understand population structure and demographic changes.

Gravity Energy Storage

Why in News?

Gravity Energy Storage is emerging as an **innovative** and **cost-effective** solution to address a key challenge of renewable energy. It is also acting as a promising alternative to traditional **battery energy storage**.

What is Gravity Energy Storage?

- **Definition:** It is an **innovative technology** designed to store energy by leveraging the force of gravity.
- **Principle of Operation:** The core principle of **Gravity Energy Storage** lies in **potential energy**.
 - It involves **lifting heavy masses** during periods of excess energy generation and releasing them to produce electricity when needed.

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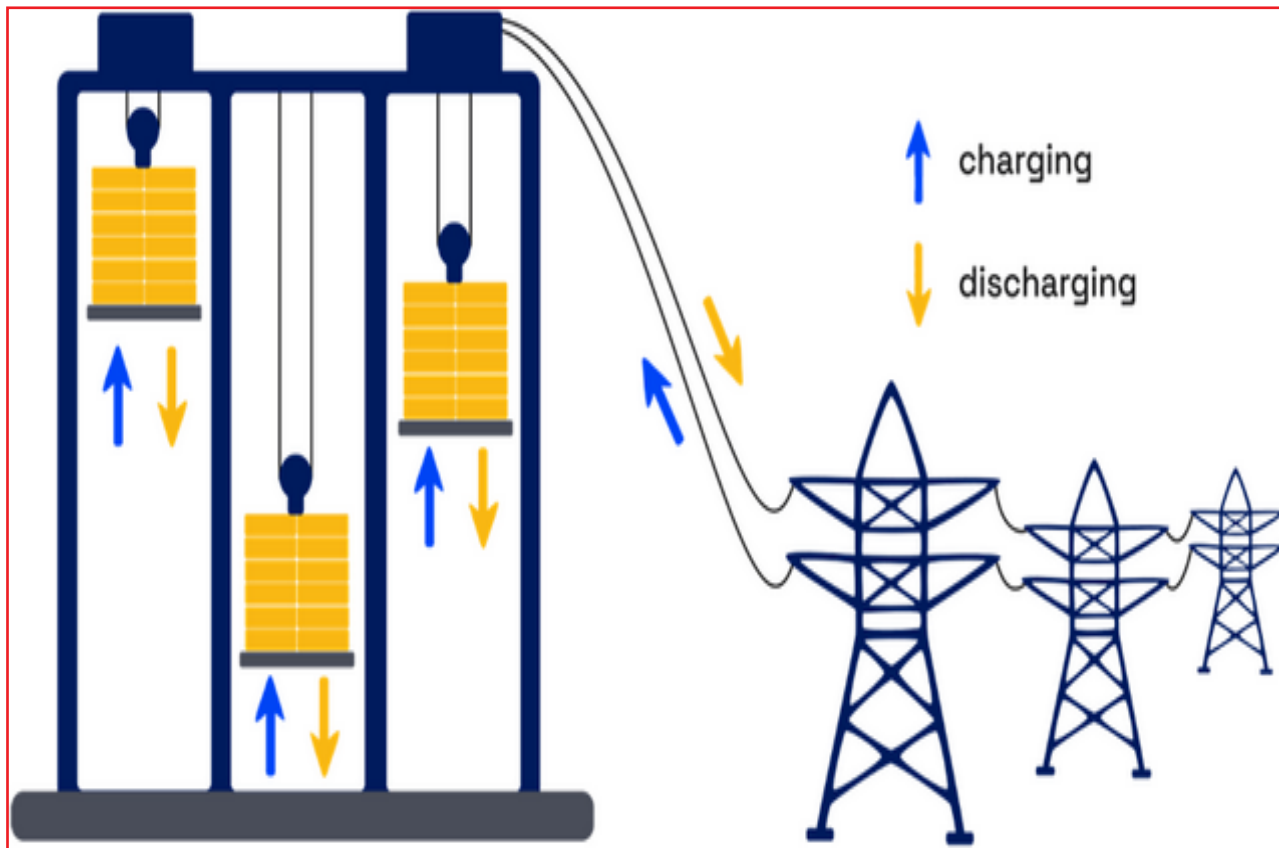


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Note:

- **Energy Conversion:** A turbine or generator converts the descending motion of a piston into electricity.
 - A common design involves a **fluid-filled cylinder** with a heavy piston.
 - During surplus electricity generation, the **piston is lifted**, storing energy.
 - When energy is needed, the **piston descends**, driving water through a turbine to produce power.



- **Environmental Sustainability:** Unlike traditional battery storage, gravity energy systems **avoid chemical-based energy storage**, making them **environmentally sustainable** and long-lasting.
- **Advantages:**
 - **Site Flexibility:** Unlike **pumped-hydro systems** that require specific geographical features, gravity energy systems can be implemented in diverse locations.
 - **Scalability:** Systems can be adapted to different energy capacities, making them ideal for **grid-scale storage**.
 - **Longevity:** Minimal mechanical degradation ensures decades of operation with **low maintenance**.

How Can Gravity Energy Storage Address the Challenges of Renewable Energy in India?

- **The Intermittency Issue:** **Solar and wind energy** are not constant, they depend on weather and time of day.
 - With schemes like the **National Solar Mission** and expanding wind power capacities, gravity energy storage can help **stabilize the grid** by addressing intermittency.
 - **Reliable energy storage** is essential to balance supply and demand, especially during peak usage or low production periods.
- **High Energy Capacity:** Can store large amounts of energy, bridging the gap during low renewable production.

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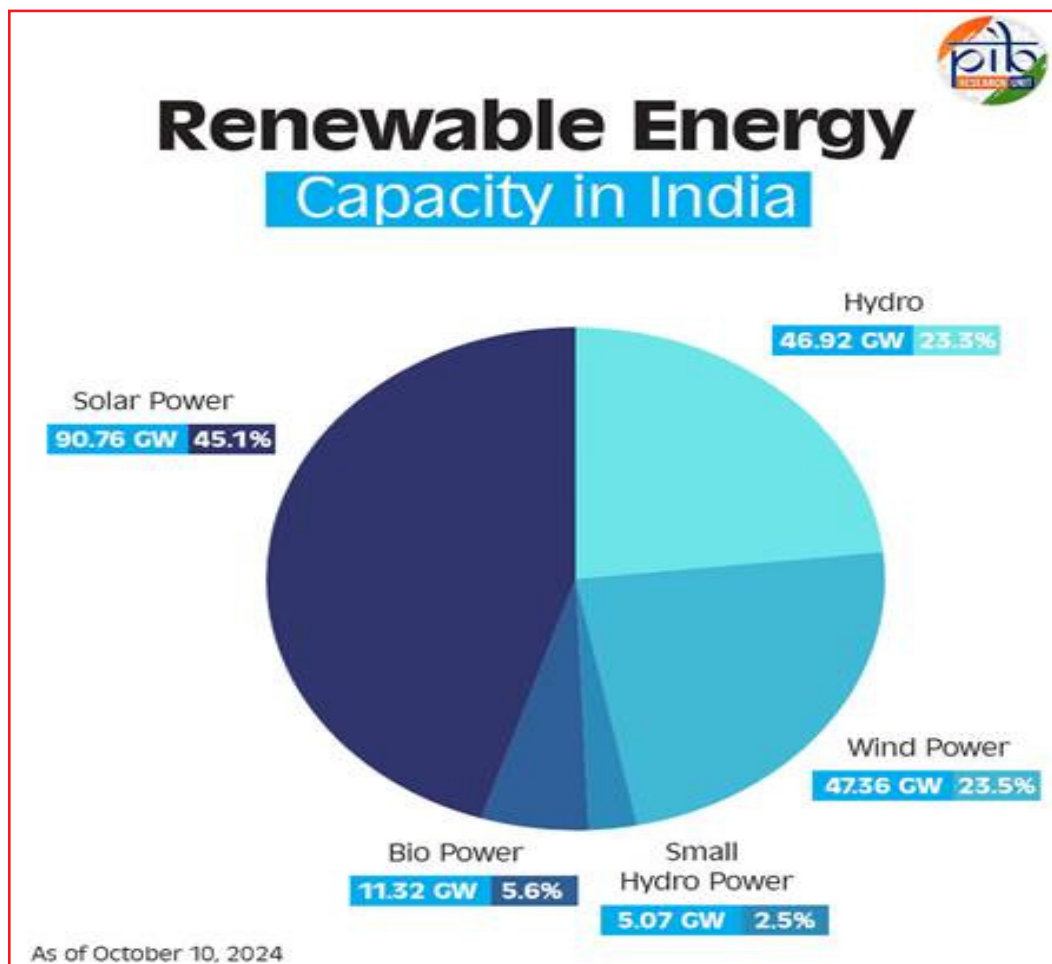


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Note:

- **Low Environmental Impact:** It reduces harmful chemical reactions, minimizing impact and disposal issues, supporting the transition to a greener planet.
- **India's Renewable Energy Push:** India aims to achieve **500 GW of non-fossil fuel capacity by 2030** under its renewable energy initiatives.
 - Gravity energy storage can complement these efforts by providing **reliable and cost-effective storage** for the large-scale solar and wind projects being deployed across the country.



Semi-Dirac Fermion and Fundamental Particles

Why in News?

Physicists from Columbia University and Pennsylvania State University discovered a unique particle known as the **semi-Dirac fermion**.

- This finding not only offers fresh insights into the properties of **fundamental particles** but also holds potential implications for **quantum physics**.

What is a Semi-Dirac Fermion?

- **About:** A semi-Dirac fermion is a particle that has **mass when moving in one direction but not in a perpendicular direction**, which is a unique behavior. It was discovered in the crystalline material **zirconium silicon sulphide (ZrSiS)**.

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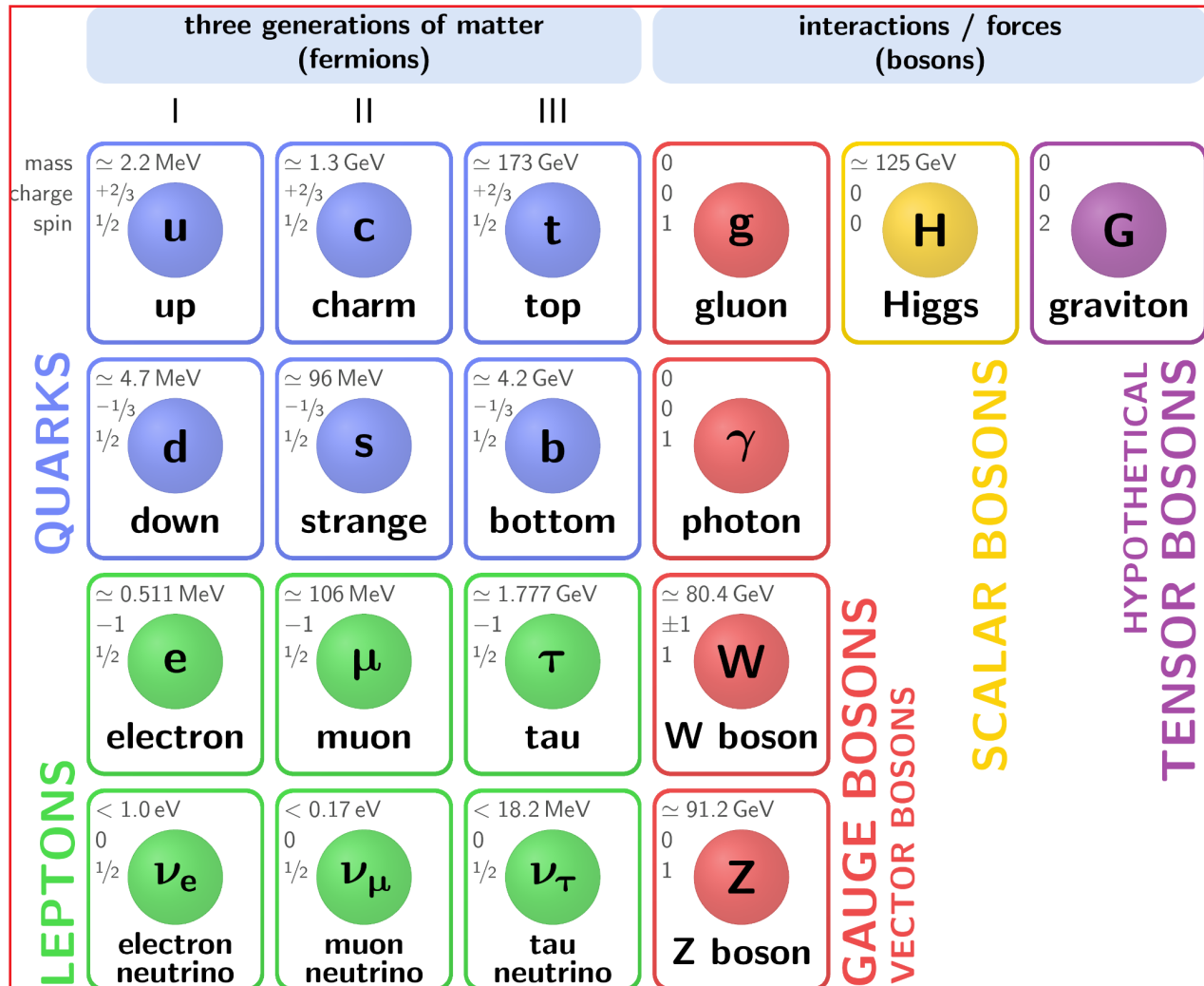
Note:

➤ **Dirac Fermions vs. Semi-Dirac Fermions:**

- **Dirac Fermions:** Have mass and are distinct from their anti-particles.
- **Semi-Dirac Fermions:** Have mass along certain directional axes and can behave differently under various conditions. This unique mass behavior is due to their **interaction with electric and magnetic forces in specific materials**.
- **Quasiparticles:** The semi-Dirac fermion is a **quasiparticle**, meaning it behaves like a single particle under specific conditions but is made up of multiple energy packets or particles (similar to protons).

What are Fundamental Particles?

- **About:** Fundamental particles, or elementary particles, make up atoms and lack internal structure.
 - The Standard Model of particle physics explains **17 fundamental particles**, divided into **fermions** and **bosons**, which are the building blocks of matter and energy, excluding gravity.



➤ **Fermions and Bosons:**

- **Fermions:** These particles make up matter and follow the **Pauli Exclusion Principle** (no two fermions can occupy the same quantum state), which helps them maintain their form and not collapse.
 - They have odd half-integer spins (angular momentum) ($1/2$, $3/2$, and $5/2$).

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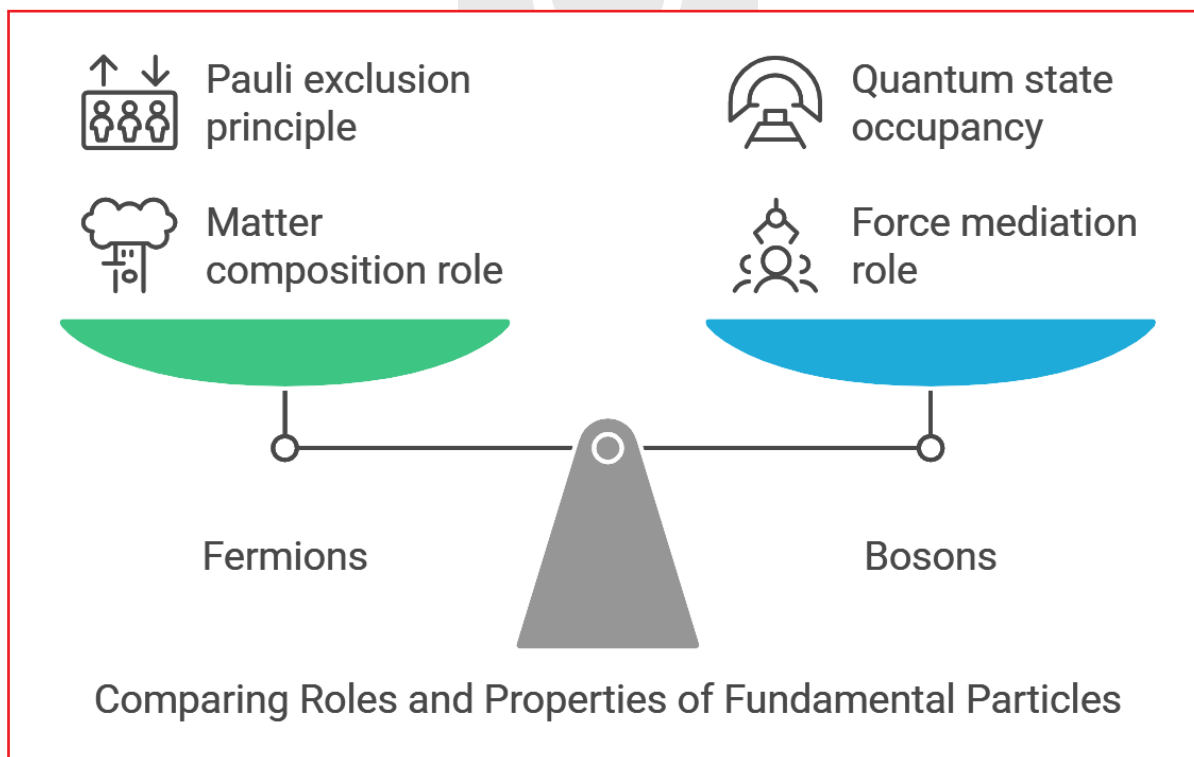


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Note:

- They include **protons, neutrons, electrons, neutrinos, and quarks**. These are the basic building blocks of everything around us.
- Fermions can be further classified as **Dirac or Majorana fermions**.
 - **Dirac fermions** are fermions that **may or may not have mass** but are always different from their **anti-particles (particles with opposite charge and properties)**.
 - **Majorana fermions** are fermions that are also their own antiparticles.
- **Bosons:** Bosons are responsible for **transmitting forces between particles**. Unlike fermions, bosons do not follow the **Pauli exclusion principle**, can exist in **large numbers in the same quantum state**, as observed in phenomena like **superfluidity** and leading to the formation of a **Bose-Einstein Condensate (bosonic atoms are cooled to near absolute zero)**.
 - Bosons include **photons, gluons, and Higgs boson**, all of which act as force carriers. They have whole number spins (0, 1, 2, etc.).
 - Bosons are divided into two categories as gauge bosons and scalar bosons.
 - **Gauge bosons (spin of 1)**, such as photons, gluons, carry fundamental forces like electromagnetic, strong, and weak nuclear forces.
 - **Scalar bosons**, with a spin of 0, include the **Higgs boson**, which is responsible for giving particles mass.
- **Applications:** Fundamental particles have various applications, including in **medical imaging, nuclear energy (neutrons in fission)**.
 - They also play a key role in **quantum computing**, particle therapy for **cancer treatment**, and electronics, where electrons power devices like **transistors and semiconductors**.
 - These particles are central to advancing both practical technologies and fundamental physics research.



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Note:

Environment and Ecology

Highlights

- Impact of Coal Dust on Plants
- OECMs for Achieving KMGBF 2022 Targets
- Mass Nesting of Olive Ridley Turtles
- Rat-Hole Mining
- Indore and Udaipur Joined Wetland Accredited Cities
- Reptile Census at Bhitarkanika National Park
- Sustainable Nitrogen Management: FAO
- Rare Melanistic Tiger and Lodha Tribe
- Oysters' Antimicrobial Properties

Impact of Coal Dust on Plants

Why in News?

A study by the University of Southampton and NIT Rourkela found that **dust from coal mining harms plants and vegetation** by clogging **plant stomata** and **reducing carbon absorption**, affecting ecosystem health.

- The dust affects vegetation up to **30 km from the mine**, with the highest concentrations found along transportation routes.

How does the Coal Mining Dust Impact the Plants?

- **Reduction in Carbon Uptake:** Plants with mining dust on their leaves absorb **2-3 grams less carbon per square meter** compared to dust-free plants, which could significantly contribute to **higher levels of carbon dioxide in the atmosphere**, exacerbating **global warming** over time.
- **Impact on Plant Health:** The accumulation of dust on leaves **obstructs the stomata**, which **affects photosynthesis and water vapor release**.
 - This **reduction in transpiration** can cause **plants to overheat**, leading to **stunted growth, plant death** and damage of local ecosystems.
- **Respiratory Risks:** Open-cast mining causes severe **air pollution** as dust from blasting, drilling, and transportation disperses, **posing serious respiratory risks**.

Impact of Coal Dust on Humans

- **Respiratory Disorders:** **Pneumoconiosis** (Black Lung Disease), leading to **lung scarring** and **breathing difficulties**.
 - It also increases the risk of **COPD (chronic bronchitis, emphysema)**, **lung cancer**.
- **Cardiovascular Diseases:** Coal dust increases the risk of **heart disease, strokes**, and **arterial blockages** by causing inflammation and high blood pressure.
- **Neurological & Health Effects:** Heavy metals in coal dust can cause **neurotoxicity, skin and eye irritation, and reproductive issues**, affecting cognitive function and overall health.

Coal

- **About:**
 - Coal is a **sedimentary rock** that is black or **brownish-black in color**.
 - It is a **fossil fuel** that is made from the **remains of plants that lived millions of years ago**.

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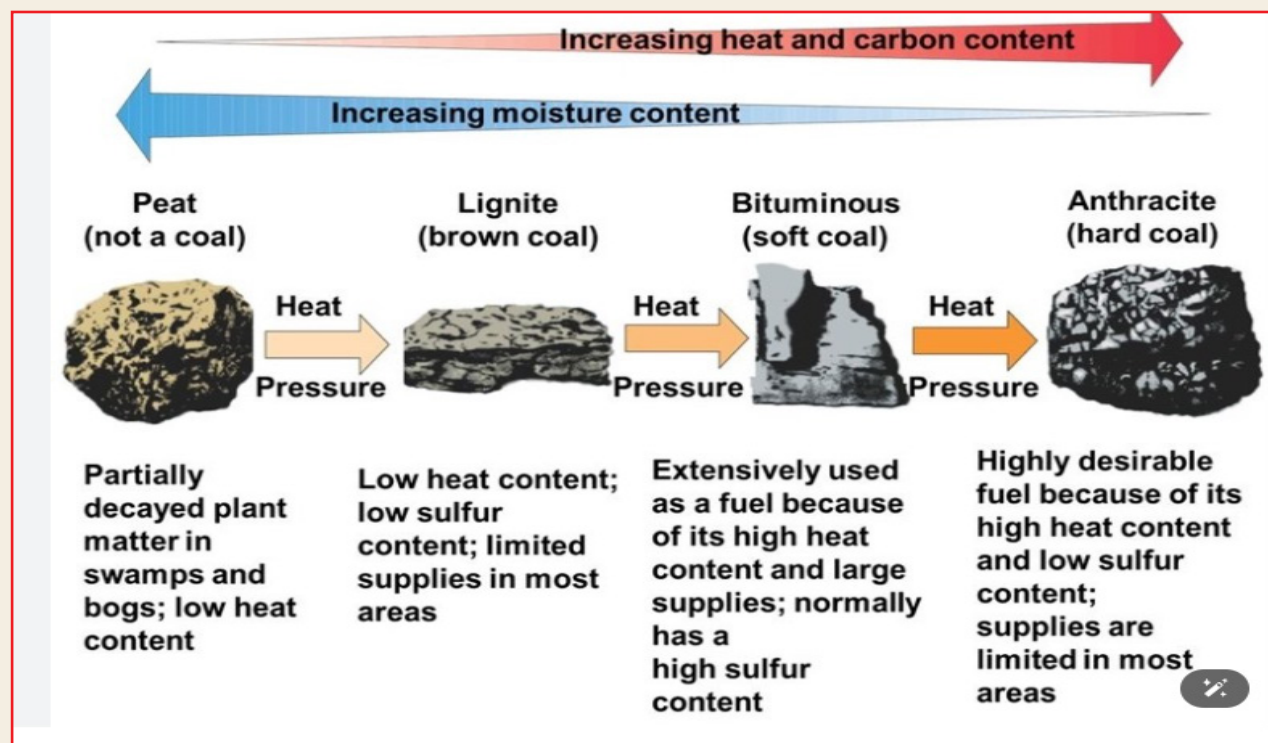


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Note:

➤ Types:



➤ Production:

- **Coal Producing Countries by Ranking (2022):** China, India, Indonesia, US and Russia.
 - The US has the world's largest proven coal reserves.
- **In India:** The major coal-producing states are **Odisha, Chhattisgarh and Jharkhand**, along with parts of Madhya Pradesh, and they account for **75%** of domestic raw coal dispatches in India.

OECMs for Achieving KMGBF 2022 Targets

Why in News?

A new report titled “Guidance on **other effective area-based conservation measures (OECMs)**” has been released by the **IUCN, World Commission on Protected Areas (WCPA)** and **WWF**.

- The **guidelines, with case studies**, focus on conserving land, water, and marine areas to achieve GBF Target 3 of the **Kunming-Montreal Global Biodiversity Framework (KMGBF) 2022** to conserve 30% of these areas by 2030.

What are OECMs?

- **About OECMs:** An **OECM** is defined as a **geographically defined area** that is not a protected area, but is governed and managed to achieve **positive, sustained, long-term outcomes** for the **in situ conservation of biodiversity**.
 - These areas conserve **ecosystem functions and services**, including cultural, spiritual, socio-economic, or other local values.
 - e.g., **Agricultural lands, forests for timber** etc.

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Note:

➤ Criteria for Identifying OECMs:



➤ Key Characteristics:

- **Not a Protected Area:** OECMs aren't formal **protected areas (PAs)** but contribute to biodiversity conservation.
- **Governance Flexibility:** OECMs can be managed by **governments, private groups, Indigenous peoples, or local communities**.
- **Multiple Objectives:** OECMs may focus on goals like **water management or agriculture, with biodiversity conservation** as a secondary benefit.
- **Sustained Conservation:** OECMs must ensure long-term **in-situ biodiversity conservation** through effective governance and management.
- **Voluntary Identification:** Identifying a site as an OECM is **voluntary** and **requires the governing authority's agreement**.

➤ **Significance:** OECMs recognize **vital sites for biodiversity** that aren't formally protected.

- OECMs **expand the global conserved areas network**, boosting biodiversity coverage without strict formalities.

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Note:

➤ **Case Studies:**

- **Los Amigos Conservation Area:** It is located in the **Los Amigos watershed, Peru** and supports **12 globally threatened species, 12 primate species, and over 550 bird species.**
- **Wits Rural Facility:** It is situated in **South Africa** and is mostly managed to maintain intact **savannah** and **river habitats.**
- **North Tyndal Protected Water Area:** It is located in **Nova Scotia, Canada** for biodiversity conservation by maintaining **native vegetation** and prohibiting **harmful land uses.**

➤ **OECMs in India:**

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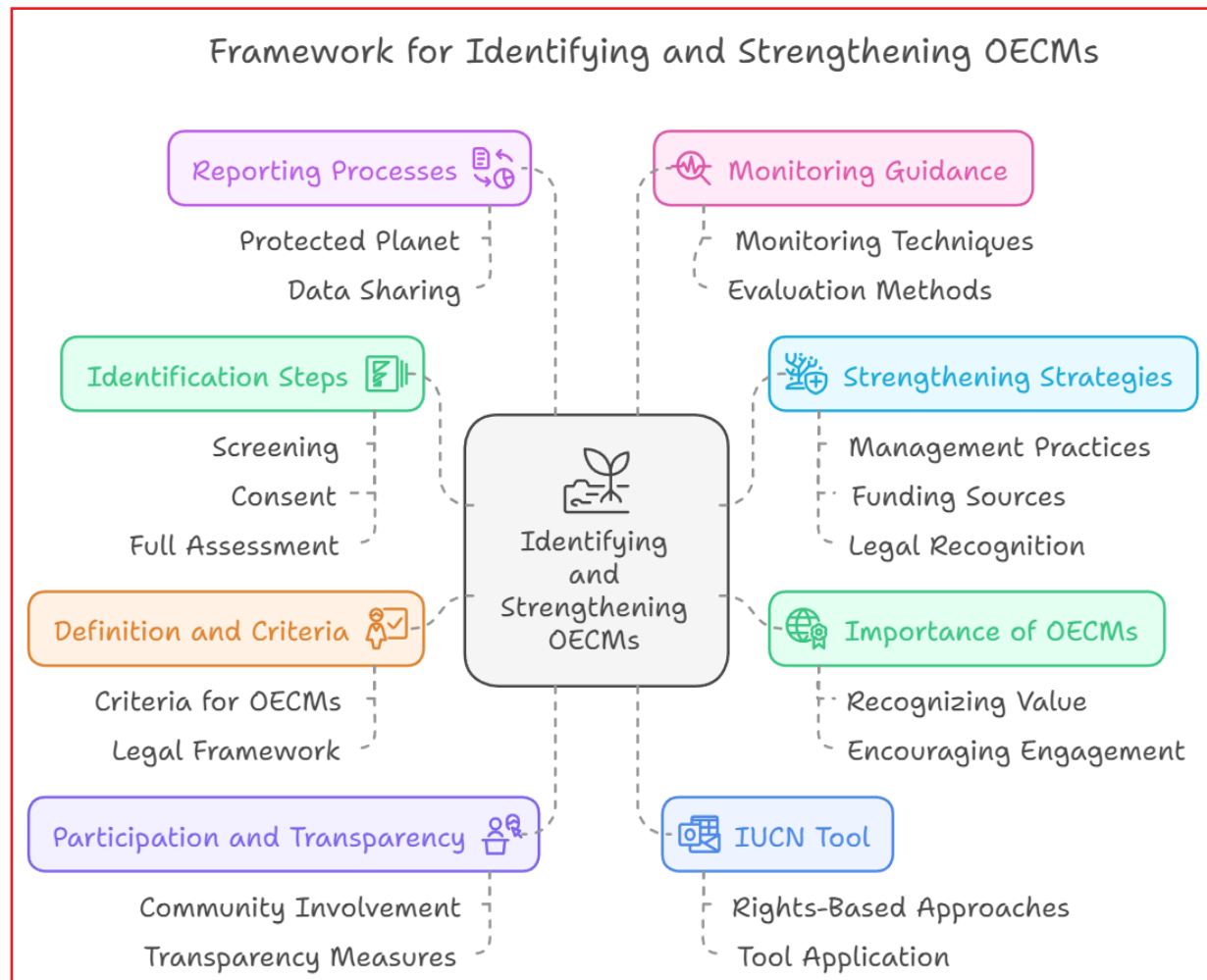


Note:

➤ Difference Between OECMs from PAs:

Aspect	Protected Areas (PAs)	Other Effective Area-based Conservation Measures (OECMs)
Definition	Area dedicated to long-term conservation of nature .	Site conserving biodiversity, but not necessarily as the primary goal .
Primary Objective	Focus on biodiversity , ecosystem services, and cultural values.	Biodiversity as a secondary or incidental outcome.
Legal Recognition	Formally recognized and legally protected.	Voluntary, may lack formal protection.
Role in Conservation Networks	Core of conservation networks , vital for long-term protection.	Complements PAs , enhancing ecological connectivity.
Conservation Outcome	Strict regulations for biodiversity protection.	May support biodiversity , but not focused on conservation.
Complementary Role	Central to achieving conservation targets (e.g., 30% by 2030).	Enhances ecological representation and connectivity.

What are Eight Sections Containing Guidelines for OECMs?



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Note:

What is KMGBF 2022?

- **About:** Adopted at CoP 15 (Montreal, Canada) in December 2022, it aims to **halt and reverse global biodiversity loss by 2030**.
 - It supports the **Sustainable Development Goals (SDGs)** and builds upon the **achievements and lessons** learned from the **Strategic Plan for Biodiversity 2011–2020**.
- **Objectives:** It includes **23 action-oriented global targets** for urgent action by 2030, aiming to **restore at least 30%** of degraded terrestrial, inland water, and marine **ecosystems**.
 - This target refers to **global efforts**, not a requirement for **each country to allocate 30% of its land and water**.
- **Future Outlook:** The framework envisions a **collective commitment to living in harmony with nature by 2050**, guiding current actions and policies on biodiversity conservation and sustainable use.

Note: CBD COP-16 took place in **Cali, Colombia** in 2024 with the theme **"Peace with Nature"**.

- India launched the **updated National Biodiversity Strategy and Action Plan (NBSAP)** at COP 16 to the CBD aligning with the KMGBF.
- **Cali Fund** was established to ensure **fair and equitable sharing of benefits** from the use of **digital sequence information (DSI)** on genetic resources.

What is India's Biodiversity Target Under KMGBF?

- **Conservation Areas:** Aim to **conserve 30%** of areas to enhance biodiversity.
- **Invasive Species:** Target a **50% reduction** in **invasive alien species**.
- **Rights and Participation:** Ensure the involvement of **indigenous peoples, local communities, women, and youth** in conservation.
- **Sustainable Consumption:** Promote sustainable consumption and **cut food waste by half**.
- **Benefit Sharing:** Encourage **fair sharing of benefits** from genetic resources and **traditional knowledge**.
- **Pollution Reduction:** Reduce pollution, **halving nutrient loss** and pesticide risk.
- **Biodiversity Planning:** Manage areas to **prevent loss** of high biodiversity regions.

IUCN

- Created in **1948**, IUCN is the **world's largest and most diverse environmental network**.
- IUCN is a membership union composed of over **1,400 organizations**, including both **government and civil society** groups.
- IUCN is a **leading provider of conservation data, assessments, and analysis**, offering tools and knowledge to support global environmental efforts.
- It prepares the **IUCN Red Data Book** (now known as the **IUCN Red List of Threatened Species**) in which species are classified into categories based on their risk of extinction e.g., Critically Endangered, Endangered etc.

IUCN World Commission on Protected Areas (WCPA)

- It is the world's leading network of expertise on protected and conserved areas, with over **2,500 members** across **140 countries**.
- It offers strategic advice to policymakers on **establishing, managing, and strengthening protected areas**.

WWF

- **WWF**, founded in **1961**, is an **international NGO** focused on environmental conservation and protecting **vulnerable species and ecosystems**.
- Its mission is to **halt environmental degradation** and create a future where humans live in harmony with nature.

Mass Nesting of Olive Ridley Turtles

Why in News?

The **Olive Ridley turtles** are expected to return in large numbers to the **Rushikulya River mouth in Odisha** for their **mass nesting**, a vital occurrence for the conservation of this species.

What are Key Facts About Olive Ridley Turtles?

- **Scientific Classification:**
 - **Scientific Name:** *Lepidochelys olivacea*
 - **Class:** *Reptilia*
 - **Family:** *Cheloniidae*

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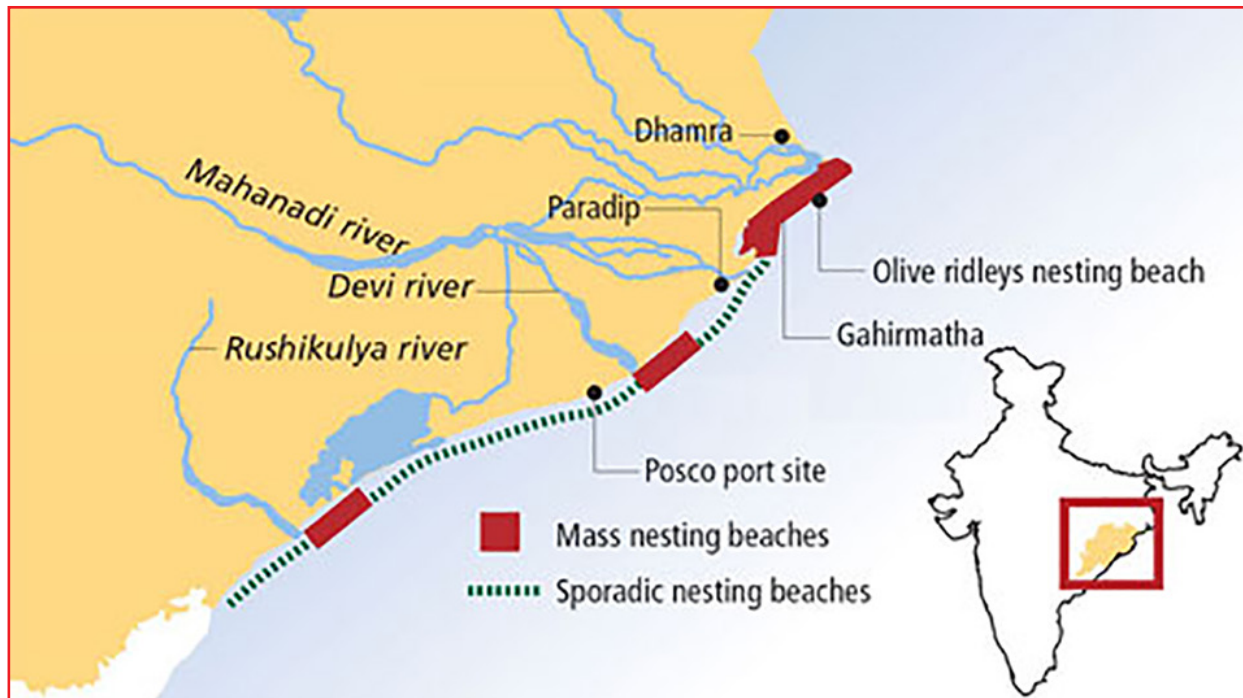


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Note:

- **Appearance:** Olive ridley turtles are an **olive or grayish-green** with a **heart-shaped carapace (top shell)**.
 - They closely resemble **Kemp's ridleys** (primarily found in the Gulf of Mexico) and are the **smallest sea turtles**. Their size and shape vary by region, with the largest found in West Africa.
- **Habitat and Distribution:** Found in the **tropical** regions of the **Pacific, Indian, and Atlantic Oceans**. Inhabits both **pelagic (open ocean) and coastal** waters.
 - **Major nesting sites in India:** Rushikulya, Gahirmatha, Devi River mouth in Odisha, and the **Andaman Islands**.
 - **Gahirmatha marine sanctuary** is recognised as the **largest known mass nesting rookery** for Olive Ridley sea turtles in the world.



- **Reproduction:** Olive ridley turtles are famous for **arribada** (Spanish for “arrival”), a unique **mass nesting behavior** where **thousands of females nest simultaneously**.
 - From September, they travel 9,000 km from the Pacific to the Indian seas. After mating, males retreat, and females nest from December to March.
 - Females nest 1-3 times per season, laying around 100 eggs per clutch.
 - The **sex of hatchlings is determined by nest temperature**.
- **Diet and Behavior:** Like **all sea turtle species**, except the **herbivorous Green Turtle**, the **Olive Ridley is an omnivore**, eating jellyfish, snails, crabs, prawns, algae, and small fish.
 - Migrate long distances between feeding and nesting sites.
- **Protection Status:**
 - **Wildlife Protection Act, 1972:** Schedule 1
 - **IUCN Red List:** Vulnerable
 - **CITES:** Appendix I
- **Threats:** Bycatch in fishing gear (trawls, gillnets, longlines).
 - Poaching and egg harvesting for human consumption.
 - Habitat loss from **coastal development, plastic ingestion, and marine pollution**, along with **rising temperatures and sea levels**, threaten olive ridley turtles by disrupting nesting sites and food sources.

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Note:

➤ **Conservation Initiatives:**

- **Operation Olivia:** Indian Coast Guard initiative (since the 1980s) to protect nesting turtles and prevent illegal trawling.
- **Turtle Excluder Devices (TEDs):** Odisha mandates TEDs in trawls (cone-shaped net) to prevent accidental deaths.
- **Tagging:** Olive Ridley turtles are tagged with non-corrosive metal tags to track their movements and safeguard their habitats.

Note: Indian biologist **Shailendra Singh** has been honored with the Behler Turtle Conservation Award (considered as the the "Nobel Prize" of turtle conservation) for saving **three critically endangered turtle species** (Northern River Terrapin, Red-crowned Roofed Turtle, Black Softshell Turtle) from extinction.

Few Turtle Species



Loggerhead Sea Turtle

- Species of oceanic turtle
- Spend most of their life in saltwater and estuarine habitat
- IUCN status: **Vulnerable**



Leatherback Turtle

- The largest of the seven species of sea turtles
- Able to maintain high body temperature using metabolically generated heat
- IUCN status: **Critically Endangered**



Green Turtle

- Named after the greenish colour of their cartilage
- Found in tropical and subtropical waters
- IUCN Status: **Endangered**



Olive Ridley Turtle

- Smallest and most abundant of all sea turtles
- Carnivores
- They practice Unique Mass Nesting called Arribada
- IUCN Status: **Vulnerable**





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#FewTurtleSpecies

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Note:

Rushikulya River

- The Rushikulya River originates from the Rushyamala hills in the Eastern Ghats, Kandhamal district, Odisha and flows southeast into the **Bay of Bengal**.
 - Its prominent tributaries include **Padma, Boringanalla, Joro, Badanadi, Baghua, Dhanei, and Ghodhado**. The river has **no delta at its mouth**.

Rat-Hole Mining

Why in News?

The **rat-hole mining** tragedy in Assam's Dima Hasao district, where nine miners were trapped after a flood in an illegal coal mine, highlights the persistent dangers of unregulated mining despite existing bans.

- Also, **biomining** is being conducted at the **Koottupatha trenching ground** in **Palakkad**, Kerala.

What is Rat-hole Mining?

- **About:**
 - **Rat-hole mining** is a **primitive, crude, labor-intensive and hazardous** method of **coal** mining.
 - It involves **digging of very small tunnels**, usually only **3-4 feet deep and 2 to 3 feet wide** into the ground, in which workers, more often children, enter and extract coal.
 - It is typically practiced in **northeastern India**, particularly in **Meghalaya and Assam**.
- **Methods of Extraction:**
 - **Side-Cutting Procedure:** This involves **digging narrow tunnels into hill slopes** to access thin coal seams, usually less than 2 meters in height, found in the region's hilly terrain.
 - **Box-Cutting:** In this method, a **rectangular opening is first created**, followed by **digging a vertical pit**.
 - Horizontal tunnels, resembling rat holes, are then dug for coal extraction.
- **Reasons for Rat-Hole Mining:**
 - **Poverty:** Due to **limited livelihood options**, local tribal communities often turn to rat-hole mining as a means of survival.
 - The **immediate financial gain from selling extracted coal**, despite the high risks, is a significant pull for those struggling economically.

- **Land Ownership Issues:** **Ambiguities in land titles and lack of proper regulation** create opportunities for illegal mining operations to **exploit gaps in governance** and persist without accountability.
- **Coal Demand:** **Continuous demand for coal**, both legal and illegal, sustains the practice.
 - **Middlemen and illegal traders** further perpetuate this cycle by creating a market for unlawfully mined coal.

What are the Challenges Associated with Rat-hole Mining?

- **Safety Hazards:** The narrow tunnels are **prone to collapses**, often trapping miners, while **poor ventilation leads to suffocation**. The **lack of safety measures** results in frequent **accidents, injuries, and life-threatening diseases**.
 - **Eg:** The 2024 Wokha mine explosion in **Nagaland** claimed **6 lives**, while the 2018 Ksan mine flooding in **Meghalaya** resulted in the deaths of 17 miners.
- **Environmental Impact:** Rat-hole mining contributes to **deforestation, soil erosion, and water contamination**.
 - **Improper waste disposal** from mining operations leads to **acidic runoff (Acid Mine Drainage, or AMD)**, which **degrades water quality** and **harms biodiversity** in surrounding ecosystems.
 - **Eg:** In Meghalaya, AMD turned rivers like **Lukha** acidic, while in Nagaland, mining degraded fertile lands and polluted water in **Wokha** and **Mon** districts.
- **Social Issues:** It causes **exploitation of child labor and poorly paid workers**. Also, leads to displacement of local communities.
 - Reports by **NGO Impulse** revealed that **70,000 child labor**, primarily from **Bangladesh and Nepal**, were employed in mines due to their **small size for navigating narrow tunnels**.

How is Rat Hole Mining Regulated?

- **Regulation in India:**
 - **Status in India:**
 - **Rat hole mining** is **illegal** and falls under the jurisdiction of the **State/District administration** to address as a **law and order issue**.
 - **Ban by the National Green Tribunal (NGT):**
 - In 2014, the **National Green Tribunal (NGT)** **banned rat-hole mining** due to numerous incidents of fatalities, particularly during the monsoon season.

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Note:

- The **Supreme Court of India**, in **July 2019**, upheld the ban on **rat hole mining** in **Meghalaya**, originally imposed by the **NGT** in 2014.
- SC ruled that such mining is **illegal** under the **Mines and Minerals (Development and Regulation) Act, 1957**.
- **Regulation of Rat-Hole Mining in Nagaland**: The **Nagaland Coal Policy, 2006** regulates rat-hole mining by granting **Small Pocket Deposit Licences (SPDLs)** to individual landowners under strict conditions.
- **Article 371A** also provides **Nagaland** with **autonomy to protect land, resources, and customary laws**, creating legal hurdles in regulating mining practices.
- **Sixth Schedule**: The Sixth Schedule grants **autonomy to tribal areas** in Meghalaya, Mizoram, Tripura, and Assam **through Autonomous District Councils (ADCs)**, complicating mining regulation.
- Local **tribal communities own both land and minerals**, limiting **central oversight** and enforcement of national mining and environmental laws.
- **ADCs' authority to legislate on land and resources** often **conflicts with** central regulations under the **MMDR Act, 1957**, creating regulatory ambiguities.
- **International Context**: There's **no specific international law** directly addressing rat-hole mining.
- However, international regulations promote **sustainable mining methods** and **prioritise worker safety**, indirectly influencing member states to adopt similar practices.

What is Biomining?

- **About**:
 - Biomining refers to the **extraction of metals** from ores and other solid materials using **microorganisms** such as **bacteria, archaea, fungi**, or plants.
 - It is an **eco-friendly technique** that can also be **applied to remediate sites** polluted by metal contaminants.
 - It **extracts metals by oxidising them**, making them **more soluble and easier to recover**. The two main processes are:
 - **Bioleaching**: Microorganisms **directly dissolve the target metal** from its ore for easier extraction.

- **Biooxidation**: Microbes **break down surrounding minerals**, enriching the target metal and facilitating its extraction.

➤ Metals Extracted via Biomining

- Biomining primarily extracts metals like **copper, uranium, nickel, and gold**, typically found in **sulfidic minerals**.

➤ Advantages of Biomining:

- **Environmental Sustainability**: Minimal hazardous waste and **reduced carbon footprint** compared to traditional mining.
- **Energy Efficiency**: Requires **less energy**, lowering **greenhouse gas emissions**.
- **Reduced Water Usage**: Uses water more efficiently, beneficial in water-scarce areas.

➤ Challenges of Biomining:

- **Slower Extraction Rates**: Biomining tends to be a **slower process** compared to conventional mining, making it **less suitable for large-scale operations**.
- **Limited Scope**: **Not all ores are suitable for biomining**, particularly those that do **not contain metals** that are easily oxidized by microorganisms.
- **Technical Challenges**: The process requires **specialized knowledge of microbiology** and may involve complex operational conditions, making it more **difficult to scale up**.

Electrokinetic Technology

➤ About:

- **Electrokinetic Mining (EKM)** is an **innovative, eco-friendly technique** for extracting **rare earth elements**.
- It uses an **electric field to mobilize ions** from in-adsorption rare earth deposits (IADs) and extract them efficiently.

➤ Significance:

- It **reduces leaching agent usage by 80%** and **energy consumption by 60%**, achieving a **recovery rate of over 95%**, marking a significant breakthrough in sustainable mining.
- This innovation simultaneously minimizes environmental impacts and **enhances the recovery of rare earth elements (REEs)**.

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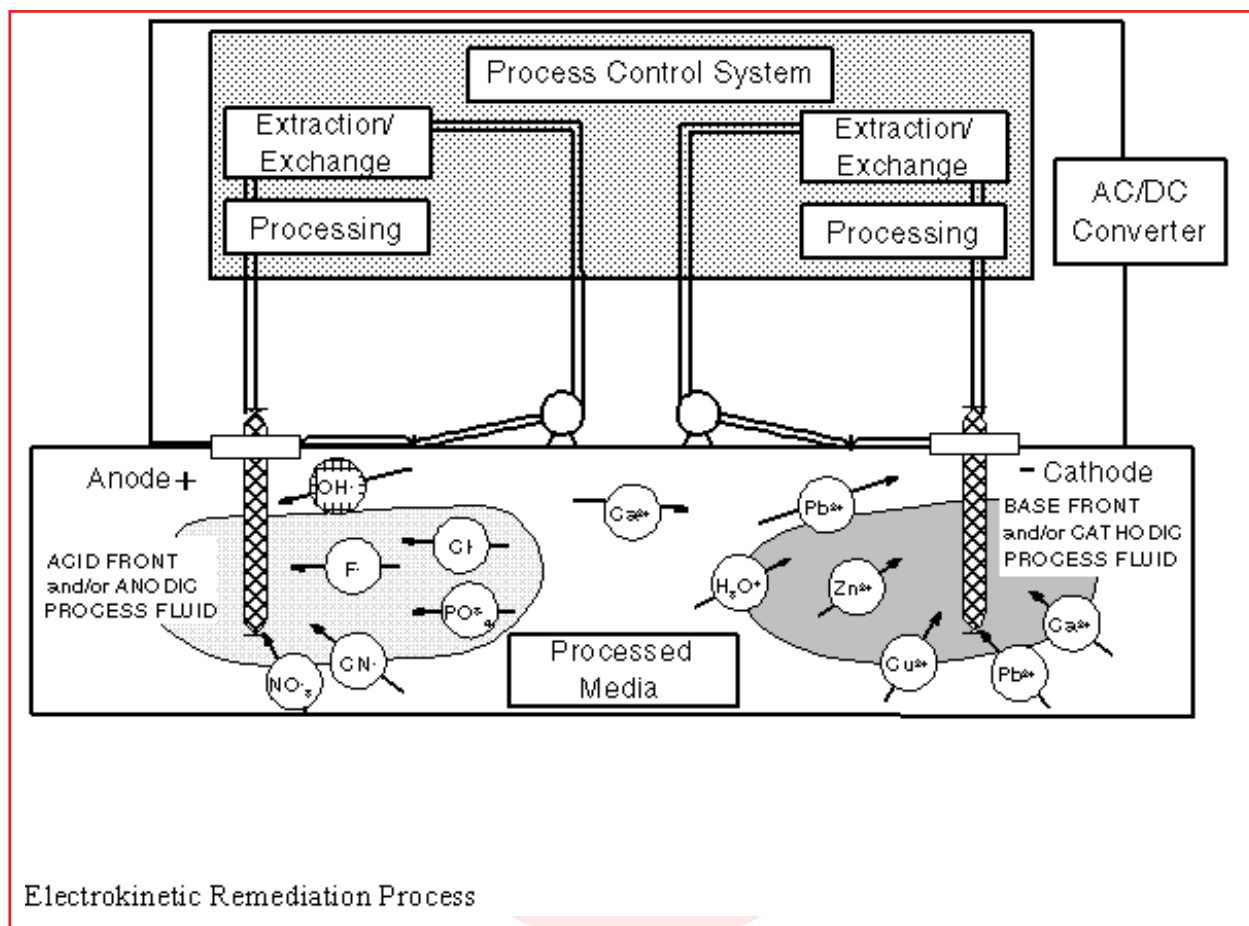
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Note:



Indore and Udaipur Joined Wetland Accredited Cities

Why in News?

Indore and Udaipur have become the **first Indian cities** to gain international recognition as **accredited wetland cities** under the **Ramsar Convention**.

- Currently, **85 Indian wetlands** are protected under the **Ramsar Convention**, which includes **172 member countries** globally.

What are Wetland Accredited Cities?

- **About:** It is an **international recognition** for cities committed to **conserving and sustainably** managing their wetlands.
 - It recognises **urban areas** that protect wetlands, ensuring they provide **essential services** to the environment and communities.
- **Accreditation Criteria:** It is granted to cities that meet **six international criteria**, primarily focusing on the **conservation of wetland** ecosystems and their services.
 - Accredited cities are recognised for their efforts to **balance urban development** with ecological preservation.
 - **6 International Criteria** are:

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Note:



- **Global Recognition:** The highest number of accredited cities come from **China** (22 cities), followed by **France** (9 cities) reflecting the city's effort to integrate **wetland conservation** into urban planning.
- **Global Ramsar Sites:** There are currently over **2,400 Ramsar Sites** around the world covering over **2.5 million square kilometres**.

Note: **Bhopal**, another city nominated from India, did **not receive accreditation** due to concerns raised about potential ecological damage from a proposed road project affecting the **Bhoj Wetland**.

- **Udaipur, Rajasthan** is known as the **City of Lakes** because of its **scenic lakes** that are spread throughout the city. Key lakes in Udaipur include Lake Pichola, Fatehsagar Lake, Swaroop Sagar Lake etc.
- Famous lakes in **Indore** include **Lotus lake, Choral dam, Pipliyapala lake, Sirpur lake** etc.

What are Key Facts About Bhoj Wetland?

- **About:** It is a **Ramsar site** designated in **2002** that comprises two interconnected man-made reservoirs i.e., the **Upper Lake** (created by **Raja Bhoj** in the 11th century on **Kolans River**) and the **Lower Lake**.
 - Upper Lake borders **Van Vihar National Park**.
- **Biodiversity:**
 - **Avifauna (Birdlife):** Notable species include Coot (*Fulica atra*), **Red-Crested Pochard**, **Sarus Crane**, **Black-necked Stork** and **Pallas's Fish Eagle**.
 - **Other Fauna:** **Van Vihar National Park** provides a sanctuary for large mammals like **Chital**, **Wild Boar**, **Nilgai**, and **Sambar**.

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Note:

RAMSAR CONVENTION

About

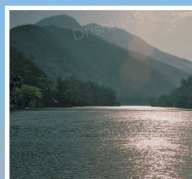
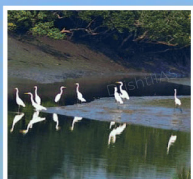
- Also known as the Convention on Wetlands.
- An intergovernmental treaty, adopted in 1971, in Ramsar, Iran.
- Entered into force in 1975.
- Wetlands that are of international importance are declared as Ramsar sites.
- Largest Ramsar Site in World: Pantanal: South America

Montreux Record

- Adopted in Montreux (Switzerland) in 1990.
- Identifies Ramsar sites that need priority conservation attention at national or international level.

Wetlands

- A place in which the land is covered by water – salt, fresh, or somewhere in between – either seasonally or permanently.
- Take many forms including rivers, marshes, bogs, mangroves, mudflats, ponds, swamps, billabongs, lagoons, lakes, and floodplains.
- World Wetlands Day: **2nd February**



India & Ramsar Convention

- Came into force in India: **1982**
- Total Number of Ramsar Sites: **85**
- Chilika Lake (Odisha), Keoladeo National Park (Rajasthan), Harike Lake (Punjab), Loktak Lake (Manipur), Wular Lake (Jammu and Kashmir), etc.
- Related Framework in India
- The Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified Wetlands (Conservation and Management) Rules, 2017 under the provisions of the Environment (Protection) Act, 1986 as regulatory framework for conservation and management of wetlands.
- The 2017 Rules decentralise wetlands management and provide for the constitution of the State Wetlands Authority or Union Territory Wetlands Authority.

Key Facts

- Largest Ramsar Site: Sunderbans, West Bengal
- Smallest Ramsar Site: Vembannur Wetland Complex, Tamil Nadu
- State with the maximum number of Ramsar Sites: Tamil Nadu (14)
- Wetlands in Montreux Record:
 - Keoladeo National Park: Rajasthan
 - Loktak Lake: Manipur



Reptile Census at Bhitarkanika National Park

Why in News?

The annual **reptile census** at **Bhitarkanika National Park (BNP)** has revealed that **saltwater crocodiles** in BNP stands at **1,826** in 2025, including **18 albino crocodiles** (rare white crocodiles).

Note: The census was conducted using the **Timestamp Camera App** to record **video with time watermarks** and **GPS**, improving accuracy and minimizing human error.

What is the Crocodile Conservation Project?

- **About:** It was started in **1975** at **Bhitarkanika National Park, Odisha**, to protect and conserve the population of three endangered species of crocodiles i.e., **Mugger**, **Gharial**, and **Saltwater Crocodile**.
- **Goals:** It was started to increase the population so that **5 to 6 crocodiles** could be sighted **per kilometer of water**.
- **Objectives:**
 - **Protection:** To protect the remaining populations of crocodiles in their **natural habitats** by creating **sanctuaries**.
 - **Rebuilding Populations:** Using a 'grow and release' or 'rear and release' approach through **egg collection**, **incubation**, **rearing**, **release** and **monitoring**.
 - **Personnel Training:** Training personnel at project sites and the **Central Crocodile Breeding and Management Institute, Hyderabad**.

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Note:

- **Implementation:** The project was initiated with assistance from the United Nations Development Programme (UNDP) and Food and Agriculture Organization (FAO).
 - Important crocodile conservation sanctuaries include:
 - **Bhitarkanika National Park** (Odisha) for saltwater crocodiles.
 - **National Chambal Sanctuary** (spanning Madhya Pradesh, Rajasthan, and Uttar Pradesh) for gharials.
- **Achievement:** Since the **1975** launch of the Crocodile Conservation Project, the saltwater crocodile population has steadily risen.
 - The crocodile breeding program in the park was **stopped in 2024** due to **population saturation**, but eggs are still collected annually and **bred for tourists**.

CROCODILE SPECIES IN INDIA

India harbours three diverse crocodile species—Mugger, Saltwater, and Gharial—found in distinct habitats nationwide.

Aspects	Gharial	Mugger/Indian Crocodile	Saltwater Crocodile
Scientific Name	<i>Gavialis Gangeticus</i> 	<i>Crocodylus Palustris</i> 	<i>Crocodylus Porosus</i> 
Distribution: India	Viable Population: National Chambal Sanctuary (U.P, Raj, M.P) Small Non-Breeding Population: Son, Gandak, Hooghly, Ghagra & Satkosia WLS (Odisha)	Throughout India	East Coast (Odisha's Bhitarkanika WLS, Andaman & Nicobar Islands coast & Sundarbans)
Distribution: Neighbourhood	Brahmaputra of Bhutan & Bangladesh & Irrawaddy River	Extinct in Bhutan and Myanmar	Across Southeast Asia
Special Feature	Longest of all Crocodile, Long and thin Snout	Egg-laying, Hole-nesting, Wide & U-shaped Snout	Largest living reptile, Pointed & V-shaped Snout
Habitat	Freshwater	Freshwater	Saltwater, Brackish & Wetlands
IUCN Status	CR	VU	LC
CITES Status	Appendix I	Appendix I	Appendix I
CMS Status	Appendix I	-	Appendix II
WPA,1972 Status	Schedule I	Schedule I	Schedule I
Threats	Dams, Pollution, Sand mining	Habitat Destruction	Hunted for its skin and Habitat loss
Government Initiatives	■ Odisha: Rs. 1000 award to conserve Gharial in Mahanadi River Basin ■ Indian Crocodile Conservation Project,1975	■ Indian Crocodile Conservation Project,1975 ■ Mugger Conservation Programme ■ Madras Crocodile Bank Trust	Indian Crocodile Conservation Project,1975

MISCELLANEOUS FACTS

- 📅 **17th June:** World Crocodile Day
- 📊 **Annual Reptile Census, 2023:** Marginal Increases in number of saltwater crocodiles (Bhitarkanika National Park and its nearby areas)
- 📍 **Odisha's Kendrapara District:** Only district in India where all three species of crocodiles found



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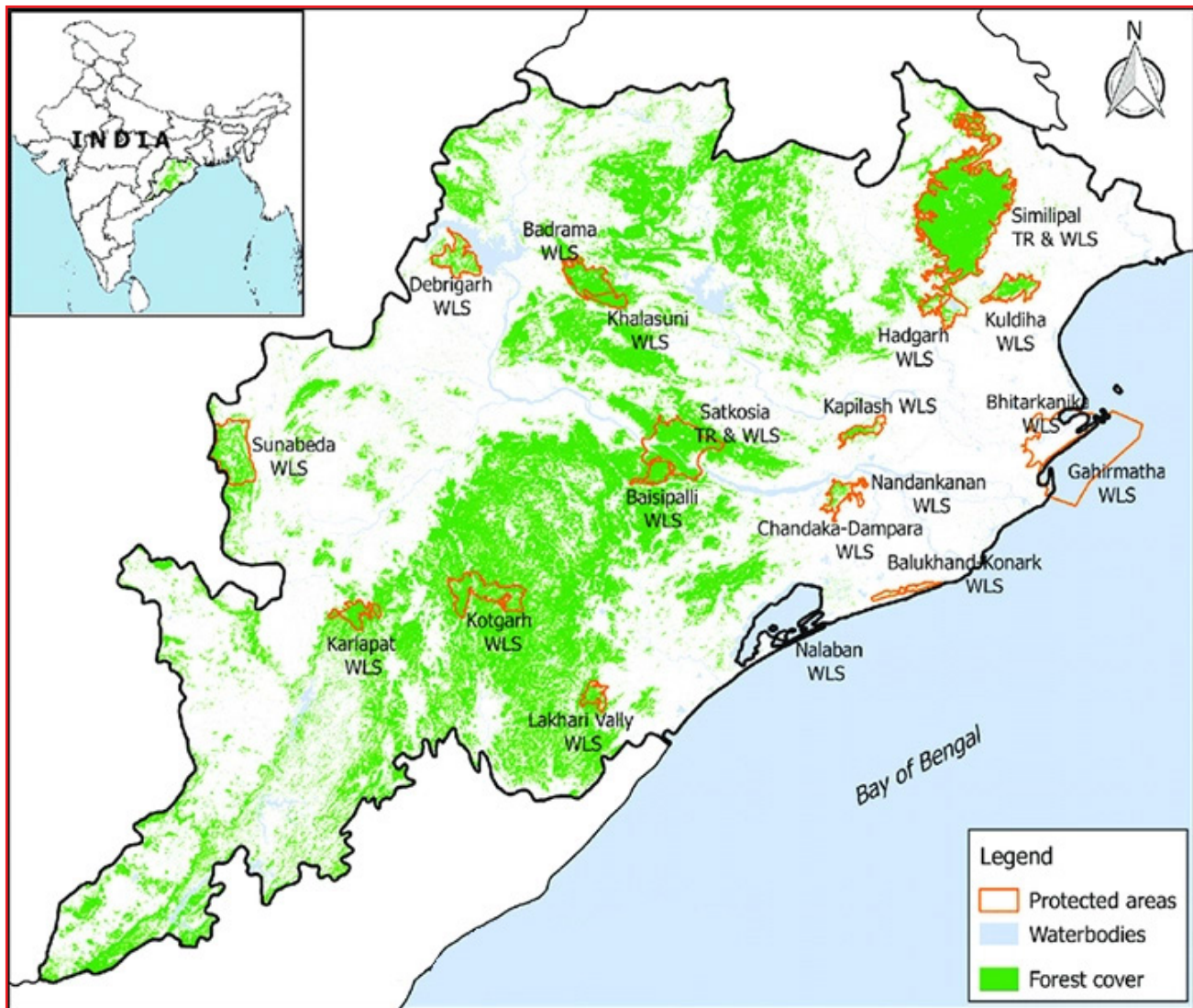
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Note:

What are Key Facts About BNP?

- **About:** Located in Odisha, BNP is India's 2nd largest mangrove ecosystem, after the Sunderbans.
 - Recognized as a Ramsar Site, it is a significant wetland of international importance.
- **Ecosystem:** BNP comprises a **network of creeks and canals**, fed by waters from the Brahmani, Baitarani, Dhamra, and Patasala rivers, creating a unique ecosystem.
 - **Proximity to the Bay of Bengal** enriches the soil with salts, supporting **tropical and subtropical intertidal vegetation**.
- **Fauna:** It is home to the **largest congregation of saltwater crocodiles** in India. Other notable species include **water monitor lizards, pythons, and hyenas**.
- **Key Features:**
 - **Gahirmatha Beach:** Located in BNP, it is the **largest nesting site for Olive Ridley Sea Turtles**.
 - **Bagagahana (Heronry):** Near the **Surajpore creek**, thousands of **birds nest and perform aerial acrobatics** before mating, creating an impressive spectacle.



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Note:

Sustainable Nitrogen Management: FAO

Why in News?

The [Food and Agriculture Organization](#) released a report titled **Sustainable nitrogen management in agrifood systems** highlighting the state of **nitrogen pollution**.

- This report gives a comprehensive overview of the role of **nitrogen use** and consequent challenges in agrifood systems.

What are the Key Highlights of the Report?

- **Current Nitrogen Emissions:** Humans add around **150 teragrams (Tg) (1 Tg = 1 million tonnes)** of reactive nitrogen to Earth's land surface annually through **agriculture and industry**, with climate change potentially increasing this to **600 Tg per year by 2100**.
 - This is **more than double the pre-industrial nitrogen rate**, contributing to environmental nitrogen pollution.
- **Major Sources of Nitrogen Loss:** **Livestock** is the **largest contributor** to nitrogen emissions, responsible for **about one-third** of total nitrogen emissions from human activities.
 - Other major contributors include **synthetic fertilizers, land-use change, and manure emissions**.
- **Exceedance Nitrogen Boundaries:** **Global nitrogen flows** have surpassed the **planetary boundaries** (nitrogen use has **exceeded the environmental limits** within which humanity can safely operate).
 - The degree of nitrogen exceedance has **dramatically increased** since **2015**.
- **Global Crop Yield Trends:** **Global crop yield** has risen steadily, from **19 kg of nitrogen per hectare per year** in 1961 to **65 kg N/ha/year** in 2022.
 - Despite the rise in crop yield, **NUE fluctuated**, dropping from **56% in 1961 to 40% in the 1980s** before improving back to **56% in 2022**.

Regional Differences:

- **Asia:** Fertilizer subsidies during the **Green Revolution** increased yields but caused significant nitrogen pollution.
 - **Southeast Asia** saw a significant drop in **NUE**, from **65% in 1961 to 45% in the 1990s**, before increasing again to **54% in 2022**.
- **Africa:** Struggles with **low crop yields** and **nutrient depletion** due to inadequate policies and limited access to fertilizers.
- **Europe & North America:** Higher **NUE** achieved through **nutrient management** guidelines and regulations.
 - **North America** experienced a drop in **NUE** from **65% in 1961 to below 50% in the 1980s**, then saw an increase to **69% in 2022**.
- **Latin America:** Faces challenges with reliance on **imported fertilizers** and disruptions in supply chains, affecting **nitrogen management**.
- **Variation in NUE at the Crop Level:** **NUE** varies significantly by crop type:
 - **Soybeans** had an **NUE of 80% in 2010**, reflecting high nitrogen use efficiency.
 - **Fruits and vegetables** had **much lower NUE**, around **14% in 2010**, indicating substantial **nitrogen losses** during production.
- **Challenges in Developing Countries:** **Low- and Middle-Income countries** face challenges such as **limited access** to nitrogen fertilizers and soil health degradation.
 - Without addressing nitrogen losses, crop yields are low, and poor **manure management** increases nitrogen emissions.

Note:

- **Planetary Boundaries:** The **planetary boundaries** framework, introduced in **2009** by **Johan Rockstrom** and 28 scientists, defines **Earth's environmental limits** to maintain **stability and biodiversity** for humanity's safe existence.
 - Breaching planetary boundaries raises the risk of **irreversible environmental changes**, threatening Earth's habitability.

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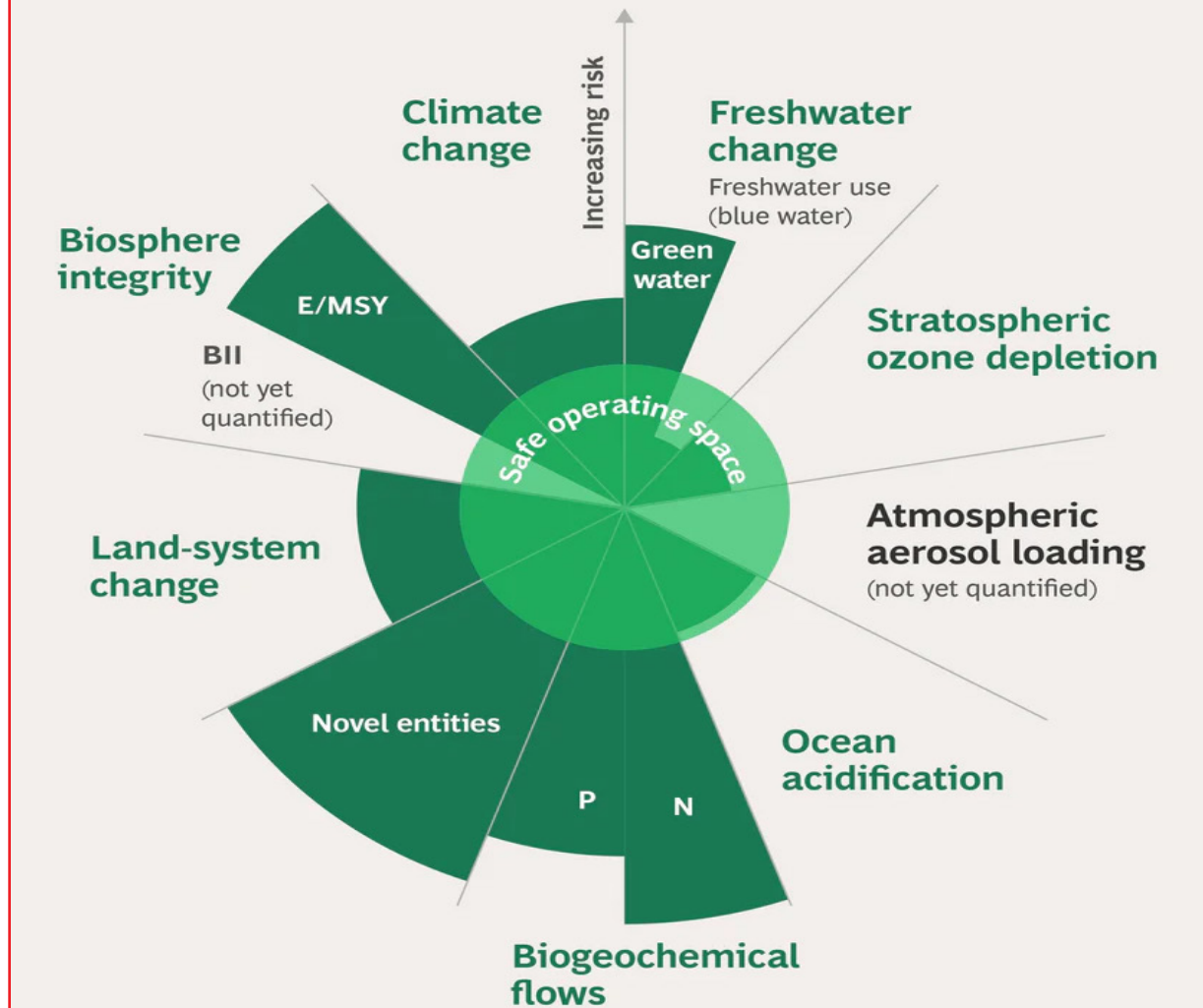


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Note:

The Nine Planetary Boundaries



What is Nitrogen Use Efficiency (NUE)?

- **About:** It is used to describe the **efficiency** of a plant in **using applied or fixed nitrogen** for **biomass production**.
 - It is the **ratio** of **crop yield** to the **nitrogen absorbed** from the soil or fixed by bacteria.
- **Poor NUE:** Poor NUE refers to the **inefficient use of nitrogen** in agriculture, where much of it is **lost to the environment**, causing **pollution and reducing productivity**.
- **Concerns with Poor NUE:** Poor NUE wastes nitrogen fertilizers worth **Rs 1 trillion a year in India** and over **USD 170 billion per year globally**.
 - India is the **2nd largest source of nitrous oxide (N₂O)**, a potent greenhouse gas that warms the atmosphere more than carbon dioxide.

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Note:

- In 2020, India accounted for nearly **11% of global anthropogenic N₂O emissions**, second only to China at 16%.

What is Nitrogen Pollution?

- **About Nitrogen:** Nitrogen (N) is a core **building block in amino acids and proteins**, essential for **plant growth and agrifood systems**.
 - Nitrogen is essential for **crop and livestock production**. While **legumes fix atmospheric nitrogen**, most **plants depend on soil nitrogen**.
 - The **Haber-Bosch process** converts **inert nitrogen into reactive nitrogen** (such as **ammonium**), enabling the use of **synthetic fertilizers** that boost crop production.
- **About Nitrogen Pollution:** Nitrogen pollution refers to the excessive presence of nitrogen compounds, particularly in the form of **nitrogen oxides (NO_x)** and **nitrates (NO₃)**, in the environment.
 - **Nitrogen loss (emission) in the environment** harms **air and water quality**, human health, and biodiversity, impacting both **terrestrial and aquatic ecosystems**.
- **Forms of Nitrogen Loss:**
 - **Air Pollution:** Emissions of **ammonia (NH₃)** and **nitrogen oxides (NO_x)** contribute to **air pollution**.
 - **Greenhouse Gas Emissions:** Nitrous oxide (N₂O) is a potent **greenhouse gas (GHGs)** that contributes to climate change.
 - **Water Pollution:** **Nitrate leaching** causes **eutrophication** and **acidification** of water bodies, harming aquatic ecosystems and water quality.
- **Concerns with Nitrogen Pollution:** In the **past 150 years**, human-driven reactive nitrogen flows have **increased tenfold**.
 - Each year, **200 million tonnes of reactive nitrogen (80%)** are lost to the environment, contaminating **soil, rivers, lakes, and the air**.
- **Effects:**
 - **Global Warming and Ozone Layer:** Nitrous oxide is **300 times** more powerful than **methane and carbon dioxide** as a greenhouse gas and is the **largest human-made threat** to the **ozone layer**.
 - **Biodiversity:** Nitrogen pollution can **degrade soils** by making them **acidic** through excessive use of synthetic fertilizers, **harming soil health** and reducing productivity.

- Nitrogen pollution can create **dead zones** in the ocean and cause **toxic algal blooms** to spread in **marine ecosystems**.
- **Air:** Nitrogen oxides from coal plants, factories, and vehicle exhausts can cause **smog** and **ground-level ozone**.
- **Agricultural ammonia** and vehicle **exhaust emissions** create harmful particulates that worsen respiratory diseases.

What are Key Proposals to Tackle Nitrogen Pollution as per the Report?

- **Fertilizer Industry Interventions:** Reduce **GHGs emissions** in nitrogen fertilizer **production** and **minimize losses during storage, transport, and application**.
 - Support the cultivation of **leguminous crops** such as **soybeans and alfalfa** to naturally fix atmospheric nitrogen.
 - Implement spatial planning to **redistribute livestock** and reduce the concentration of livestock in specific regions to **avoid nitrogen hotspots**.
- **Integration with Climate Goals:** Integrate **sustainable nitrogen management** into **nationally determined contributions (NDCs)**, setting targets to reduce nitrous oxide emissions from agrifood systems in line with the **Paris Agreement's 1.5°C goal**.
 - Establish **national commitments** to reduce nitrogen pollution, particularly **ammonia and nitrates**, to meet global biodiversity goals.
- **Circular Bioeconomy Principles:** Circular **bioeconomy** can improve resource use efficiency and **NUE** by **reducing food losses, recycling waste**, and using livestock to convert biomass and waste streams into **usable resources**.
 - Promote the recycling and treatment of food waste unsuitable for human consumption as livestock feed.
- **Sustainable Nitrogen Management:** Encourage **public and private sector** investment in **high-efficiency, low-emission mineral fertilizers**.
 - Promote the **recycling of organic residues** to enhance system efficiency and reduce resource waste.
 - Techniques to improve **NUE** include **better fertilization strategies, manure management**, and integrating livestock into cropping systems.
- **Balancing Nitrogen's Dual Role:** Effective policies must reconcile **nitrogen's role as a nutrient and a pollutant** to mitigate its environmental impact while ensuring **food security**.

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Note:

UN SPECIALISED AGENCIES

UNSA's are 15 autonomous international organizations working with the UN

Part I
FAO, UNIDO
and ICAO

FAO

- Estd. - 16th October 1945 (World Food Day)
- Headquarters - Rome, Italy
- Members - 194 countries (incl. India) + EU
- Sister Bodies - World Food Programme (WFP), IFAD
- FAO v/s WFP v/s IFAD:
 - » FAO is a knowledge org.; lead UN agency for technical expertise in food security, agriculture, forestry, fisheries etc.
 - » WFP is a humanitarian org.; provides food aid and logistical operations to save lives in crisis situations
 - » IFAD is a financial institution; funds rural development projects to improve nutritional level
- Flagship Publications:
 - » The State of World Fisheries and Aquaculture (SOFIA)
 - » The State of the World's Forests (SOFO)
 - » The State of Food Security and Nutrition in the World (SOFI)
 - » The State of Food and Agriculture (SOFA)
 - » The State of Agricultural Commodity Markets (SOCO)
- FAO's Globally Important Agricultural Heritage Systems (GIAHS) in India:
 - » Kuttanad Below Sea Level Farming System, Kerala
 - » Koraput Traditional Agriculture, Odisha
 - » Pampore Saffron Heritage, Kashmir

UN Industrial Development Organisation

- Estd. - 1966 (transformed into UNSA in 1985)
- Headquarters - Vienna, Austria
- Member States - 171 (India one of the founders)
- Functions - Tech-cooperation, advisory services and fostering partnerships
- Imp. Declarations - Lima Declaration (2013), Abu Dhabi Declaration (2019)

UNIDO is a custodian agency for 6 industry-related indicators under SDG 9

ICAO

- Estd. - 1944 (by Chicago Convention)
- Function - Set standards/procedures for peaceful global air navigation
- Headquarters - Montreal, Canada
- Members - 193 (incl. India)

ICAO is not an international aviation regulator; it can't arbitrarily close/restrict a country's airspace, shut down routes or condemn airports/airlines



Rare Melanistic Tiger and Lodha Tribe

Why in News?

The Odisha Forest Department has arrested 4 poachers belonging to the Lodha tribe for the illegal hunting of a rare melanistic tiger in **Similipal Tiger Reserve (STR)**, Odisha.

- The sub-adult melanistic tiger was part of a **rare group**, with only an estimated 20 such tigers remaining in the world.

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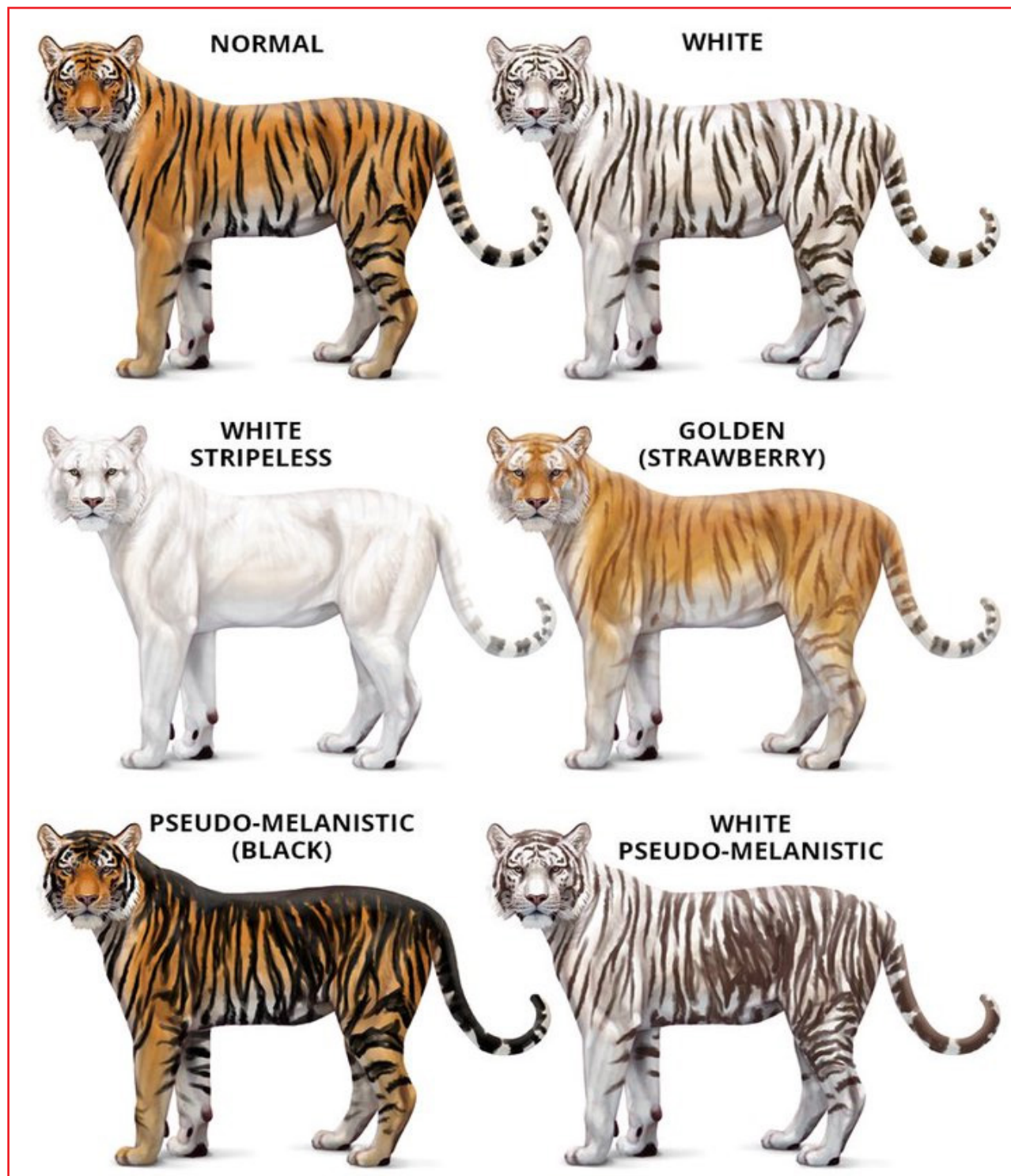
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Note:

What are the Key Facts Regarding Melanistic Tiger?

- **Melanism and Melanistic Tiger:** Melanism is a genetic condition where animals produce more melanin, leading to darker or black skin, fur, or feathers.



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Note:

- **Melanin** is a natural substance that gives color to the skin, hair, and eyes.
- The **Royal Bengal Tigers** of **STR** have a unique genetic trait with **higher melanin levels**, resulting in a **pattern of black and yellow stripes**, making them **pseudo-melanistic**.
 - The **All Odisha Tiger Estimation (AOTE) 2023-24** report estimates that **STR hosts 27 tigers**, including **13 adult pseudo-melanistic tigers**, a unique trait **not found in any other wild habitat**.
- Other Color Variations in Tigers:
 - **Orange with Black or Brown Stripes**: This is the **most common and well-known coloration**, seen in tigers like the **Royal Bengal Tiger**.
 - Each tiger has a **unique stripe pattern** that helps with camouflage in their natural habitat.
 - **White Tigers**: White tigers are **not a separate subspecies**. Their **white fur is due to a genetic mutation** called **leucism**, which **reduces pigmentation**, resulting in pale-colored skin, fur, or scales.
 - **Golden Tigers**: They are also **not considered a distinct subspecies**. Their golden coloration is caused by a **recessive gene** called **"wideband,"** which **reduces melanin production** during hair growth.
 - This variation has been observed in **Kaziranga National Park**.

Similipal Tiger Reserve

- **Location**: Similipal is situated in the **Deccan Peninsula Biogeographic Zone**.
- **Vegetation**: Predominantly **moist mixed deciduous forest with tropical semi-evergreen patches** and sporadic dry deciduous forests and grasslands.
- **Floral Richness**: Holds 7% of India's flowering plants and 8% of its orchid species.
- **Faunal Diversity**: Major species other than tigers include **sambar, chital, barking deer, gaur, and mouse deer, leopards, fishing cat** etc.
 - Management efforts have revived **mugger crocodile** populations along rivers **Khairi** and **Deo**.
- It has also been designated as a **Global Network of Biospheres** site since 2009.

Lodha Tribe

- It is a **Particularly Vulnerable Tribal Group (PVTG)** living in **Mayurbhanj and Cuttack, Odisha** with a population of **around 3000**.
 - A PVTG is a sub-category within **Scheduled Tribes (ST)** identified as being **more vulnerable than the general ST population**.
 - Classifying a ST group into PVTG list helps in **focus on improving their living conditions and providing targeted support**.
 - There are **75 PVTGs in India**, the **maximum 13 are in Odisha**, followed by 12 in Andhra Pradesh.
- **Language**: Kudumali, Odia.
- **Origin**: Classified under the **Criminal Tribes Act** by the British, derived their name from **Lubdhaka (trapper)**.
- **Occupation**: Traditionally **hunter-gatherers and tussar cocoon collectors**; now engaged in **agriculture, labor, rope making, and small businesses**.
- **Diet**: Fish and tortoise.

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Note:

TIGER

Royal Bengal Tiger (*Panthera Tigris*) is the National animal of India.

Subspecies of Tiger

- * The continental (*Panthera tigris tigris*)
- * The Sunda (*Panthera tigris sondaica*)

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas

Countries Where Tiger Population Is Found

- Found only in 13 Tiger Range countries- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- WPA 1972: Schedule I

Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

Conservation Efforts

- International Big Cats Alliance (IBCA):** For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- Tx2 campaign:** Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- National Tiger Conservation authority (NTCA):** Constituted under the WPA, 1972
- Project Tiger:** Launched in 1973
- Tiger Census:** Every 4 years

Tigers In India

- India has the **largest** population
 - As of 2022, India has 3167 tigers
 - Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- Tiger Reserves:** India now has 53 tiger reserves
 - Ranipur in UP is the latest
 - Nagarjun Sagar (Andhra Pradesh) is the **largest** while Orang (Assam) is the **smallest** (Core area)



Oysters' Antimicrobial Properties

Why in News?

According to new research, antimicrobial proteins isolated from **oyster** hemolymph (the equivalent of blood) can kill certain **drug resistant-bacteria**.

- The proteins can also **improve** the efficacy of **conventional antibiotics** against resistant bacteria species.

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Note:



What are the Key Facts Regarding Oysters' Antimicrobial Properties?

- **Role of Oysters:** Antimicrobial proteins and peptides from oyster hemolymph can:
 - Kill bacteria like *Streptococcus spp.*, responsible for **pneumonia**, **tonsillitis**, and **rheumatic fever**.
 - Inhibit and **penetrate biofilms** that protect bacteria from antibiotics and immune responses.
 - Enhance conventional antibiotics' efficacy by 2 to 32 times.
- **Immune Defenses of Oysters:** Oysters face many **microorganisms** in their marine environment, so they have **strong immune defenses**.
 - Oyster hemolymph contains **antiviral and antibacterial proteins and peptides** effective against various human and marine pathogens.
- **New Antimicrobial Agents:** Over **90%** of antibiotics humans currently use are derived from **nature**. The same is true for **over 65%** of antibiotics **under recent development**.
- **Traditional Relevance:** It is used in **traditional Chinese medicine** for respiratory and inflammatory conditions.
 - It is integral to the health practices of **Indigenous Australians**.

Note: Globally, nearly **5 million people** die from **antimicrobial resistant infections** each year.

- The annual toll of antimicrobial resistant infections is expected to **rise by 70%**, with an estimated **40 million deaths** between 2025 and 2050.
- **Biofilms** are **bacterial communities** embedded in a **self-produced substance** that **sticks to surfaces**, **shielding** bacteria from the **immune system and antibiotics**.
 - They are involved in nearly **all bacterial infections**.

What are Oysters?

- **About:** Oysters belong to the family *Ostreidae* and are classified as **invertebrates**.
 - They are **omnivorous** and **live** in groups called **colonies, beds, or reefs**.
 - They are covered with **shells** that are **rough, rock-hard, and usually oval or pear-shaped**.
- **Habitat:** Oysters are found in **shallow ocean waters** worldwide and form colonies in beds or reefs.
 - Food oysters can occasionally produce pearls, though they are **not the same** as **pearl oysters**, which belong to a **different bivalve family**.

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Note:



➤ **Ecological Role:**

- **Keystone Species:** Oysters are considered a **keystone species** as Oyster beds and reefs provide **critical habitat** and protection for various marine organisms, including **sea anemones, barnacles, and mussels**.
 - **Keystone species** are organisms that have a **disproportionately large impact** on their ecosystems relative to their abundance. E.g., **Tigers, Sea Otters** etc.
- **Water Filtration:** A single oyster can filter over **two gallons of water per hour**, amounting to up to 50 gallons per day.
 - Oysters **remove** pollutants like **nitrates, ammonia, phosphates, bacteria, and organic matter**, significantly improving water quality and clarity.

➤ **Diet and Behavior:** Oysters feed by filtering **algae** and food particles from water drawn over their **gills**.

- All oysters **begin** life as **males** but typically **change permanently to females** after about a year. Also, oysters can **change gender multiple times** during their lifespan.

➤ **Role as Food:** They are high in **calcium, iron, and protein** and have been consumed raw or cooked by humans for thousands of years.

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ANTIMICROBIAL RESISTANCE

The ability of microorganisms to resist the effects of antimicrobial drugs

CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs


INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS** etc.
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR *Mycobacterium tuberculosis* causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive



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Note:

History

Highlights

- Iron Age and Urbanization
- Legacy of SC Bose
- Saint Narahari Tirtha
- Buddhism's Global Legacy

Iron Age and Urbanization

Why in News?

A report titled 'Antiquity of Iron: Recent Radiometric Dates from Tamil Nadu', claims that use of iron in Tamil Nadu dates back to the first quarter of the 4th millennium BCE.

- The **Iron Age** in India is believed to have emerged between 1500 and 2000 BCE, closely following the **Indus Valley Civilisation** (Bronze Age).

What is the Iron Age?

- **About:** The Iron Age is a prehistoric period that followed the **Bronze Age**, characterized by the widespread use of iron for tools, weapons, and other implements.
 - Iron metallurgy involves multiple stages, including ore procurement and manufacturing tools.
- **Antiquity of Iron in India:**
 - **Rigvedic Period:** No knowledge of iron was recorded.
 - **Early Historic Period:** References to iron smithing are found in early Buddhist literature and Kautilya's **Arthashastra**.
- **Significant Excavation Sites:**
 - **Raja Nal Ka Tila (North-Central India):** Iron tools and slag found in pre-NBP (Northern Black Polished) deposits (1400–800 BCE).
 - **Malhar (Chandauli, Uttar Pradesh):** Evidence of iron tools, furnaces, and slag indicates it was an important iron metallurgy center.

➤ Cultural Associations:

- **Black-and-Red Ware (BRW):** Characterized by distinctive pottery with **black interiors and red exteriors** due to **inverted firing techniques**.
 - It is found in Harappan context (Gujarat), Pre-PGW context (northern India), and Megalithic context (southern India).
- **Painted Grey Ware (PGW) Culture:** Characterized by **grey pottery with black geometric patterns**.
 - Iron reported at multiple sites in the **Ganga valley and South Indian Megaliths** (1st millennium BCE).
- **Northern Black Polished Ware (NBPW) Culture:** Wheel-made pottery which is **fine, black, and highly polished**. Significant in north India.
 - During 700 BCE-100 BCE (**NBPW Culture period**), the formation of states and **emergence of urbanism** in the Ganga valley crystallized.
 - **NBPW Culture** was associated with **2nd Urbanization** in the **Ganga Valley** (6th century BCE) during which **Buddhism** flourished.
- **Ahar Chalcolithic Culture:**
 - **Middle phase (2500–2000 BCE):** Evidence of iron artifacts.
 - **Late phase (2000–1700 BCE):** Iron usage became **more prominent**.
- **Megalithic Culture:** **Megaliths** (large stones used to construct a **prehistoric structure**), linked to iron, are found in the **Vindhyas** (southern Uttar Pradesh), **Vidisha region**, and much of **South India**.

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Note:



Megalithic Culture Relationship with Iron

- **Megalithic Culture:** It is a prehistoric phase marked by large stone structures used for burials, sacred spaces, and rituals.
 - The **Megalithic culture** in south India is closely associated with the **beginning of iron usage**.
- **Iron Uses:** Around **33 types of iron tools** have been identified from Megalithic burials. These served various purposes:
 - **Agriculture:** Hoes, sickles, and axes.
 - **Domestic use:** Dishes and tripod stands.
 - **Artisanal activities:** Chisels and nails.
 - **War and hunting:** Swords, daggers, spears, and arrowheads.

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Note:

- **Notable Evidence of Iron Use:**
 - **Naikund (Vidarbha):** Discovery of an **iron smelting furnace**.
 - **Mahurjhari (Nagpur):** **Head ornaments for horses** made of copper sheets with iron knobs.
 - **Paiyampalli (Tamil Nadu):** Large quantities of **iron slag**, indicating local iron smelting.
- **Advancements in Iron Technology:** People learned to **control fire and extract iron from ore**, marking a key technological advance.

How Iron Technology Helped in Urbanization in the Ganga Valley?

- **About Urbanization:** According to historian, and archaeologist **Gordon V. Childe**, **urbanization** relies on **surplus production**, leading to **ruling classes, social stratification, and monumental architecture**.
- It refers to the **shift** from **agriculture-based economies** to **industries, services, and trade** as the primary sources of income.



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Note:

- **Role of Iron Technology:** The 2nd Urbanization in the **Ganga Valley** (6th century BCE) was marked by the proliferation of settlements and Iron technology played a pivotal role by:
 - **Clearing Forests:** Iron tools enabled deforestation, creating arable land.
 - **Boosting Agricultural Productivity:** Iron plows enhanced efficiency and yields.
 - **Agricultural Surplus:** Increased productivity supported large populations and complex societies.
 - The first urbanization (2500 and 1900 BCE) in India was during the Indus Valley Civilization.
- **Impact on Urbanization:** It led to development of 16 Mahajanapadas in the Indian subcontinent.
 - **Population Growth:** The agricultural surplus facilitated population growth, essential for the development of urban centers.
 - **Development of Settlements:** Settlements grew in number and complexity, showing a clear hierarchy.
 - **Social Stratification and State Formation:** Surplus production enabled the emergence of ruling classes, **social hierarchy** (e.g., **varna system**), and centralized power structures.
 - **Trade and Craft Specialization:** Surplus allowed people to engage in non-agricultural activities like trade and crafts, leading to economic diversification and urban growth.

Legacy of SC Bose

Why in News?

On the occasion of **Parakram Diwas 2025**, the Ministry of Culture is organising a grand celebration from 23rd January to 25th January 2025 at Barabati Fort in Cuttack, Netaji Subhas Chandra Bose's birthplace.

- 21st January marks the 80th death anniversary of **Rash Behari Bose**, a founding leader of the **Indian National Army** with whom **Subhas Chandra Bose** was associated.

What is Parakram Diwas?

- **About:** Parakram Diwas (Day of Valor) is celebrated annually on 23rd January to honor the birth anniversary of **Netaji Subhas Chandra Bose**, one of India's greatest freedom fighters.

- Parakram Diwas 2025 is being celebrated on the 128th birth anniversary of Subhas Chandra Bose (SC Bose).
- **Past Celebrations:**
 - **2021:** The first Parakram Diwas was held at Kolkata's Victoria Memorial.
 - **2022:** A **hologram statue** of Netaji was unveiled at India Gate, New Delhi.
 - **2023:** 21 islands in **Andaman and Nicobar** were named after **Param Vir Chakra** awardees like Major **Somnath Sharma**, **Nayak Jadunath Singh** etc.
 - **2024:** The event was inaugurated at Red Fort, Delhi, marking the site of the **INA trials**.
- **Significance:** The day symbolizes the **courage, valor, and patriotism** of Netaji Subhas Chandra Bose, who led the **Indian National Army (INA)** and advocated for complete independence.
 - It also serves as a reminder of Netaji's famous slogan, **"Give me blood, and I will give you freedom,"** which inspired millions in the fight for India's independence.

What are Key Facts About SC Bose?

- **Early Life:** Born in 1897 in Cuttack (now in Odisha, then in Bengal), to Janakinath and Prabhavati Bose, Netaji was raised in a family that valued **English education and Hindu customs**.
 - He attended **Ravenshaw Collegiate School** and later studied at **Presidency College, Calcutta**, where he became involved in **anti-British activism**.
- **Ideological Foundations:** He was inspired by the teachings of **Ramkrishna Paramhansa** and **Swami Vivekananda**, as well as the themes of **Bankim Chandra Chatterjee's Ananda Math**.
 - He developed a unique synthesis of **Western and Indian cultures**, focused on India's freedom and revival.
- **Early Political Involvement:** SC Bose passed the **Indian Civil Service** exam in 1920 but resigned in 1921 to join the Indian freedom struggle.
 - In 1921, Netaji met **Mahatma Gandhi** in Bombay but disagreed with his approach to independence, particularly his **patience and commitment to non-violence**.
- **Disagreements with Congress:** In 1938, Netaji was elected Congress president at the **Haripura session**, and advocated for **swaraj** and **opposed an Indian federation** under the **Government of India Act, 1935**.

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Note:

- In 1939, Netaji was re-elected as Congress president in the **Tripuri session**, defeating **Gandhi-backed Dr. Pattabhi Sitaramayya**. Gandhi saw this as a **personal defeat**, leading to the **resignation of 12 out of 15 Working Committee members**, including JL Nehru, Patel, and Rajendra Prasad.
 - Bose attempted to form a **new working committee but failed**, leading to his resignation and replacement by **Rajendra Prasad**.
- Bose **resigned** from the chairmanship of the party on **29th April, 1939** and proposed the **Forward Bloc** to unite the **radical-left Congress members**, offering an **alternative leadership** based on anti-imperialism and socialism after independence.
- **Death:** After the atomic bombing of **Hiroshima and Nagasaki** during **WW II**, the Japanese surrendered on **16th August 1945**, Bose left South East Asia on a Japanese plane and headed toward China. However, the plane allegedly crashed, leaving SC Bose **badly burned**, but still alive, according to some accounts.
- **Legacy:** Bose's leadership, ideology, and **call for complete independence** made him one of the most influential figures in India's freedom struggle.

NETAJI SUBHASH CHANDRA BOSE

BIRTH

- 23rd January 1897 (celebrated as '**Parakram Diwas**')

Subhas Chandra Bose Aapda Prabandhan Puraskar is announced every year on 23 January to honour the selfless service rendered by individuals/organisations in India in disaster management.

EARLY LIFE

- Cleared the **Indian Civil Services (ICS) examination** (1919) but resigned later
- Considered **Swami Vivekananda as his spiritual Guru**
- Newspaper - **Swaraj**

POLITICAL LIFE IN CONGRESS (INC)

- Stood for **unqualified Swaraj** (self-governance)
- Actively participated in **Salt Satyagraha (1930)**
- **Opposed Gandhi-Irwin Pact (1931)** & suspension of **Civil Disobedience Movement**
- Won INC Presidential Elections at Haripura (1938) and Tripuri (1939)
- **Resigned from INC (1939)** due to ideological differences with Gandhiji
- Founded '**the Forward Bloc**' party to consolidate the **Political Left**

INDIAN NATIONAL ARMY (INA)

- Reached Japan-controlled Singapore in July **1943**, issued from there his famous slogan - '**Delhi Chalo**'

He also gave the slogan - 'Jai Hind'
- Announced the formation of **Azad Hind Government** and INA in Oct 1943
- **INA fought allied forces (1944)** in **Imphal** (India) and in **Burma**

INA was first formed under Mohan Singh and Japanese Major Iwaichi Fujiwara. It comprised Indian prisoners of war of the British-Indian Army captured by Japan in Malay and Singapore.

DEATH

- **Believably in 1945** when his plane crashed in Taiwan.





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Note:

What was SC Bose Role in India's Freedom Movement?

- **Dramatic Escape:** Bose was arrested in **1940** before he could campaign to remove the monument dedicated to the **Black Hole tragedy** of Calcutta, where **123 Europeans died** on **20th June 1756** (1 year before **Battle of Plassey**).
 - His **escape** from India in **1941**, travelling under various disguises, marked his relentless pursuit of independence, even in the face of **British surveillance**.
- **International Alliances:** After reaching **Europe**, Bose sought support from **Nazi Germany**, **Soviet Union** and later **Imperial Japan** in Asia, countries that were interested in defeating Britain during **World War II**.
 - Bose was allowed to start the **Azad Hind Radio** and was provided with a few thousand Indian prisoners of war captured by the **Axis powers in WW II**.
- **Journey to South East Asia:** In **February 1943**, Bose and his aide **Abid Hasan** traveled from Germany in a submarine, crossing the **Atlantic ocean**, **Cape of Good Hope**, and **Indian Ocean**, before reaching **Tokyo by air**, completing a **90-day, perilous journey**.
- **Indian National Army (INA):** INA was formed in **1942**, consisting of thousands of **Indian prisoners of war** captured by the Japanese, and supported by Japanese troops.
 - Under the **Chalo Delhi campaign**, INA under SC Bose crossed the **Indo-Burma border** and marched towards **Imphal and Kohima in March 1944**. However, it **ended in Imphal** with the defeat of Japan.
 - Initially, **Captain Mohan Singh** was appointed as the commander of INA.
- **Azad Hind Government:** In October 1943, Bose formed the **Provisional Government of Azad Hind** in Singapore. The headquarters moved to Rangoon in January 1944.
 - It was recognized by **9 countries** namely **Japan, Germany, Italy, Croatia, Burma, Thailand, Philippines, Manchuria, and the Republic of China** (under Wang Jingwei).
- **INA Women's Regiment:** Bose also created the **Rani of Jhansi Regiment**, which was composed of women who fought alongside men in the struggle for independence.
- **INA Trials:** The **nationalist sentiment** reached a crescendo around the trials of **Shah Nawaz Khan, Prem Kumar Sehgal and Gurbaksh Singh Dhillon** that developed into **violent confrontations** against the British raj.
 - INA Trials were a series of **military tribunals** held by the British colonial government in **1945-46** to try INA officers and soldiers for **treason**.

What were the Ideological Differences Between Gandhiji and Bose?

Aspect	Mahatma Gandhi	Subhas Chandra Bose
Ideology	Believed in non-violence (Ahimsa) and truth (Satyagraha) as means to achieve freedom.	Advocated militant resistance and believed violent means were necessary for India's independence.
Means and Ends	Emphasized ethical means , rejecting the idea of using unethical methods for desirable ends.	Focused on achieving results , even allying with Axis powers (Germany and Japan) for India's freedom.
Form of Government	Advocated decentralization with self-sufficient village republics ; favored minimal state control.	Favored a strong central government with socialist planning; believed an authoritarian system was initially necessary.
Economic Vision	Opposed industrialization and large-scale mechanization; advocated a self-reliant, village-based economy.	Supported modernization, industrialization, and scientific development for economic growth and social upliftment.

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Note:

Caste and Untouchability	Opposed untouchability but supported the varna system for social harmony; advocated caste-based duties.	Completely rejected the caste system ; advocated for a casteless, egalitarian society and inter-caste marriages.
Militarism	Opposed militarism; believed in minimal defensive force and emphasized peace and non-violence.	Admired military discipline ; established the Indian National Army to fight British rule.
Education	Advocated basic education (Nai Talim), focusing on morality, self-sufficiency, and vocational training in local crafts.	Emphasized higher education in technical and scientific fields for industrial and national development.
Approach to British Rule	Rejected collaboration with the British, especially during World War II, and opposed alliances with fascist powers .	Criticized British hypocrisy and sought alliances with Axis powers to exploit their weaknesses for India's freedom.
Vision for Freedom	Advocated Swaraj through non-violent civil disobedience , with a moral and spiritual approach to governance.	Sought immediate independence through revolutionary action and a socialist model for post-independence reconstruction.

Subhas Chandra Bose Aapda Prabandhan Puraskar

- The annual **Subhas Chandra Bose Aapda Prabandhan Puraskar** has been instituted in **2018** to recognize and honour the **invaluable contribution and selfless service** rendered by **individuals and organisations** in India in the field of **disaster management**.
- The award is announced every year on **23rd January**.
- It carries a **cash prize of Rs 51 lakh** and a **certificate** in case of an institution and **Rs 5 lakh and a certificate** in case of an individual.

What are Key Facts about Rash Behari Bose?

- **About:** Born in Bengal, Rash Behari Bose was inspired by **revolutionary ideals** from a young age and joined the **independence movement at 16**.
- **Revolutionary Activities:** He gained prominence during the **Alipore Bomb Case (1908)**, and took part in the bomb plot to assassinate **Viceroy Charles Hardinge** in 1912.
 - In 1913, Rash Behari Bose met **Jatin Mukherjee (Bagha Jatin)** under whose mentorship, Bose became more determined to fight for India's freedom.
 - He became a key figure in the **Ghadar Movement**, an international political movement founded by Indian expatriates to overthrow British rule.
 - In Japan in **1924**, Rash Behari Bose met **Subhas Chandra Bose**, facilitated by **Veer Savarkar**.
- **Escape to Japan:** Fleeing British intelligence, he left India in **1915**, eventually taking refuge in Japan.
 - In **1924**, he founded the **Indian Independence League (IIL)** in Japan, with the goal of organizing and mobilizing Indians for the struggle against British rule.
- **Azad Hind Fauj:** In **1942**, Rash Behari Bose formed **Azad Hind Fauj** to fight for India's freedom.
 - He handed over the leadership of the INA to **Subhas Chandra Bose**, recognizing his potential to lead the independence struggle.

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Note:

Saint Narahari Tirtha

Why in News?

A three-foot statue of 13th century saint Narahari Tirtha depicting him with script on palm leaves and flanked by devotees was discovered at [Simhachalam Temple](#) in Visakhapatnam, Andhra Pradesh.



What are the Key Facts Related to Saint Narhari Tirtha?

- **About:** Saint Narahari Tirtha (1243-1333 AD) was a [Dvaita philosopher](#), intellectual, scholar, statesman and saint in the [Madhva tradition](#).
 - He hailed from [Chikakolu](#) (modern-day Srikakulam) in [Andhra Pradesh](#), born into an aristocratic family in the [Gajapati empire of Odisha](#).
- **Role in the Eastern Ganga Dynasty:** For over 30 years, Narahari Tirtha assisted the kings of the [Eastern Ganga dynasty](#).
 - He helped the rulers follow [Sanātana Dharma](#) and established a **structured executive system** for managing **temple affairs**.
 - His efforts are documented in inscriptions found at [Simhachalam](#) and [Srikurmam](#) temples.

- **Religious Contributions:** He was a follower of [Madhvacharya](#), the originator of [Dvaita philosophy](#) and propagated the [Madhvacharya's Vaishnavism](#) in the region, ensuring its firm establishment in a **non-interfering, secular manner**.
 - His influence helped maintain the **religious and cultural traditions** in the region.
 - Titles of honor like "[Loka Surakṣaṇa Ati Nipuṇaḥ](#)" and "[Yo Avati Kalinga Bhu Sambhavān](#)" have been bestowed to recognize his contributions.
- **Intellectual Legacy:** He was a prolific writer, composing several texts, though only 2 works—[Gita Bhasya](#) and [Bhavaprakasika](#) have survived.
 - He is also credited with composing the first [Devaranamas](#) in Kannada.
- **Cultural Contributions:** He also contributed to the development of **regional art forms** and played a vital role in propagating [Yakṣagana Bayalaṭa](#) (a dance-drama form from coastal Karnataka) and the classical dance style that evolved into [Kuchipudi](#) in Andhra Pradesh.
- **Legacy:** After his death, Narahari Tirtha was consecrated near [Chakratirtha at Hampi](#), on the banks of the [Tungabhadra River](#).
 - His contributions continue to influence the temple traditions of [Puri Jagannath](#), reinforcing the [Madhva tradition in Odisha](#).

Eastern Ganga Dynasty

- They ruled over [Kalinga](#) (modern-day eastern coastal India) from the **5th-15th century AD** controlling regions including Orissa, West Bengal, Chhattisgarh, Jharkhand, and Andhra Pradesh.
- The early capital was [Kalinganagara](#), and the secondary capital was [Dantapura \(Palur\)](#).
- Notable rulers include [Anantavarman Chodaganga](#) (1078-1147 CE), who was a patron of arts and literature and is renowned for constructing the [Jagannath Temple in Puri](#). His successor, [Narasimha Dev I](#), continued his legacy and built the [Konark Sun Temple](#).
- The dynasty's wealth funded **temple constructions** and fostered political alliances, including marriages with the [Chola](#) and [Chalukya](#) dynasties.

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Note:

Simhachalam Temple



- It is located in Visakhapatnam, Andhra Pradesh, is dedicated to Lord Narasimha, an incarnation of Vishnu.
- It was constructed in the 11th century by the Gajapati rulers of Odisha, it was later renovated by the [Vengi Chalukyas](#) and Narasimha I of the Eastern Ganga dynasty.
- The temple exhibits a blend of Kalinga and Dravidian architectural styles, with intricate carvings and sculptures, including a stone chariot and 16 carved pillars in the Kalyana Mandapa.
- The temple's history is marked by visits from prominent rulers like [Krishna Deva Raya](#) in 1516 CE.

About Madhvacharya

- Madhvacharya (1238 CE) was a Hindu philosopher and the primary proponent of the Dvaita (dualism) school of Vedanta.
- His philosophy posits a fundamental distinction between Atman (individual soul) and Brahman (ultimate reality, Vishnu), asserting that they are separate, unchanging realities.
- His major works include Gita Bhashya and Vishnu Tattva Nirnaya.

Buddhism's Global Legacy

Why in News?

The [Archaeological Survey of India](#) has uncovered a large Buddha head, a giant palm, an ancient wall, and inscribed Buddhist relics in Ratnagiri, Odisha, all believed to date back to the 8th and 9th centuries AD.

- It further threw light on the spread of Buddhism to southeast Asia through Odisha.

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Note:

How Odisha Helped in the Spread of Buddhism?

- **Role of Buddha:** Although there is no evidence of Buddha visiting Odisha, experts credit Buddha's disciples **Tapassu and Bhallika** (merchant brothers from Utkala) as key figures in **popularising Buddhism**.
- **Mauryan Influence:** Emperor **Ashoka's 261 BCE invasion of Kalinga** (ancient Odisha) led him to **embrace Buddhism**, which he then spread across **South and Southeast Asia**.
- **Hiuen Tsang's Visit:** Studies suggest that the Chinese Buddhist monk and traveler, **Hiuen Tsang**, who visited **Odisha in 638-639 AD**, may have also visited **Ratnagiri**, providing insights into the region's **lifestyle, culture, religion, art, and architecture**.
- **Historical Sites:** Odisha has over 100 ancient Buddhist sites, including **Ratnagiri**, part of the **Diamond Triangle with Udaygiri and Lalitgiri**.
 - **Ratnagiri**, a key Buddhist learning center **rivaling Nalanda** from the 7th-10th centuries, revealed remains like a **brick stupa, monastic complexes, and votive stupas**.
 - Ratnagiri is believed to have been a hub for **Mahayana and Vajrayana sects**, with **Tibetan texts** discovered at the site.
 - Ratnagiri's Buddha sculptures are unique for their **intricate, distinctive hairstyles** not seen elsewhere in India.
- **Maritime and Trade Links:** Odisha's trade with regions like **Bali, Java, Sumatra, and Sri Lanka** helped spread Buddhism, especially in **Southeast Asia**.
 - The **Baliyatra festival** honors **Odisha's 2,000-year-old maritime ties** with Southeast Asia and its role in spreading Buddhism.

- **Bhaumakara Dynasty:** Buddhism flourished in Odisha under the **Bhaumakara dynasty** (8th-10th centuries), contributing to the region's **rich Buddhist heritage**.

Note:

- **Mahayana:** Mahayana, meaning "**Great Vehicle**" in Sanskrit, is one of the schools of Buddhism.
 - It believes in the **heavenliness of Buddha and Idol worship** of Buddha and **Bodhisattvas** embodying Buddha Nature.
 - It originated in the **4th Buddhist Council in 72 AD in Kashmir** during the rule of **Kanishka** and then spread east into **Central Asia, East Asia** and some areas of **Southeast Asia**.
 - Buddhist schools embedded in **China, Korea, Tibet and Japan** belong to the Mahayana tradition.
- **Vajrayana:** Vajrayana means "**The Vehicle of the Thunderbolt**", also known as **tantric Buddhism**.
 - It incorporates **tantric practices**, which involve **complex rituals, visualizations, mantras, and meditation techniques** to achieve spiritual realization.
 - Vajrayana is primarily practiced in the **Himalayan regions**, including **Tibet, Nepal, Bhutan**, and parts of **Mongolia**.
- **Hinayana:** It is often referred to as the "**Lesser Vehicle**" that emphasizes **nirvana**, primarily through **self-discipline, and meditation**.
 - It focuses on the strict adherence to **monastic rules, meditation practices, and ethical conduct**.
 - In Hinayana Buddhism, the **ideal is an Arhat**, who achieves **enlightenment**, while in **Mahayana**, the **Bodhisattva** delays nirvana to aid others' enlightenment.

Nalanda University

- **Establishment:** **Nalanda University** was founded by **Emperor Kumaragupta I** of the **Gupta Empire** in the **5th century CE**, around **450 CE**.
 - The university **flourished** under the patronage of the **Pala dynasty** during the **8th and 9th centuries**.
 - It was located in the ancient kingdom of **Magadha (modern-day Bihar)**.
- **International Acclaim:** Nalanda, the world's first residential university, attracted scholars from **Korea, Japan, China, Mongolia, Sri Lanka, Tibet, and Southeast Asia**.
- **Admission Process:** Admission to Nalanda was **competitive, with rigorous interviews**, and students were mentored by scholars and Buddhist masters like **Dharmapala and Silabhadra**.

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Note:

- **Curriculum and Subjects:** The university taught a wide range of subjects, including **medicine, Ayurveda, Buddhism, mathematics, grammar, astronomy, and Indian philosophy.**
 - **Aryabhata**, the Indian mathematician and **inventor of zero**, was a prominent **educator** at Nalanda University in the 6th century CE.
- **Library and Manuscripts:** The library, known as **Dharma Gunj or Mountain of Truth**, housed over **nine million handwritten palm-leaf manuscripts**, making it the richest repository of Buddhist knowledge.
- **Destruction:** In **1193**, Islamic invader **Bakhtiyar Khilji** demolished the university, killed the monks and **burned the valuable library.**

How Buddhism Spread to Southeast Asia?

- **Cultural Crossroads:** Indian **traders, sailors, and monks** helped spread Buddhism to Southeast Asia, with ports like **Srivijaya (Sumatra, Indonesia) and Champa (Vietnam)** serving as key centres for learning and cultural exchange from the 7th to 13th centuries.

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BUDDHISM

ORIGIN


- 6th century BC, based on the teachings of Gautam Buddha

MAIN FEATURES

- **Essence** - Attainment of enlightenment (Nibbana)
- **Supreme Deity** - None

PRINCIPLES

- Avoid the extremes; follow Madhyam Marg (middle path)
- Individualistic component (everyone is responsible for their own happiness)
- 4 Noble Truths:
 - Dukkha (suffering)
 - Samudya (cause of suffering)
 - Nirodha (suffering could be ended)
 - Atthanga Magga (8-fold path to achieve this)
- 8-Fold Path:
 - Right - view, intention, speech, action, livelihood, mindfulness, effort and concentration



BUDDHISM REJECTS

- Authenticity of Vedas
- Concept of soul (atman) (unlike Jainism)

MAJOR BUDDHIST TEXTS

- **Sutta Pitaka** (main teachings of Buddha - Dhamma)
- **Vinaya Pitaka** (rules of conduct for monks/nuns)
- **Abhidhamma Pitaka** (philosophical analysis)
- Other imp texts - **Divyavadana, Dipavamsa, Mahavamsa, Milind Panha**

Buddha's teachings were rehearsed, authenticated & divided in 3 Pitakas at the 1st Buddhist Council

These teachings were written down c. 25 BC in Pali

4 BUDDHIST COUNCILS

Buddhist Council	Patron	Venue	Chairman	Year
First	Ajatashatru	Rajgriha	Mahakashyapa	483 BC
Second	Kalashoka	Vaishali	Sabbakami	383 BC
Third	Ashoka	Patliputra	Mogaliputra	250 BC
Fourth	Kanishka	Kundalban (Kashmir)	Vasumitra	72 AD

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Note:

- **Legitimacy of Rulers:** Southeast Asian rulers adopted Buddhism to strengthen their authority, aligning with figures like **Buddha or Hindu deities to legitimise their rule.**
 - The **Srivijaya Empire**, centered in Sumatra, was a key player in the spread of Buddhism.
- **Fusion of Hinduism and Buddhism:** In Southeast Asia, Buddhism often blended with **local beliefs and Hinduism.**
 - Buddhist and Hindu temples in Southeast Asia, like **Angkor Wat (Cambodia) and Borobudur (Indonesia)**, showcase this fusion.
- **Cultural Diffusion:** Buddhism influenced the local cultures of places like **Bali and Java**, seen in their **dance, rituals, and temple architecture.**

How Buddhism Spread Globally?

- **Southeast Asia:** By the 5th century CE, Buddhism spread to **Myanmar and Thailand**, and by the 13th century, the **Theravada school** (meaning “the way of the elders”) became the dominant form of Buddhism in **South and Southeast Asia.**
- **China:** By the 7th century CE, Buddhism had significantly influenced **Chinese culture**, interacting with **Confucian and Daoist traditions.**
- **Korea and Japan:** Buddhism spread to Korea by the 7th century CE.
 - In the 6th century CE, Buddhism was introduced to Japan, where it blended with **Shinto and other indigenous traditions.**
- **Tibet:** In the 8th century CE, Buddhism, influenced by **Tantric traditions** from northeast India, spread to Tibet.
 - There, it merged with the indigenous **Bon religion** and evolved into **Vajrayana (or “Diamond Vehicle”)**, a distinct form of Mahayana Buddhism.

What are the Prominent Buddhist Sites in India?

- **Bihar:** **Bodh Gaya** is the location where **Siddhartha Gautama attained enlightenment** under the **Bodhi tree.**
 - **Mahabodhi Temple**, a **UNESCO World Heritage Site** since 2002, marks the spot where Buddha achieved enlightenment.
 - In **Vaishali (Bihar)**, Buddha declared his imminent **Parinirvana** and preached his final sermon.
 - **Nalanda University** in Nalanda was a famous **ancient center of learning**, where Buddhist scholars from across the world gathered.
- **Uttar Pradesh:** At **Sarnath**, Buddha delivered his **first sermon** to his disciples, outlining the **Four Noble Truths** and the **Eightfold Path.**
 - **Dhamek Stupa** in Sarnath marks the site of Buddha’s first sermon.
 - **Kushinagar** is the place where **Buddha passed away** and attained **Parinirvana** (final nirvana).
 - **Ramabhar Stupa** in Kushinagar is believed to be the place where Buddha was cremated.
- **Himachal Pradesh:** Dharamshala, especially **McLeod Ganj**, is home to the **Tibetan Government-in-Exile** and the **Dalai Lama**. It is a hub for Tibetan Buddhists.
- **Maharashtra:** **Ellora Caves** are a UNESCO World Heritage site, featuring rock-cut temples and sculptures of Buddhist, Hindu, and Jain traditions.
 - **Ajanta Caves** are famous for ancient Buddhist monasteries and beautiful murals depicting Buddha’s life.
- **Madhya Pradesh:** **Sanchi Stupa** is a UNESCO World Heritage site, known for its **Buddhist stupas**, monasteries, and pillars.

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Note:

Geography

Highlights

- Gulf of Aden and Red Sea
- 2025 as International Year of Glaciers' Preservation
- Deccan Volcanism and Movement of Indian Plate

Gulf of Aden and Red Sea

Why in News?

India's Defence Minister hinted at a possibility of an increase in threats like **maritime piracy**, **terrorism**, and regional conflicts in the **Gulf of Aden**, **Red Sea** and the sea areas adjacent to East African countries.

➤ In addition, **2024** was commemorated as the '**Year of Naval Civilians**' that constitute a third of the Navy's workforce.

Note: Naval Civilians include **soldiers without uniforms** that play a pivotal role behind the scenes like **technical assistance**, **administrative management** and **logistics support** to provide significant strength to the troops.

What are Key Facts About the Gulf of Aden and Red Sea?

➤ Gulf of Aden:

- **About:** It is an extension of the **Indian Ocean**, situated between the **Arabian Peninsula** to the north and the **African continent** to the south.



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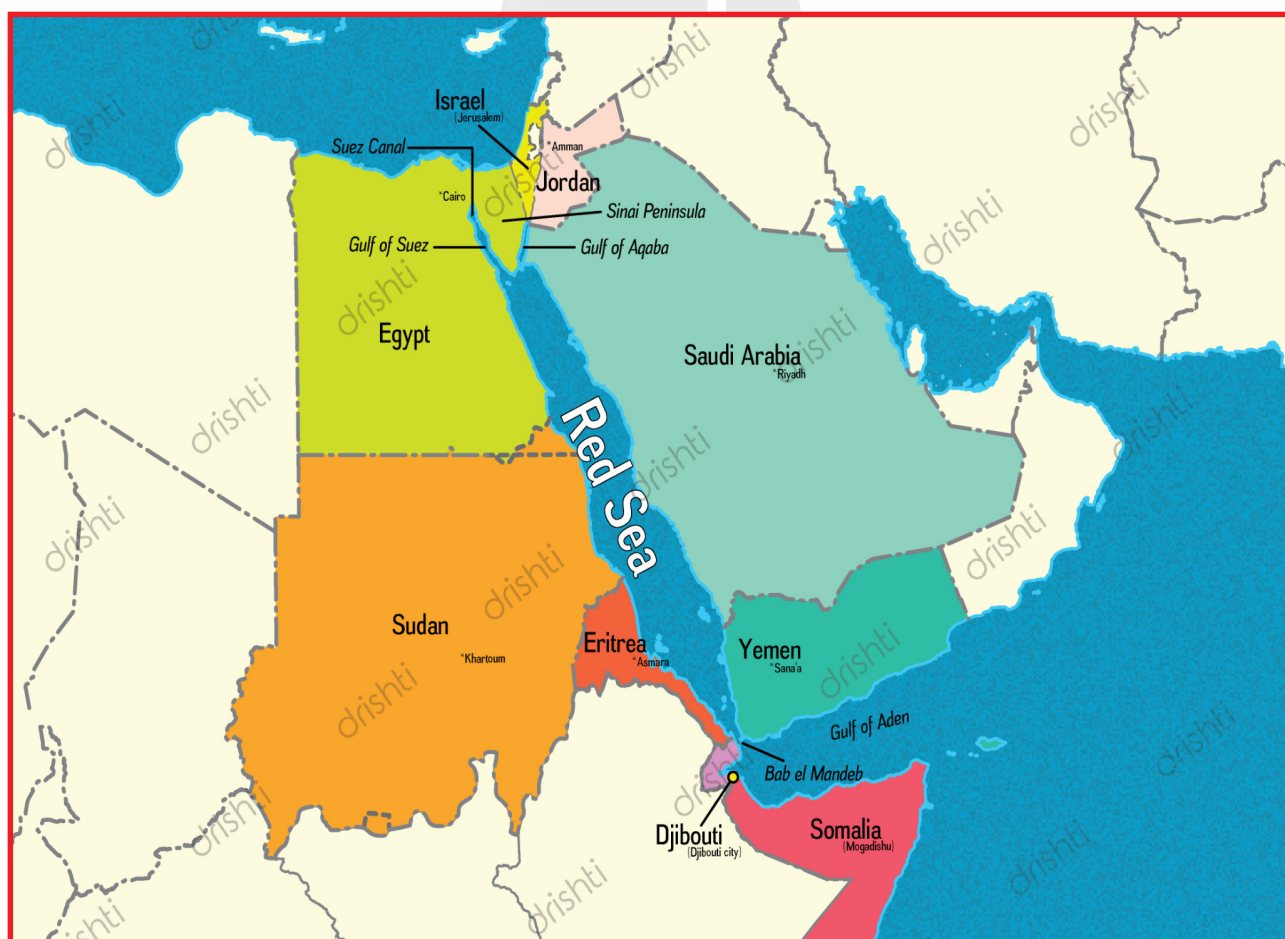


Note:

- **Location:** It is bounded by **Somalia** and the Socotra Islands to the south, **Yemen** to the north, the **Arabian Sea** to the east, and **Djibouti** to the west.
 - It connects to the **Somali Sea** via the **Guardafui Channel** and to the **Red Sea** through the **Strait of Bab el Mandeb**.
- **Economic Importance:** Around **10% of global seaborne petroleum** and over **USD 110 billion** in **India's trade** pass through the Gulf of Aden.

➤ **Red Sea:**

- **About:** It is the world's **northernmost tropical sea** and is underlain by the **Red Sea Rift**, making it part of the **Great Rift Valley**.
 - The name **Red Sea** may originate from the seasonal blooms of a **red-colored cyanobacteria (*Trichodesmium erythraeum*)**.
 - The **Red Sea Rift**, a **divergent boundary** between the **African and Arabian Plates**, is part of the **Great Rift Valley system** stretching from East Africa to the Middle East.
- **Location:** The Red Sea lies between **Africa and Asia** and is a **semi-enclosed** extension of the Indian Ocean.
 - It connects to the **Indian Ocean and Arabian Sea** via the **Bab el Mandeb Strait** and **Gulf of Aden** in the south.
 - In the north, it **bifurcates** into the **Gulf of Aqaba** and **Gulf of Suez** at the **Sinai Peninsula**, connecting to the **Mediterranean Sea** via the **Suez Canal**.



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Note:

- **Bordering Countries:** The Red Sea borders six countries i.e., Yemen and Saudi Arabia to the east, and Egypt, Sudan, Eritrea, and Djibouti to the west.
 - The Gulf of Aqaba is bordered by Egypt, Israel, Jordan, and Saudi Arabia.
- **Islands:** Prominent islands include Tiran near the Gulf of Aqaba, Shadwan at the Gulf of Suez, and Yemen-controlled Kamaran, Perim, Hanish, and Socotra.
 - The largest group of islands are the Farasan Islands in the east and the Dahlak Archipelago in the west.

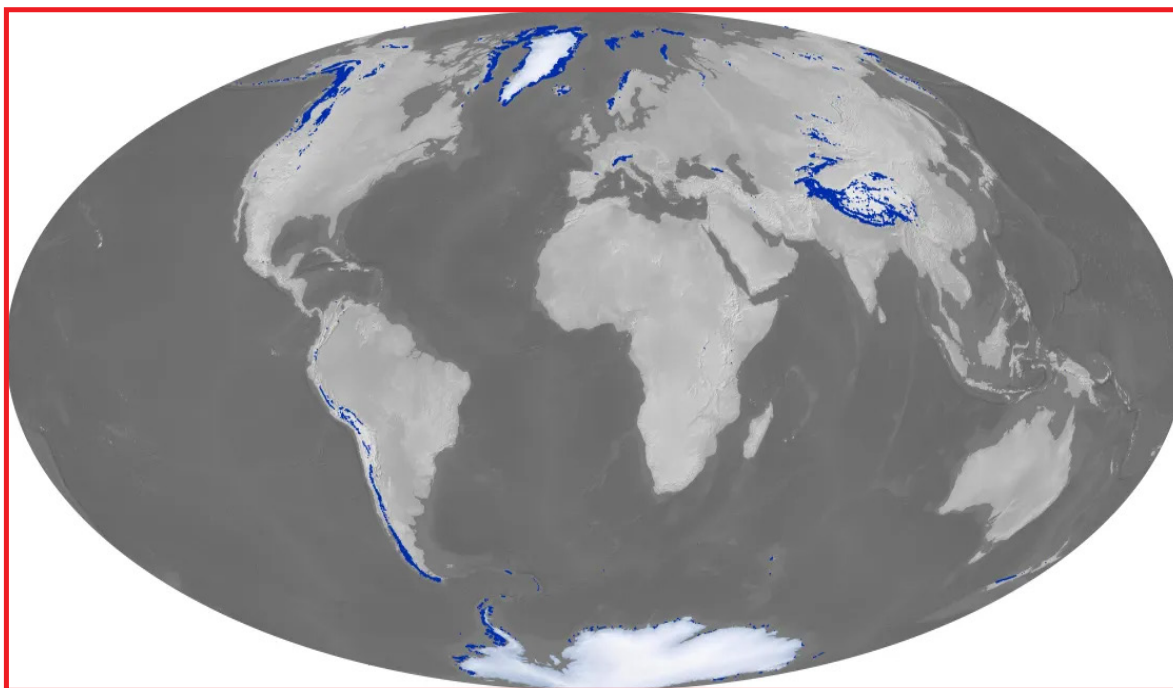
2025 as International Year of Glaciers' Preservation

Why in News?

The [United Nations](#) will observe 2025 as the International Year of [Glaciers' Preservation](#), with 21st March marked annually as **World Day for Glaciers** starting in 2025.

What are Glaciers?

- **About:** Glaciers are large, slow-moving masses of ice formed from compacted snow over centuries.
 - They form on land and move due to gravity, slowly moving downward.
- **Historical Context:** Most glaciers today are remnants of the massive ice sheets that covered Earth during the Ice Age (around 10,000 years ago).
 - During Earth's history, there have been glacial periods (or ice ages) when glaciers formed and interglacial periods when glaciers melted.
- **Global Distribution:** Most glaciers are found in polar regions such as [Greenland](#), the Canadian Arctic, and [Antarctica](#) because of low solar insolation received in higher latitudes.
 - Tropical glaciers exist in mountain ranges near the [Equator](#), like the [Andes](#) in South America at high altitudes.
 - Approximately 2% of the Earth's water is stored in glaciers.



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Note:

- **Glaciers Melting:** Rising **greenhouse gas (GHG)** emissions have increased temperatures, especially at the poles, causing glaciers to melt, **calve into the sea, and retreat on land.**
 - Even with major emission cuts, **over a third** of the world's glaciers will **melt by 2100.**
- **Importance:**
 - **Water Supply:** Glaciers are a vital source of **drinking water** for millions of people, especially in **arid regions.**
 - Glaciers provide up to **27% of the Amu Darya's river flow** in late summer, while **La Paz (capital of Bolivia),** relies on glacial meltwater during **dry periods.**
 - In **Ladakh, India,** artificial glaciers known as **ice stupa** store water in winter and release it in spring, providing vital irrigation for crops in the **cold desert region.**
 - **Nutrient Cycling:** Glaciers release **nutrients** that support **phytoplankton** growth, which forms the foundation of **aquatic food chains,** affecting **marine biodiversity** and fisheries.
 - **Climate Regulation:** Glaciers play a role in regulating **Earth's climate** by reflecting sunlight (**albedo effect**), helping to **cool the planet.**
 - **Energy Production:** Glacial meltwater is harnessed to generate **hydroelectric power** in countries like **Norway, Canada, and New Zealand.**
 - **Tourism:** Glaciers attract tourists to **mountainous regions,** supporting **cryo biodiversity** and providing opportunities for **research and education.**

What is the Current Status of Glaciers?

- **Global Glaciers:** The **World Glacier Monitoring Service (WGMS)** which tracks **210,000 glaciers** show that between **1976 and 2023** a large-scale **deglaciation** was observed in recent years.
 - **WGMS** monitors and assesses the state of glaciers around the world and works under the auspices of the **UN Environment,** the **UNESCO,** and the **WMO.**
- **Regional Glaciers:** The **Hindu Kush Himalayan cryosphere** is warming at twice the global average rate.
 - The region is most vulnerable to glacial disasters like **Glacial Lake Outburst Flood.**
 - The cryosphere refers to the **frozen water** part of the **Earth's system,** encompassing all the areas where water exists in a **solid state.**
- **Retreat of Glaciers:** Experts predict the **disappearance** of several significant glaciers by **2030,** with many larger glaciers splitting into smaller ones.
 - **E.g., Yala Glacier** in **Nepal's Langtang Valley** and **Peyto Glacier** in **Western Canada** have retreated with significant elevation loss.
 - **Humboldt glacier** in **Venezuela** has **shrunk significantly** and is now classified as an **ice field.**
 - The retreat of glaciers means **shrinking and disappearing** of glaciers.
- **International Response:** In December 2022, the **UN General Assembly** adopted a resolution highlighting the urgency of glacier loss and promoting global awareness.
 - Initiatives like the **International Year of Glaciers** and **World Glacier Day** are initiatives in this regard.

Note: There are over **275,000 glaciers** globally, covering approximately **700,000 sq km** of land.

- **Ice sheets** store around **70% of the world's freshwater,** highlighting the importance of glaciers for global water supply.

Hindu Kush Himalayas

- **About:** Hindu Kush Himalayas is a mountain range stretching over **3500 kilometres** and across eight countries i.e., **Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan.**
 - It is home to all of the world's peaks **above 7,000 metres.**
- **Glaciers:** HKH has one of the largest volumes of **ice and snow outside of the Arctic and Antarctica** due to which it is often referred to as the **Third Pole.**

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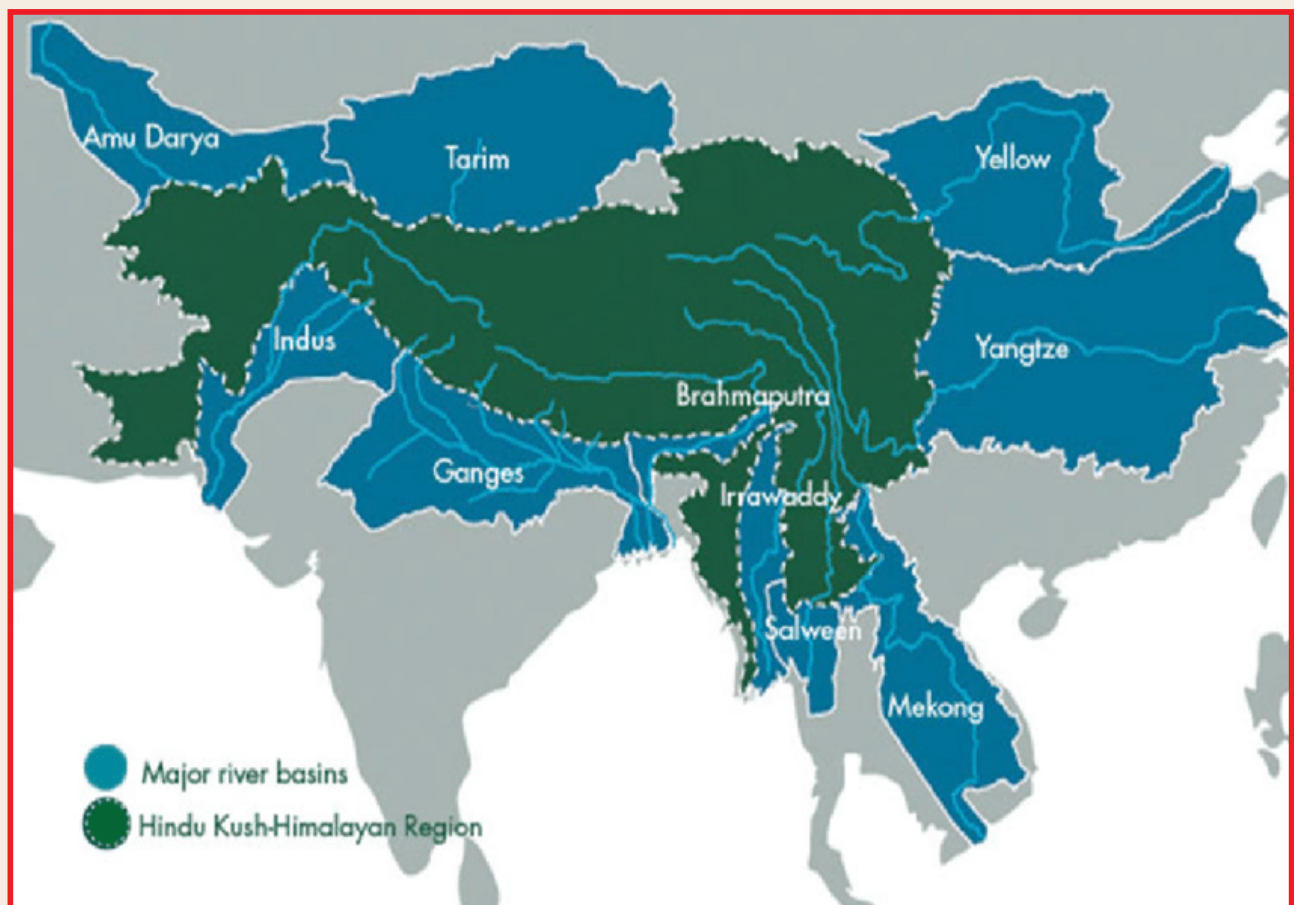
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Note:



- **Water Tower of Asia:** It is called the 'Water Tower of Asia' as it is an important source of water for **12 river basins**, including **10 major (transboundary) rivers**:
 - the Amu Darya, Brahmaputra, Ganges, Indus, Irrawaddy, Mekong, Salween, Tarim, Yangtze, and Yellow (Huang He).
 - They flow through **16 countries in Asia** and provide freshwater services to **240 million people** living in the HKH region and **1.65 billion downstream**.
- **Ecology:** It is home to **330 bird and biodiversity areas**, including **four global biodiversity hotspots** i.e., **Himalayas, Indo-Burma, mountains of Southwest China, and mountains of Central Asia**.

What are the Impacts of Melting Glaciers?

- **Negative Impacts:**
 - **Sea Level Rise:** Melting glaciers, particularly from **Greenland and Antarctica**, significantly contribute to **sea level rise** leading to **coastal erosion** and more intense **cyclones**.
 - If all glaciers and ice sheets melted, global sea level would rise by **more than 195 feet (60 meters)**.
 - **Weather Pattern Disruptions:** Melting ice exposes **water surfaces**, absorbing **more heat and disrupting** normal ocean circulation.
 - This affects global weather patterns, including altering the **polar vortex** and **jet stream**, leading to more **extreme weather events**.

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Note:

- **Impacts on Humans:** Warming oceans change **fish spawning patterns**, negatively affecting industries that depend on healthy fisheries **disrupting food security and livelihoods**.
 - Coastal communities are increasingly vulnerable to **flooding and salt water intrusion**.
- **Wildlife Loss:** In the Arctic, melting sea ice is forcing species like **walruses and polar bears** to move onto land, increasing **human-wildlife conflicts**.
 - **Arctic sea ice loss** could push **polar bears to extinction** by 2100.
 - The cryosphere supports specialized ecosystems, such as **Arctic tundra** (polar bears, Arctic foxes), **Antarctic ice sheets** (penguins, seals), and **Alpine regions** (**Snow leopards** and coniferous trees).
- **Positive Impacts (Short-Term):**
 - **New Energy Sources:** More **geothermal energy** sources may be uncovered in regions with **volcanic activity** e.g., **Kamchatka peninsula**.
 - **Shorter Shipping Routes:** Melting ice has opened up passages like the **Northern Sea Route** that can significantly shorten the journey between **Europe and Asia**.
 - **New Water and Land Resources:** New water sources may become accessible in areas that previously had limited freshwater supply.
 - Previously **snow-covered areas** like Siberia may open up for **cultivation**.
 - **Potential for Biodiversity:** Glacier retreat could create new habitats for **pioneering species**, leading to more diverse ecosystems over time.
- **International Conferences:** International conference convened by **Tajikistan** in 2025 and **International Water Conference (IWC11)** 2025 by the **Global Environment Facility (GEF)** will focus on innovative approaches for preservation of glaciers.
- **Capacity Building:** Provide targeted **capacity-building programs** for local communities, policymakers, and scientists to improve their understanding of **glacier dynamics and best practices for preservation**.
- **Research and Monitoring:** Address the cross-border impacts of **glacier retreat**, develop and enhance global cryosphere data systems and incorporate **Local and Indigenous Knowledge Systems (LINKS)** to improve monitoring and decision-making.
- **Policy Integration:** Advocate for the inclusion of glacier preservation into national and regional climate strategies, water management policies, and **Disaster Risk Reduction (DRR)** frameworks.
- **Funding Initiatives:** Secure funding from **governments, international organizations, private sectors, and philanthropic foundations** to support glacier monitoring, research, and preservation projects.

Related Terminologies

- **Ice Sheet:** An ice sheet is a mass of **glacial ice that sits on land** and extends more than **50,000 square kilometers**.
 - Now, Earth has **just two ice sheets**, one covers most of **Greenland**, the largest island in the world, and the other spans across the **Antarctic continent**.
- **Ice Caps:** An ice cap is a **dome-shaped glacier** with an area **less than 50,000 square kilometers** that flows in **all directions**.
 - Ice caps form in **high-latitude polar and subpolar mountain regions**.
- **Icefield:** An icefield is a mass of glacier ice, somewhat similar to an ice cap, but usually **smaller and lacking a dome-like shape**.
- **Icebergs:** Icebergs are **large floating chunks of ice**, detached from a glacier, and carried out to a **lake or the ocean**.
 - Smaller icebergs are known as **bergy, bits, and growlers**.

What are the Proposed Key Activities for Glaciers' Preservation?

- **Global Outreach:** A media campaign to educate the public and stakeholders on glaciers' importance and the impact of their loss.
 - Work with global figures, including **youth ambassadors**, to enhance outreach efforts.
 - Coordinate with other global bodies for **GHGs reduction**, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), which **trap heat** in the Earth's atmosphere, leading **melting of glaciers**.

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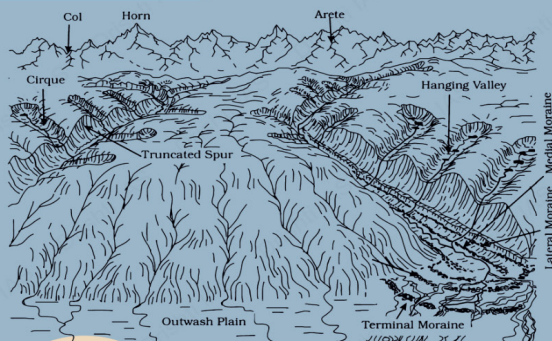


Note:

GLACIAL LANDFORMS

“Glacier is any large mass of perennial ice that originates on land by the recrystallisation of snow or other forms of solid precipitation”

EROSIONAL LANDFORMS



Cirque/ Cirque/ Cwm

- Small glaciers and are characteristically bowl-shaped
- Found at the heads of glacial valleys

Horns and Serrated Ridges

- Form through head ward erosion of the cirque walls
- Present in areas where multiple glaciers flow in multiple directions

Glacial Valleys /Troughs

- Trough-Like and U-shaped with broad floors and relatively smooth, and steep sides
- Fjords are deep glacial troughs filled with seawater, forming shorelines

Bergschrund

- A crevasse/crack or series of crevasses often found near the head of a mountain glacier

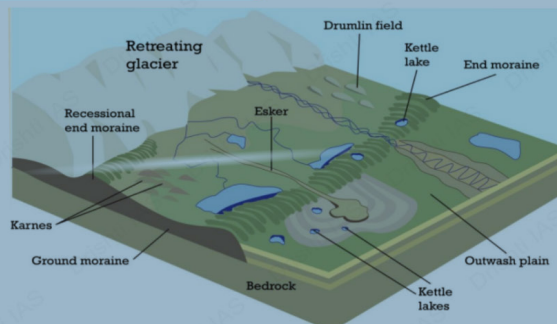
Hanging Valley

- Form when glacier ice deeply erodes a main or trunk valley, leaving tributary valleys hanging far above the main valley floor.

Crag and Tail

- Crag: Mass of hard rock with a precipitous slope.
- Tail: Formed by the deposition of glacial debris or till as the glacier retreats.

DEPOSITIONAL LANDFORMS



Moraines

- Lateral Moraines: Form on the sides of glaciers
- Ground Moraines: Deposits varying greatly in thickness and in surface topography
- Medial Moraines: Form where two tributary glaciers come together

Eskers

- Winding ridges of sand and gravel formed by streams flowing within or beneath glaciers

Outwash Plains

- Deposit of sand and gravel carried by running water from the melting ice of a glacier

Drumlins

- Hills of sediment that have been streamlined by glacier flow.
- Up to 1 km in length and 30 m or so in height
- So commonly described as having a *basket of eggs* topography



Deccan Volcanism and Movement of Indian Plate

Why in News?

A new study revealed that **tropical flora** showed significant **resilience** during the Deccan **Volcanism** on **Indian Plate** while causing **mass extinctions** of fauna.

- Mass extinctions are **catastrophic events** causing **rapid biodiversity loss**, often triggered by climate changes, asteroid impacts, or **massive volcanic eruptions**.

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Note:

What are the Key Findings of the Study?

- **Impact on Fauna and Flora:** Deccan **Volcanism** caused mass extinctions of **dinosaurs** and other fauna, along with **gymnosperms**.
 - However, it **supported hyper-diverse tropical flora** by creating **fertile, undisturbed habitats** for angiosperms, rather than leading to floral extinction.
 - A **warm, humid climate** during volcanic inactivity and the **movement of the Indian Plate** through the **equator** helped floral diversity.
- **Global and Regional Implications:** Deccan volcanism was identified as a contributing factor to the **Cretaceous-Paleogene (K-Pg) mass extinction** (66 million years ago) that culminated in **ammonoid (invertebrate cephalopods)** and **dinosaurs** on the global scale.
 - However, **tropical rainforests** in the Indian Plate region **adapted and thrived**, indicating **higher resilience** of tropical flora to climatic stresses.

- **Tropical Flora:** Tropical flora refers to the plant species that thrive in **tropical regions (between 23.5° North and 23.5° South latitude)** of the world, which are typically characterized by **warm temperatures and high humidity** year-round.
 - These regions are found **near the equator**, between the **Tropic of Cancer** and the **Tropic of Capricorn**.
 - E.g., **Mahogany tree, Orchids, Coconut palms** etc.
- **Gymnosperms:** Gymnosperms produce **seeds that are not enclosed within an ovary (naked seeds)** but are exposed, often on **cone-like structures**. They are among the **oldest and most primitive plants**.
- **Angiosperms:** They are a group of plants that produce **seeds enclosed within a fruit**. After fertilization, the **ovary** of the flower develops into a **fruit that contains seeds**.

What is Deccan Volcanism Theory?

- **About:** It suggests that the **volcanic eruptions** leading to the formation of **Deccan Traps** played a key role in the mass extinction event that occurred approximately **66 million years ago**.
 - The Deccan Traps are a **large volcanic plateau** in **peninsular India**, formed by **fissure volcanic eruptions**.

- Fissure volcanic eruptions occur when **magma erupts through long cracks or fissures**, rather than through a central vent of a volcano.
- **Formation:** Deccan Traps are believed to have been formed by intense volcanic activity caused by the Deccan **mantle plume**. The volcanic activity continued for **several hundred thousand years**.
 - A mantle plume is a **cylindrical upwelling of hot magma** from the Earth's mantle, responsible for **volcanic hotspots** not linked to plate boundaries.
 - Presently, **Deccan Traps** consist of vast layers of **basaltic lava flows**, formed by large volcanic eruptions.
- **Connection with Indian Plate Movement:** India was a large island situated **off the Australian coast**. India is supposed to have started her **northward journey** about **200 million years ago**.
 - Beneath the Indian Plate, the **Réunion hotspot** is a **mantle plume** of hot, molten rock from the Earth's interior. As the Indian Plate moved over the Réunion hotspot, **fissure volcanic eruptions** formed the **Deccan Traps**.
 - The **Réunion hotspot** is a volcanic hotspot located in the **Indian Ocean**, near the island of **Réunion** (a French overseas region).

Economic Significance of Deccan Volcanism

- **Major Rocks:** **Basalt** is found in the Deccan Traps, and **granite and gneiss** is common in southern India, especially **Karnataka and Tamil Nadu**.
- **Mineral Resources:** **Iron ore** is abundant in **Karnataka**, and **bauxite** is found in the **Eastern Ghats**.
- **Agriculture:** It supports **cotton and tobacco** due to the presence of **Black soil**.
 - **Black soil** was formed from the **weathering of volcanic rocks**, particularly **basalt**, which is rich in minerals like iron, magnesium, calcium, and potassium.

Note: The Deccan Traps cover significant parts of **South India**, including large areas of **Maharashtra, Karnataka, Gujarat, Madhya Pradesh, Andhra Pradesh, and Tamil Nadu**, with smaller extensions into **Telangana and Kerala**.

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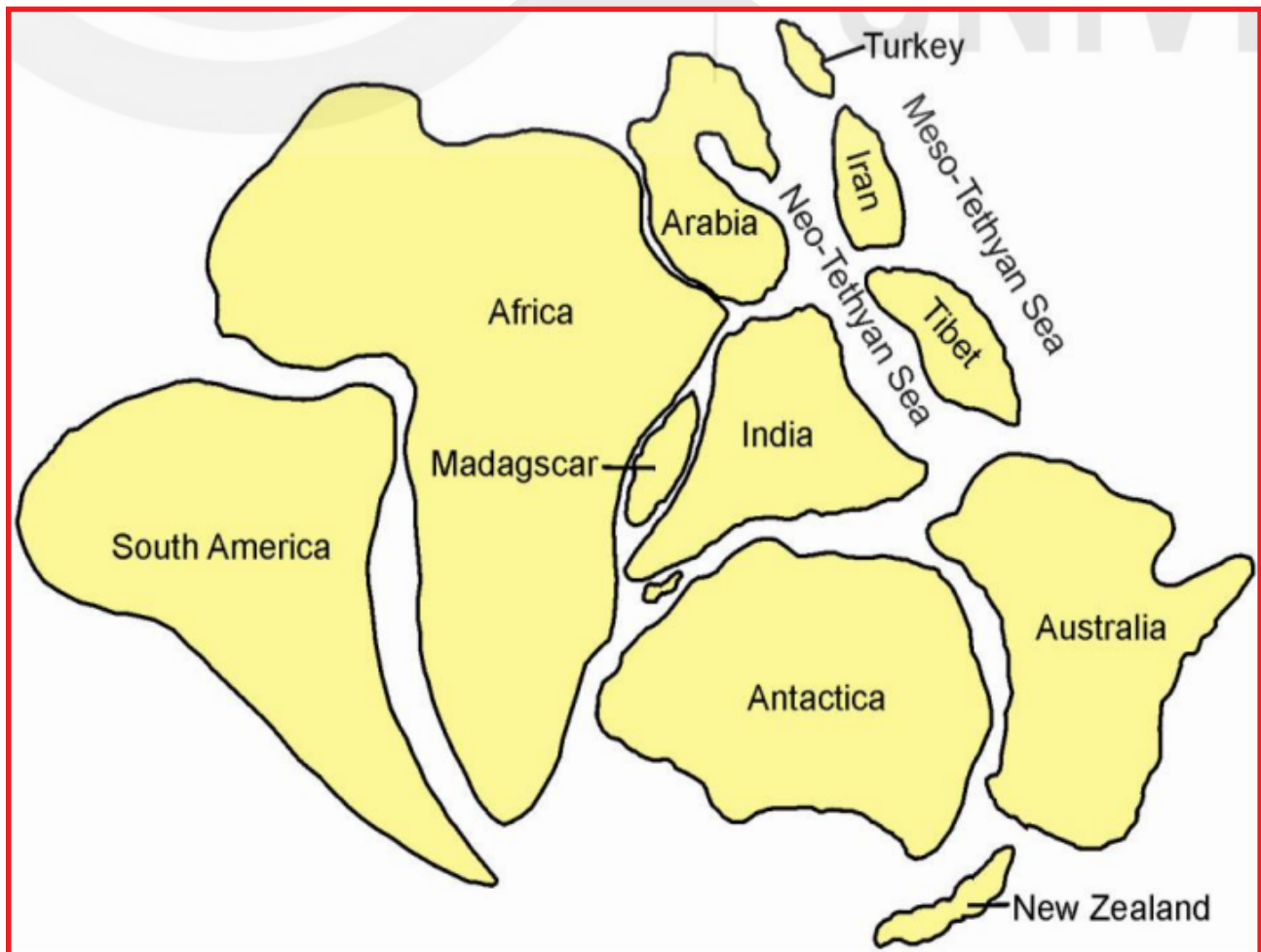
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Note:

What are the Key Points on the Movement of the Indian Plate?

- **Breaking of Gondwanaland:** The Indian Plate was part of **Gondwanaland** along with **South America, Africa, Arabia, Madagascar, Australia, and Antarctica** in the Late Palaeozoic Era which began **breaking apart in the Late Triassic (~215 Ma)** period.
 - The **Tethys Sea** separated India from the Eurasian plate till **about 225 million years ago**.
- **Separation and Drifting:** India separated from **Africa** in the **Middle Jurassic (~165-150 Ma)** and from **Antarctica-Australia** in the **Early Cretaceous (~130-120 Ma)**.
 - The **Indo-Madagascar** block split from **Antarctica-Australia** around **130-120 Ma**, and the **Seychelles** separated from India around the **Cretaceous-Paleocene boundary (~66 Ma)**.
- **Rifting and Mantle Plumes:** Mantle plumes played a crucial role in the **rifting and drifting** of the Indian plate, with significant basaltic volcanic eruptions.
 - E.g., **Reunion mantle plume** separated the **Indian plate from Seychelles**, forming the Deccan traps.
- **Collision with Asia:** The **Indian plate collided with the Asian plate** during the **Eocene (~50-35 Ma ago)**, forming the **Himalayan mountain** range and **uplifting the Tibetan Plateau**.
 - As the Indian plate collided with Eurasian plate, the **Tethyan Sea was closed**.



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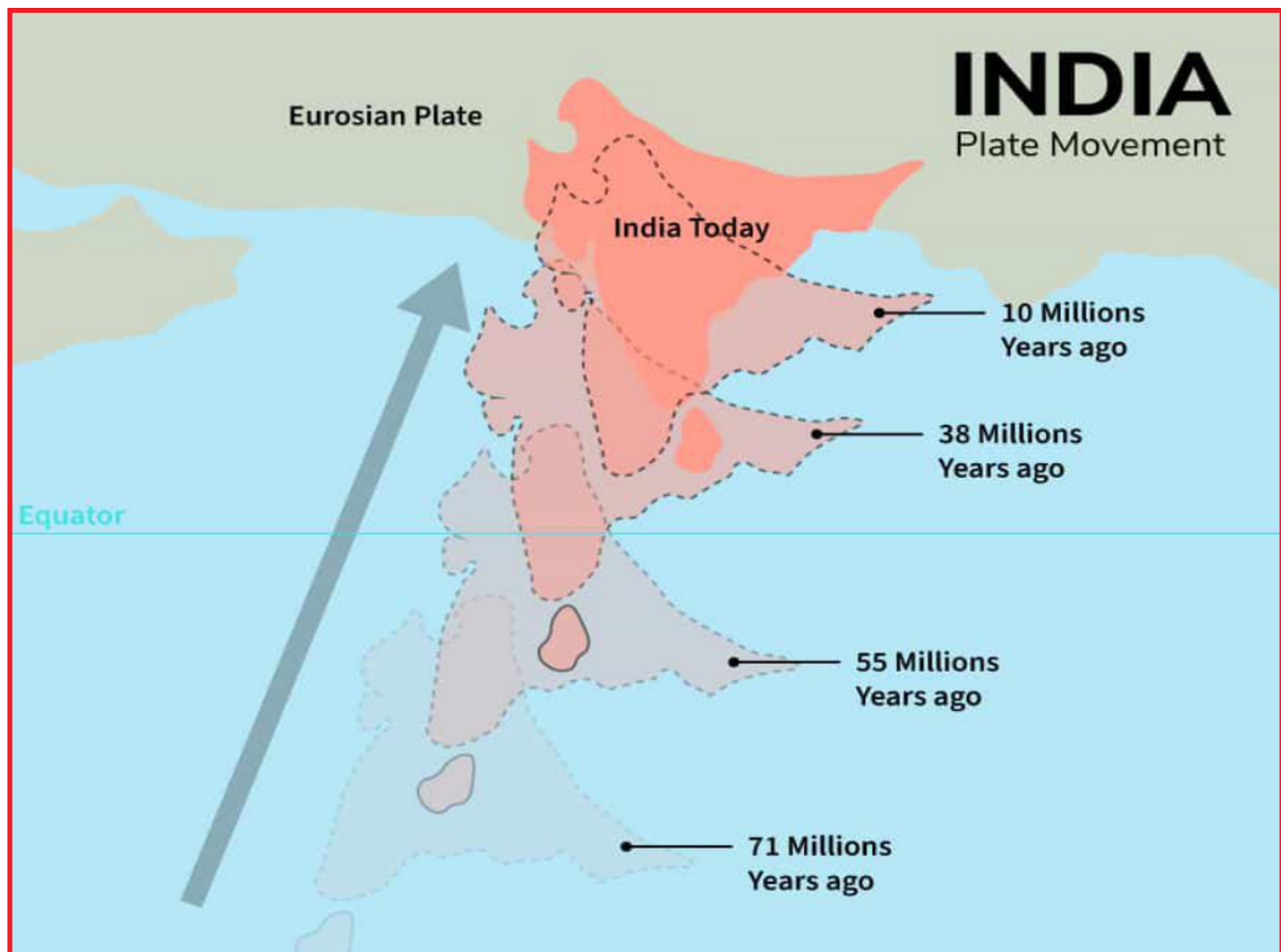


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Note:

- **Geological Impact:** The India-Asia collision is a hard **continent-continent collision** that resulted in the formation of the biggest and **youngest fold mountain belt** of the world known as **Himalaya**.
 - It significantly altered the global climate and established a **distinct monsoon system** for the Indian subcontinent.
 - Continent-continent collision occurs when **two continental plates collide**, forming large mountain ranges as both plates are **too buoyant to sink** into the mantle.



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Note:

Miscellaneous

Highlights

- 76th Republic Day
- 38th National Games and Kalaripayattu
- QS World Future Skills Index 2025

76th Republic Day

Why in News?

India celebrated its 76th **Republic Day** (26th January 2025), with the theme '**Swarnim Bharat: Virasat aur Vikas**,' highlighting military strength, development, and cultural diversity, with **Indonesian President Prabowo Subianto** as the chief guest.

- Republic Day in India is a national observance that commemorates the adoption of the **Indian Constitution on 26th January 1950**, which established India as a republic, reflecting its democratic values and rich heritage.

What are the Key Highlights of the 2025 Republic Day Tableaux?

- **Tri-Services Tableau:** For the first time, a **Tri-Services Tableau** was featured, underlining the synergy between the **Army, Navy, and Air Force**.
 - The theme '**Shashakt aur Surakshit Bharat**' (**Strong and Secure India**) was exemplified by a display of integrated operations across land, water, and air.
 - The tableau included representations of indigenous defense technologies like the **Arjun Main Battle Tank**, **Tejas MKII fighter aircraft**, **Advanced Light Helicopter**, and **INS Visakhapatnam destroyer**.
- **DRDO Tableau:** Themed '**Raksha Kavach–Multi-layer Protection against Multi-domain Threats**,' displayed cutting-edge innovations for national security.
 - The Tableau showcased key technologies like the **Quick Reaction Surface-to-Air Missile**, Medium

Power Radar - Arudhra, Drone Detection System, **Advanced Lightweight Torpedo**, **Dharashakti Electronic Warfare System**, and Indigenous **Unmanned Aerial Systems**, highlighting India's focus on indigenously developed defense technologies for national security.

➤ States Tableaux:

States/UTs	Theme
Andhra Pradesh	" Etikoppaka Bommalu - Eco-Friendly Wooden Toys"
Bihar	" Swarnim Bharat: Virasat Aur Vikas (Nalanda Vishwavidyalaya)" <ul style="list-style-type: none"> ➤ Depicted the rich Buddhist heritage of the region.
Chandigarh	"Chandigarh: A Harmonious Blend of Heritage, Innovation and Sustainability" <ul style="list-style-type: none"> ➤ Showcased city's role in film production.
Dadra Nagar Haveli and Daman and Diu	"Daman Aviary Bird Park along with Kukri Memorial - A tribute to the valiant sailors of the Indian Navy"
Delhi	"Quality Education"
Goa	"Cultural Heritage of Goa" <ul style="list-style-type: none"> ➤ Showcased Diwija festival and Kaavi art forms blending tourism with local heritage ➤ Goa, known as the 'Pearl of the Orient,' is renowned for its beauty, culture, beaches, and hospitality.

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Note:

Gujarat	<p>"Swarnim Bharat: Virasat Aur Vikas"</p> <ul style="list-style-type: none"> ➤ Showcased 12th-century Kirit Toran (arches) from Vadnagar and C-295 Transport Aircraft Assembly Unit.
Haryana	Showcasing Bhagwad Gita and Krishna's teachings
Karnataka	<p>Lakkundi: Cradle of Stone craft.</p> <ul style="list-style-type: none"> ➤ Lakkundi in Karnataka's Gadag district is a significant Jain center. It is a historic site with ancient temples like Someshwara and Jaina Basadi, reflecting Chalukya dynasty contributions. ➤ Protected by the State government, it is proposed for the UNESCO World Heritage Site tentative list.
Madhya Pradesh	"Madhya Pradesh's Glory: Kuno National park- The land of Cheetahs "
Punjab	"Punjab as the land of knowledge and wisdom"
Tripura	"Eternal Reverence: The worship of 14 Deities in Tripura - Kharchi Puja "
Uttar Pradesh	<p>"Mahakumbh 2025 - Swarnim Bharat Virasat aur Vikas"</p> <ul style="list-style-type: none"> ➤ Depicted the celebration of the Maha Kumbh in Prayagraj and the confluence of Ganga, Yamuna, and Saraswati (Triveni Sangam).
Uttarakhand	"Uttarakhand: Cultural Heritage and Adventure Sports"
West Bengal	"The 'Lakshmir Bhandar' & 'Lok Prasar Prakalpa' - Empowering Lives and Fostering Self-Reliance in Bengal"

What are the Key Highlights of the 76th Republic Day?

- **Padma Awards:** 139 **Padma Awards** have been conferred on 76th Republic Day. These include **Padma Vibhushan, Padma Bhushan, and Padma Shri**.
 - Padma Vibhushan is awarded for exceptional and distinguished service.
 - Padma Bhushan for distinguished service of high order and 'Padma Shri' for distinguished service in any field.
 - **Padma Vibhushan is the highest**, followed by Padma Bhushan and Padma Shri in the Padma Awards hierarchy. The awards are announced on the occasion of **Republic Day every year**.
- **Gallantry Awards and Defence Decorations:** President conferred **Gallantry awards** for 93 Armed Forces and **Central Armed Police Forces (CAPF)** personnel.
 - These include **Kirti Chakras, Shaurya Chakras, Bar to Sena Medal, Sena Medals, Nao Sena Medals, and Vayu Sena Medals**.
 - Gallantry awards are announced twice a year, on **Republic Day and Independence Day**.
 - **Gallantry Awards:**
 - **Wartime Awards:** These awards honor bravery in the face of the enemy, primarily for armed forces personnel.
 - Notable awards include the **Param Vir Chakra, Mahavir Chakra, and Vir Chakra**.
 - **Peacetime Awards:** These awards recognize bravery in non-wartime situations and include the **Ashoka Chakra, Kirti Chakra, and Shaurya Chakra**.
 - These can be awarded to armed forces, paramilitary forces, police, and civilians.
 - **Other Gallantry Awards:** The **Sena Medal (Gallantry)** honors distinguished service in the Indian Army, with a **Bar to Sena Medal (Gallantry)** for subsequent acts of bravery.
 - The **Nao Sena Medal (Gallantry)** is awarded for courage or duty in the **Navy**, while the **Vayu Sena Medal (Gallantry)** recognizes bravery or exceptional service in the **Air Force**.

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Note:

CIVILIAN AND GALLANTRY AWARDS

CIVILIAN AWARDS

Bharat Ratna

- India's **highest civilian award**; instituted in **1954**
- Awarded for exceptional service/performance of the highest order in any field of human endeavour
- Award includes certificate & medallion (no monetary grant)
- Recommended **to President by the PM**
- Can be given (max) **thrice per year**



Padma Awards

- Instituted in **1954**; announced annually on **eve of Republic Day**
- Recognises achievements in all fields/disciplines involving **public service**
- Categories: Padma **Vibhushan** > Padma **Bhushan** > Padma **Shri**
- Recommended by **Padma Awards Committee** (constituted by PM annually)
- Suspended twice** - 1978-79 and 1993-97
- Max no. of awards per year - **120**



GALLANTRY AWARDS

- Wartime Gallantry** instituted on **26th January 1950**
- Peacetime Gallantry** instituted on **4th January 1952**
- Announced twice** a year - Republic Day and Independence Day
- Order of Precedence - **Param Vir Chakra** > **Ashoka Chakra** > **Mahavir Chakra** > **Kirti Chakra** > **Vir Chakra** > **Shaurya Chakra**

Eligibility -

- » All officers of all ranks (**Army, Navy, IAF**), Reserve forces, **Territorial army**
- » **People providing nursing services** under any of the above forces

Wartime Gallantry Awards



Param Vir Chakra

Maha Vir Chakra

Vir Chakra

Peacetime Gallantry Awards



Ashoka Chakra

Kirti Chakra

Shaurya Chakra



- **Defence Decorations:** The President conferred 305 defence decorations, including **Param Vishisht Seva Medals, Uttam Yudh Seva Medals, Ati Vishisht Seva Medals, Yudh Seva Medals, Bar to Sena Medal, Sena Medals** (Devotion to Duty), **Nao Sena Medals, Vayu Sena Medals, Bar to Vishisht Seva Medals, and Vishisht Seva Medals.**
- Param Vishisht Seva Medals:** Recognize distinguished service of exceptional order.
 - Uttam Yudh Seva Medals:** Awarded for distinguished service during war or conflict.
 - Ati Vishisht Seva Medals:** Recognize distinguished service of exceptional order.
 - Yudh Seva Medals:** Awarded for distinguished service during war or hostilities.

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Note:

- **Bar to Sena Medal (Devotion to Duty):** Awarded to recipients of Sena Medal for further acts of devotion.
- **Vishisht Seva Medal:** High-order service, with a Bar for subsequent awards.
- **PTM and TM Medal:** President conferred the **President's Tatrakshak Medal (PTM)** and **Tatrakshak Medal (TM)** for **Indian Coast Guard** personnel on 76th Republic Day.
- These awards recognise their acts of conspicuous gallantry, exceptional devotion to duty, and distinguished/meritorious service.
- **Services Personnel:** A total of 942 personnel from Police, Fire Services, Home Guard & Civil Defence (HG&CD), and Correctional Services have been awarded Gallantry and Service Medals.
- **Police Gallantry Medals:** Announced twice a year, these medals acknowledge **bravery and exemplary conduct by police personnel**.
 - The **President's Medal for Gallantry** is awarded for exceptional courage in saving lives or preventing crime, while the **Police Medal for Gallantry** recognizes acts of bravery during duty.
- **President's Medal for Distinguished Service (PSM):** Awarded for special distinguished service records.
- **Medal for Meritorious Service (MSM):** Given for valuable service characterized by dedication and devotion to duty.
- **Jeevan Raksha Padak Awards:** On the 76th Republic Day, 49 **Jeevan Raksha Padak Awards** were conferred, recognizing civilian bravery in saving lives.
- The awards are given in three categories: **Sarvottam, Uttam, and Jeevan Raksha Padak**.
- **Sarvottam Jeevan Raksha Padak:** For conspicuous courage in saving a life under very dangerous circumstances.
- **Uttam Jeevan Raksha Padak:** For courage and prompt action in saving a life under great danger.
- **Jeevan Raksha Padak:** For courage and prompt action in saving a life under conditions involving grave bodily injury.

Note: Raman Rajamannan, Kerala's tribal king of the Mannan community, attended the 76th Republic Day celebrations at Kartavya Path, marking the first time a Mannan king participated.

- The Mannan community consists of approximately 3,000 members, spread across 46 settlements mainly in Idukki district, Kerala.

- The community originated in Tamil Nadu, where their ancestors fled during the **Chola-Pandya war** and sought refuge in Idukki's forests, forming a small kingdom.
- The Mannan community is governed by a traditional system, with the **Mannan king at the top**, supported by a **council of ministers (kaanis)** and **deputies (upa rajas)**.
- The Mannan tribe follows a **matrilineal system**, with lineage and inheritance passing through the mother. It has **36 sub-castes**, and members often marry outside the community (**exogamy**).

What is the Significance of Republic Day?

- **Republic Day:** 26th January 1950, India's Constitution came into force, marking the **country's transition to a sovereign democratic republic**.
 - The Constitution was adopted by the **Constituent Assembly** on **26th November 1949**.
 - The day honors the democratic values enshrined in the **Constitution**, with 26th January specifically chosen to commemorate the **Indian National Congress (INC)'s declaration of Purna Swaraj** on **26th January 1930**.
- **Purna Swaraj Declaration (1930):** On **19th December 1929**, the INC passed the '**Purna Swaraj**' (**total independence**) resolution at its Lahore session.
 - A public declaration was made on 26th January 1930, which the INC urged Indians to celebrate as Independence Day.
 - From **1930 to 1947, January 26 was celebrated as Independence Day** or Purna Swaraj Day to mark the pursuit of full sovereignty.
- **Unfurling:** On Republic Day, the President of India '**unfurls**' the **national flag**, symbolizing the country's shift from a British colony to a sovereign republic.
 - The flag is rolled and attached to the top of the pole, and the President unveils it as a commitment to democratic values.
 - In contrast, on **Independence Day**, the **Prime Minister 'hoists' the flag from the bottom to the top**, symbolizing the rise of a new nation, freedom, and patriotism after colonial rule.
 - These actions, though similar, represent different historical and symbolic contexts.

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Note:

38th National Games and Kalaripayattu

Why in News?

The **Indian Kalaripayattu Federation** has accused the **Indian Olympics Association (IOA)** of downgrading the **Kalaripayattu** to the **demonstration section** of the event, **not the competitive section**.

➤ Demonstration events **showcase** sports for **promotion** and are excluded from the official medal tally.

What are Key Points about Kalaripayattu?

- **About:** It is one of the **oldest and most scientific** martial arts globally, originating in **Kerala**.
 - The warrior sage **Parasurama** is credited with establishing Kalaripayattu, which **Bodhidharma** (a Buddhist monk from South India) later introduced to China at the **Shaolin Temple** in the **5th century AD**.

MARTIAL ART

Martial arts are traditional combat systems practiced for various purposes such as physical, mental, spiritual growth and self defence.

Huyen Langlon (Manipur)

- ④ **Meaning:** Huyen (War) Langlon (Knowledge)
- ④ **Components:** Thang-Ta (Armed Combat) and Sarit Sarak (Unarmed Fighting)
- ④ **Weapons:** Thang (Sword) and Ta (Spear)

Lathi Khela (West Bengal)

- ④ **Lathial:** Practitioner of Lathi Khela
- ④ **Weapon:** Lathi (One of the world's oldest weapons)

Gatka (Punjab)

- ④ Toned-down version of the deadlier **Shastar Vidya**.
- ④ Sharp swords (Shastar Vidya) replaced by Wooden Sticks and Shield (Gataka)
- ④ **Role of Sikh Gurus:** 6th Sikh Guru Hargobind adopted it through 'Kirpan' for Self-Defense.
- ④ 10th Guru Gobind Singh made it compulsory for everyone
- ④ **Weapons:** Sword and Sticks
- ④ **Establishment of Gatka Federation of India:** 2018

Kalaripayattu (Kerala)

- ④ **Feature:** This art form includes mock duels (armed and unarmed combat) and physical exercises.
- ④ Focuses on footwork
- ④ **Kalari (Battlefield):** Place where this martial art is practiced
- ④ **Weapon:** Strikes, Kicks

Mallakhamb (Madhya Pradesh & Maharashtra)

- ④ **Feature:** A gymnast performs aerial yoga with a vertical wooden pole
- ④ **Meaning:** Malla (Wrestler) Khamb (Pole)
- ④ **Origin:** Indian subcontinent

Silambam (Tamil Nadu)

- ④ Allows the use of a broad range of weapons
- ④ **Feature:** Incorporates tactics of animal motions (snake, tiger, and eagle)
- ④ **Created By:** Lord Muruga [Son of Lord Shiva (Kartekeya) and Sage Agasthya]
- ④ **Spread:** Tamil Nadu to Malaysia

Kathi Samu (Andhra Pradesh)

- ④ **Weapons:** Various kinds of Swords
- ④ **Garidi:** Location where Kathi Samu is performed
- ④ **Stick Fight (Vairi):** Plays a significant part as a precursor to the real sword fight.

Paika Akhadha (Odisha)

- ④ **Meaning:** Warrior School
- ④ **Physical Activity:** Rhythmic gestures and weapons swung on the beat of the drum.

Pari Khanda (Bihar)

- ④ This martial art forms the basis of Chhau dance (UNESCO's Intangible Cultural Heritage of Humanity)
- ④ **Meaning:** Pari (Shield) Khanda (Sword)
- ④ **Created By:** Rajput
- ④ **Weapons:** Sword and Shield

Thoda (Himachal Pradesh)

- ④ Mixture of martial art, sport and culture
- ④ **Focus:** Skill of archery
- ④ **Performed on:** Baisakhi (13th and 14th April)
- ④ **Weapons:** Bows and Arrows
- ④ **Included Teams:** Pashis (Pandavas) Saathis (Kauravas)

NOTE

- ④ Various **Indian martial arts** are now part of the routine training of regiments of the Army.
- ④ The **Ministry of Youth Affairs and Sports** inducted 4 indigenous martial art forms- **Kalaripayattu, Mallakhamb, Gatka** and **Thang-ta** into the **Khelo India Youth Games (KIYG)**.



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Note:

- **Philosophy:** The term “Kalarī” in Malayalam refers to a **traditional gymnasium** where “Payattu” (fight or exercise) is taught.
 - It emphasizes **mind-body coordination** with techniques inspired by the attack and defense systems of eight animals i.e., **elephant, lion, boar, horse, snake, rooster, cat, and fish.**
- **Types:** Kalaripayattu has two types i.e.,
 - **Northern:** It focuses on **weapons and linear movements**, and
 - **Southern:** It emphasizes **multi-directional movements** with **fewer weapons.**
- **Stages of Training:**
 - **Maipayattu:** **Body conditioning** to prepare for combat.
 - **Kolthari:** Training with **wooden weapons** like short and long sticks.
 - **Angathari:** Introduction to **sharp metal weapons** after overcoming fear.
 - **Verumkai:** **Bare-hand fighting** focusing on anatomy for strategic strikes.
- **Current Context:** It was included as a competitive sport in the **37th National Games, Goa** but relegated to a **demonstration sport in the 38th National Games, Uttarakhand.**
 - Kalaripayattu athletes won **22 medals**, including 19 gold, in the 2023 National Games.

What are Key Points About National Games 2025?

- **About:** The National Games of India is an **Olympic-style multi-sport event** where athletes from **states and Union Territories** compete for medals.
 - The **38th edition** of the National Games will take place from **28th January to 14th February 2025** in Uttarakhand.
- **Competition Structure:** The National Games will feature **32 sporting disciplines** for competitive events.
 - In addition, **four demonstration sports** will be included i.e., **Kalaripayattu, Yogasana, Mallakhambh, and Rafting.**
- **Theme and Tagline:** The mascot of the games is **Mouli**, inspired by **Uttarakhand's state bird, the Monal**, reflecting the region's natural beauty and cultural diversity.
 - The tagline for the games is **“Sankalp Se Shikhar Tak”** (from resolution to zenith).



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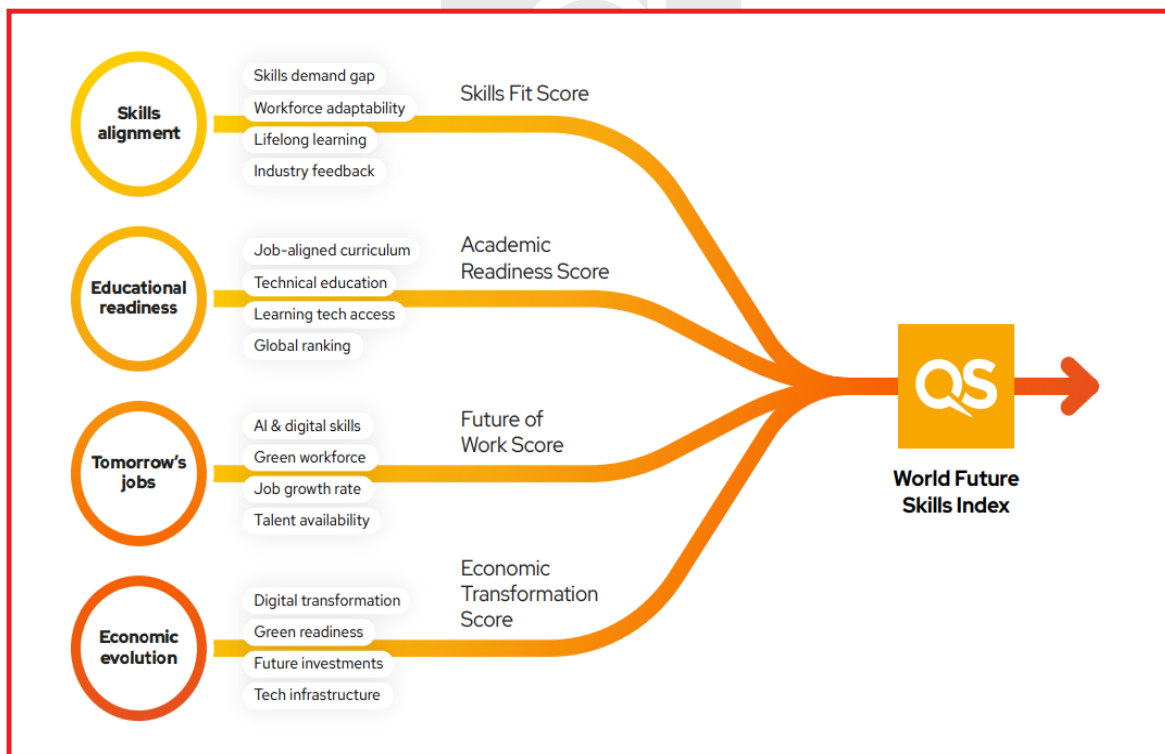
QS World Future Skills Index 2025

Why in News?

India ranks **25th** in the **QS World Future Skills Index 2025**, positioning it as a “**future skills contender**.” The index evaluates how well countries are prepared to meet the evolving demands of the global job market

What is the QS World Future Skills Index?

- **About:** The QS World Future Skills Index, developed by **Quacquarelli Symonds (QS)**, ranks countries on their readiness to meet evolving global job market demands emphasizing **innovation, sustainability, and talent development**.
- **Indicators:** The Index uses four indicators to measure a country's preparedness to thrive in an increasingly skills-driven global economy.
 - **Skills Fit:** Measures how well a country's education systems align with **employer demands**.
 - **Academic Readiness:** Reflects the capacity of higher education systems to equip students with **relevant skills for future jobs**, particularly in emerging fields such as **Artificial intelligence (AI), digital technologies, and green industries**.
 - **Economic Transformation:** Assesses a country's adaptability to economic changes by examining the interplay between **education, workforce skills, and industrial growth**, with a focus on productivity, innovation, and sustainability.
 - **Future of Work:** Assesses a country's preparedness for future jobs, focusing on adaptability to technological and industrial changes.



How Has India Performed in the QS World Future Skills Index 2025?

- **Future of Work:** India ranked **2nd** globally, behind the US, for preparedness in future-focused skills like AI, digital technologies, and green industries.

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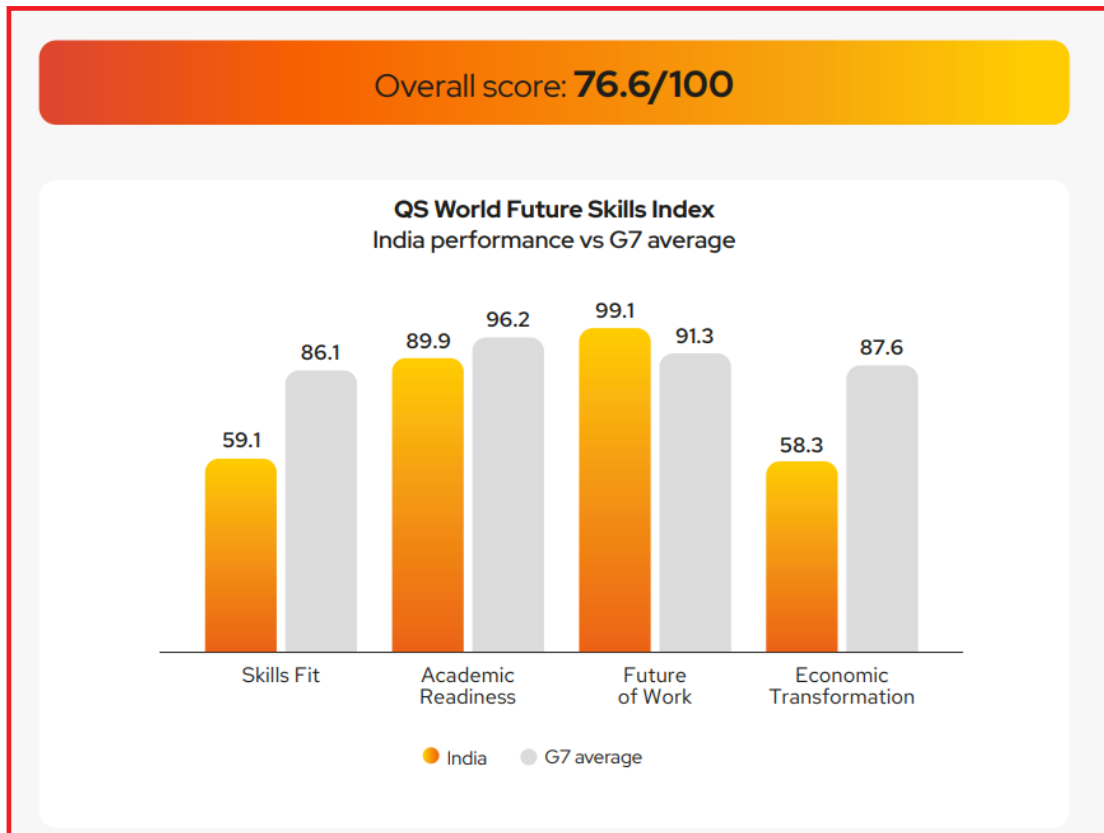


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Note:

- This reflects India's demand-driven readiness for emerging job roles.
- **Academic Readiness:** India ranked 26th, showcasing moderate alignment between higher education and the demands of the future job market. Emphasis on innovation and adaptability is noted but needs strengthening.
- **Skills Fit:** India ranks 37th, the lowest among the top 30 countries. This highlights significant **gaps between the workforce's skills and employer demands**, reflecting challenges within India's higher education system in adapting to the evolving needs of the job market.
- **Economic Transformation:** India ranked 40th, highlighting the challenges in innovation and aligning economic strategies with workforce adaptability.



India's Initiatives Related to Future Skills Development

- [Industrial Training Institutes](#)
- [Green Skill Development Programme](#)
- [Thematic Hubs \(T-Hubs\)](#)
- [Skill Council for Green Jobs \(SCGJ\)](#)
- [Skill India Mission](#)
- [Pradhan Mantri Kaushal Vikas Yojana](#)
- [SANKALP Scheme](#)
- [Skills Strengthening for Industrial Value Enhancement \(STRIVE\).](#)

Read more: [Future of Jobs Report 2025](#)



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Note:

Rapid Fire Current Affairs

Highlights

- Niger, Mali and Burkina Faso Left ECOWAS
- Post-Quantum Encryption Cryptography
- Death Anniversary of Mahatma Gandhi
- First Defence Export of Ordnance Clothing
- WHO Recommends Lower-Sodium Salt
- Birth Anniversary of Lala Lajpat Rai
- Mission 300 Africa Energy Summit
- ISRO's 100th Launch from SDSC
- Namdapha Tiger Reserve
- Aroma Mission
- Kailash Mansarovar Yatra
- Aadhaar for Chinar Trees
- Exoplanet WASP-127b
- Essential Religious Practice
- PM YASASVI Scheme
- Supreme Court of India Foundation Day
- Oligarchy
- Jawaharlal Nehru Port
- LID 568 Black Hole
- India to Ratify Cape Town Convention
- Mauritius Hydrographic Survey
- 15th National Voters' Day 2025
- SC Bose Aapda Prabandhan Puraskar 2025 to INCOIS
- DRDO's Scramjet Test Boosts Hypersonic Missile Development
- National Girl Child Day 2025
- Quad's Commitment to an Open Indo-Pacific
- Dengue Early Warning System
- Halal Certification Controversy in Non-Meat Products
- Indian Grey Wolf
- Entity Locker
- 8th Pay Commission
- Boreal Forests
- H5N1 Bird Flu and Demoiselle Cranes
- Anti-Dumping Duty on Cypermethrin
- Cosmic Story of Pluto and Charon
- Athletics Federation of India (AFI)
- Wind Turbines Along Railway Tracks
- Renaming Gulf of Mexico and Denali
- Colombia's Escalating Conflict
- India Wins Inaugural Kho Kho World Cup 2025
- Mission SCOT
- Eruption of Mount Ibu
- Nigeria as 9th BRICS Partner Country
- Fonio Millet
- Demand For Frontier Nagaland Territory
- Marburg Virus Disease Outbreak
- ISRO's Third Launch Pad
- Blood Money and Plea Bargaining
- Compact Research Module for Orbital Plant Studies (CROPS)
- Trichophyton Indotineae
- UPI Transactions Enabled for PPI Holders
- The Kokborok Language
- Interpol's Silver Notice
- Reevaluating Obesity Metrics
- Gaddi Dog
- Threats to Wild Bees
- Gangasagar Mela
- Nag Mark 2 Anti-Tank Guided Missile
- Data Embassies
- Human Brain Implant by Neuralink

Niger, Mali and Burkina Faso Left ECOWAS

The West African nations of **Niger, Mali, and Burkina Faso** have officially withdrawn from the **Economic Community of West African States (ECOWAS)**.

- The three countries formed the **Alliance of Sahel States**, seeking military support from **Russia** and distancing themselves from the US and France.
 - The Sahel is a **semiarid region** (western and north-central Africa), a **transitional zone** between the **Sahara desert** (north) and **humid savannas** (south).

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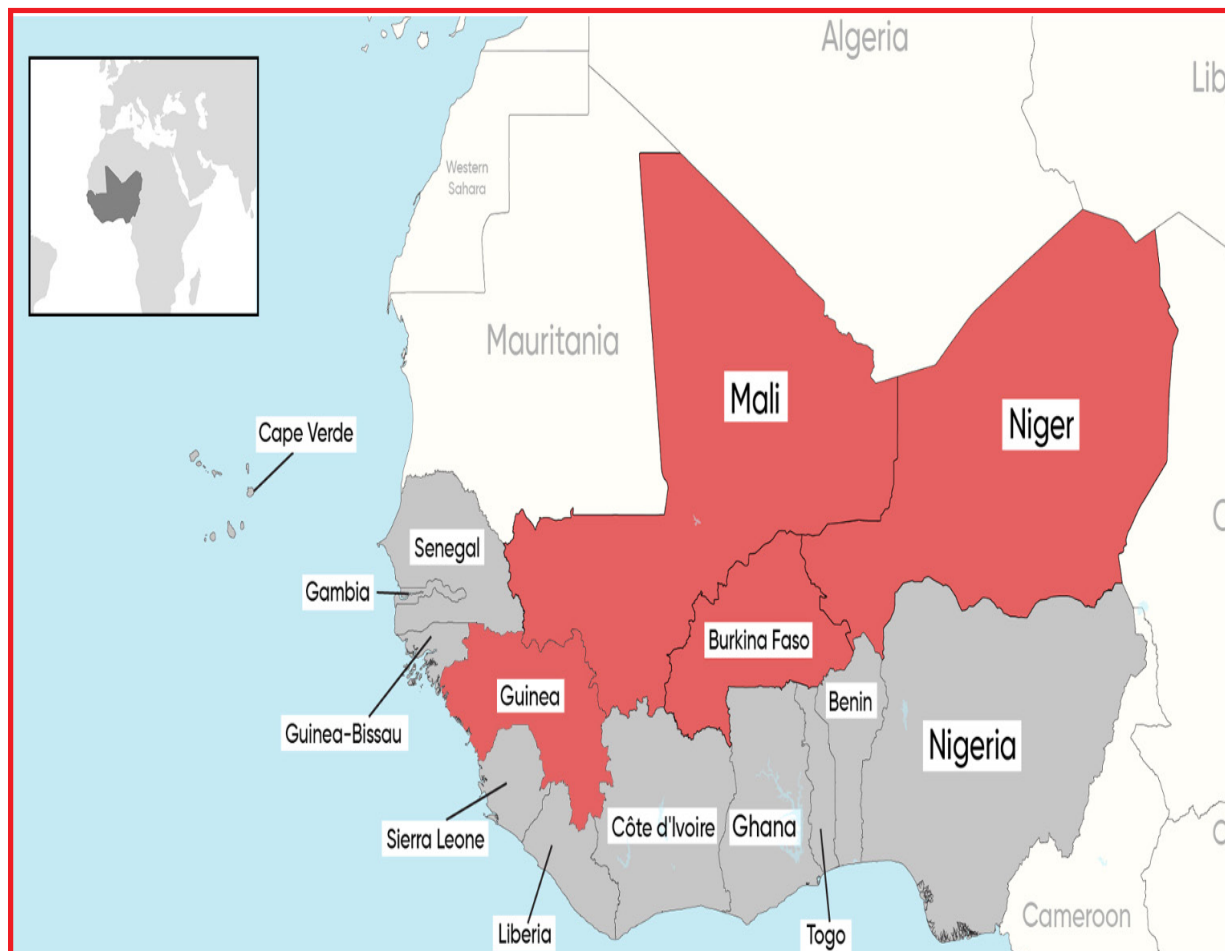
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Note:

➤ **About ECOWAS:**

- It is a regional group of **15 West African countries** (before withdrawal), founded in **1975** with the signing of the **Treaty of Lagos (Nigeria)**.
- It is headquartered in **Abuja, Nigeria** and aims to promote **economic integration and shared development** of the West African sub-region.
- It established its **free trade area in 1990** and adopted a **common external tariff in 2015**.
- A **peacekeeping force** was sent to **Liberia in 1990** during its **civil war** and to **Sierra Leone in 1997** after the government was overthrown.
- **Mauritania** withdrew in **2000** but **rejoined** as an associate member in **2017**.



Read More: [Economic Community of West African States](#)

Post-Quantum Encryption Cryptography

Virtual Private Network (VPN) companies are adapting to the **potential threats** posed by **quantum computing** through the implementation of **Post-Quantum Cryptography (PQC)**.

- **Quantum computing** poses several **threats to current encryption** methods due to its ability to perform extremely fast calculations.
 - **Breaking Asymmetric Encryption:** Quantum computers can solve complex mathematical problems like **factoring large numbers** and solving discrete logarithms.

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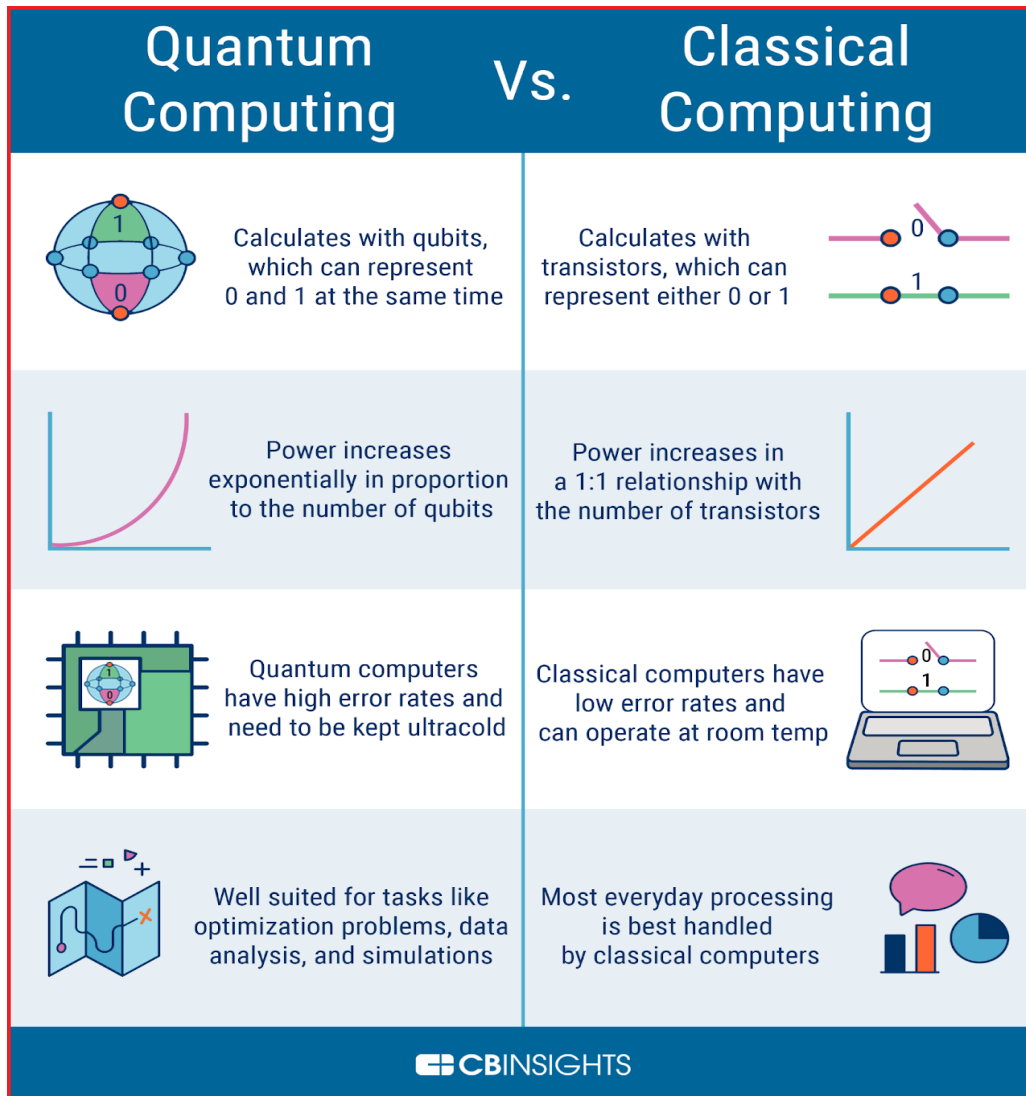


Note:

- This could compromise encryption methods like **Rivest-Shamir-Adleman (RSA)** and **elliptic curve cryptography (ECC)**, which are widely used for secure communication.
- **Store Now, Decrypt Later (SNDL) Attacks:** Cybercriminals may store encrypted data instantly and decrypt it later when quantum computers become powerful enough, endangering sensitive information.
- **Industry-Wide Data Security Risks:** Sectors like **finance, healthcare, and government communications** face risks of data breaches and financial losses if quantum computers break encryption standards.

Post-Quantum Encryption/ Cryptography (PQC):

- **PQC** refers to cryptographic methods that do not rely on mathematical problems easily solvable by **quantum computers**.
- It is also known as **quantum-resistant, quantum-safe, or quantum-proof cryptography**.
- These methods are designed to remain secure against attacks from both **classical and quantum computing systems**.
- A **VPN** technology encrypts data and hides a user's **IP address** to ensure secure communication between devices to protect data privacy and security.



Read More: [Post-Quantum Cryptography](#), [Virtual Private Network](#)

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Note:

Death Anniversary of Mahatma Gandhi

India observes **Martyrs' Day, or Shaheed Diwas**, every 30th January to commemorate those who sacrificed their lives for the country's independence, with a special focus on **Mahatma Gandhi's** assassination ("Mahatma Gandhi Punyatithi").

- On 30th January 1948, Gandhi was assassinated by **Nathuram Godse** during an evening prayer at **Birla House** in Delhi.
- **Martyrs' Day Tributes:** People gather at **Raj Ghat** (the memorial site of Mahatma Gandhi in Delhi) for prayer meetings.
- **Note: Martyrs' Day is also commemorated on 23rd March** to remember the sacrifice of three extraordinary revolutionaries of India – **Bhagat Singh, Shivaram Rajguru, Sukhdev Thapar**.



Mohandas Karamchand Gandhi

“The weak can never forgive. Forgiveness is the attribute of the strong.”

Brief Description

Birth: 2nd October 1869, Porbandar (Gujarat).
2nd October is observed as **International Day of Non-Violence**.

Profile: Lawyer, Politician, Social activist, Writer and led Nationalist Movement.

Father of the Nation (first called by Netaji Subhash Chandra Bose).

Ideology: Believed in the ideas of non-violence, Truth, Honesty, Care for Mother Nature, Compassion, Welfare of Downtrodden etc.

Political Mentor: Gopal Krishna Gokhale

Death: Shot dead by Nathuram Godse (30th January, 1948).
30th January is observed as **Martyrs' Day**
Nominated for the Nobel Peace Prize five times.





Gandhi in South Africa (1893-1915)
Used satyagraha against racist regime (Native Africans and Indians were discriminated).
Pravasi Bharatiya Divas (PBD) is celebrated every year on 9th January, to commemorate his return from South Africa.

Contribution in India's Freedom Struggle

Small-scale movements like Champaran Satyagraha (1917)—First Civil Disobedience, Ahmedabad Mill Strike (1918)—First Hunger Strike, and Kheda Satyagraha (1918)—First Non-Cooperation.

Nationwide Mass Movements: Against Rowlatt Act (1919), Non-Cooperation Movement (1920-22), Civil Disobedience Movement (1930-34), Quit India Movement (1942).

Gandhi-Irwin Pact (1931): Between Gandhi and Lord Irwin that marked the end of a period of civil disobedience.

Poona Pact (1932): Between Gandhi and **B.R. Ambedkar**; this abandoned the idea of separate electorates for the depressed classes (Communal Award).



Books Written
Hind Swaraj, My Experiments with Truth (Autobiography)

Weeklies
Harijan, Navjivan, Young India, Indian Opinion.

Gandhi Peace Prize

is given by India for social, economic, and political transformation through Gandhian methods.

“Happiness is when what you think, what you say, and what you do are in harmony.”

“You must not lose faith in humanity. Humanity is an ocean; if a few drops of the ocean are dirty, the ocean does not become dirty.”

Read more: [Mahatma Gandhi](#)

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Note:

First Defence Export of Ordnance Clothing

The **Ordnance Clothing Factory (OCF)**, Avadi, under the **Ministry of Defence**, executed India's first defence export order to the Republic of **Suriname**.

- OCF is developing a "Future Soldier System" that includes **lightweight, digitally printed, antibacterial camouflage uniforms** and **ballistic helmets (0.9 kg)** to enhance soldier mobility.
- OCF Avadi manufactures **bullet-resistant jackets**, **ballistic helmets**, **vests**, and **bomb suppression blankets**.
- India's defence exports rose to over **Rs 21,000 crore in 2023-24**, up from **Rs 2,000 crore in 2014** with a target of **Rs 50,000 crore by 2029**.
- **Suriname**: It lies on the **northeastern coast of South America** and borders **Guyana, French Guiana, and Brazil**.
 - During the colonial period, **Indians** arrived in Suriname as **indentured labor** to work on **sugar plantations**.



Read More: [2nd India-CARICOM Summit](#)

WHO Recommends Lower-Sodium Salt

The **WHO** has issued guidelines promoting **Lower Sodium Salt Substitutes (LSSS)** to combat **hypertension, cardiovascular diseases (CVDs)**, and **strokes** caused by excessive salt intake.

- These substitutes, containing **potassium chloride, magnesium sulphate, and calcium chloride**, help **lower sodium** without compromising taste.
- Globally, poor diets cause **8 million deaths annually**, with **1.9 million** linked to **high sodium intake**.

Key Facts About Sodium Salt Consumption:

- **WHO Recommendation**: WHO recommends **less than 5g of salt (2g sodium) per day** for adults.
 - It encourages governments to **integrate LSSS into health programs**, encourage use in processed foods, and **enhance labelling regulations**.
- **India**: India has **high salt intake (10.4g/day)** and **low potassium levels** contributing to hypertension.
 - **FSSAI** is implementing sodium reduction policies, **mandating 97% sodium chloride in edible salt**, limiting anticaking agents to 2.2%, and enforcing accurate sodium labeling for "**low sodium**" and "**sodium-free**" claims.

Read More: [Limiting Salt Intake](#)

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Note:

Birth Anniversary of Lala Lajpat Rai

The **Prime Minister (PM)** paid tribute to freedom fighter **Lala Lajpat Rai** on his **160th** birth anniversary.

Lala Lajpat Rai

- **About:** He was born on **28th January 1865** in **Ferozepur** district of Punjab.
 - Known as **Punjab Kesari**, he was an inspiring leader, social reformer.
- **Freedom Contribution:** He was a prominent **Indian National Congress (INC)** leader and key member of the **Lal-Bal-Pal trio**, opposed the **Partition of Bengal (1905)** and supported the **Non-Cooperation Movement (1920)**.
 - He founded the **Home Rule League of America (1917)** to support India's **Home Rule Movement** started by **Bal Gangadhar Tilak** and **Annie Besant** in 1916 and protested against the **Rowlatt Act** and **Jallianwala Bagh massacre**.
 - He led the opposition movement of **Simon Commission (1928)** where he **died from injuries** sustained in a lathi charge.

LALAJPAT RAI

28 January 1865 – 17 November 1928

BRIEF PROFILE

- Also called **Punjab Kesari**
- Influenced by **Swami Dayananda Saraswati** - joined **Arya Samaj** in Lahore
- **Lal-Bal-Pal trio** (extremist leaders) with **Bipin Chandra Pal** and **Bal Gangadhar Tilak**
- Involved with the **Hindu Mahasabha**



POLITICAL CONTRIBUTIONS

- 1907 - **Deported to Burma** without trial but returned due to lack of evidence
- 1917 - Founded **Home Rule League of America** (New York)
- 1920 - **Presided INC (special) session** (Calcutta) where Gandhiji moved the **Non-Cooperation resolution**
- 1920 - Elected (first) **President of the All India Trade Union Congress**
- 1926 - Elected **deputy leader** of the **Central Legislative Assembly**
- 1928 - Moved a resolution in the assembly **against Simon Commission**

SOCIAL CONTRIBUTIONS

- 1886 - Founded **DAV Movement**
- 1897 - Founded **Hindu Relief movement** (to help famine-stricken people and prevent them falling into the clutches of the missionaries)
- 1921 - Founded the **Servants of People Society** (to enlist, train national missionaries for the service of the motherland)

Note: Servants of People Society is different from Servants of Indian Society founded by GK Gokhale in 1905

OTHER CONTRIBUTIONS

- **Institution -**
 - 1894 - Co-founded **Punjab National Bank**
- **Important Literary Works -**
 - 1908 - **The Story of My Deportation**
 - 1915 - **Arya Samaj**
 - 1916 - **Young India, The United States of America: A Hindu's Impression**
 - 1917 - **England's Debt to India: A Historical Narrative of Britain's Fiscal Policy in India**
 - 1928 - **Unhappy India**

DEATH

- 1928 - Died of injuries due to the brutal lathi-charge by James Scott while leading a silent protest against **Simon Commission** in Lahore



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Read More: [Lala Lajpat Rai - Drishti IAS](#)

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Note:

Mission 300 Africa Energy Summit

The Mission 300 Africa Energy Summit, held in Dar es Salaam, Tanzania aiming to accelerate energy access across Africa.

- Africa Energy Summit hosted by the Government of Tanzania, [African Union](#), [African Development Bank](#), and the [World Bank](#).
 - The summit focuses on the Mission 300 initiative, which aims to provide electricity access to 300 million people in [Sub-Saharan Africa](#) by 2030.
 - Over 600 million Africans lack reliable electricity access, with Nigeria and Sub-Saharan Africa home to 80% of the global population without electricity.
- At the summit, the National Energy Compacts were presented by 12 African countries, which include Chad, Côte d'Ivoire, Democratic Republic of Congo, Liberia, Madagascar, Malawi, Mauritania, Niger, Nigeria, Senegal, Tanzania, and Zambia.
- The government-led National Energy Compacts will serve as roadmaps to achieve universal electricity access and clean cooking by 2030, aligning with the [UN's Sustainable Development Goal 7 \(SDG7\)](#) for affordable, reliable, sustainable energy access for all by 2030.

Read more: [Tracking SDG7: The Energy Progress Report 2023](#)

ISRO's 100th Launch from SDSC

The [Indian Space Research Organisation \(ISRO\)](#) achieved its historic 100th launch from the Satish Dhawan Space Centre (SDSC) in Sriharikota, using the [GSLV-F15](#) to deploy the NVS-02 satellite.

- NVS-02 is the 2nd satellite in the series of 2nd generation satellites of the [Navigation with Indian Constellation \(NavIC\)](#).
 - The NavIC system is made up of 7 operational satellites in orbit (3 in [Geostationary Orbit](#) and 4 in [Geosynchronous Orbit](#)).
 - NavIC provides accurate position, velocity, and timing to users in the Indian sub-continent and regions up to 1,500 km beyond.
- The GSLV-F15 is the 17th GSLV flight, and 11th with an Indigenous [Cryogenic stage](#).
- The first launch from SDSC took place in August 1979 carrying the [Rohini](#) Technology Payload (partially successful).
- Key Launches of ISRO include [Chandrayaan-1](#) (2008), [Mars Orbiter Mission](#) (2013), [PSLV-C37](#) (2017, World record: 104 satellites launched), [Chandrayaan-2](#) (2019), and [Chandrayaan-3](#) (2023), [Aditya-L1](#) (2023).

Read More: [ISRO's new NavIC Satellite NVS-01](#)

Namdapha Tiger Reserve

[Namdapha Tiger Reserve \(NTR\)](#) in Arunachal Pradesh has recorded the first sighting of an adult male elephant in 12 years.

- Elephants traditionally migrated between Namsai (Arunachal Pradesh) and Myanmar via NTR, however, encroachments since 1996 have blocked migration corridors, confining them in northern areas.

About Elephants:

- India hosts about 60% of the world's [Asian elephant](#) population, with an estimated 27,312 elephants (2017 census) and 138 [elephant corridors](#).
- Asian elephants have a 22-month gestation period and are classified as Endangered on the [IUCN Red List](#).

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Note:

ELEPHANT



4 Main Species of Elephant

Species	Found in	IUCN Red List Status	Habitat
Indian	Asia	EN (CITES - Appendix I, WPA - Schedule I)	Subtropical broadleaf forest, tropical broadleaf moist forest, dry forest, grassland
Sumatran	Asia	CR	Broadleaf moist tropical forests
Savanna (Bush)	Africa	EN	All sub-Saharan Africa except for Central Africa's dense tropical forest
Forest	Africa	CR	Dense Tropical Forests

Indian Elephant (*Elephas maximus*)

Largest Land Mammal on Asian Continent
National Heritage Animal of India

Top 5 Indian States by Maximum Elephant Population: (As per elephant census 2017)

■ Karnataka > Assam > Kerala > Tamil Nadu > Odisha

Social Structure:

- Female elephants are more social than males; form herd (generally 5-7)
- Led by the oldest female, the 'matriarch'
- Males usually live alone

Threats:

- Habitat Fragmentation
- Poaching for Ivory
- Human-Elephant Conflict
- Mistreatment in Captivity

Conservation Efforts:

- Gaj Soochna App (2022)
- Gaj Yatra (2017)
- Hathi Mere Sathi campaign (2011)
- National Elephant Corridor project (2005)
- Monitoring the Illegal Killing of Elephants (MIKE) Programme (2003)
- Project Elephant (1992)

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Note:

Namdapha Tiger Reserve

- **Location:** Changlang District (Arunachal Pradesh)
- **Recognition:** Declared as **Wildlife Sanctuary** in 1972, **National Park and Tiger Reserve** in 1983.
- **Vegetation:** Northern **Tropical Evergreen Forest**, **Moist Deciduous Forests**, and **Alpine Scrub Forests**.
- **River:** Namdapha River

Other Protected Areas in Arunachal Pradesh

- [Pakke Wildlife Sanctuary](#).
- Mouling National Park
- Kamlang Wildlife Sanctuary.
- Itanagar Wildlife Sanctuary.
- Eagle Nest Wildlife Sanctuary.

Read More: [Namdapha Flying Squirrel](#)

Aroma Mission

The Ministry of Science & Technology said that the [Northeast region](#) as well as Jammu & Kashmir (J&K) have been on the priority list of the Aroma Mission.

- **About Aroma Mission:** It was started in J&K and aims to **boost India's [aroma industry](#)** by enhancing the cultivation of **aromatic crops** and production of **essential oils**. It is popularly known as the [Lavender Revolution](#).
 - Aromatic crops (like **rose**, **peppermint**) are plants grown for their **fragrant oils**, used in industries like **cosmetics**, **aromatherapy**, and **food flavoring**.
- **Focus:** It focuses on the cultivation of high-value aroma crops such as [lemongrass](#), [lavender](#), [vetiver](#), [palmarosa](#), and others.
- **Related Initiatives:** The **Incubation & Innovation Complex (IICON)** at **CSIR-North-East Institute of Science and Technology (CSIR-NEIST)**, Jorhat was inaugurated to provide farmers with **advanced technologies and facilities**.
 - CSIR-NEIST introduced aromatic crops across **5,000+ hectares** in the Northeast and set up **39 essential oil distillation units**.

- **Potential Impact:** Targeted production of over **2000 tonnes of high-quality essential oils** worth more than **Rs. 300 crores annually**.
 - Expected to generate **60 lakh man-days of rural employment**, and increase farmers' income by Rs. 60,000 to 70,000 per hectare annually.
- **Nodal Agency:** The nodal agency is **CSIR-Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP)**, Lucknow.

Read More: [Aroma Mission & Floriculture Mission](#)

Kailash Mansarovar Yatra

India and China agreed to revive the annual [Kailash Mansarovar Yatra \(KMY\)](#).

- Mount Kailash is a **diamond-shaped peak** made of **black rock**, located in **Tibet**.
- India organizes the KMY annually between **June and September** through the **Lipulekh Pass (since 1981)** in Uttarakhand and the [Nathu La Pass \(since 2015\)](#) in Sikkim.
- **Mount Kailash** stands at **6,638 meters** and is considered a sacred peak by **Hindus, Buddhists, Jains, and Bons** (indigenous religion of Tibet).
 - For **Tibetans Buddhists**, Kailash is the cosmic axis, or **Mount Meru**, connecting **heaven and earth**.
 - In **Hinduism**, it is the abode of **Lord Shiva and Goddess Parvati**.
 - In **Jainism**, Kailash is **Ashtapada**, where [Rishabhanatha](#) attained **enlightenment**.
- Mount Kailash is considered the **spiritual center of the Earth**, with the [Sutlej](#), [Brahmaputra](#), [Kamali](#), and [Indus](#) rivers originating from it.
- [Lake Mansarovar](#) is located at the **base of the mountain**.
- **Mount Kailash**, though **lower in height** than **Mount Everest (8,849 meters)**, remains **unclimbed** as its ascent is prohibited due to its **sacred significance**.

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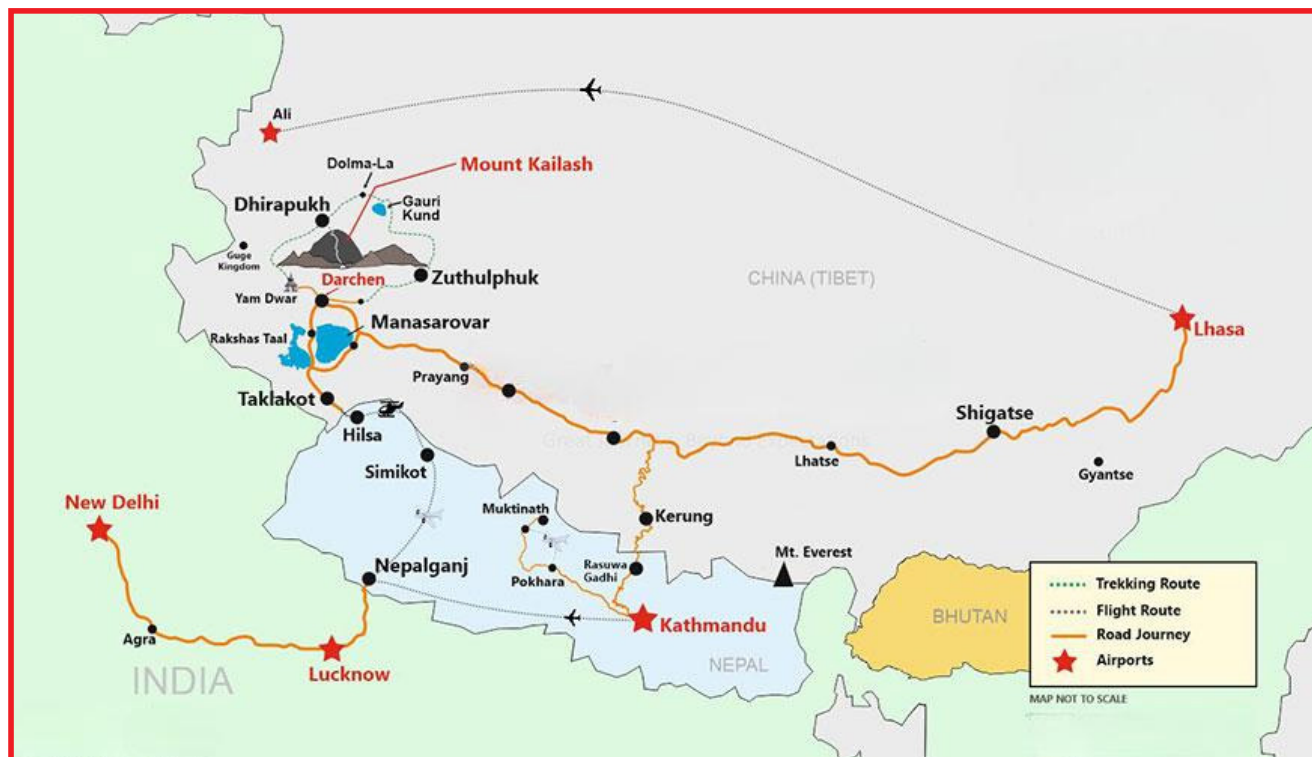
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Note:



Read More: [Kailash Manasarovar Yatra](#)

Aadhaar for Chinar Trees

The Jammu & Kashmir (J&K) government has initiated the “Tree Aadhaar” mission to conserve the region’s iconic chinar trees (*Platanus orientalis var. cashmeriana*) by **geo-tagging** and mapping trees, giving each tree a **unique ID** through a detailed census.

Chinar Tree:

- **Type:** Deciduous tree from the *Platanaceae* family.
- **Characteristics:** It is native to cool, water-rich regions of the Eastern Himalayas, can grow up to **30 meters** tall with a girth of **10-15 meters**.
 - It takes **30-50 years** to mature and up to **150 years** to reach full size.
- **Protection Status:**
 - **IUCN:** Data Deficient
- **Significance:** The tree, named during the **Mughal era (Jahangir)**, is the **state tree of J&K**, and is a **major tourist attraction**, particularly in autumn.
 - It holds cultural significance in local art, literature, and crafts such as **paper-mâché** and **carpets**.

Tree Aadhaar Mission:

- Launched in **2021**, the mission **tracks Chinar trees** to prevent unauthorized cutting.
- Over **28,560 trees** have been **geo-tagged** with unique Tree Aadhaar numbers.
- Each tree features a **QR code**, using **GIS technology**, providing details on its location, height, girth, health, and ecological threats.

Read More: [IUCN’s First Global Tree Assessment](#)

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Note:

Exoplanet WASP-127b

Astronomers have discovered **extreme wind speeds of up to 33,000 km/h** on the **exoplanet WASP-127b**, a gas giant located about 520 light years from Earth.

➤ These winds move at around **6 times the speed of the planet's rotation**, which is the **fastest observed on any planet**.

WASP-127b

➤ About:

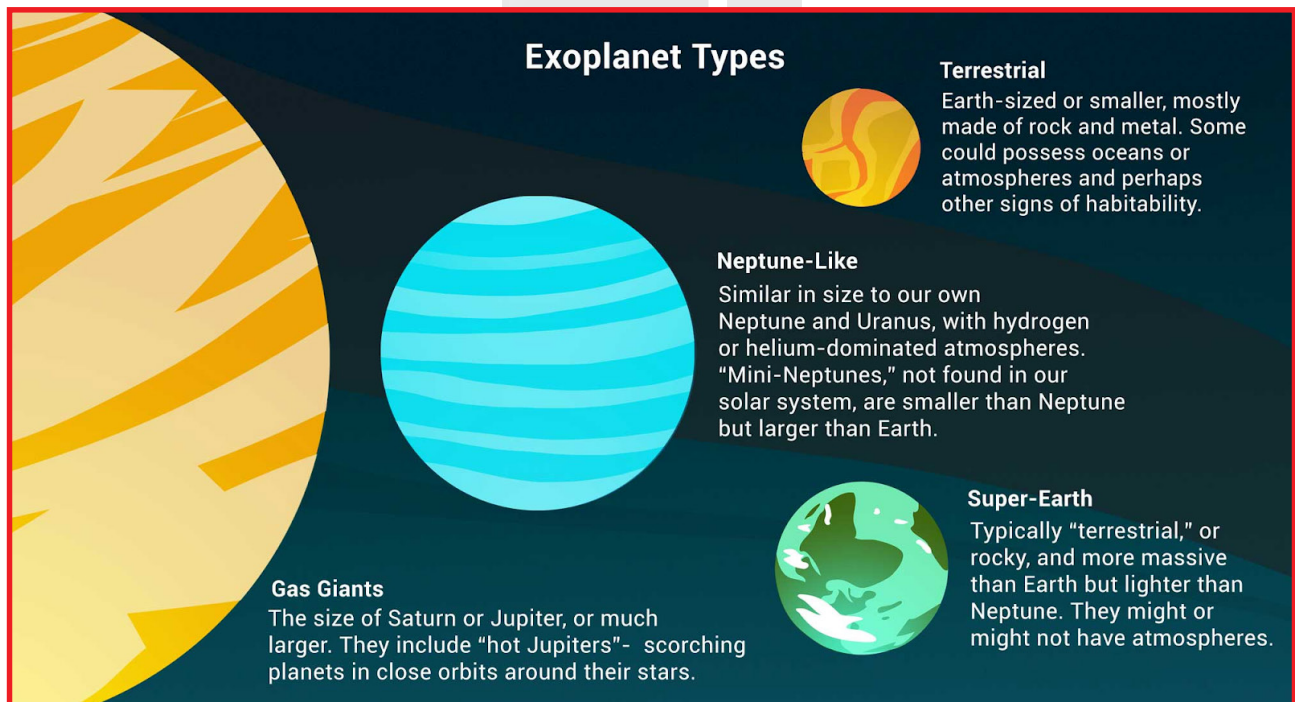
- **WASP-127b** is an **exoplanet** (orbits a star outside the solar system) classified as a "hot Jupiter".
- It is about **30% larger than Jupiter** but only **16% of its mass**, making it one of the "puffiest" planets with a low density, but with extreme conditions.

➤ Orbit:

- The planet orbits its star closely, completing an orbit every **4 days**, resulting in extreme temperature differences between its day side (constantly exposed to stellar radiation) and its night side (perpetually in darkness).

➤ Atmosphere:

- The atmosphere consists of **hydrogen, helium**, and traces of **carbon monoxide** and **water**. The day side temperature reaches **1,127°C**, with the night side also heated by **stellar radiation** (Electromagnetic Radiation emitted by stars).



Read More: [Exoplanet](#)

Essential Religious Practice

The Bombay High Court ruled that using **loudspeakers** is **not an essential religious practice** protected under **Article 25** or **Article 19(1)(a)** of the Constitution.

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Note:

- **Essential Religious Practice (ERP):** **ERP** refers to practices integral to a religion's doctrine, protected under **Article 25**. The judiciary determines ERP based on religious tenets.
 - **Santhara (Sallekhana):** In 2015, the Rajasthan High Court ruled **Santhara as non-essential to religion**, but the Supreme Court stayed the order, allowing the practice to continue.
 - **Triple Talaq Case:** The SC invalidated **instant triple talaq**, ruling it was **not an essential Islamic practice** and violated women's rights.
- **HC Ruling Related to Loudspeaker:** Bombay HC in *Dr Mahesh Vijay Bedekar v Maharashtra case, 2016*, ruled for **strict enforcement of noise pollution rules**.
 - It clarified that **loudspeakers are not essential to religion** and banned their use from **10 pm to 6 am** and in silence zones, with exceptions for specific cultural or religious events (15 days/year).
- **Noise is considered as an "air pollutant"** and regulated under the **Air (Prevention and Control of Pollution) Act, 1981**.
 - It mandates a maximum noise level of **55 decibels** in residential areas during the **day** and **45 decibels at night**.

THE LOUDEST ALLOWED

Under The Noise Pollution (Regulation and Control) Rules, 2000

INDUSTRIAL AREAS:

75 dB (A) leq during daytime; 70 at night

COMMERCIAL AREAS:

65 dB during daytime, 55 at night

RESIDENTIAL AREAS:

55 dB during daytime, 45 at night

SILENCE ZONES:

50 dB during daytime, 40 dB at night

■ **Silence Zones** are defined as areas comprising up to 100 m around hospitals, educational institutions, courts, religious places, or any other area which is declared as such by the competent authority.

■ **Sound levels** are measured in dB (A) leq, which is the time-weighted average of the level of sound in decibels on scale A, which is relatable to human hearing.

DAYTIME IS DEFINED AS **6 am to 10 pm**; NIGHTTIME IS **10 pm to 6 am**.

Read More: [Supreme Court on Religious Practices](#)

PM YASASVI Scheme

The **Ministry of Social Justice and Empowerment** addressed student beneficiaries of the **PM Young Achievers Scholarship Award Scheme for Vibrant India (PM-YASASVI) scheme** on Republic Day 2025.

- **PM-YASASVI Scheme:**
 - **About:** Launched by the Ministry of Social Justice and Empowerment, it provides **financial aid** for quality education to **marginalized students**.
 - **Eligibility:** It is open to **OBC**, **Economically Backward Classes (EBC)**, and **DNT** students with family income up to Rs 2.5 lakh per annum.

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Note:

- **Sub-Schemes:** It is an **umbrella** scheme consisting of sub-schemes like:
 - **Pre-Matric Scholarship:** Rs. 4,000 annual academic allowance to families with income below Rs. 2.5 lakh.
 - **Post-Matric Scholarship:** Rs. 5,000 to Rs. 20,000 depending on the course category.
 - **College Education:** Top college students get **full financial support**, including tuition, living expenses, and education materials.
 - **Hostels:** **Accommodation facility** near government schools and institutions.
- **Other Similar Schemes:** [National Scholarships for Disabled Students](#), [INSPIRE Scholarship](#), [Maulana Azad National Fellowship](#).

PM Young Achievers Scholarship Award Scheme for Vibrant India for OBCs & Others

PM-YASASVI

- **PM-YASASVI** is an umbrella scheme designed for OBC, EBC and DNT students by combining the existing scholarship schemes and hostel scheme.
- The initiative aims to provide **economically weaker families'** children financial support so they can receive a **high-quality education**.

Scan QR code for more details

@msjgoi @goimsje @msjgoi socialjustice.gov.in

Read More: [Scholarship Schemes in India](#)

Supreme Court of India Foundation Day

The [Supreme Court \(SC\) of India](#), established on **26th January 1950** under [Article 124](#), was inaugurated on **28th January 1950** and began operations from the **old Parliament House**. It moved to its current building in **1958**, inaugurated by [President Dr. Rajendra Prasad](#).

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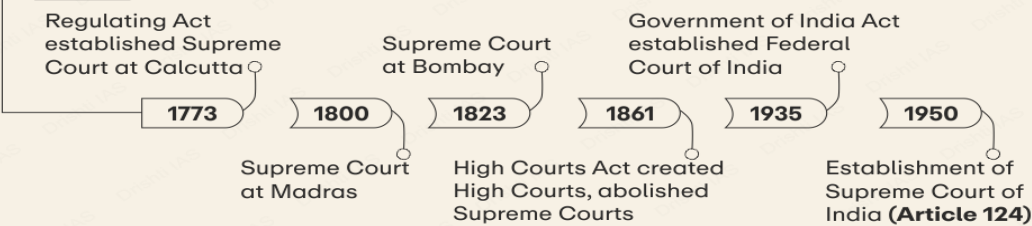
Note:

- SC initially envisioned with a **Chief Justice of India (CJI)** and 7 puisne judges, its strength has since expanded to a **CJI and 33 judges** as of 2024, appointed by the **President** and retiring at 65.
 - Eligibility includes being an Indian citizen with 5 years as a High Court judge, 10 years as an advocate, or is in the opinion of the President a distinguished jurist.
- In 2024, a **new "Lady Justice" statue** was unveiled at the SC, replacing the original. Dressed in a **saree and without a blindfold, it holds scales and the Indian Constitution**.
 - Unlike the original, based on **Justitia** (Roman goddess) with a **blindfold, scales, and a sword**, the new statue's **open eyes signify that the law is not blind and sees everyone equally**.
 - The Indian Constitution replaces the sword, emphasizing its **supremacy in justice**.
- In 2024, the new flag and insignia of the SC are unveiled to mark its 75th year. The flag features the **Ashok Chakra**, the SC building, and the **Book of Constitution**, with the insignia inscribed with "**Yato Dharmastato Jayah**," meaning "Where there is Dharma, there is victory."

SUPREME COURT OF INDIA

The Supreme Court of India is the apex judicial body under the Constitution of India.

HISTORY



COMPOSITION

- ⑤ **Strength:** 34 judges including CJI, appointed by the President
- ⑤ **Eligibility:** Indian Citizen; High Court judge for 5 years/Advocate for 10 years/Distinguished jurist
- ⑤ **Tenure:** Until age 65 (unless resigns/impeached by President)
- ⑤ **Salaries:** Determined by Parliament
- ⑤ **Impeachment:** By President on Parliament's approval with a special majority

JURISDICTION

Original, Writ, Appellate and Advisory Jurisdictions:

- ⑤ **Original:** Disputes between Government and States (Article 131); Constitutional Remedies (Article 32)
- ⑤ **Writ:** Powers to issue writs for enforcement of fundamental rights (Article 139)
- ⑤ **Appeals From HCs:**
 - ⑤ Constitutional Matters (Article 132)
 - ⑤ Civil Matters (Article 133)
 - ⑤ Criminal Matters (Article 134)
 - ⑤ Special Leave (Article 136; Discretionary Power)
- ⑤ **Advisory:** Presidential referrals (Article 143)

OTHER POWERS

Court of Record, Judicial Review, Constitutional Interpretation etc.

- ⑤ **Articles 129:** Powers to punish for contempt
- ⑤ **Article 137:** Supreme Court review of its judgments
- ⑤ **Article 141:** Supreme Court's decisions are binding on all courts
- ⑤ **Article 142:** Orders and decrees of the Supreme Court are enforceable
- ⑤ **Article 147:** SC is the **ultimate interpreter of the Constitution**

Acting Chief Justice, Ad Hoc Judge, & Retired Judge of SC

- **Acting Chief Justice:** Appointed by the President as needed
- **Ad Hoc Judge:** Appointed temporarily by the CJI for quorum issues
- **Retired Judge:** Chief Justice can reappoint retired judges temporarily



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Read more: [75 Years of Supreme Court](#)

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Note:

Statehood Day of Himachal Pradesh

The Prime Minister greeted the people of **Himachal Pradesh (HP)** on the occasion of **Statehood Day (25th January)**.

➤ Key Facts Regarding Himachal Pradesh:

- The **Chief Commissioner's province** of HP came into being on **15th April 1948**.
- HP became a **part C state** on **26th January 1950** with the implementation of the Constitution of India.
 - Part C states included **former Chief Commissioner's provinces** and some erstwhile **princely states** of British India.
- After recommendation of the **State Reorganisation Commission**, HP became a **Union Territory** on **1st November 1956**.
- **Kangra** and most of the other hill areas of **Punjab** were merged with HP on **1st November 1966** though it remained a **Union Territory**.
- On **18th December 1970** the State of HP Act was passed by **Parliament** and the new state came into being on **25th January 1971**. HP emerged as the **18th state of the Indian Union**.

Read More: [Reorganisation of States in India](#)

Oligarchy

In his farewell address, the **US President** cautioned about the rising influence of an **oligarchy** in the US, where a **small group of billionaires** are **increasingly shaping public policy**.

- **Oligarchy:** A government dominated by a **small, influential group**. Power may or may not be distributed equitably.
 - It differs from democracy as **only a few individuals** make decisions.

Other Different Types of Government:

Monarchy	It is a government ruled by a hereditary leader , such as a king or queen. It can be: <ul style="list-style-type: none"> ➤ Absolute: The monarch has complete control over the government. Eg: Brunei, Eswatini and Oman. ➤ Constitutional: The monarch's powers are limited by a constitution or laws. Eg: Belgium, Cambodia and Thailand. ➤ Ceremonial: The monarch has symbolic or ceremonial duties with little political power. Eg: Britain
-----------------	---

Theocracy	It is a system where the government is run by divine guidance or by officials (priests) who are considered divinely guided . Eg: Vatican City
Democratic and Republic	<ul style="list-style-type: none"> ➤ Democracy is a political system in which the people or their elected representatives govern themselves. Eg: India, US. ➤ Republic Countries are a type of democracy where the head of state is elected, rather than being a monarch or hereditary ruler. Eg: India, France, and the US.
Anarchy	It means "no rule," or a state of lawlessness, where no governing authority exists. Eg: As of 2025, no countries are recognized as true anarchist states. Historically, Somalia experienced a period from 1991 to 2006.
Dictatorship	A government led by a single ruler with complete control, often without regard for laws or constitutions. Eg: North Korea.

Read More: [Constitutional Monarchy, Forms of Government, Commonwealth of Nations.](#)

Jawaharlal Nehru Port

The Jawaharlal Nehru Port Authority (JNPA) or Nhava Sheva Port is set to become **India's first port** to achieve a global ranking by handling **10 million TEUs (Twenty-Foot Equivalent Units)** per year by 2027.

- In 2024, JNPA handled a record **7.05 million TEUs**, operating at **over 90% capacity**, with an **11% year-on-year growth**.

Jawaharlal Nehru Port (JNP):

- Located in Navi Mumbai, Maharashtra and was commissioned in 1989.
- Key Features:
 - **India's First Landlord Major Port:** Fully adopts the **landlord port model**.
 - **Container Terminals:** Operates 5 container terminals, including **Bharat Mumbai Container Terminals (BMCT)**, **Nhava Sheva International Container Terminal (NSICT)**, and **Gateway Terminals India Pvt (GTIPL)**.

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Note:

- **Planned Satellite port** at **Vadhavan port** and **dry ports** at Jalna and Wardha to enhance connectivity and trade efficiency.

Ports in India:

- India has **12 major ports** (**13th major port** under construction is **Vadhvan port, Mumbai**) and over 200 minor and intermediate ports.
- India's maritime sector handles **95% of trade by volume** and **70% by value**.



Read More: [Jawaharlal Nehru Port](#)

LID 568 Black Hole

Astronomers, using **NASA's James Webb Space Telescope (JWST)** and the **Chandra X-ray Observatory**, have discovered a **low-mass supermassive black hole** LID 568.

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Note:

LID-568 Black Hole:➤ **About:**

- LID-568 is a **low-mass supermassive black hole** that existed **1.5 billion years** after the **Big Bang**.
- It was discovered through **X-ray and infrared observations** and is located in a galaxy with minimal star formation, likely due to the black hole's powerful outflows.

➤ **Key Features:**

- **Super-Eddington Accretion:** It feeds at a rate **40 times the Eddington limit**, which is the **maximum rate at which a black hole or star can accrete matter** without radiation pressure pushing matter away.
 - **Eddington Limit** represents the **balance between gravitational pull and outward radiation pressure**, preventing further accretion if exceeded.
- **Galaxy Effects:** The black hole's **outflows** prevent the accumulation of matter needed for star formation in its galaxy.

➤ **Significance:**

- **Challenges Current Models:** LID-568's rapid growth **contradicts theories** requiring sustained accretion for supermassive black hole formation.
- **Insights into the Early Universe:** It suggests that **short bursts of intense feeding** could explain the formation of large black holes in the early universe.
- **Future Research:** Opens avenues for **studying black hole accretion processes** and their **impact on galaxy evolution**.

BLACK HOLES

ABOUT

- A place in space with **extremely high gravity pull**; even light can't escape (hence, **invisible**)
- The strong gravity is due to matter being squeezed into a tiny space

The term 'black hole' was coined in the mid-1960s by American physicist John Archibald Wheeler

DETECTION

- By seeing how stars very close to black holes act differently than other stars
- In April 2019, scientists at the **Event Horizon Telescope Project** released the first-ever image of a Black Hole (shadow, more precisely)

Albert Einstein and Black Hole

- First predicted their existences in **Theory of General Relativity**
- It showed that when a massive star dies, it leaves behind a small, dense remnant core

India's first dedicated satellite, AstroSat observed for the very first-time rapid variability of high energy X-ray emission from a black hole system

TYPES

- **Miniature (Hypothetical):**
 - The smallest; size of just 1 atom
 - Mass: varies from 1/100th of a milligram to the mass of a large mountain
 - **Believed to be formed** when universe began
- **Stellar:**
 - Mass: **20x the mass of sun**
 - **Believed to be formed due to Supernovae explosion**

Supernova is an exploding star that has reached the end of its life

- **Supermassive**
 - The largest
 - Mass: >1 million suns together
 - Every large galaxy has a supermassive black hole at its centre
 - **Believed to be made at the same time as their home galaxy**

Sagittarius A is the supermassive black hole at the centre of Milky Way (mass: ~about 4 mn suns)

The Sun will never turn into a black hole as it is not big enough to make a black hole

Singularity: At the very center of a black hole, matter has collapsed into a region of infinite density called a singularity. At the matter and energy that fall into the black hole, the prediction of stable density by general relativity is thought to break down, the breakdown of the theory where quantum effects become important.

Event horizon: This is the radius around a singularity where matter and energy cannot escape the black hole's gravity; the point of no return. This is the "black" part of the black hole.

Photon sphere: Although the black hole itself is dark, photons are emitted from nearby hot plasma in jets or an accretion disc (see below). In the absence of gravity, these photons would travel in straight lines, but just outside the event horizon of a black hole, gravity is strong enough to bend their paths so that we see a bright ring surrounding a roughly circular dark "shadow".

Relativistic jets: When a black hole feeds on stars, gas or dust, the mass produces jets of particles and radiation beaming out from the black hole's poles at near light speed. They can extend for thousands of light-years into space.

Innermost stable orbit: The inner edge of an accretion disc is the last place that material can orbit safely without the risk of falling past the point of no return.

Accretion disc: A disc of superheated gas and dust whorls around a black hole at immense speeds, producing electromagnetic radiation (X-rays, optical, infrared and radio) that reveal the black hole's location. Some of this material is doomed to cross the event horizon, while other parts may be forced out to create jets.

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Read More: [Black Hole Gaia BH3](#)

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Note:

India to Ratify Cape Town Convention

The Union Cabinet has approved the **Protection and Enforcement of Interests in Aircraft Objects Bill** to strengthen India's aviation framework and align it with global standards.

- It aims to ratify and enforce the provisions of the **Convention on International Interests in Mobile Equipment (Cape Town Convention)**, and **Protocol on Matters Specific to Aircraft Equipment (Cape Town Protocol)**.

Cape Town Convention (CTC):

- **About:**
 - The CTC is an international treaty that **allows creditors**, such as lessors, lenders, and financiers, to **repossess high-value mobile assets** like aircraft, engines, and helicopters if the **airline defaults on lease payments**.
 - It was adopted in **Cape Town, South Africa, in 2001**.
- **Key Features:**
 - **International Registry:** Establishes a **global registry to record interests in mobile equipment**, ensuring **transparency** and prioritizing registered creditors' claims.
 - **Default Remedies:** Provides **clear remedies for creditors**, including the deregistration and export of aircraft without lengthy local legal procedures.
- **Cape Town Protocol:** It complements CTC and **sets out specific rules for aircraft financing and leasing**.

India's Status:

- India **signed the CTC in 2008** but has **not yet ratified it**, thus the convention's provisions are **not legally binding in India**.
- **India is the world's third-largest domestic aviation market** after the US and China.

Read More: [India's Aviation Industry](#)

Mauritius Hydrographic Survey

The **Indian Navy** has successfully completed a **hydrographic survey** of 25,000 square nautical miles of **Mauritius**.

- **Hydrographic Survey:** **INS Sarvekshak** completed the hydrographic survey (mapping the ocean floor and sub-surface features), providing **Mauritius with nautical charts** to enhance its maritime infrastructure, resource management, and coastal planning.
 - This event underscores the enduring partnership between **India and Mauritius in fostering maritime development** and regional cooperation.
 - The Indian Navy regularly assists countries with hydrographic surveys of their **Exclusive Economic Zones (EEZs)** as part of the **Security and Growth for All in the Region (SAGAR)** initiative.
 - India has increased capacity-building assistance to **littoral states in the Indian Ocean**. On **World Hydrography Day (21st June annually)**, the Indian Navy highlighted conducting hydrographic surveys with friendly nations, **covering 89,000 sq. km and producing 96 charts in five years**.
- **India-Mauritius Defence Cooperation:** Includes joint **coastal radar surveillance** and the Mauritius operates two **Advanced Light Helicopters (ALH)-MkIII** and one **Dornier Do-228 aircraft**, built by **Hindustan Aeronautics Limited (HAL)**.
 - Mauritius has an International Liaison Officer at the Indian Navy's **Information Fusion Centre for Indian Ocean Region** in Gurugram, India.
- **INS Sarvekshak:** It is an hydrographic survey ship, based at **Kochi**, is equipped with advanced survey tools and has conducted surveys in **Sri Lanka, Seychelles, and Tanzania**.

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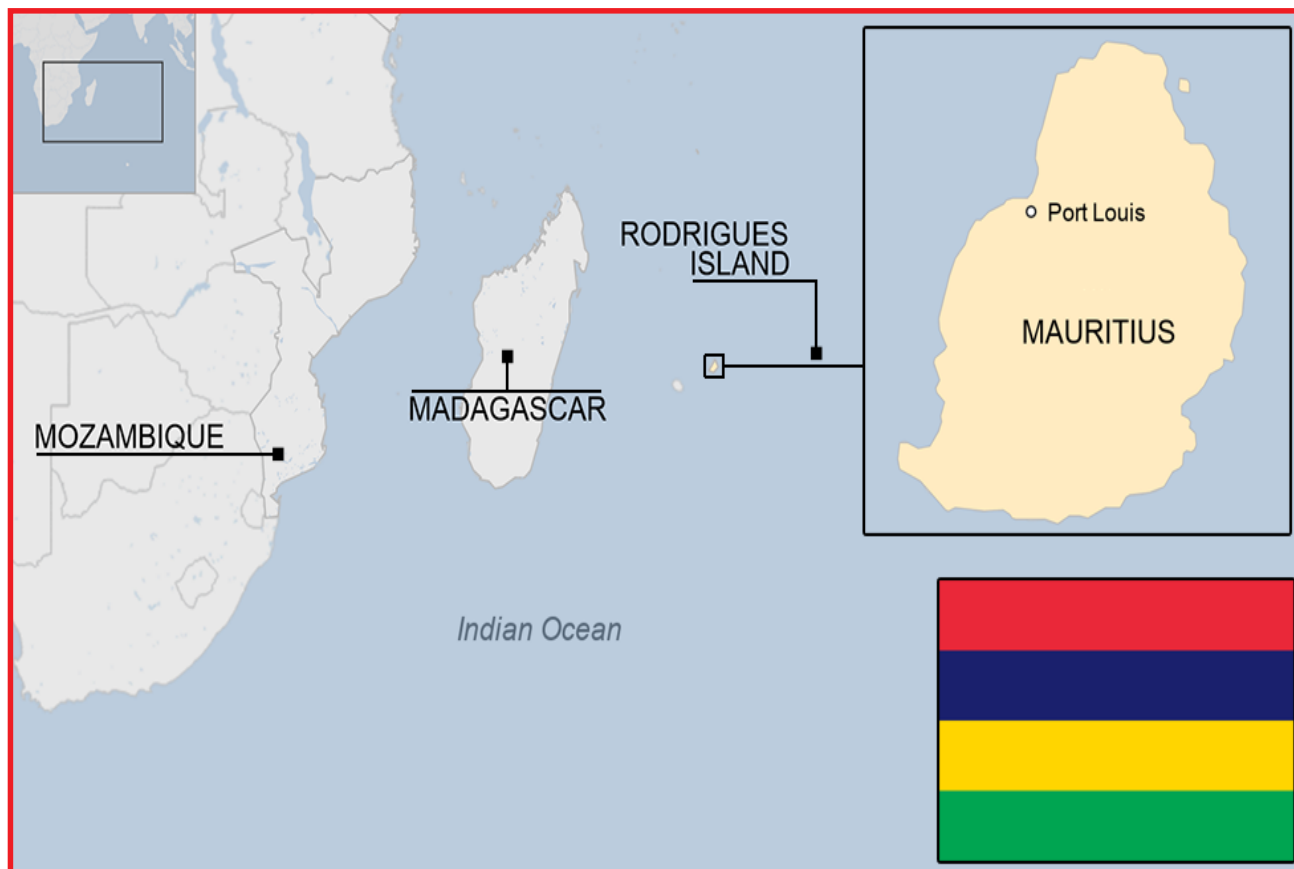
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Note:



Read more: [India-Mauritius Joint Trade Committee](#)

15th National Voters' Day 2025

The 15th **National Voters' Day (NVD)** on 25th January 2025, marks **75 years of the Election Commission of India (ECI)** and follows the successful **2024 Lok Sabha Elections**, the world's largest democratic exercise.

- **Significance of NVD:** Celebrated annually on 25th January since 2011 to commemorate the establishment of the ECI on 25th January 1950, a day before India became a **Republic**.
 - Aims to promote **voter awareness, inspire participation, and honor new voters**.
- **Theme for 2025:** *"Nothing Like Voting, I Vote for Sure"* to emphasize the importance of voting and pride in electoral participation.
- **Electorate Milestone:** India's voter base nears the **100 crore mark**, with **99.1 crore registered voters**, including **21.7 crore young electors (18-29 age group)** and an improved **Electoral Gender Ratio (from 948 in 2024 to 954 in 2025)**.
- **Highlights of the 15th NVD:** The **President of India** will present the **Best Electoral Practices Awards**.
 - The Best Electoral Practice Award acknowledges excellence in **election management**, with awards for **District Election Officers, Superintendents of Police, and states demonstrating exceptional performance**.
 - The ECI Coffee Table Book *"India Votes 2024: A Saga of Democracy"* and the publication *"Belief in the Ballot: Human Stories Shaping India's 2024 Elections"* will be presented to the President.

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Note:

Election Commission of India (ECI)

About

- **Autonomous Constitutional Authority** - Administers Union/state election
 - LS, RS, State LA, the offices of the President and VP
- Estd - **25th Jan 1950** (National Voters' Day)

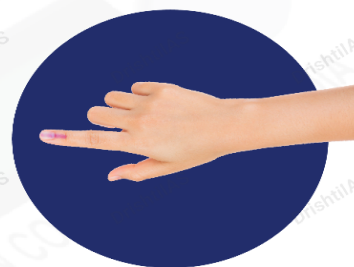


Constitutional Provisions

Part XV - Article 324 to 329

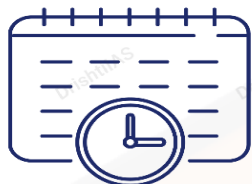
Structure

- 1 Chief Election Commissioner and 2 Election Commissioners **appointed by President**
- **Tenure- 6 years, or up to the age of 65 years**, whichever is earlier
- Retiring ECs – **eligible for further appointment by the govt.**
- **Removal of CEC-** Resolution on the **ground of proven misbehaviour or incapacity**, with majority of 2/3rd members present and voting, supported by more than 50% of the total strength of the house



Major Roles and Responsibilities

- Determining Electoral Constituencies
- Preparing/Revising electoral rolls
- Notifying the schedules and dates of elections
- **Registering political parties and granting them the status of national or state parties**
- Issuing the Model Code of Conduct (MCC) for political parties
- Advising the President on **matters concerning the disqualification of MPs**



Challenges

- Truncated Tenure of CEC
- Executive Influence in Appointments
- Dependence on Centre for Finance
- Lack of Independent Staff



Read more: [Strengthening India's Electoral Democracy](#)

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Note:

SC Bose Aapda Prabandhan Puraskar 2025 to INCOIS

The [Indian National Centre for Ocean Information Services \(INCOIS\)](#) has been awarded the [Subhash Chandra Bose Aapda Prabandhan Puraskar 2025](#) in the **Institutional Category** for its outstanding work in **disaster management**.

- It is awarded annually on **23rd January**, Netaji Subhash Chandra Bose's birth anniversary, with **Rs 51 lakh for institutions** and **Rs 5 lakh for individuals**.
- **About INCOIS:** It was established in **1999** in **Hyderabad, Telangana** and specializes in ocean-related disaster management, particularly [tsunami early warnings](#).
 - It operates the [Indian Tsunami Early Warning Centre \(ITEWC\)](#), providing alerts within **10 minutes to India and 28 Indian Ocean countries**.
 - It is recognized by [UNESCO](#) as a **Top Tsunami Service Provider**.
 - It functions under the **Ministry of Earth Sciences (MoES)** and a unit of the [Earth System Science Organization \(ESSO\)](#), New Delhi.
 - It has developed **Search and Rescue Aided Tool (SARAT)** for locating individuals or objects lost at sea, and created the **SynOPS visualization platform** for real-time data integration.
 - INCOIS is a **permanent member** of the Indian delegation to the [Intergovernmental Oceanographic Commission \(IOC\)](#) of UNESCO.

Read More: [Indian National Centre for Ocean Information Services](#), [Legacy of SC Bose](#)

DRDO's Scramjet Test Boosts Hypersonic Missile Development

The [Defence Research and Development Organisation \(DRDO\)](#) has successfully conducted a [Supersonic Combustion Ramjet \(Scramjet\) engine](#) ground test, advancing [India's hypersonic missile tech](#).

- **Scramjet Engine:** A **scramjet engine (Air-breathing engines)** is an advanced [ramjet](#) that uses **supersonic**

airflow for [combustion](#), enabling faster speeds. It uses **liquid hydrogen** and **liquid oxygen** for thrust, offering better **fuel efficiency**.

- Unlike a turbojet engine, **ramjets** and **scramjets** have **no moving parts**, consisting only of an **inlet**, **combustor** (with fuel injector and flame holder), and a **nozzle**.
- Scramjets are key to hypersonic vehicles to handle **airflows at speeds above the speed of sound**, offer maneuverability, and strategic advantage.
- **Achievements of DRDO:** Ground test achieved **stable combustion** in the scramjet engine, and developed **indigenous endothermic scramjet fuel** for improved cooling and ignition.
 - A **Thermal Barrier Coating** was also developed to withstand extreme temperatures.
- **Hypersonic Missiles:** Traveling at speeds greater than **Mach 5 (over 5,400 km/h)**, bypass air defences with high-speed, high-impact strikes.
- **Global Race for Hypersonic Missiles:** The US, Russia, and China are advancing hypersonic tech.
 - In 2021, China tested a **nuclear-capable hypersonic glide vehicle** that circled the globe before speeding towards its target.

Read more: [Defence Research and Development Organisation](#), [Air Breathing Engines](#)

National Girl Child Day 2025

[National Girl Child Day](#) is observed annually on **24th January** aimed at promoting the **rights, empowerment, and potential** of girls across India.

- **Theme: "Empowering Girls for a Bright Future"** emphasizes **equal opportunities** for girls in **education, healthcare, and personal growth**.
- **Beginning:** It was started in **2008** by the **Ministry of Women and Child Development** to combat **critical issues** such as **child marriage** and **female foeticide**.
- **Celebrating 10 Years of BBBP:** The 2025 National Girl Child Day celebrations, marking the **10th anniversary** of the [Beti Bachao Beti Padhao \(BBBP\) scheme](#), will run from **22nd January to 8th March 2025**, concluding on [International Women's Day](#).

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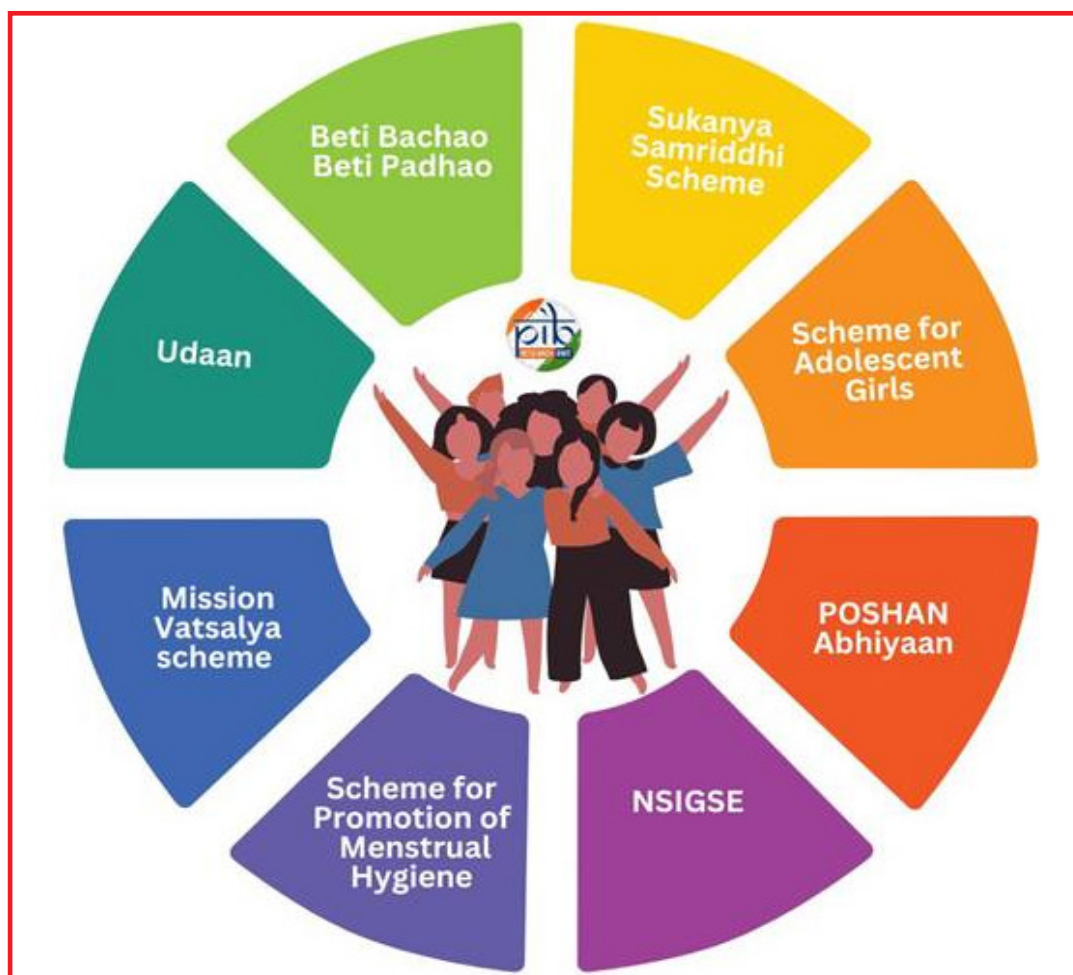


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Note:

➤ Initiatives for Girl Child Development:



- Measures to Empower Girl Child: [Prohibition of Child Marriage Act, 2006](#), [POCSO Act, 2012](#), [Mission Vatsalya](#) etc.
Read More: [10th Anniversary of BBBP and Sukanya Samriddhi Yojana](#)

Quad's Commitment to an Open Indo-Pacific

After Donald Trump's swearing-in, [Quad](#) foreign ministers reaffirmed their commitment to an open and free [Indo-Pacific](#), opposing unilateral actions to alter the status quo through force or coercion.

- The ministers reaffirmed their commitment to international law, democratic values, and territorial integrity in the Indo-Pacific and opposed China's territorial claims in the [South China Sea](#) and [East China Sea](#).
- India will host the 7th Quad Leaders Summit 2025, further cementing its leadership role in the strategic grouping.
- **About Quad:** Quad is a diplomatic partnership between Australia, India, Japan, and the US, focused on stability, prosperity, and openness in the Indo-Pacific region.
 - The Quad originated after the [2004 Indian Ocean tsunami](#), when the four nations provided humanitarian aid.
 - After an officer-level meeting in 2007, official-level meetings resumed in 2017, leading to the first Quad meeting at the Foreign Minister's level in 2019.
 - Quad-plus meetings have involved countries like South Korea, New Zealand, and Vietnam, suggesting further acceptance of Quad.

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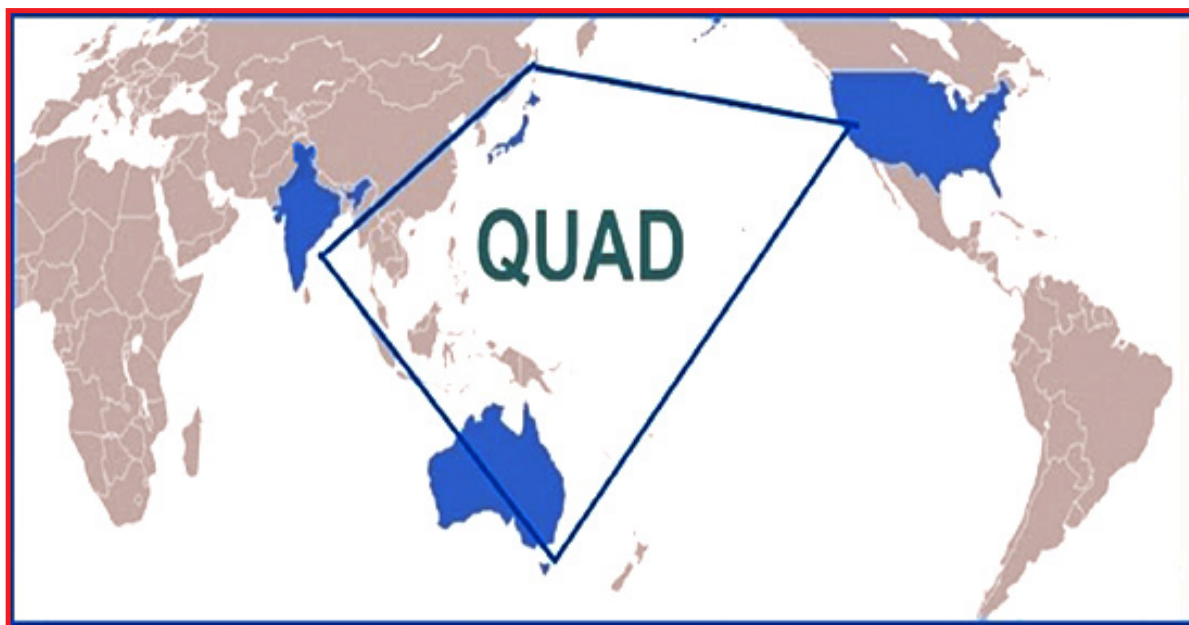
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Note:



Read More: [6th Quad Summit 2024](#)

Dengue Early Warning System

A study led by Indian Institute of Tropical Meteorology (IITM), Pune explores how [climate change](#) influences [dengue outbreaks](#), and proposes an [early warning system](#) to predict potential outbreaks.

- **Climate Impact on Dengue:** The study reveals that **fluctuating rainfall, and humidity levels between 60-78%** during monsoons increase **dengue cases**, with heavy rainfall above **150 mm** (flushing out mosquito eggs and larvae) **reducing mosquito prevalence**.
 - **Rising temperatures** could increase **dengue-related deaths in India by up to 40% by 2050**.
- **Dengue Early Warning System:** The system predicts dengue outbreaks over two months in advance by analyzing climate factors like temperature, rainfall, and humidity.
 - [Machine Learning and Artificial Intelligence](#) models enhance prediction accuracy, giving authorities critical time for proactive measures.
- **Dengue:** It is a mosquito-borne disease caused by the **dengue virus (*Genus Flavivirus*)**, primarily transmitted by **Aedes aegypti mosquitoes**.
 - It has four serotypes (DEN-1, DEN-2, DEN-3, DEN-4). **Symptoms include** high fever, severe headaches, pain behind the eyes, and intense joint and muscle pain.
 - **Diagnosis is through blood tests**, but there is no specific treatment for dengue.

Read more: [Dengue](#)

Halal Certification Controversy in Non-Meat Products

The **Solicitor General**, in response to a petition in the Supreme Court, **opposed** the practice of **halal certification for non-meat products** like **cement, iron bars, wheat flour (atta), and gram flour (besan)**.

- The halal certification system is alleged to **harm businesses not adhering to halal standards**, with claims of fostering **unfair competition**.
 - Companies accused of issuing forged halal certificates **exploited religious sentiments** to boost sales, fostering **social animosity and violating public trust**.

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Note:

- **About Halal:** Halal is an **Arabic word** that loosely translates to **permissible** in English.
 - The **FAO** defines Halal Food as that which is **permitted under Islamic Law**.
 - A halal certification is a guarantee that the **food is prepared, adhering to Islamic law, and is unadulterated**.
 - India **lacks a national halal certification system**, though efforts to streamline certification for meat products through the **i-CAS (Indian Conformity Assessment Scheme)** scheme are underway.
 - i-CAS streamlines **Halal certification** for meat and meat products.
 - **Meat and its products** can be **exported as 'halal certified'** only if produced, processed, and packaged in a facility with a **valid certificate** from an accredited body, as per **DGFT guidelines**.
- **About Solicitor General:** SG is the **2nd senior most law officer** of the government after the **Attorney General**.
 Read More: [CLEA - Commonwealth Attorneys and Solicitors General Conference 2024](#)

Indian Grey Wolf

Bankapur Wolf Sanctuary, Karnataka's **first wolf sanctuary** witnessed the birth of eight pups of an **Indian grey wolf**.

- **About:** Indian grey wolf (*Canis lupus pallipes*) is a subspecies of grey wolf found across Southwest Asia and the Indian subcontinent.
 - It lives in **smaller packs** and is **less vocal** compared to other wolf subspecies.
 - It is **primarily nocturnal**, hunting from dusk to dawn.
- **Habitat:** It is an apex predator in India's **scrublands, grasslands** and **semi-arid agro-ecosystems**. Thrives in regions with warmer temperatures.



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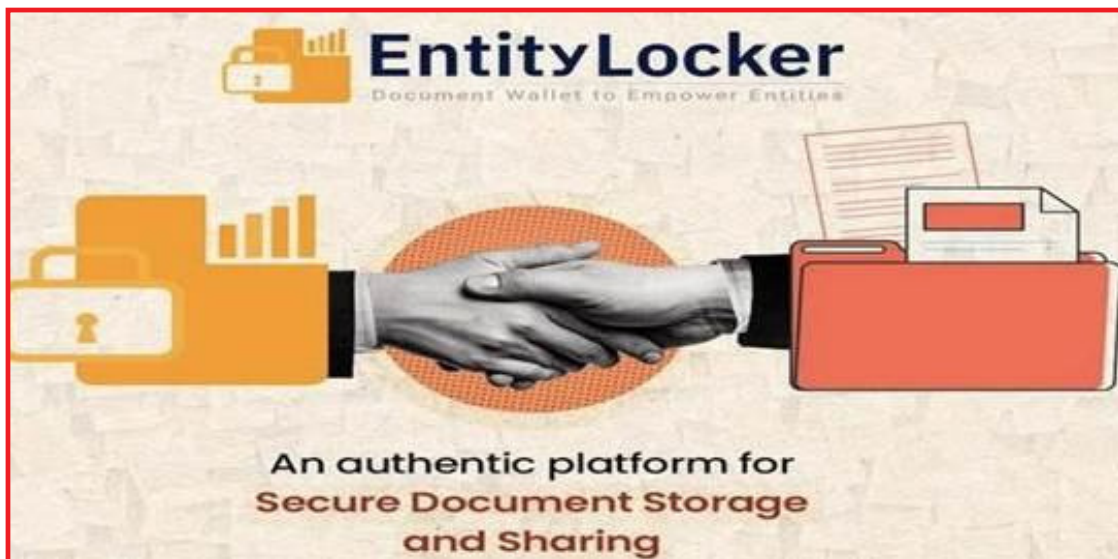
Note:

- **Conservation Status:**
 - **IUCN:** Endangered (population in India: 2,000 - 3,000 individuals).
 - **CITES:** Appendix I.
 - **Wildlife Protection Act, 1972:** Schedule I.
 - **Bankapur Wolf Sanctuary:** It spans **332 hectares** and features **scrub forests, hills, and natural caves** suitable for wolf habitation.
 - It is India's **second protected area** dedicated solely to wolves, after the **Mahudanr Wolf Sanctuary** (established in **1976**, now in Jharkhand).
 - Home to a variety of species, including **leopards, peacocks, blackbucks, foxes, and hares.**
- Read More: [Indian Gray Wolf](#)

Entity Locker

The **Ministry of Electronics and Information Technology (MeitY)** has introduced **Entity Locker**, developed by the **National eGovernance Division (NeGD)** of meity, is part of India's **Digital Public Infrastructure** initiative, aimed at enhancing business efficiency.

- **About:** Entity Locker is a **secure, cloud-based solution** for businesses and organizations of all sizes, including MSMEs, corporations, and startups.
 - The platform enables real-time document access and verification through integration with government agencies like the **Ministry of Corporate Affairs (MCA)**, **Goods and Services Tax Network (GSTN)**, and **Directorate General of Foreign Trade (DGFT)**, and other regulatory bodies.
- **Key Features:** Features encrypted cloud storage, digital signature authentication and Aadhaar-authenticated role-based access for secure, accountable document sharing.
- **Benefits:** **Reduces administrative friction and boosts business efficiency**, Minimizes document processing times and operational bottlenecks.
 - Entity Locker supports India's goal of a **digitally empowered economy** and aligning with the Union Budget 2024-25 vision for **enhanced digital governance and ease of doing business.**



Read more: [DigiLocker Partners with UMANG](#)

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Note:

8th Pay Commission

The Union government has approved the formation of the **8th Pay Commission**, a move that will benefit **4.5 million central government employees and 6.8 million pensioners**, including defence personnel.

- **Pay Commission (PC):** It assesses the **pay scales, allowances, and benefits** for central government employees, taking into account **inflation** and its impact on **remuneration and the cost of living**.
 - A new PC is **established every 10 years** under the **Department of Expenditure (Ministry of Finance)** to revise salaries and pensions, ensuring fair compensation for government employees. Usually, a retired **Supreme Court judge** heads the PC.
 - Its recommendations are often adopted by state-owned organizations as well.
- **Historical Context of Implications of PC:** Since 1947, the Indian government has established 7 Pay Commissions, with the **7th Pay Commission (2016-2026)** under the chairmanship of **Justice Ashok Kumar Mathur**.
 - The 7th Pay Commission led to an increase of **Rs 1 lakh crore in government expenditure in fiscal year 2016-17**.
- **8th Pay Commission:** It will likely propose formulas for revising the **Dearness Allowance (DA)** and **Dearness Relief (DR)** for employees and pensioners to counter inflation.
 - The DA adjustment is based on the **Consumer Price Index for Industrial Workers(CPI-IW)**, released monthly by the **Labour Bureau**, to track cost-of-living changes.
 - The 8th Pay Commission aims to align government salaries with the rising cost of living, supporting **employee welfare and economic growth**.

Read more: [Pay Commission](#)

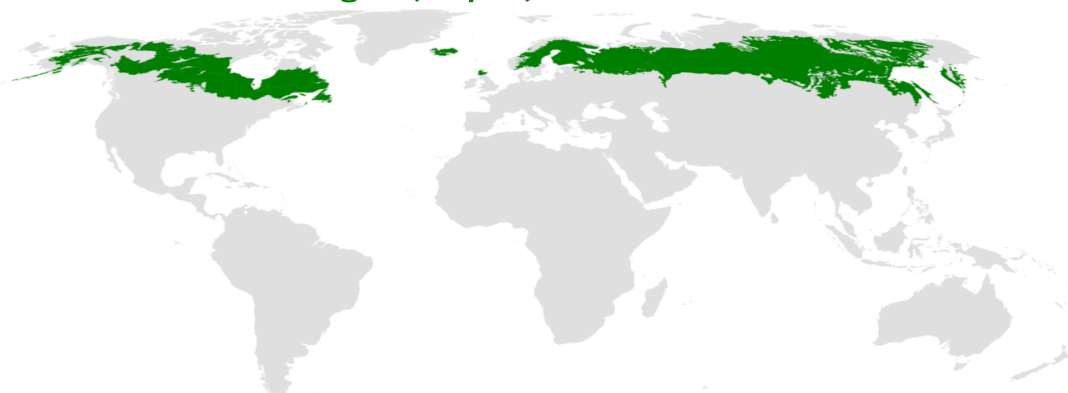
Boreal Forests

A study reveals that nearly **half of the world's boreal forests** are undergoing major changes due to climate change, increasing **wild fire risks** and altering their **carbon sink** role.

- **Key Findings of the Study:** Boreal forests are **warming four times faster than the global average**.
 - Boreal forests are transitioning to an **open state (with sparse tree cover)**, reducing their **carbon storage capacity** and increasing **wildfire risks**, with tree density decreasing from south to north.
 - **Permafrost thawing** may release significant **soil carbon**, further complicating carbon storage projections.

Taiga and Boreal Forest Global Distribution

The taiga or boreal forest covers much of Canada, Alaska, Sweden, Finland, Norway, Estonia, and Siberia and parts of Scotland, Iceland, Mongolia, Japan, and Kazakhstan.



This biome does not occur in the Southern Hemisphere.

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Note:

- **Boreal Forests:** The boreal forest (or “taiga”) is the world’s largest land biome, covering 30% of global forest area and 10% of Earth’s land surface.
 - The boreal ecozone principally spans eight countries in the Northern Hemisphere (Canada, China, Finland, Japan, Norway, Russia, Sweden, and the US).
 - Boreal forests are dominated by coniferous trees like pine, spruce, and fir, along with some broadleaf species such as poplar and birch. They thrive in high-latitude environments.
 - Contains more surface freshwater than any other biome, significantly impacting northern oceans and global climate.
 - Boreal regions provide over 33% of lumber and 25% of paper exports, playing a key role in climate regulation and acting as a major carbon reservoir, rivaling tropical forests.

Read more: [Types of Forests in India](#)

H5N1 Bird Flu and Demoiselle Cranes

Migratory Demoiselle cranes in Jaisalmer, Rajasthan, face threats from the spreading [H5N1 bird flu](#), compounded by unusually high rainfall creating toxic water bodies and pesticide spraying on chickpea fields.

- **H5N1: Avian Influenza A (H5N1) or H5N1 Bird Flu** is a highly pathogenic virus primarily affecting birds but can also infect mammals.
 - It originated in China in 1996 and rapidly evolved into a more dangerous strain.
 - Since 2020, it has spread globally across continents. India first encountered an H5N1 outbreak in 2015, affecting Maharashtra and Gujarat.
- **Spread to Humans:** Close contact with infected birds or contaminated environments is the primary route of human infection of avian influenza A viruses. Person-to-person transmission is rare but possible.
- **Demoiselle Cranes:** The Demoiselle crane (known as the koonj or kurjan in India), native to Russia’s

Siberian region, migrates to India during winters to escape extreme cold, particularly to Rajasthan.

- **Conservation:** [International Union for the Conservation of Nature \(IUCN\) Status](#) (Least Concern) and Khichan (in Rajasthan) hosts India’s first Demoiselle crane reserve, hosts 20,000–30,000 cranes each winter.

Read more: [H5N1 Bird Flu](#)

Anti-Dumping Duty on Cypermethrin

Recently, China has imposed an anti-dumping duty on the import of cypermethrin insecticide from India, citing substantial damage to its domestic industry.

Cypermethrin:

- It is a synthetic pyrethroid insecticide commonly used in agriculture and for household pest control.
 - Pyrethroids are derived from pyrethrins (a natural compound) found in *Chrysanthemum cinerariaefolium* flowers.
- It targets a wide range of pests, including ants, cockroaches, and agricultural insects.
- It is a neurotoxin that acts quickly on insects, killing them by affecting their central nervous system.

Anti-dumping Duty:

- **Anti-Dumping Duty** is a tax imposed on imported goods that are believed to be sold at a price lower than their fair market value in the exporting country.
 - In India, it is imposed by the Ministry of Finance based on recommendations from the Directorate General of Trade Remedies (DGTR) operating under the Ministry of Commerce and Industry.
- It is calculated as the difference between the normal value and the export value of the product.
 - Dumping occurs when a country exports goods at prices lower than those in its domestic market, constituting an unfair trade practice as per [World Trade Organisation](#) that can distort international trade.

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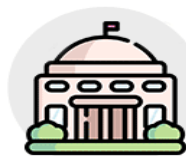


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Note:

ANTI-DUMPING DUTY



Domestic Government



Imposes Additional
Tax On Imported Goods



That are Sold Below
their Market Price

EXAMPLE



Country A manufactures
Toy Car at

\$75



Country B exports same Toy
Car to Country A at

\$50



Country A imposes
Anti-Dumping Duty on
Country B of

\$25

EDUCBA

Read More: [Anti-Dumping Duty](#)

Cosmic Story of Pluto and Charon

A recent study suggests that **Pluto's largest moon, Charon**, was formed after a violent collision between Pluto and another celestial body. This was followed by a “kiss-and-capture” event, where the two began orbiting each other.

- **Unusual Orbit:** Unlike Earth, whose moon orbits the planet, **Pluto and Charon** are considered a “binary system” where **they orbit around a common center of mass**, essentially **orbiting each other**, within the **Kuiper Belt** making their relationship unique in the solar system.
 - The **Kuiper Belt**, beyond Neptune's orbit, is a **cold region housing icy objects**, similar to the **asteroid belt** but farther from the Sun.
- **Pluto's Planetary Status:** Pluto, once the ninth planet, was reclassified as a “dwarf planet” in 2006 by the **International Astronomical Union**.
 - **NASA's New Horizons mission** revealed surprising features on Pluto, such as **ice mountains, nitrogen glaciers**, and a heart-shaped region called **Tombaugh Regio**, changing its image from a barren rock to a **dynamic, complex world**.
- **Moons of Pluto:** Charon (largest in size), Nix, Hydra, Kerberos, and Styx.

Pluto:

- Discovered by Clyde Tombaugh in 1930.
- **Diameter:** 1,400 miles, smaller than Earth's Moon.
- A year on Pluto lasts **248 Earth years**; a day lasts **153 hours** (about 6 Earth days).
- The atmosphere consists of **nitrogen, methane, and carbon monoxide**, with a **blue tint and haze layers**.
- Surface temperature ranges from **-228°C to -238°C**, too cold to support life.

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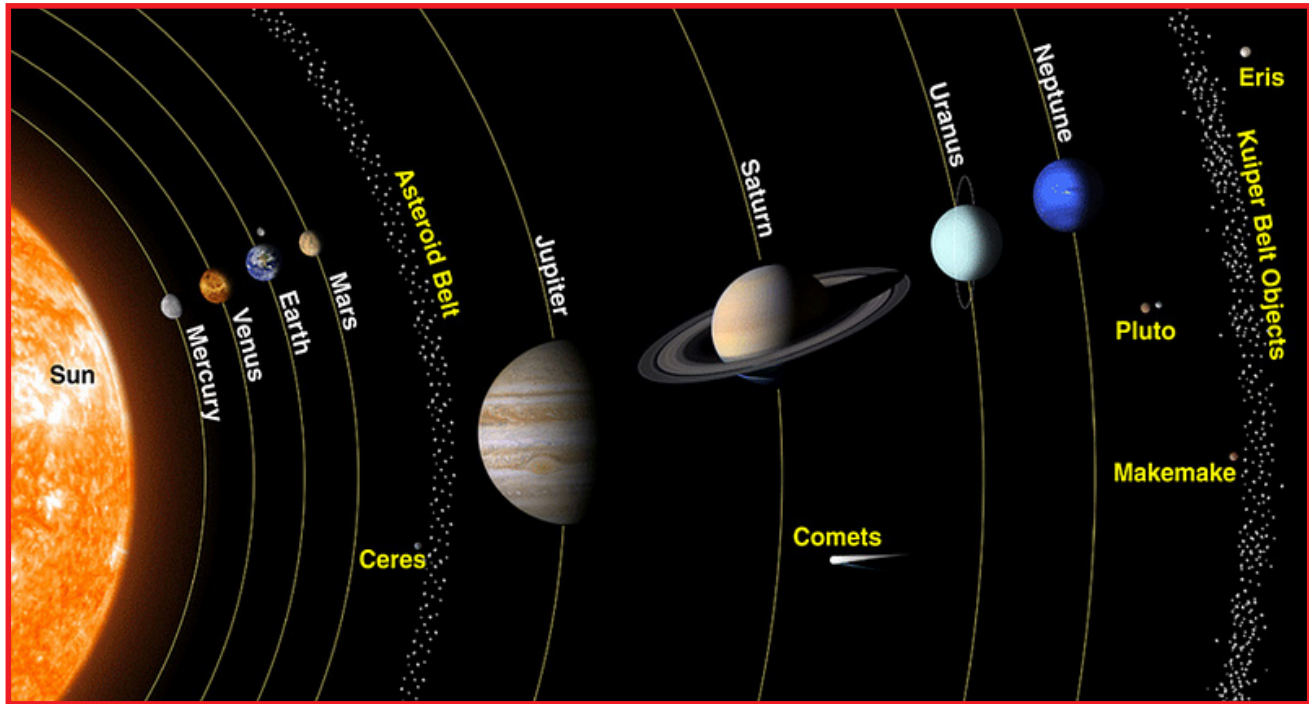
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Note:



Read More: [Spherical Shape of Planets](#)

Athletics Federation of India (AFI)

Bahadur Singh Sagoo has been elected as the new president of the [Athletics Federation of India \(AFI\)](#).

- Bahadur Singh Sagoo is a one-time Asian medallist and two-time national champion, won a gold medal in the shot put at the 2002 Busan Asian Games. He also competed in the 2000 and 2004 Olympics.

Athletics Federation of India (AFI)

- **About:** AFI was established in 1946 as a non-governmental, non-profit, autonomous apex body for athletics in India.
 - It is affiliated with World Athletics, the [Asian Athletics Association \(AAA\)](#), and the [Indian Olympic Association](#).
- **Objective:** To popularize athletics, improve athlete performance, and make the sport commercially viable.
- **Structure:** AFI consists of 32 affiliated state and institutional units.
- **Functions:** It organizes National Championships, selects teams for international events, and promotes athletics through competitions. It also focuses on grassroots development, coaching programs, and special camps to nurture talent.

World Athletics Day:

- It is celebrated annually on 7th May (first Day was celebrated on 15th May 1996).
- It was established in 1996 by the International Association of Athletics Federations (IAAF), now known as World Athletics, to promote youth participation in athletics.

Read More: [Athletics Federation of India \(AFI\)](#).

Wind Turbines Along Railway Tracks

Indian Railways (IR) is exploring the use of wind turbines along railway tracks as part of its goal to achieve [net-zero carbon emissions](#) by 2030.

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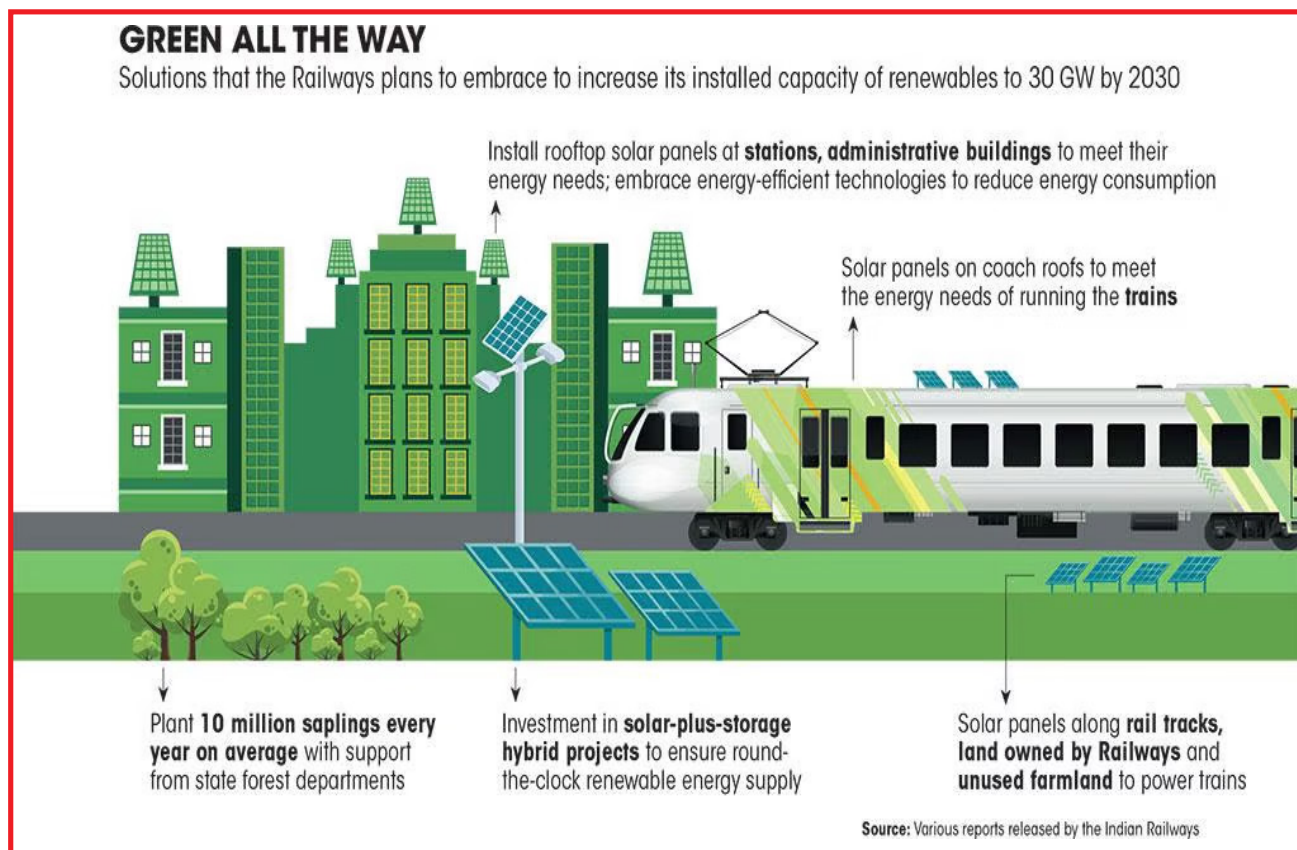
- A pilot project by Western Railway installed **mini vertical-axis turbines** generating 1-10 kW of electricity, harnessing wind from passing trains.

Possible Challenges:

- **Logistics:** Complex installation and maintenance coordination, particularly in urban areas with limited space.
- **Safety:** Turbine failures could pose risks to trains and passengers.
- **Wind Conditions:** Optimal wind conditions may not align with railway corridor locations.
- **Space Constraints:** Sufficient spacing for turbines may be difficult to achieve along tracks.
- **Economic Viability:** High installation and maintenance costs.

Indian Railways (IR)' Renewable Energy Progress:

- By November 2024, IR commissioned **487 MW of solar power**, **103 MW of wind power**, and **100 MW of Renewable Energy Round-the-Clock (RTC)**.
- A total of 2,014 MW of renewable capacity is planned, supporting its goal of achieving **net-zero carbon emissions by 2030**.



Read More: [Rerouting Indian Railways' Future](#)

Renaming Gulf of Mexico and Denali

US President Donald Trump signed an executive order to rename the **Gulf of Mexico** as the **Gulf of America** and revert **Denali** to **Mount McKinley**, to honor American greatness.

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Note:

- **Governance on Naming:** International Hydrographic Organization (IHO) (US and Mexico are members), ensures uniformity but allows domestic alternative names, with **no formal renaming protocol**.
 - Mexico and Cuba aren't bound to the new name, and international agreements still use the **Gulf of Mexico**.
- **Gulf of Mexico:** It is the world's largest gulf, bordered by **Cuba, Mexico, and the US**, connects to the Atlantic via the **Straits of Florida** and to the Caribbean via the **Yucatán Channel**.
 - The Gulf of Mexico supplies 14% of US **crude oil**, 5% of **natural gas**, and hosts 48% of the **US petroleum refining capacity** and 51% of the **natural gas processing capacity**.
- **Mount McKinley:** **Mount McKinley**, the highest peak in North America, is located in **Alaska** and was renamed Denali in 2015 to honor the indigenous **Koyukon people**.



- Reverting to Mount McKinley honors **President William McKinley (1897-1901)** for his leadership in the **Spanish-American War** and **US economic growth**.
- **Similar Global Disputes:** The **"Persian Gulf"** vs. **"Arabian Gulf"** between Iran and Saudi Arabia, the **"Sea of Japan"** vs. **"East Sea"** between Japan and South Korea, and territorial naming disputes in the **South China Sea**.

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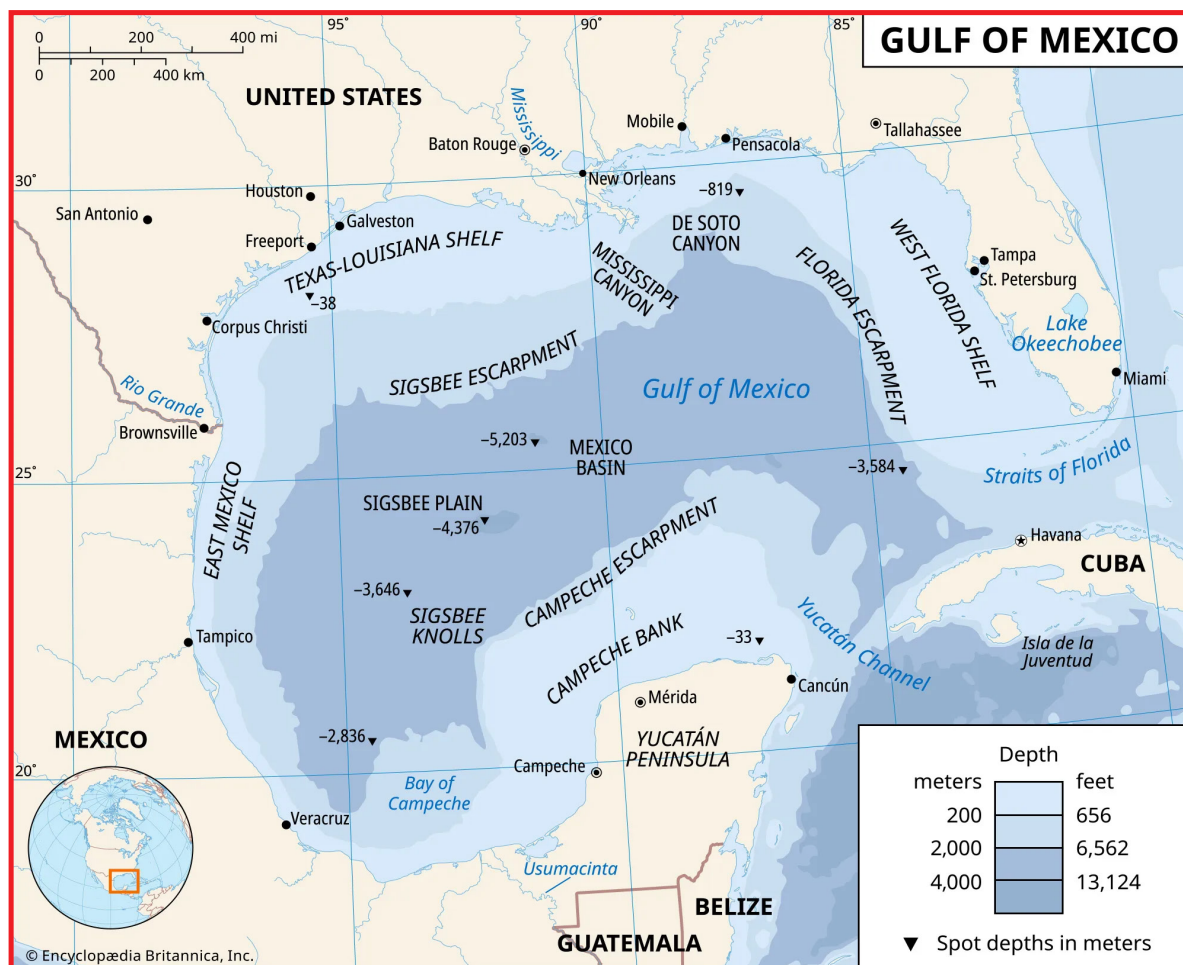
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Note:



Read more: [India-US Relations](#)

Colombia's Escalating Conflict

Colombia faces a **surge in violence** as rival militias clash, threatening its **fragile peace process** and prompting a state of **emergency** with **military deployments**.

- Violence involves guerilla groups that rejected the **earlier peace accords**.
 - The deal **terminated** the conflict between the **Colombian government** and the Marxist–Leninist **guerillas (1964-2016)**.
 - Groups are fighting for control of a strategic border region with **coca leaf plantations**, the **raw material for cocaine production**.
- Hundreds of refugees sought safety in **Tibu**, a city in Colombia, where several **shelters** were established to house them.
- **About Colombia:** It is called “**gateway to South America**” due to its location connecting **South America with Central and North America**.
 - Its vast **grasslands** are called **Los Llanos** and open in both the **Pacific and Atlantic Ocean**.
 - About **10% of the world's animal species** live in Colombia, despite it covering **less than 1% of Earth's land area**.
 - It is the **world's largest producer of cocaine**.

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Note:



Read More: [India-Latin America Trade Relations](#)

India Wins Inaugural Kho Kho World Cup 2025

India emerged as the champions of the inaugural Kho Kho World Cup 2025, clinching both the men's and women's Kho Kho World champions titles by defeating Nepal in the finals.

- **Kho Kho World Cup 2025:** The tournament was backed by the [Indian Olympic Association \(IOA\)](#), it included group stages and knockouts for both divisions (men's and women's).
- **Kho Kho's Historical Significance:** It is one of India's oldest **traditional tag games**, believed to have evolved from the **Chakravyuha**, a war formation in the [Mahabharata](#), resembling a defensive tactic similar to Kho Kho's ring play.
 - Experts believe that Kho Kho originated in **Maharashtra**, and was initially played on chariots. The modern foot version emerged in [1914 during World War I](#), with **Pune's Deccan Gymkhana Club** formalizing its rules and structure.
 - A Kho Kho team consists of **9 active players**, with 3 substitutes available. Players alternate between **chasing, defending, and tagging opponents**.
 - Kho Kho was demonstrated at the **Berlin 1936 Olympics**, alongside other indigenous Indian sports like [kabaddi](#) and [mallakhamb](#).
- **Growing Popularity:** Kho Kho's global reach has grown from **6 countries in 2020 to 55 in 2025**. The **International Kho Kho Federation (IKKF)** aims to expand to 90 countries, targeting [Olympic inclusion by 2036](#).

Read more: [India Bids to Host the 2036 Olympics](#)

Mission SCOT

The Prime Minister of India lauded **Indian space startup Digantara** for the success of **Mission SCOT (Space Camera for Object Tracking)**.

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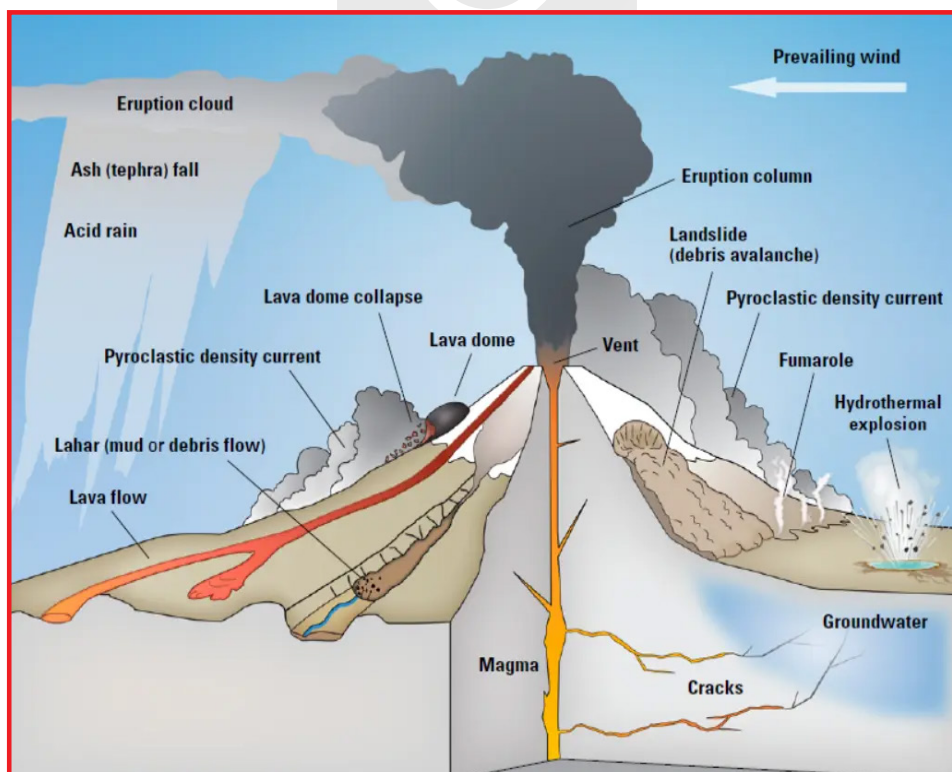
- **Mission SCOT:** It is the world's first commercial Space Situational Awareness (SSA) satellite, launched aboard SpaceX's Transporter-12 mission.
 - SSA is the tracking and characterization of space objects and their orbits.
 - Mission SCOT tracks Resident Space Objects (RSOs) as small as 5 cm in Low Earth Orbit (LEO).
 - It is backed by Aditya Birla Ventures and the Small Industries Development Bank of India (SIDBI).
- **Transporter-12 Mission:** It is part of SpaceX's rideshare program, aims to provide **cost-effective access to space** for multiple customers in a single launch.
- **India's Efforts in SSA:** Indian Space Research Organisation (ISRO) conducts proximity analyses and Collision Avoidance Manoeuvres (CAM) to prevent satellite collisions.
 - India has a Multi Object Tracking Radar at Sriharikota range, but it has a limited range.
 - ISRO System for Safe and Sustainable Operations Management (IS4OM), provides the annual Indian Space Situational Assessment Report (ISSAR) for space environment insights.
- **NETRA Project:** Under the Network for Space Objects Tracking and Analysis (NETRA), ISRO is establishing a **Space Surveillance and Tracking (SST) network** with advanced radars and optical telescopes to enhance threat analysis and protect space assets.

Read more: [NETRA Project & Space Junk](#)

Eruption of Mount Ibu

Indonesia's Mount Ibu erupted **1,079 times in January 2025**, with significant **ash columns** rising between **0.3 km to 4 km**.

- Mount Ibu is a stratovolcano located on the **island of Halmahera** in Indonesia's **North Maluku province**.



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Note:

- A stratovolcano, or composite volcano, has a steep, conical profile formed by layers of **lava, ash, and volcanic debris**.
- It is typically found at **convergent plate boundaries** and **subduction zones**.
- **Mount Vesuvius (Italy), Mount Fuji (Japan), Mt Krakatoa (Indonesia)** are examples of stratovolcanoes.
- **Mount Lewotobi Laki-Laki**, a twin-peaked volcano, and **Mount Ruang** in Indonesia **erupted multiple times**, prompting mass evacuations.
- Indonesia lies along the **Pacific Ring of Fire**, known for frequent **volcanic and seismic activity**, making it vulnerable to eruptions.

VOLCANOES

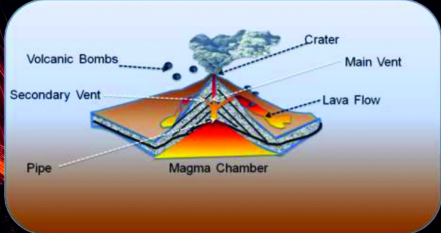
A volcano is a vent or a fissure in the crust from which lava (molten rock), ash, gases, rock fragments erupt from a magma chamber below the surface

○ **Types: On basis of -**

- **Periodicity of Eruption:**
 - **Active volcano:** Recently Erupted
 - **Dormant Volcano:** Potential for eruption, no imminent signs
 - **Extinct:** No recent eruptions, low possibility in future
- **Nature of Eruption:**
 - **Hawaiian:** Calmest types (low gaseous content)
 - **Strombolian:** Formation of large gas bubbles in magma
 - **Vulcanian:** More explosive
 - **Plinian eruptions:** Magma's volatile gases rise via a narrow conduit
 - **Icelandic:** Often build lava plateaus
- **Shape of Volcanoes:**
 - **Shield volcanoes:** Composed of basaltic lava, low slope
 - **Cone volcanoes (Cinder Cones):** Most abundant
 - **Composite cones (stratovolcanoes):** Formed by layers of diverse materials.

○ **Volcanic Features:**

- **Extrusive :**
 - **Crater:** Cone-shaped vent for magma
 - **Caldera:** Large, crater-like depression
 - **Volcanic Plateaus:** Leveled areas from fissure eruptions



○ **Intrusive:**

- **Batholiths:** Central core of a volcanic mountain.
- **Dyke:** Vertical intrusion cutting across country rock bedding.
- **Sills:** Tabular intrusions along sedimentary bedding.
- **Laccoliths:** Magma injection along horizontal sedimentary bedding.

○ **Minor:**

- **Geysers:** Underground water above 100°C, powered by magma, results in powerful eruptions with steam and diluted minerals.
- **Hot Springs:** Heated water flows quietly along fault zones.

○ **Distribution of Volcanoes:**


- Subduction zones (Circum Pacific Belt)
- Divergence zones (Mid Atlantic Ridge)
- Intra-plate oceanic volcanism (Hawaiian chain)
- Mid-continental belt and volcanoes in Mediterranean region

○ **Volcanoes in India:**

- No volcanoes in Himalayans
- Barren Island (Only active volcano)

○ **Products of Volcanic Eruption:**

- **Gases:** H, C, O, S, N, CH₄, NH₃
- **Solid:** Pyroclastic materials
- **Liquid:** Lava



Read More: [Volcanism](#)

Nigeria as 9th BRICS Partner Country

- Brazil, holding the **BRICS** presidency in 2025, announced Nigeria's admission as a "partner country" of the BRICS bloc.
- **Nigeria** becomes the 9th BRICS partner country, joining **Belarus, Bolivia, Cuba, Kazakhstan, Malaysia, Thailand, Uganda, and Uzbekistan**.
 - In BRICS, a "partner country" refers to nations or organizations **invited to attend summits ministerial meetings**, or participate in other **joint ventures**, but **without membership status** or formal decision-making power.
 - Nigeria has the world's **6th largest population** and **Africa's largest**, in addition to being the **4th largest economy** in Africa.
 - Nigeria is located on the **Western coast of Africa**, often called the "**Giant of Africa**."
 - **About BRICS:** BRICS was formed by **Brazil, Russia, India and China** in **2009**, with **South Africa** added in **2010** as a counterweight to **G7 countries**.

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Note:

- In 2023, the BRICS added Iran, Egypt, Ethiopia and the UAE, while Saudi Arabia has been invited to join.
- **Indonesia** has officially joined the BRICS group as the 10th member, effective from January 2025.
- Turkey, Azerbaijan and Malaysia have formally applied to become BRICS members.



Read More: [Expansion of BRICS](#)

Fonio Millet

Fonio, an ancient West African **millet** (e.g., Ghana), is known for its resilience to climate shocks, ease of cultivation, and ability to grow in poor soils with minimal water requirements.

- It is often referred to as a **miracle grain** due to its **adaptability and nutritional value**.
- **Fonio** is traditionally cultivated by **Fulani tribes**, the **largest nomadic tribe** in Africa.
 - It is highly **versatile** and can be used in **salads, porridges, pasta, bread**, or served as a side dish.
 - It can be cultivated in **arid and semi-arid** regions and require **low water intake**.
- It is similar to Indian millets like **sikiya** and **raishan**. Sikiya, a favored millet of the **Baiga tribe**, is cultivated in parts of **Madhya Pradesh**.
- The year **2023** was declared by the **United Nations** as the **International Year of Millets**.
 - **Profit motive** among farmers is leading to **neglect of millet** production e.g., in **Odisha's Niyamgiri hills**, **pineapple** cultivation for **profit** has sidelined millets.

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Note:

Millets

About

- Small-grained cereals also known as **coarse grains**
- Often referred to as '**Superfood**'
- Among the **first crops to be domesticated** - evidence of millet consumption dates back to the **Indus Valley Civilisation (3,000 BC)**

Climatic Conditions

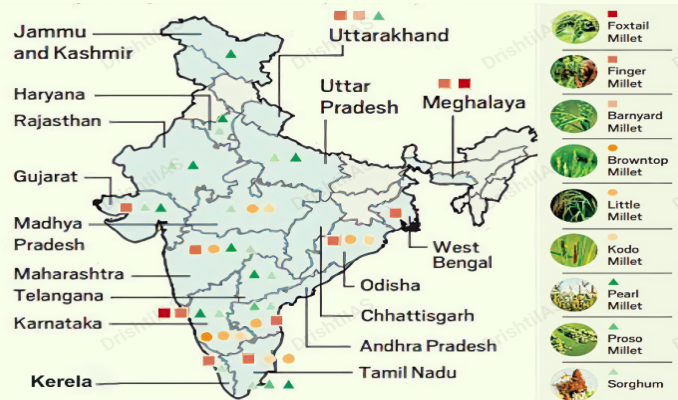
- Mainly a Kharif crop in India**
- Temperature:** 27°C - 32°C
- Rainfall:** Around 50-100 cm
- Soil Type:** Inferior alluvial or loamy soil

India and Millets

- Global Largest Millet Producer:**
 - 20% of global production, 80% of Asia's production
- Common Millets:**
 - Ragi** (Finger millet), **Jowar** (Sorghum), **Sama** (Little millet), **Bajra** (Pearl millet), and **Variga** (Proso millet)
 - Indigenous varieties** (small millets) - **Kodo, Kutki, Chenna and Sanwa**
- Top Millets Producing States:**
 - Rajasthan (largest), Karnataka, Maharashtra, Madhya Pradesh and Uttar Pradesh
- Govt. Initiatives:**
 - Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)
 - '**India's Wealth, Millets for Health**'
 - Millet Startup Innovation Challenge
 - Hiked MSP** for Millets
 - Agriculture Ministry declared millets as "**Nutri Cereals**" in 2018

Significance

- Less expensive, **nutritionally superior**
- High protein, fibre, minerals, iron, calcium and a **low glycemic index**
- Help **tackle lifestyle problems and health** (obesity, diabetes etc.)
- Photo-insensitive, **resilient to climate change & water efficient**



International Year of Millets - Year 2023

Proposed by India, declared by UNGA



Read More: [India's Millet Revolution](#)

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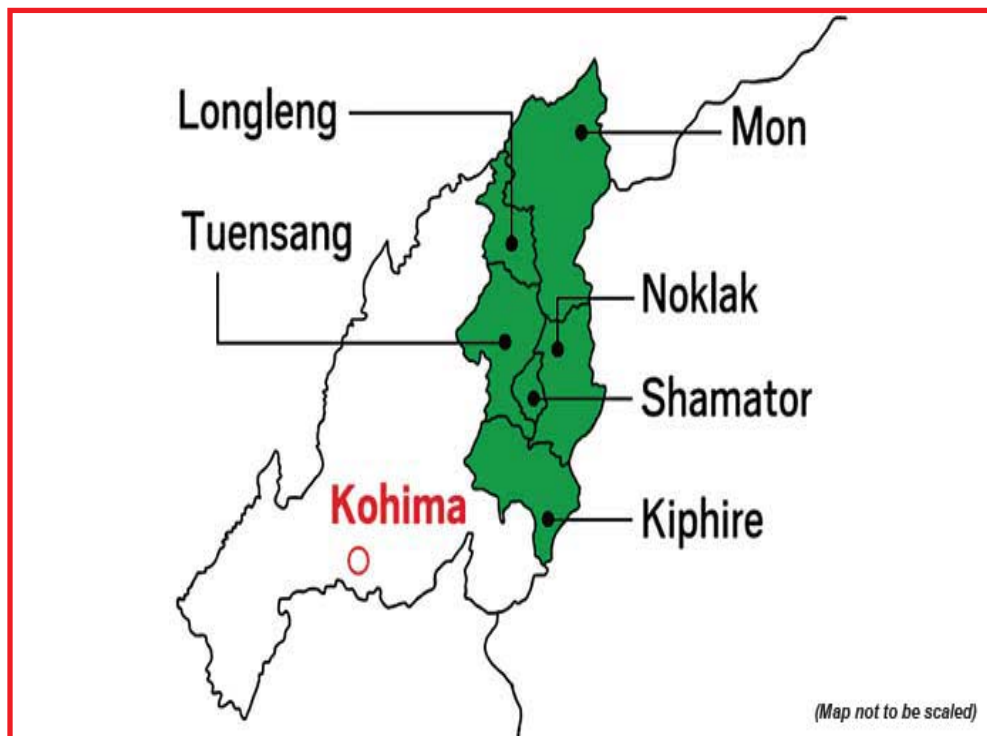
Note:

Demand For Frontier Nagaland Territory

The **Ministry of Home Affairs (MHA)** has agreed to the demand by the **Eastern Nagaland People's Organisation (ENPO)** for autonomy in the proposed **Frontier Nagaland Territory (FNT)**.

Frontier Nagaland Territory (FNT)

➤ About:



- FNT is a **proposed administrative region** demanded by the **ENPO** to address the **developmental imbalances** in **6 eastern districts of Nagaland**- Kiphire, Longleng, Mon, Noklak, Shamator, and Tuensang.
- **Objective:**
 - It aims to grant **executive, legislative, and financial autonomy** to these districts, **enabling better governance** and **focused resource allocation** to bridge the “development deficit.”
- **Significance:**
 - These districts, which are **home to 7 Naga tribes** (Konyak, Khamniungan, Chang, Sangtam, Tikhir, Phom and Yimkhiung), account for over **30% of Nagaland's population** and **20 of the 60 legislative assembly seats**.
- **Background:**
 - The demand for a separate state for Eastern Nagaland **began in 2010**, led by the ENPO citing a significant “development deficit” in the region.

Nagaland:

- After Independence in 1947, the **Naga territory remained part of Assam**. It was recognized as a state on **1st December 1963** under the **State of Nagaland Act, 1962**.

Read More: [Nagaland Statehood Day](#)

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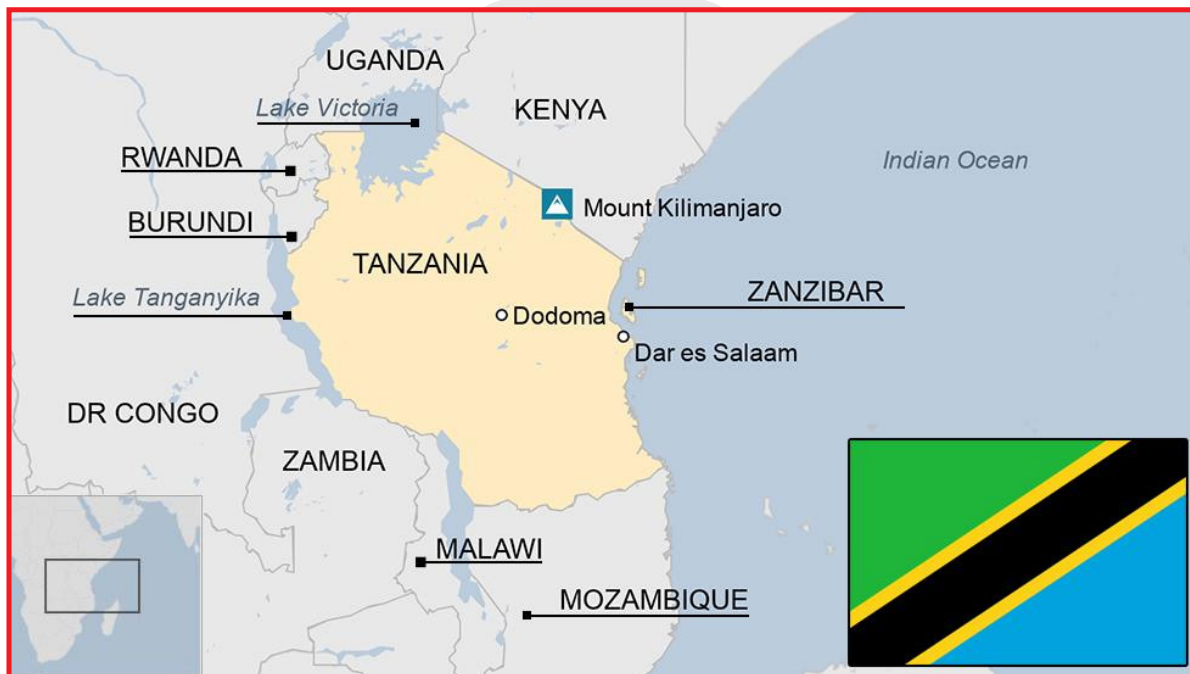


Note:

Marburg Virus Disease Outbreak

A suspected outbreak of **Marburg virus disease (MVD)** in Tanzania's Kagera region has raised alarm after claiming 8 lives.

- **About MVD:** MVD is a **deadly hemorrhagic fever** caused by the Marburg virus, characterized by **high fatality rates of 89%** and the absence of approved treatments.
 - **Symptoms:** The virus causes severe symptoms, including **fever, headache, vomiting blood, and bleeding**, resembling the **Ebola virus**.
 - **Transmission:** It is transmitted to humans from **fruit bats** (*Rousettus aegyptiacus*) and spreads through direct contact with the **bodily fluids** of infected individuals.
 - **Diagnosis:** It is confirmed using tests such as **RT-PCR (Reverse Transcription Polymerase Chain Reaction)**.
- **About Tanzania:** Tanzania (formerly Tanganyika) is the **largest country in East Africa** and includes the islands of **Zanzibar, Pemba, and Mafia**.
 - It is bordered by the **Indian Ocean** and **eight countries**.
 - It is bordered by 3 of the largest lakes in Africa i.e., **Lake Victoria** (world's 2nd largest freshwater lake), **Lake Tanganyika**, and **Lake Nyasa**.



Read More: [India Tanzania Relations](#)

ISRO's Third Launch Pad

The Union Cabinet has approved the establishment of the **Third Launch Pad (TLP)** at the **Satish Dhawan Space Centre (SDSC)**, India's 1st launchport (2nd launchport - Kulasekarapattinam), in Sriharikota, Andhra Pradesh.

- The third launch pad will have the capacity to handle spacecraft weighing up to **30,000 tonnes** in **low Earth orbit**.
 - Designed to support **NGLV, LVM3 vehicles** with **semi cryogenic stages**, and **scaled-up NGLV** configurations.

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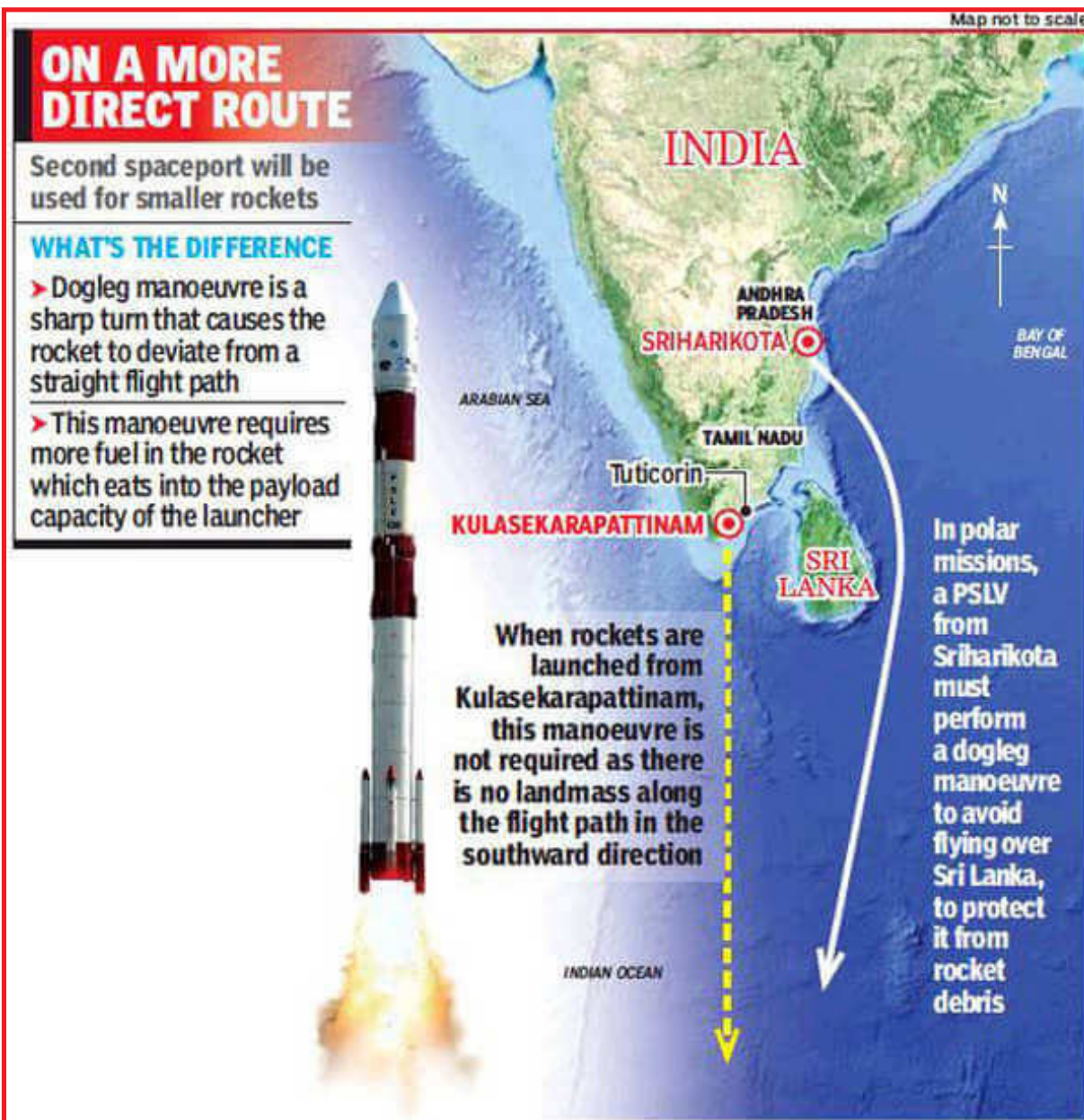


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Note:

- Currently, ISRO uses two launch pads i.e., the **First Launch Pad (FLP)** and the **Second Launch Pad (SLP)**.
 - FLP was implemented for the **PSLV** and continues to support launches for both **PSLV** and **SSLV**.
 - SLP was primarily set up for **GSLV** and **LVM3**, while also serving as a **backup** for **PSLV**.
 - It successfully launched the **Chandrayaan-3** mission and is preparing for the upcoming **Gaganyaan** missions.
- **Future Vision:** India's vision includes a **Crewed Lunar Landing by 2040** and the **Bharatiya Antariksh Station (BAS) by 2035**, necessitating heavier launch vehicles that cannot be accommodated by existing pads.
- In 2024, foundation stone for **ISRO's 2nd rocket launchport** was laid in **Kulasekarapattinam**, Tamil Nadu for commercial, on-demand, and small satellite (**SSLVs**) launches and to avoid **dogleg manoeuvre** over Sri Lanka.



Read More: [New Rocket Launchport in Tamilnadu](#)

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Note:

Blood Money and Plea Bargaining

The **death sentence** of an Indian nurse in **Yemen** for allegedly murdering her business partner, along with efforts involving **blood money** (*diya* under **Sharia law**) for her **acquittal**, has reignited debates over its implications.

- **Blood money** refers to money paid as **compensation** for **unintentional murder**, culpable homicide, or when victims' families **forgo retribution** (*qisas*).
 - Even after reconciliation, the **state** retains the right to **impose penalties**.
- **India's Position:** India does **not** formally recognize **blood money**.
 - The legal system offers '**plea bargaining**' as a negotiation tool but it is not available for **crimes against women or children aged below 14**, heinous crimes such as **murder or rape** etc.
 - It outlines a procedure where the **accused pleads guilty** in exchange for **concessions** from the prosecutor, potentially including **victim compensation**.
 - It was introduced through the **Criminal Law (Amendment) Act, 2005** to the **Code of Criminal Procedure, 1973 (BNSS)**.
 - It can be taken up only for offences that are penalised with **imprisonment of less than 7 years**.
- **Ancient India:** Kautilya's **Arthashastra** and Manusmriti discussed fines and reparations as part of **legal remedies for offenses**.

Read more: [Issue of Indians Jailed Abroad](#)

Compact Research Module for Orbital Plant Studies (CROPS)

Indian Space Research Organisation (ISRO) has successfully germinated **Lobia (black-eyed pea)** seeds in space as part of its **Compact Research Module for Orbital Plant Studies (CROPS)**.

- **CROPS Module:** CROPS is an **experimental module** developed by **ISRO** to **study plant growth in space** under **microgravity**.
 - It functions as a **mini greenhouse** with **controlled air, temperature, simulated sunlight (LEDs)**, and an **Earth-operated water delivery system**.

- **Methods Involved:**
 - **Hydroponics:** Plants grow using **nutrient-rich water** instead of soil.
 - **Aeroponics:** No soil, plants grow in air with misted nutrients, reducing water and fertilizer usage.
 - **Soil-like Medium:** ISRO used **porous clay** with **slow-release fertilizer** for controlled nutrient delivery.
- **Ideal Space Plants:** Ideal space plants include **leafy vegetables** (lettuce, spinach, kale), **beans and peas** (for protein and nitrogen fixation), and crops like **radishes, carrots, wheat, rice, tomatoes, and strawberries**.
- **Significance:** It provides a **sustainable food source** for **long-term space missions**.
 - Plants **recycle carbon dioxide**, **improve air quality**, and help create a **closed-loop life support system**.

Read More: [India's Space Power Revolution](#)

Trichophyton Indotineae

Dermatologists from **India** and 13 other countries have criticized the **region-specific nomenclature** of the novel **fungus** species, **Trichophyton (T.) indotineae**.

- **Trichophyton (T.) Indotineae:** It is a novel fungal species causing **difficult-to-treat skin infections**, often resistant to most **antifungal treatments**.
 - **T. indotineae**, first identified in **2020** by **Japanese dermatologists** in patients from India and Nepal, has since been **detected in over 40 countries**.
 - Its origin remains unclear, as it was found in **Australia, Oman, and Iran** before the **2010s epidemic of multi-drug-resistant tinea infections**.
 - The species name, linked to India (and "indotineae"), has faced criticism for being **region-specific**, which could perpetuate **stigma and misinformation**.
 - The naming is **prejudicial** and contradicts guidelines set by organizations such as the **WHO** and the **American Society of Microbiology**.
- **Critics of Nomenclature:** The best practices for naming diseases focus on using **descriptive terms based on symptoms** and specific characteristics like severity or seasonality.
 - These guidelines were developed by **WHO** in collaboration with **OIE** and the **FAO**, and the **International Classification of Diseases (ICD)**.
 - Naming fungi after specific locations can be misleading and harmful, citing past examples like the **"Spanish flu"** or **"Delhi boil."**

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Note:

Fungi Kingdom

Characteristics of Fungi Kingdom

- * Most Fungi are many-celled and some are one-celled organisms.
- * Cells of the Fungi have a membrane around the nucleus.
- * The Fungi get nutrients and energy by absorbing and digesting from the surface they live on.
- * Most Fungi reproduce by spores.
- * Examples of Fungi are yeast, mushrooms, bread molds, and lichens.



Rainbow Fungi



Maiden Veil Fungi



Sticky Fungi



Earthstars



Coral Fungi



Luminous Fungi

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Read More: [Fungi- Mushroom](#).

UPI Transactions Enabled for PPI Holders

The [Reserve Bank of India \(RBI\)](#) has amended its regulations to allow full-KYC [Prepaid Payment Instruments \(PPIs\)](#) holders to perform [Unified Payments Interface \(UPI\)](#) transactions via third-party UPI apps.

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Note:

- **Objective:** To allow **PPI holders**, such as users of **digital wallets and gift cards**, to make and receive UPI payments via **third-party apps** like **PhonePe, Google Pay, and Paytm**, which were limited to the issuer's app only.
 - It aims to **enhance flexibility, customer satisfaction, and ease of use**, promoting **greater participation** in the **digital payment** ecosystem.
- **PPIs:** PPI are **digital wallets and payment tools** that allow users to **purchase goods and services, transfer funds, and access financial services** using the value loaded onto them.
 - There are over **1.14 billion PPIs** issued by **banks and non-banks** in India.
- **UPI:** It is an **instant real-time payment system** developed by **NPCI** to facilitate inter-bank transactions through mobile phones.
 - UPI accounts for **70% of India's digital transactions** in **2023-24**.
 - In October 2024, UPI processed **Rs 23.49 lakh crore** across **16.58 billion transactions**, marking a **45% increase** from 2023.
 - The Indian government is also promoting **UPI and RuPay cards internationally**.

Read More: [UPI Payments: Empowering Users, Challenging Banks](#)

The Kokborok Language

Members of the **Twipra Students' Federation (TSF)** were detained for protesting at the Tripura Assembly entrance, demanding the inclusion of the **Roman script for Kokborok (a Sino-Tibetan language)** in textbooks and official work.

- **Language and Community:** Kokborok, is the mother tongue of the **Borok people (Tripuris)** and tribal communities in Tripura, including **Debbarma, Reang, Jamatia**, and others.
- **Etymology:** "Kok-Borok" combines Kok (language) and Borok (man), meaning "the language of man" or "the language of the Borok people."
- **Script and Writing:** Kokborok originally used the **Koloma script** but now lacks a native script and is written in **Bengali script**.

- **Historical Roots:** Existed since at least the 1st century AD. **Rajratnakar**, a chronicle of Tripuri kings, was initially written in Kokborok and Koloma script by **Durlobendra Chontai**.
- **Recognition:** Kokborok was recognised as the **official language of Tripura in 1979** (spoken by 23.97% of Tripura's population (2011 Census)), second only to Bengali.
- **Use of Roman Script:** Kokborok, favored by tribal groups, has been written in **Roman script for decades**. Two commissions, led by **Shyama Charan Tripura and Pabitra Sarkar**, supported Roman, while the government preferred Bengali.
 - Tribal organizations oppose **Bengali or Devanagari scripts**, fearing cultural imposition and identity disruption.

Read more: [NRC in Tripura](#)

Interpol's Silver Notice

The **Central Bureau of Investigation (CBI)** has emphasized that the new Interpol 'Silver Notice' is a **more effective** tool than **Mutual Legal Assistance Treaties (MLAT)** for tracing illicit assets across borders.

Silver Notice

- **INTERPOL** Silver Notice was **launched in 2023** as part of a **pilot phase**, running **until 2025**, following consultations during the **2022 United Nations (UN) General Assembly**.
 - The initiative **involves 52 countries, including India**.
- It is aimed at **identifying and recovering criminal assets** linked to **illegal activities** and **trace laundered assets** such as properties, vehicles, financial accounts, and businesses.
- It enables member countries to **request information about assets connected to criminal activities** like fraud, corruption, drug trafficking, and environmental crimes.

INTERPOL Notices:

- **INTERPOL Notices** are **international alerts** that enable **police** in member countries to **share crime-related information**.
- There are **8 types** of Notices, in addition to the **INTERPOL-UN Security Council (UNSC) Special Notice**.

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Note:



➤ **Notices can be requested by:**

- A **member country's** INTERPOL National Central Bureau (**BHARATPOL** in India).
- **United Nations**, **International Criminal Tribunals** and the **International Criminal Court**.
- India has launched the '**BHARATPOL**' portal to enhance the efficiency of **Indian investigation agencies**.

INTERPOL:

- **INTERPOL** is a **global police organization** that facilitates international cooperation to control crime.
- It was founded in **Vienna in 1923** and is **headquartered in Lyon, France**.
- India became a member of INTERPOL in **1949**.

Read More: [Mutual Legal Assistance Treaty: India- Poland](#), [Notices of Interpol](#)

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Note:

Reevaluating Obesity Metrics

The long-standing reliance on **Body Mass Index (BMI)** for diagnosing **obesity** is increasingly being questioned due to its **limitations**.

- BMI can **overestimate** obesity in **muscular individuals** like athletes and **underestimate** obesity in those with excessive fat but **low muscle mass**.
- **The Lancet** recommends using alternative metrics such as **waist circumference**, **waist-hip ratio**, and **waist-height ratio**, which consider **gender, age, and ethnicity** differences.
 - Obesity should be classified as **pre-clinical (no organ dysfunction)** and **clinical** (with **organ dysfunction** and activity impairment).
- **BMI** is a measure used to **assess** whether a person has a **healthy body weight** for a given **height**. It is calculated using a person's weight and height.
- **Obesity in India:** As per **The Lancet**, **70%** of India's **urban population** is classified as **obese or overweight**.
 - **India ranks 3rd**, just behind the **US and China**, in the list of top 10 countries with the **highest number** of obese individuals.
 - Obesity is a health condition caused by **excessive body fat**, diagnosed when **BMI is 30 or higher**.

Read More: [Growing Obesity in India](#)

Gaddi Dog

The **Indian Council of Agricultural Research-National Bureau of Animal Genetic Resources (ICAR-NBAGR)** has officially recognized the **Gaddi dog**, an indigenous breed from the Himalayan region.

- The Gaddi dog is the fourth indigenous **canine breed** to be registered, following the **Rajapalayam and Chippiparai** breeds of Tamil Nadu and the **Mudhol Hound** of Karnataka.
- The breed, named after the **Gaddi tribe** of Himachal Pradesh, is used to guard sheep and goats from predators and is nicknamed the '**Indian Panther Hound**' or '**Indian leopard Hound**' for its ability to fend off carnivores like the **Snow Leopard**.

- The Gaddi tribe of Himachal Pradesh is a **semi-nomadic community** traditionally involved in shepherding and wool processing.

- **Physical Features:** The Gaddi dog is known for its massive, arched neck and a robust muscular body, with a black coat and occasional white markings.
- **Population Decline:** The Gaddi dog, with a population under **1000**, is **facing extinction** due to **gene pool dilution** and lack of breeding programs.
- **Conservation Effort:** The recognition aims to help conserve the Gaddi breed, which is not yet acknowledged by major kennel clubs.

Read more: [Dholes](#)

Threats to Wild Bees

A study published in *journal Science*, has revealed that over **70% of wild bee species**, crucial for **pollination**, are at risk from pesticide residues in soil.

- **Key Finding of the Study:** Current **pesticide** risk assessments mainly focus on honey bees, ignoring the impact on wild bees that nest in the soil.
 - Pesticides like **cyantraniliprole** harm wild bees by reducing their survival and reproductive success, threatening future generations.
- **Importance of Bees:** Bees are vital for pollinating many food crops, contributing directly to food security. **A third of the world's food production depends on them** according to the **Food and Agriculture Organization (FAO)**.
 - Honey bees, living in large colonies, use **social detoxification strategies** (collective behaviors to manage toxins) to buffer pesticide impacts. Wild, solitary bees lack this protection and are more vulnerable to pesticide exposure.
- **Pollination:** It is the process of transferring pollen from the male part of a flower to the female part, which allows the plant to reproduce.
- **Pollinator Decline Impact:** The decline in wild bees populations due to habitat loss, pesticides, and climate change threatens plants that rely on bees for pollination, impacting global **food security**, **Beekeeping (or apiculture)** and biodiversity.

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Note:

INDIAN HONEY BEE

Apis cerana indica

Also known as the Asian Honey bee, they are frequently used in beekeeping for pollination.



GIANT ROCK BEE

Apis dorsata

The giant bees are the largest of all honey bee species in India and are highly effective pollinators.



NATIVE BEES OF INDIA

ASIAN DWARF BEE

Apis florea

The smallest of all indigenous bees, they are also known as the little bee.



STINGLESS BEE

Melipona sp. and Trigona sp.

Also known as dammer bees, they are able to penetrate flowers and extract honey with vitamins and minerals.



Read more: [World Bee Day](#)

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Note:

Gangasagar Mela

The annual **Gangasagar Mela** is being organised in **West Bengal** and the state government has introduced several initiatives to enhance the Gangasagar Mela experience, including:

- **Bandhan Initiative:** Pilgrims receive a **certificate in three languages**.
- **e-Anushandhan:** System for **accessing mela facilities**.
- **e-Parichay:** **QR code-enabled identity bands** to prevent missing persons.

Additionally, the state has been advocating for **“national mela” status** for the Gangasagar Mela for several years.

About Gangasagar Mela:

- Gangasagar Mela is an annual religious festival held on **Sagar Island, West Bengal**, at the confluence of the **Ganga** and **Bay of Bengal**.
- The **Ganga river**, originating from Gangotri, **completes its journey and merges** with the **Bay of Bengal**.
- The festival, which coincides with **Makar Sankranti**, involves rituals like taking a holy dip in the Ganga, offering **“Arghya”** to the Sun God, and performing **“Deepdan”** (lighting lamps) to seek liberation and spiritual upliftment.
- It is considered the **second-largest religious gathering in India after the Kumbh Mela**.
- The fair is historically mentioned in the **Mahabharata’s Vana Parva** and **Raghuvamsa (by Kalidasa)**, with evidence of the pilgrimage dating back to **1500–2000 BC**, and is associated with the sage **Kapilmuni** and the **Pala dynasty’s King Devapala**.

Read More: [Bangla for Classical Language, GangaSagar Mela for National Status](#)

Nag Mark 2 Anti-Tank Guided Missile

India successfully conducted field trials of the indigenously developed **Nag Mk 2 Anti-Tank Guided Missile (ATGM)** at **Pokhran Field Firing Range** in Rajasthan.

Nag Mk 2 Anti-Tank Guided Missile (ATGM)	
Developed By	Defence Research and Development Organisation (DRDO)
Type and Functionality	It is a third-generation, all-weather, fire-and-forget anti-tank guided missile with lock-on after launch capability , allowing it to autonomously track and engage targets.
Effectiveness	It is designed to neutralize modern armoured vehicles , including those with Explosive Reactive Armour (ERA) , using a tandem high-explosive anti-tank (HEAT) warhead for enhanced destructive power.
Range	7 to 10 kilometres . Its predecessor was the Nag Mark 1 (4 km range).
Attack Modes	It features a top-attack capability , targeting the vulnerable upper surface of armoured vehicles.
Launch Platform	<p>The Nag Mk-2 is launched from the NAMICA (Nag Missile Carrier) Version 2.</p> <ul style="list-style-type: none"> ➤ NAMICA is an anti-tank armored vehicle or tank destroyer vehicle used by the Indian Army to launch anti-tank missiles.

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Note:

TANK KILLERS

➤ Anti-tank guided missiles (ATGMs) are meant to destroy advancing enemy armoured units

➤ Range from shoulder-launched to larger tripod-mounted systems for infantry soldiers

➤ Army has a shocking 60% shortage in its 'authorised holding' of ATGMs

➤ Big operational gap, especially on the western front with Pakistan

➤ Army demanding 3rd-generation ATGMs with

night-fighting capabilities & higher range for a decade

➤ Defence Acquisitions Council in June 2009 gave nod for 8,356 ATGMs, 321 launchers & 15 simulators for ₹3,200 crore

➤ This included transfer of

technology to Bharat Dynamics for mass production

➤ Israeli company Rafael's Spike ATGM underwent trials in a single-vendor situation. Tender scrapped in late-2017

➤ Separate process to acquire Javelin ATGMs from US also didn't materialise



Infantry battalions making do with 2nd-Generation Milan (2 km) & Konkurs (4 km) ATGMs



Read More: [Anti-Tank Guided Missiles \(ATGM\)](#)

Data Embassies

India is in advanced talks to set up UAE's first data embassy in India, with the first potential data embassy expected in Andhra Pradesh.

- It will enable nations to store a copy of their sovereign data while retaining control over it.
 - It will ensure data continuity in cases of natural disasters or geopolitical unrest.
- India plans to create special strategic zones for data centres that will house sovereign data storage for multiple countries.

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Note:

- They will operate like **consular divisions**, with the embassy managing **privacy, access, and data handling**, while India hosts the infrastructure.
- **Estonia** was the **1st country** to store a digitized copy of its citizens' data in **Luxembourg**, after a **cyberattack** in **2007**.
- Countries can use these embassies to **localize data without** adhering to **foreign data regulations**.
- Setting up data embassies will boost India's **geopolitical credibility** as a stable region for data storage amid global instability.

Read More: [India as Global Hub For Data Centres](#)

Human Brain Implant by Neuralink

Elon Musk announced that a **3rd person** has received an implant from his **brain-computer interface company, Neuralink**, to connect the nervous system to machines.

- Neuralink plans to expand its trials with the **goal** of implanting the experimental devices in **20 to 30 more people in 2025**.

- **Brain-Computer Interface (BCI)**: BCI is a technology that allows **direct communication** between the **brain and external devices**, such as **computers or prosthetics**, bypassing traditional neuromuscular pathways like **nerves and muscles**.
 - BCIs use sensors to **detect brain activity**, translating it into commands that allow individuals to control **devices or interact** with the world using their thoughts.
- **Potential Applications**: Brain interfacing for conditions like **epilepsy, Parkinson's**, and **neurodegenerative diseases**.
 - Enabling control of **prosthetics and wheelchairs** through thought.
 - Restoring communication for **paralyzed individuals**.
 - Enhancing **VR/AR experiences** using thoughts.
- It is different from **brainware** that uses **brain organoids and microelectrodes** to create an "**organoid neural network (ONN)**" integrating **living brain tissue into computing**.
 - Brain organoids are **3D stem-cell-derived tissues** that **mimic human brain structure**.

Read More: [Neuralink's Blindsight Implant](#)



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Note: